2009-2012

JOINING OUR BUSINESSES AND SCHOOLS (JOBS) COMMISSION

MINUTES

ATTENDANCE

Committee: **Joint Legislative Joining Our Businesses and Schools (JOBS) Study Commission**

DATES / NAMES	10/12	10/13	11/18												
Lt. Gov. Walter Dalton, Chairman	✓	✓	✓												
Education Cabinet															
Howard Lee, Ex Officio Member	✓	–	-												
Senate Appointments															
Senator A. B. Swindell, Vice-Chair	✓	✓	✓												
Senator Tony Foriest	✓	–	–												
Senator Harry Brown	✓	✓	✓												
Mr. Robert Beichner	✓	✓	✓												
Mr. Swadesh Chatterjee	✓	–	–												
Mr. Mike Murphy	✓	✓	✓												
Ms. Felicia Gray Watson	✓	–	✓												
House Appointments															
Rep. Rick Glazier, Vice-Chair			–												
Rep. Van Braxton	✓	✓	–												
Rep. Doug Yongue	✓	✓	–												
Ms. Laura Carpenter Bingham	✓	✓	–												
Mr. Joseph Crocker	✓	-	✓												
Mr. Grant Godwin	✓	✓	✓												
Ms. Caroline Watts McCullen	✓	✓	✓												
Dr. Susan Purser	✓	✓	–												
Governor's Appointments															
Dr. William Harrison	-	✓	–												
Ms. Pamela Townsend	✓	✓	✓												
Staff															
Dr. Shirley Iorio	✓	✓	✓												
Ms. Kara McCraw	✓	✓	✓												
Ms. Bonnie McNeil, Comm. Asst.	✓	✓	✓												
JESSICA MACALUSO															
Sen Fletcher Hartsell			✓												

Joint Legislative Joining Our Businesses and Schools (JOBS)
Study Commission

2009-2010

Lt. Gov. Walter Dalton, Chair Hawkins-Hartness House 310 N. Blount St. Raleigh, NC 27603 (919) 733-7350 (919) 733-6595 fax lt.gov@nc.gov	The Hon. Howard Lee Office of the Governor NC Education Cabinet Mail Service Center 20301 Raleigh, NC 27699 (919) 733-3044 (919) 733-2120 (fax) Hlee@dpi.state.nc.us

Senate Appointments

Senator A.B. Swindell, Vice-Chair 629 Legislative Office Building 300 N. Salisbury Street Raleigh, NC 27603 (919) 715-3030 Ab.swindell@ncleg.net	Senator Tony Foriest 411 Legislative Office Building 300 N. Salisbury Street Raleigh, NC 27603 (919) 301-1446 Tony.foriest@ncleg.net
Senator Harry Brown 521 Legislative Office Building 300 N. Salisbury Street Raleigh, NC 27603 (919) 715-3034 Harry.brown@ncleg.net	Mr. Robert Beichner NCSU Box 8202 Raleigh, NC 27695 (919) 515-7226 beichner@ncsu.edu
Mr. [illegible] 100[illegible] Car[illegible] (91[illegible] (91[illegible] sch[illegible] Ms Valerie Lee 1828 Willow Oak Rd. Rocky mount NC 27834 Valerie@aol.com	Mr. Mike Murphy, Chair MCNC 200 White Springs Circle Raleigh, NC 27615 (919) 740-1030 (cell) MMurphy4@nc.rr.com
Ms. Felicia Gray Watson NC DPI 6359 Mail Service Center Raleigh, NC 27699 (919) 807-3892 fwatson@dpi.state.nc.us	

House Appointments

Representative Rick Glazier, Vice-Chair 2215 Legislative Building Raleigh, NC 27601 (919) 733-5601 Rick.glazier@ncleg.net	Representative Van Braxton 2219 Legislative Building Raleigh, NC 27601 (919) 715-3017 Van.braxton@ncleg.net
Representative Doug Yongue 2207 Legislative Building Raleigh, NC 27601 (919) 733-5821 Douglas.yongue@ncleg.net	Ms. Laura Carpenter Bingham, President Peace College 15 E. Peace Street Raleigh, NC 27604 (919) 508-2220 (919) 508-2327 lbingham@peace.edu
Mr. Joseph Crocker, Asst. Secretary Department of Commerce 301 N. Wilmington Street Raleigh, NC 27601 (919) 733-3447 (919) 733-8356 (fax) jcrocker@nccommerce.com	Mr. Grant Godwin, Vice President Martin Marietta 2700 Wycliff Road Raleigh, NC 27603 (919) 882-2300 Grant.godwin@martinnarietta.com
Ms. Caroline Watts McCullen SAS 100 SAS Campus Drive Cary, NC 27516 (919) 531-2869 Caroline.mccullen@sas.com	Dr. Susan Purser, Superintendent Moore County Schools PO Box 1180 Carthage, NC 28327 (910) 947-2976 cmcrae@ncmcs.org

Governor's Appointments

Dr. William Harrison, Chair NC State Board of Education 6302 Mail Service Center Raleigh, NC 27699-6302 (919) 807-3441 (919) 807-3445 wharrison@dpi.state.nc.us	Ms. Pamela Townsend, President AECOM 701 Corporate Center Drive Raleigh, NC 27607 (919) 452-7268 Pam.townsend@earthtech.com

Advisory Members

Mr. Fred Freddoso, CEO MCNC 3021 E. Cornwallis Road Research Triangle Park, NC 27709 (919) 248-8400 Joe@mcnc.org	Senator Fletcher Hartsell 518 Legislative Office Building 300 N. Salisbury Street Raleigh, NC 27603 (919) 733-7223 Fletcher.hartsell@ncleg.net
Dr. Sam Houston, CEO NC Science, Mathematics & Technology Education Center P.O. Box 13901 Research Triangle Park, NC 27709 (919) 991-5111	Mr. Karl Rectanus MCNC MCNC 3021 E. Cornwallis Road Research Triangle Park, NC 27709 (919) 248-1107 krectanus@mcnc.org

Staff

Dr. Shirley Iorio Research Division 545 Legislative Office Building Raleigh, NC 27603 (919) 733-2578 Shirley.iorio@ncleg.net	Ms. Kara McCraw Research Division 545 Legislative Office Building Raleigh, NC 27603 (919) 733-2578 Kara.mccraw@ncleg.net
Ms. Bonnie McNeil 314 Legislative Building Raleigh, NC 27603 (919) 733-5752 Bonnie.mcneil@ncleg.net	

Joint Legislative Joining Our Businesses and Schools (JOBS)
Study Commission

2009-2010

Lt. Gov. Walter Dalton, Chair Hawkins-Hartness House 310 N. Blount St. Raleigh, NC 27603 (919) 733-7350 (919) 733-6595 fax lt.gov@nc.gov	The Hon. Howard Lee Office of the Governor NC Education Cabinet Mail Service Center 20301 Raleigh, NC 27699 (919) 733-3044 (919) 733-2120 (fax) Hlee@dpi.state.nc.us

Senate Appointments

Senator A.B. Swindell, Vice-Chair 629 Legislative Office Building 300 N. Salisbury Street Raleigh, NC 27603 (919) 715-3030 Ab.swindell@ncleg.net	Senator Tony Foriest 411 Legislative Office Building 300 N. Salisbury Street Raleigh, NC 27603 (919) 301-1446 Tony.foriest@ncleg.net
Senator Harry Brown 521 Legislative Office Building 300 N. Salisbury Street Raleigh, NC 27603 (919) 715-3034 Harry.brown@ncleg.net	Mr. Robert Beichner NCSU Box 8202 Raleigh, NC 27695 (919) 515-7226 beichner@ncsu.edu
Mr. Swadesh Chatterjee 1000 Crescent Green, Suite 100 Cary, NC 27518 (919) 854-1175 (919) 345-5989 (cell) schat@ncrrbiz.com	Mr. Mike Murphy, Chair MCNC 200 White Springs Circle Raleigh, NC 27615 (919) 740-1030 (cell) MMurphy4@nc.rr.com
Ms. Felicia Gray Watson NC DPI 6359 Mail Service Center Raleigh, NC 27699 (919) 807-3892 fwatson@dpi.state.nc.us	

House Appointments

Representative Rick Glazier, Vice-Chair 2215 Legislative Building Raleigh, NC 27601 (919) 733-5601 Rick.glazier@ncleg.net	Representative Van Braxton 2219 Legislative Building Raleigh, NC 27601 (919) 715-3017 Van.braxton@ncleg.net
Representative Doug Yongue 2207 Legislative Building Raleigh, NC 27601 (919) 733-5821 Douglas.yongue@ncleg.net	Ms. Laura Carpenter Bingham, President Peace College 15 E. Peace Street Raleigh, NC 27604 (919) 508-2220 (919) 508-2327 lbingham@peace.edu
Mr. Joseph Crocker, Asst. Secretary Department of Commerce 301 N. Wilmington Street Raleigh, NC 27601 (919) 733-3447 (919) 733-8356 (fax) jcrocker@nccommerce.com	Mr. Grant Godwin, Vice President Martin Marietta 2700 Wycliff Road Raleigh, NC 27603 (919) 882-2300 Grant.godwin@martinnarietta.com
Ms. Caroline Watts McCullen SAS 100 SAS Campus Drive Cary, NC 27516 (919) 531-2869 Caroline.mccullen@sas.com	Dr. Susan Purser, Superintendent Moore County Schools PO Box 1180 Carthage, NC 28327 (910) 947-2976 cmcrae@ncmcs.org

Governor's Appointments

Dr. William Harrison, Chair NC State Board of Education 6302 Mail Service Center Raleigh, NC 27699-6302 (919) 807-3441 (919) 807-3445 wharrison@dpi.state.nc.us	Ms. Pamela Townsend, President AECOM 701 Corporate Center Drive Raleigh, NC 27607 (919) 452-7268 Pam.townsend@earthtech.com

Advisory Members

Mr. Fred Freddoso, CEO MCNC 3021 E. Cornwallis Road Research Triangle Park, NC 27709 (919) 248-8400 Joe@mcnc.org	Senator Fletcher Hartsell 518 Legislative Office Building 300 N. Salisbury Street Raleigh, NC 27603 (919) 733-7223 Fletcher.hartsell@ncleg.net
Dr. Sam Houston, CEO NC Science, Mathematics & Technology Education Center P.O. Box 13901 Research Triangle Park, NC 27709 (919) 991-5111	Mr. Karl Rectanus MCNC MCNC 3021 E. Cornwallis Road Research Triangle Park, NC 27709 (919) 248-1107 krectanus@mcnc.org

Staff

Dr. Shirley Iorio Research Division 545 Legislative Office Building Raleigh, NC 27603 (919) 733-2578 Shirley.iorio@ncleg.net	Ms. Kara McCraw Research Division 545 Legislative Office Building Raleigh, NC 27603 (919) 733-2578 Kara.mccraw@ncleg.net
Ms. Bonnie McNeil 314 Legislative Building Raleigh, NC 27603 (919) 733-5752 Bonnie.mcneil@ncleg.net	

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2003

SESSION LAW 2003-277
SENATE BILL 656

AN ACT TO ESTABLISH THE INNOVATIVE EDUCATION INITIATIVES ACT.

The General Assembly of North Carolina enacts:

SECTION 1. Chapter 116C of the General Statutes is amended by adding the following new section to read:

"**§ 116C-4. First in America Innovative Education Initiatives Act.**

(a) The General Assembly strongly endorses the Governor's goal of making North Carolina's system of education first in America by 2010. With that as the goal, the Education Cabinet shall set as a priority cooperative efforts between secondary schools and institutions of higher education so as to reduce the high school dropout rate, increase high school and college graduation rates, decrease the need for remediation in institutions of higher education, and raise certificate, associate, and bachelor degree completion rates. The Cabinet shall identify and support efforts that achieve the following purposes:

(1) Support cooperative innovative high school programs developed under Part 9 of Article 16 of Chapter 115C of the General Statutes.
(2) Improve high school completion rates and reduce high school dropout rates.
(3) Close the achievement gap.
(4) Create redesigned middle schools or high schools.
(5) Provide flexible, customized programs of learning for high school students who would benefit from accelerated, higher level coursework or early graduation.
(6) Establish high quality alternative learning programs.
(7) Establish a virtual high school.
(8) Implement other innovative education initiatives designed to advance the State's system of education.

(b) The Education Cabinet shall identify federal, State, and local funds that may be used to support these initiatives. In addition, the Cabinet is strongly encouraged to pursue private funds that could be used to support these initiatives.

(c) The Cabinet shall report by January 15, 2004, and annually thereafter, to the Joint Legislative Education Oversight Committee on its activities under this section. The annual reports may include recommendations for statutory changes needed to support cooperative innovative initiatives, including programs approved under Part 9 of Article 16 of Chapter 115C of the General Statutes."

SECTION 2. Article 16 of Chapter 115C of the General Statutes is amended by adding the following new Part to read:

"Part 9. Cooperative Innovative High School Programs.

"**§ 115C-238.50. Purpose.**

(a) The purpose of this Part is to authorize boards of trustees of community colleges and local boards of education to jointly establish cooperative innovative programs in high schools and community colleges that will expand students' opportunities for educational success through high quality instructional programming. These cooperative innovative high school programs shall target:

(1) High school students who are at risk of dropping out of school before attaining a high school diploma; or
(2) High school students who would benefit from accelerated academic instruction.

(b) All the cooperative innovative high school programs established under this Part shall:
(1) Prepare students adequately for future learning in the workforce or in an institution of higher education.
(2) Expand students' educational opportunities within the public school system.
(3) Be centered on the core academic standards represented by the college preparatory or tech prep program of study as defined by the State Board of Education.
(4) Encourage the cooperative or shared use of resources, personnel, and facilities between public schools and community colleges.
(5) Integrate and emphasize both academic and technical skills necessary for students to be successful in a more demanding and changing workplace.
(6) Emphasize parental involvement and provide consistent counseling, advising, and parent conferencing so that parents and students can make responsible decisions regarding course taking and can track the students' academic progress and success.
(7) Be held accountable for meeting measurable student achievement results.
(8) Encourage the use of different and innovative teaching methods.
(9) Establish joint institutional responsibility and accountability for support of students and their success.
(10) Effectively utilize existing funding sources for high school, community college, and vocational programs and actively pursue new funding from other sources.
(11) Develop methods for early identification of potential participating students in the middle grades and through high school.
(12) Reduce the percentage of students needing remedial courses upon their initial entry from high school into a college or university.

(c) Programs developed under this Part that target students who are at risk of dropping out of high school before attaining a high school diploma shall:
(1) Provide these students with the opportunity to graduate from high school possessing the core academic skills needed for postsecondary education and high-skilled employment.
(2) Enable students to complete a technical or academic program in a field that is in high demand and has high wages.
(3) Set and achieve goals that significantly reduce dropout rates and raise high school and community college retention, certification, and degree completion rates.
(4) Enable students who complete these programs to pass employer exams, if applicable.

(d) Cooperative innovative high school programs that offer accelerated learning programs shall:
(1) Provide a flexible, customized program of instruction for students who would benefit from accelerated, higher level coursework or early graduation from high school.
(2) Enable students to obtain a high school diploma in less than four years and begin or complete an associate degree program or to master a certificate or vocational program.

(3) Offer a college preparatory academic core and in-depth studies in a career or technical field that will lead to advanced programs or employment opportunities in engineering, health sciences, or teaching.

(e) Cooperative innovative high school programs may include the creation of a school within a school, a technical high school, or a high school or technical center located on the campus of a community college.

(f) Students are eligible to attend these programs as early as ninth grade.

"**§ 115C-238.51. Application process.**

(a) A local board of education and a local board of trustees of a community college shall jointly apply to establish a cooperative innovative high school program under this Part.

(b) The application shall contain at least the following information:

(1) A description of a program that implements the purposes in G.S. 115C-238.50.

(2) A statement of how the program relates to the Economic Vision Plan adopted for the economic development region in which the program is to be located.

(3) The facilities to be used by the program and the manner in which administrative services of the program are to be provided.

(4) A description of student academic and vocational achievement goals and the method of demonstrating that students have attained the skills and knowledge specified for those goals.

(5) A description of how the program will be operated, including budgeting, curriculum, transportation, and operating procedures.

(6) The process to be followed by the program to ensure parental involvement.

(7) The process by which students will be selected for and admitted to the program.

(8) A description of the funds that will be used and a proposed budget for the program. This description shall identify how the average daily membership (ADM) and full-time equivalent (FTE) students are counted.

(9) The qualifications required for individuals employed in the program.

(10) The number of students to be served.

(11) A description of how the program's effectiveness in meeting the purposes in G.S. 115C-238.50 will be measured.

(c) The application shall be submitted to the State Board of Education and the State Board of Community Colleges by November 1 of each year. The State Board of Education and the State Board of Community Colleges shall appoint a joint advisory committee to review the applications and to recommend to the State Boards those programs that meet the requirements of this Part and that achieve the purposes set out in G.S. 115C-238.50.

(d) The State Board of Education and the State Board of Community Colleges shall approve two cooperative innovative high school programs in each of the State's economic development regions. The State Boards may approve programs recommended by the joint advisory committee or may approve other programs that were not recommended. The State Boards shall approve all applications by March 15 of each year. No application shall be approved unless the State Boards find that the application meets the requirements set out in this Part and that granting the application would achieve the purposes set out in G.S. 115C-238.50. Priority shall be given to applications that are most likely to further State education policies, to address the economic development needs of the economic development regions in which they are located, and to strengthen the educational programs offered in the local school administrative units in which they are located.

"**§ 115C-238.52. Participation by other education partners.**

(a) Any or all of the following education partners may participate in the development of a cooperative innovative program under this Part that is targeted to high school students who would benefit from accelerated academic instruction:

(1) A constituent institution of The University of North Carolina.
(2) A private college or university located in North Carolina.
(3) A private business or organization.
(4) The county board of commissioners in the county in which the program is located.

(b) Any or all of the education partners listed in subsection (a) of this section that participate shall:

(1) Jointly apply with the local board of education and the local board of trustees of the community college to establish a cooperative innovative program under this Part.
(2) Be identified in the application.
(3) Sign the written agreement under G.S. 115C-238.53(b).

"**§ 115C-238.53. Program operation.**

(a) A program approved by the State shall be accountable to the local board of education.

(b) A program approved under this Part shall operate under the terms of a written agreement signed by the local board of education, local board of trustees of the community college, State Board of Education, and State Board of Community Colleges. The agreement shall incorporate the information provided in the application, as modified during the approval process, and any terms and conditions imposed on the program by the State Board of Education and the State Board of Community Colleges. The agreement may be for a term of no longer than five school years.

(c) A program may be operated in a facility owned or leased by the local board of education, the local board of trustees of the community college, or the education partner, if any.

(d) A program approved under this Part shall provide instruction each school year for at least 180 days during nine calendar months, shall comply with laws and policies relating to the education of students with disabilities, and shall comply with Article 27 of this Chapter.

(e) A program approved under this Part may use State, federal, and local funds allocated to the local school administrative unit, to the State Board of Community Colleges, and to the community college to implement the program. If there is an education partner and if it is a public body, the program may use State, federal, and local funds allocated to that body.

(f) Except as provided in this Part and pursuant to the terms of the agreement, a program is exempt from laws and rules applicable to a local board of education, a local school administrative unit, a community college, or a local board of trustees of a community college.

"**§ 115C-238.54. Funds for programs.**

(a) The Department of Public Instruction shall assign a school code for each program that is approved under this Part. All positions and other State and federal allotments that are generated for this program shall be assigned to that school code. Notwithstanding G.S. 115C-105.25, once funds are assigned to that school code, the local board of education may use these funds for the program and may transfer these funds between funding allotment categories.

(b) The local board of trustees of a community college may allocate State and federal funds for a program that is approved under this Part.

(c) An education partner under G.S. 115C-238.52 that is a public body may allocate State, federal, and local funds for a program that is approved under this Part.

(d) If not an education partner under G.S. 115C-238.52, a county board of commissioners in a county where a program is located may nevertheless appropriate funds to a program approved under this Part.

(e) The local board of education and the local board of trustees of the community college are strongly encouraged to seek funds from sources other than State, federal, and local appropriations. They are strongly encouraged to seek funds the Education Cabinet identifies or obtains under G.S. 116C-4.

"**§ 115C-238.55. Evaluation of programs.**

The State Board of Education and the State Board of Community Colleges shall evaluate the success of students in programs approved under this Part. Success shall be measured by high school retention rates, high school completion rates, high school dropout rates, certification and associate degree completion, admission to four-year institutions, postgraduation employment in career or study-related fields, and employer satisfaction of employees who participated in and graduated from the programs. Beginning October 15, 2005, and annually thereafter, the Boards shall jointly report to the Joint Legislative Education Oversight Committee on the evaluation of these programs. If, by October 15, 2006, the Boards determine any or all of these programs have been successful, they shall jointly develop a prototype plan for similar programs that could be expanded across the State. This plan shall be included in their report to the Joint Legislative Education Oversight Committee that is due by October 15, 2007.

"**§§ 115C-238.56 through 115C-238.59: Reserved for future codification purposes.**"

SECTION 3. Local school administrative units and the State Board of Education shall identify, strengthen, and adopt policies and procedures that encourage students to remain in high school rather than to drop out and that encourage all students to pursue a rigorous academic course of study. As part of this process, the State Board and the local school administrative units are encouraged to eliminate or revise any policies or procedures that discourage some students from completing high school or that discourage any student from pursuing a rigorous academic course of study. No later than March 1, 2004, local school administrative units shall report to the State Board of Education the policies they have identified, strengthened, adopted, and eliminated under this section. No later than April 15, 2004, the State Board shall report to the Joint Legislative Education Oversight Committee on these policies as well as on the policies the Board has identified, strengthened, adopted, and eliminated under this section.

SECTION 4. Nothing in this act shall be construed to obligate the General Assembly to make appropriations to implement this act.

SECTION 5. This act is effective when it becomes law.

In the General Assembly read three times and ratified this the 18th day of June, 2003.

s/ Beverly E. Perdue
President of the Senate

s/ Richard T. Morgan
Speaker of the House of Representatives

s/ Michael F. Easley
Governor

Approved 12:30 p.m. this 27th day of June, 2003

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2009

SESSION LAW 2009-339
SENATE BILL 1069

AN ACT TO ESTABLISH THE JOINT LEGISLATIVE JOINING OUR BUSINESSES AND SCHOOLS (JOBS) STUDY COMMISSION.

Whereas, the Innovative Education Initiatives Act became law in 2003; and

Whereas, as a result of this act, 52 Early and Middle College programs have been developed as a collaboration between the public schools, the community colleges, and private business; and

Whereas, these schools have generally evidenced a decrease in their dropout rates and, as a result, have won national awards; and

Whereas, North Carolina has seven identified economic development regions, each with its own challenges in today's changing and demanding job market; and

Whereas, North Carolina has numerous innovative public and private programs based in Science, Technology, Engineering, and Mathematics (STEM); and

Whereas, to be efficient with the taxpayers' dollars, to continue to increase the graduation rate, and to prepare our students for twenty-first century jobs, it would be beneficial to map these innovative education programs, including the development of additional Early and Middle College programs and STEM programs, and other public and private education programs that have instructional programs that prepare students to meet the particular employment and workforce preparation needs of the respective economic development regions. In addition, it would be beneficial to develop curriculum frameworks that reflect innovative design principles in some of these schools that would address both regional and statewide employment needs; and

Whereas, the United States Department of Education has identified 16 career clusters as a tool to connect career technical education (CTE) to education, workforce preparation, and economic development; and

Whereas, the North Carolina STEM Community Collaborative/MCNC is supporting the creation of a replicable community visioning process, engaging business, policy, education, and community stakeholders in mapping their local needs and producing a plan for sustainable, local education innovation based in science, technology, engineering, and mathematics; and

Whereas, it would be beneficial to position each region and the State to compete in the regional, national, and global economy by creating a joint legislative study commission to review the vision plans and overall needs of each economic development region as well as the overall needs of the State; and

Whereas, the Commission should advise the North Carolina Education Cabinet and specifically the Department of Public Instruction as they develop standard instructional programs for twenty-first century career paths in accordance with the Early and Middle College and STEM models and study the implementation of pilot programs in these respective regions that will best suit the potential of the region and better prepare students for the increased academic demands of a global economy; Now, therefore,

The General Assembly of North Carolina enacts:

SECTION 1. There is established the Joint Legislative JOBS (Joining Our Businesses and Schools) Study Commission (Commission).

SECTION 2.(a) The Commission shall consist of the following members:

(1) The Lieutenant Governor serving as the Chair.
(2) Two members appointed by the Governor.
(3) Eight members appointed by the President Pro Tempore of the Senate, to include:

a. Three members of the Senate, with one designated to serve as a vice-chair.
b. A representative of The University of North Carolina.
c. A representative of the Department of Public Instruction.
d. A representative of North Carolina's business and industry.
e. A public school teacher.
f. An individual with expertise in STEM education.

(4) Eight members appointed by the Speaker of the House of Representatives, to include:
a. Three members of the House of Representatives, with one designated to serve as a vice-chair.
b. A representative of the Community College System.
c. A representative of the Independent Colleges and Universities.
d. A representative of the Department of Commerce.
e. A representative of North Carolina's business and industry.
f. A representative of North Carolina's school superintendents.

(5) The Executive Director of the Education Cabinet or the Executive Director's designee, serving ex officio.

SECTION 2.(b) Members of the Commission shall serve a three-year term, beginning on July 1, 2009. The terms for members of the House of Representatives or the Senate shall end upon the expiration of the members' legislative term.

SECTION 2.(c) Members shall serve at the pleasure of the appointing authority. Vacancies on the Commission shall be filled by the same appointing authority who made the initial appointment.

SECTION 2.(d) A vice-chair shall serve as Chair in the absence of the Chair.

SECTION 3.(a) The Commission shall study issues related to economic development through innovative schools where instructional program frameworks reflect the high academic standards required of students to be successful as they transition to postsecondary education and future careers, including:

(1) Technical and vocational needs of each economic development region;
(2) Employment and workforce preparation needs of the State as a whole;
(3) The economic vision plans for each economic development region;
(4) The shortage of highly skilled employees such as technicians, teachers, allied health practitioners, including, but not limited to, nurses and doctors, scientists, and engineers;
(5) The 16 career clusters identified by the United States Department of Education as well as additional career paths;
(6) The development of a framework for assessment of readiness of a community or region to support twenty-first century economic demands of business and industry development and the scaling of innovative local programs to impact broader numbers of individuals in communities around the State; and
(7) Any other matter pertinent to connecting career technical education to education, workforce preparation, and economic development through innovative schools.

SECTION 3.(b) The Chair shall appoint from the Commission's membership a North Carolina STEM Community Collaborative Advisory Committee (Community Collaborative) to ensure that the efforts of the Commission and the Community Collaborative are aligned and that the Commission is informed of the Community Collaborative's activities and that the Community Collaborative is informed of the Commission's activities.

SECTION 4. The Commission shall prioritize and customize the career clusters and identify additional career paths and report its recommendations to the State Board of Education. The Commission shall (i) advise the North Carolina Education Cabinet and specifically the Department of Public Instruction as they develop, incrementally, standard instructional programs for career clusters and their corresponding career paths in accordance with the Early and Middle College model, and (ii) study the implementation of pilot programs in the seven economic development regions of the State that will best suit the needs of the regions and prepare students for the increased academic demands of a global economy.

SECTION 5. The Commission shall also study issues related to economic growth by the creation of measures and metrics which define the readiness of a community to deliver to all stakeholders the services that equip the workforce to be competitive in a STEM-intensive economy, including ensuring that students throughout the education pipeline gain the skills learned from science, technology, engineering, math, and other rigorous subjects. As a part of its study, the Commission may examine issues related to:

(1) A replicable and perpetual model for aligning efforts of local business, industry, policy, and education stakeholders in community engagement for visioning student-centered learning;

(2) The documentation and study of the innovative education programs critical for communities to be competitive in the STEM environment in the twenty-first century;

(3) A framework to network these economic development regions, aligning State, regional, and external investment in replicable innovation;

(4) Opportunities to leverage existing research, programs such as the College Foundation of North Carolina Bridges program, and other resources to maximize the impact of these existing resources and assets to avoid duplication, to achieve greater economies of scale, and to broaden the impact of these efforts by the most cost-effective means possible; and

(5) Any other topics deemed relevant by the Commission.

SECTION 6.(a) The Commission shall, within the first eight months of its creation, meet at least once in each economic development region. The Commission may use any and all appropriate technology to enhance participation in its meetings and to reduce the costs incurred by the Commission. The Chair may appoint a volunteer advisory committee in each economic development region to assist the Commission in its work.

SECTION 6.(b) The Commission shall work closely with the business community across the State and shall encourage businesses and business leaders to partner with the Commission on the work of the Commission and to establish public-private partnerships with the pilot schools.

SECTION 6.(c) The University of North Carolina shall inform the Commission on the work of its constituent institutions on the elementary and middle school fundamental building blocks for secondary STEM success. This work should be a consideration for all communities which engage in visioning student-centered learning. The Commission shall also be informed by The University of North Carolina on its North Carolina STEM program inventory and how to make this inventory available to communities which engage in visioning student-centered learning.

SECTION 7. The Commission shall meet upon the call of the Chair. A quorum of the Commission shall be a majority of its members. The Legislative Services Commission shall grant adequate meeting space to the Commission in the State Legislative Building or the Legislative Office Building. G.S. 120-19 applies to requests made on behalf of the Commission.

SECTION 8.(a) The expenses of the Commission shall be paid by the Legislative Services Commission from available funds appropriated to the General Assembly. The Legislative Services Commission may accept grants on behalf of the State to be used to help defray the expenses of the Commission. Any application and receipt of grants under this section shall be subject to the requirements of Chapters 120C and 138A of the General Statutes, and Article 14 of Chapter 120 of the General Statutes. Reasonable expenses of the Commission may include the cost of travel on a learning tour of innovative schools both inside and out of the State. Any grants funds received under this section shall be held by the General Assembly in a non-reverting special fund known as the JOBS Commission Fund to be administered by the Legislative Services Commission for expenses of the Commission. Any funds remaining in the JOBS Commission Fund shall transfer to the reserves of the General Assembly upon termination of the Commission.

SECTION 8.(b) Members of the Commission shall receive per diem, subsistence, and travel allowances in accordance with G.S. 120-3.1, 138-5, or 138-6, as appropriate. Individual expenses of five thousand dollars ($5,000) or less, including per diem, travel, and subsistence expenses of members of the Commission, shall be paid upon authorization of the Chair of the Commission. Individual expenses in excess of five thousand dollars ($5,000) shall

be paid upon written approval of the President Pro Tempore of the Senate and the Speaker of the House of Representatives.

SECTION 8.(c) With approval of the Legislative Services Commission, the Legislative Services Officer shall assign professional and clerical staff to assist the Commission in its work during the interims between legislative sessions. The Directors of Legislative Assistants of the House of Representatives and the Senate shall assign clerical staff to the Commission. The Commission may contract for additional professional or consultant services in accordance with G.S. 120-32.02.

SECTION 9.(a) The Commission shall make an initial report of the results of its study to the State Board of Education by March 1, 2010. In its report, the Commission shall recommend at least four of the 16 career clusters identified by the United States Department of Education that will best and most broadly serve the immediate employment and workforce preparation needs of the State and the respective regions. Upon consideration of the recommendations of the Commission, the State Board of Education, in consultation with the Department of Public Instruction, shall develop the instructional programs for at least four career clusters and shall implement at least one JOBS Early or Middle College in each of the economic development regions beginning with the 2010-2011 school year where feasible, and in all other regions by the 2011-2012 school year.

SECTION 9.(b) The Commission may make recommendations resulting from its study to the State Board of Education and the Department of Public Instruction from time to time in its discretion.

SECTION 9.(c) The Commission shall monitor the implementation of its recommendations to the State Board of Education and the Department of Public Instruction and shall report and recommend to the General Assembly any legislation necessary to implement its recommendations.

SECTION 9.(d) The Commission shall make an interim report of the results of its study and its recommendations, including any proposed legislation, to the Joint Legislative Education Oversight Committee and the 2010 Regular Session of the 2009 General Assembly no later than May 15, 2010, and to the Joint Legislative Education Oversight Committee and the 2011 Regular Session of the 2011 General Assembly no later than February 1, 2011, and a final report to the Joint Legislative Education Oversight Committee and the 2012 Regular Session of the 2011 General Assembly no later than May 15, 2012. The Commission shall file a copy of each Commission report with the President Pro Tempore of the Senate's office, the Speaker of the House of Representatives' office, and the Legislative Library.

SECTION 10. The Commission shall terminate on June 30, 2012, or upon the filing of its final report in accordance with Section 9.(d) of this act.

SECTION 11. This act is effective when it becomes law.

In the General Assembly read three times and ratified this the 15th day of July, 2009.

s/ Walter H. Dalton
President of the Senate

s/ Joe Hackney
Speaker of the House of Representatives

s/ Beverly E. Perdue
Governor

Approved 10:00 a.m. this 24th day of July, 2009

Joining Our Business & Schools (JOBS) Commission Meeting

AGENDA

October 12, 2009

Room 544 Legislative Office Building

9:30 am - Opening Remarks

10:00 am - Background Information – Dr. Shirley Iorio, Committee Analyst & Kara McCraw, Committee Counsel

- Presentation of the 2003 Innovative Education Initiatives Act
- Presentation on Early Colleges
- Presentation of the JOBS Commission bill (SL 2009-339)

10:45 am – Real World Examples

- Justin Harmon and Martynez White, students / Sharon Tann, Guidance Counselor & Kezia Lee, Math Teacher - Bertie Science, Technology, Engineering and Mathematics High School
- Teresa Pierre , Principal - Wake Early College of Health and Sciences

11:45 am – Superintendent June Atkinson – Career-Ready Commission

12:05 pm – Lunch

12:50 pm - Felicia Gray-Watson - Interim Section Chief CTE Support Services Career and Technical Education, NC Department of Public Instruction

1:20 pm – Lew Ebert – President, NC Chamber

1:50 pm – Break

2:00 pm – John Chaffee – President & CEO, North Carolina's Eastern Region

2:30 pm – Dr. R. Scott Ralls – President, North Carolina Community College System

3:00 pm – Questions & Answers

STEM IS THE FUTURE

By: Martynez White
&
Justin Harmon

Background Info

In the year of 2007, the Bertie STEM High School was established. The school was put in the hands of our Principal, Glenwood Mitchell. In the school's first year, approximately 60 students enrolled. Since then this school has changed the lives of many students who are attending.

OPEN MINDS.

My name is Martynez White. I am currently a student at the Bertie STEM High School. I've been attending this school since my freshman year. At first I was a little skeptical about signing up, but after Mr. Mitchell promised every parent that he would help their child get accepted into a college of their choosing, I knew I couldn't refuse. Since that first day when I walked through those school doors, I've never thought about turning back. STEM School has given me numerous opportunities that I never thought would knock on my door.

OPEN MINDS:

My name is Justin Harmon. I am currently a student a Bertie STEM High School. I've also been attending STEM since my freshman year. STEM School has helped me develop a better attitude towards my studies. Being a student at this school also comes with great benefits that are essential in helping me prepare for college.

STEM + STUDENTS

=

NEW OPPORTUNITES

STEM School is not your average High School. This school provides a different learning environment for the students as well as the teachers. The classes are broken down into smaller settings, so that each student will have the opportunity to work one-on-one with the teacher. Working in groups also plays an important role in STEM School. It prepares the students for real life situations when working with others to complete a task on your job.

Comments By:

Math Teacher- Ms. Kezia Lee

Guidance Counselor- Ms. Sharon Tann

Our Mission

Wake Early College of Health and Sciences provides educational and work-based learning opportunities for students who will graduate ready to pursue a career in a health sciences field.

Wake Early College of Health and Sciences

An Overview

- Unique partnership of a K-12 public school system, a community college and a major health care provider
- Located on the campuses of Wake Technical Community College: Health Sciences Campus and North Campus
- Access to WakeMed Health and Hospitals New Bern Avenue Campus
- 5-year program providing students the opportunity to earn a high school diploma, an Associate's Degree and/or pre-curricular courses in allied health fields

Wake Early College of Health and Sciences

Earning College Credits

- Student Enrollment: 215 students
  - 40% of incoming freshmen are first generation college students
  - First class of seniors – 53
    - 20 have earned a high school diploma AND Associate's Degree in 4 years; others will exit with significant college credit or choose to remain for year 5
- All students have access to Wake Technical Community College courses as early as their freshman year

Wake Early College of Health and Sciences

~ 652 free college credits earned through 2008-09

- Approximate value of $60,000 in tuition and fees over 3 years

Career Development Opportunities

- Program that begins during Freshman Year
- Wake Technical Community College
  - Speakers from the health and sciences professions
  - Mentors to assist students in selecting allied health programs and success in college
  - Access to science and health science labs
  - Advisor to guide students in admissions to allied health programs

Wake Early College of Health and Sciences

WAKE TECH COMMUNITY COLLEGE
College for the Real World

Career Development Opportunities

- WakeMed Health and Hospitals
  - Speakers' Bureau of health care professionals
  - Mentors to assist students in career choices
  - Volunteer experiences in diverse areas of health care
  - Job Shadowing sites
  - Awareness training in CPR
  - Health Sciences Career Fair for Freshmen
  - Four-week Summer Internships

Wake Early College of Health and Sciences

WakeMed
WakeMed Health & Hospitals
the power to heal, a passion for care.

Career Development Opportunities

- Accomplishments
  - 20% of WECHS students have a mentor
  - 18% of WECHS students have participated in a job shadowing experience
  - 12% of WECHS students have participated in a volunteer experience
  - 11 students had competed and earned a paid summer internship
  - 64 Health Care professionals have volunteered
  - 60 Health Care professionals have made presentations

Wake Early College of Health and Sciences

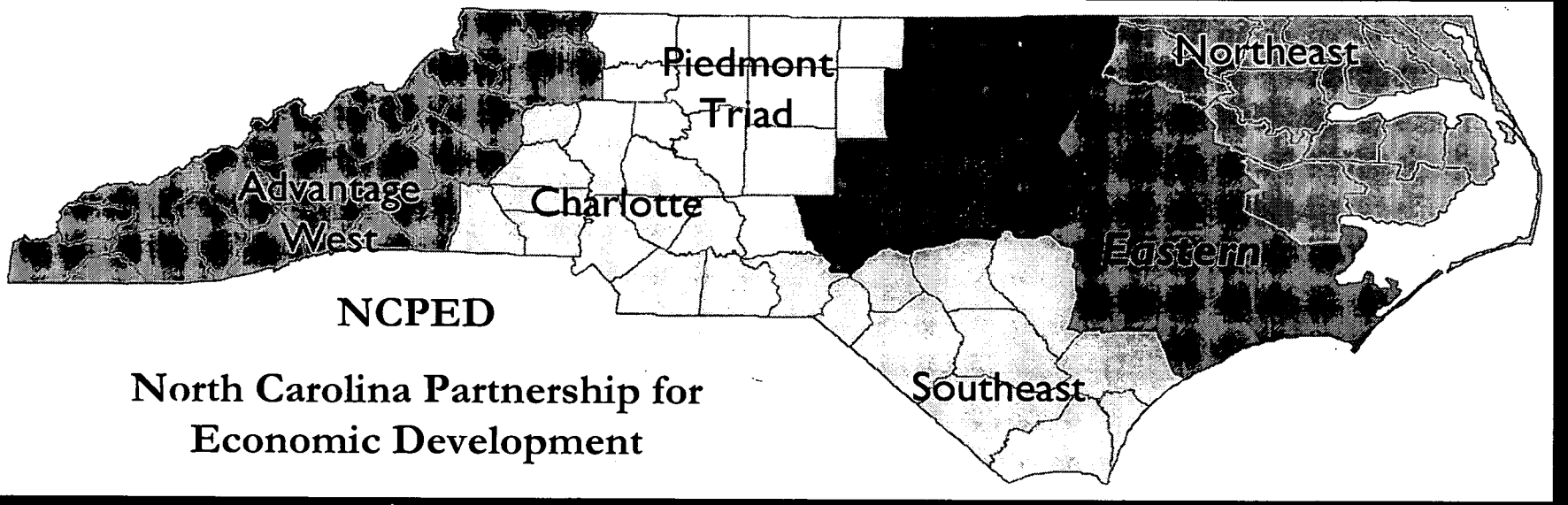
WakeMed
WakeMed Health & Hospitals
the power to heal, a passion for care.

#7

Regionalism
and
North Carolina Partnership for Economic Development (NCPED)

Road to Regionalism and NCPED

1990 – 1993	Charlotte, RTP, and Piedmont Triad Establish sub-regional groups
1993	NC General Assembly Legislation creates GTP Development Commission
1994	Based on their success NC General Assembly creates 7 statewide economic development regions
1997	North Carolina Partnership for Economic Development NCPED – 501(c)(3) established



NCPED

North Carolina Partnership for Economic Development

Each Region is Unique

	Counties	Type of Organization	Borders	Geography
Advantage West	23	Commission	VA, GA, TN and Regional	Mountain
Charlotte	12	501c(6)	SC and Regional	Piedmont
NC Eastern	13	Municipal Government	Regional	Coastal Plain
NC Northeast	16	State Commission	VA and Regional	Coastal Plain
NC Southeast	11	State Commission	SC and Regional	Coastal Plain and Sandhills
Piedmont Triad	12	501c(6)	VA and Regional	Piedmont
RTP	13	501c(6)	VA and Regional	Piedmont

With One Important Common Thread

Flexibility and nose-to-nose proximity that enables them to understand and meet the unique needs of their constituents.

And the underlying premise is:

One size fits all is NOT an option.

North Carolina Partnership for Economic Development

- Encompasses seven regions*
- Non-profit 501 (c) (3)
- Strong partner of North Carolina Department of Commerce
- Support agent for county developers
- Collective governance includes representation from almost every county in the state

*NC Department of Commerce has observer status

Strategic Visioning Trail

2001	Harvard Clusters of Innovation Study (Atlanta, Pittsburgh, RTRP, San Diego, Wichita)
2003	RTRP Competitiveness Plan (Vision)
2003	RTRP Vision submitted to General Assembly
2004	NC HB 1414, Directs/Funds Strategic Visioning Process in remaining six regions (RTRP funding applies to implementation)
2005	General Assembly appropriates funds for vision implementation

Partnering with NC Department of Commerce

- Planning/Policy
  (Quarterly and Monthly Meetings)
- Marketing Coordination
  (Bi-Monthly Meeting)
- Research Council
  (Quarterly)
- Uniform Performance Standards Development
- Joint Financial Support of Major Events
  (SEUS-Japan/Raleigh, IAMC/Asheville)
- Joint European Lead Generation
  (UK, Benelux, Germany, Italy)
- Joint Brazil Marketing/Lead Development Project

Region to Region Collaboration

- Certified Sites Program
  (Advantage West➡ NCER➡ NCDOC)
- NCER and PTRP Speed News Aero Conference
- NCER and NCNE Wired Grant Proposal
- NCNE, NCER, and NCSE Heritage Hwy. Designation
- NCER and NCNE Regional Tourism Summit
- NCER, NCNE and NCSE Energy Forum

North Carolina
Partnership for Economic Development

"Statewide Consistency, Regional Flexibility"

www.ncped.com

John D. Chaffee
President & CEO
North Carolina's Eastern Region
PH: 252-522-2400
Email: chaffee@nceast.org

North Carolina Career Clusters

Jobs Study Commission

Patricia Gray Watson

October 9, 2009

PUBLIC SCHOOLS OF NORTH CAROLINA
State Board of Education | Department of Public Instruction

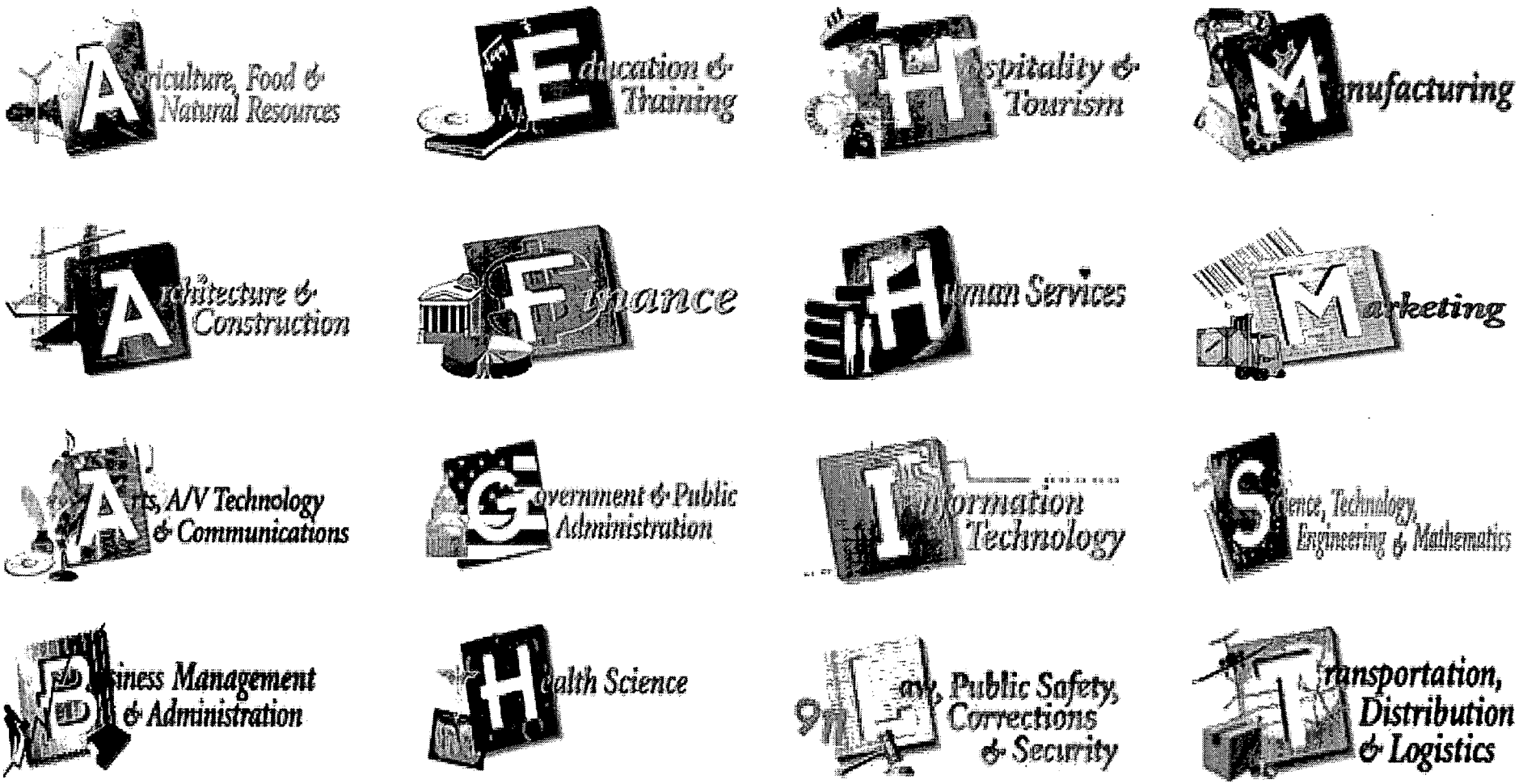
8

What are Career Clusters?

Broad groupings of occupations and industries:

- Common set of knowledge and skills
- Pathways
- Programs of Study
- Plan of Study

Sixteen Career Clusters



How Were Career Clusters Developed?

- U.S. Department of Education
- National Association of State Directors of CTE
- Cluster Leaders
- National Advisory Committees
- State Consultants

Why Career Clusters?

- Career Development
- Future Ready Core Graduation
- Carl D Perkins Act 2006

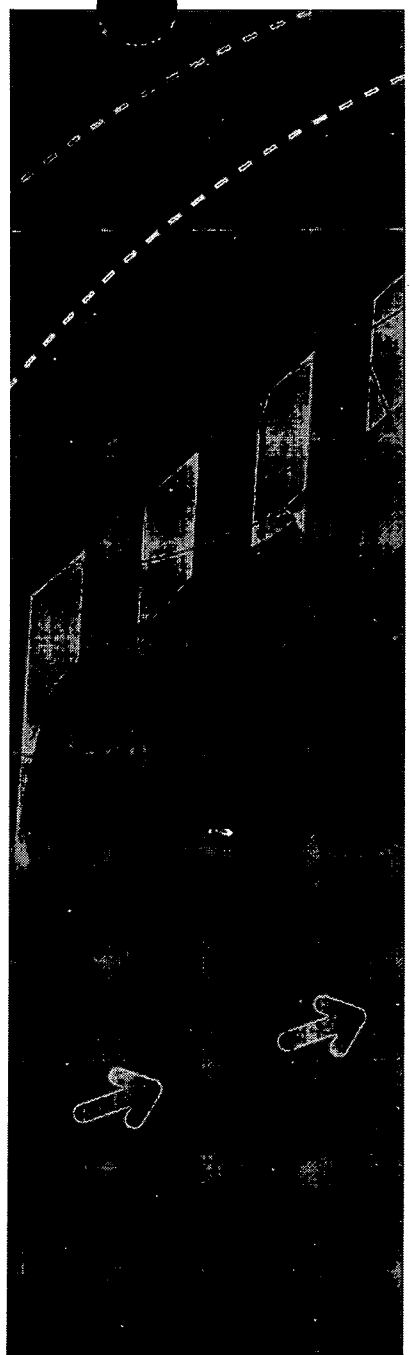
Who Benefits from Career Clusters?

- Students
- Parents
- Secondary Faculty
- Colleges/Universities
- Business/Industry

Vocational Education vs.

Career and Technical Education

Vocational Education "Then"	Career and Technical Education "Now"
For ***Some*** Students	For ***All*** Students
For a Few ***Jobs***	For All ***Careers***
6 to 7 "Program Areas"	16 Clusters – 79 Pathways
In Lieu of Academics	Aligns and Supports Academics
High School Focused	High School and College Partnerships

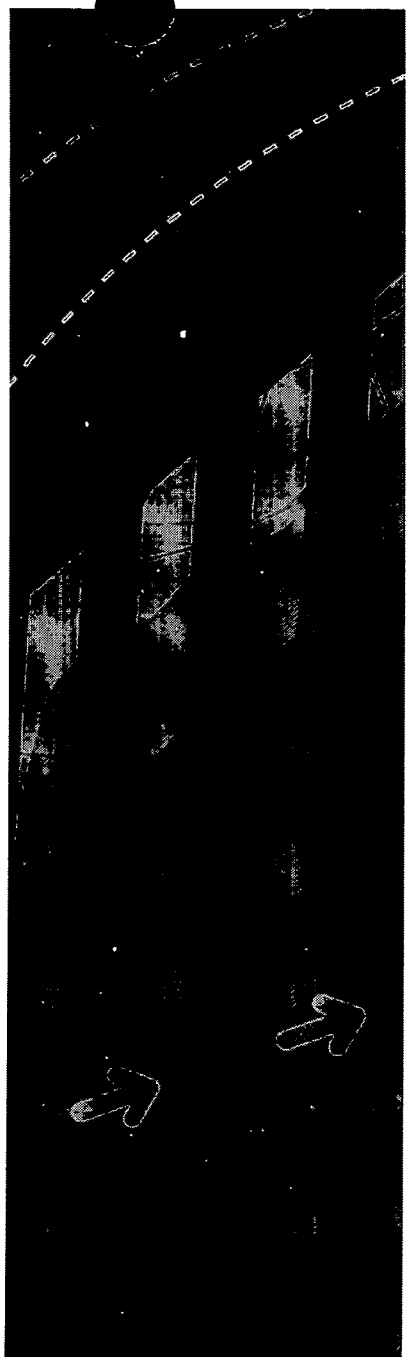


Did You Know?

879,535 students enrolled in NC CTE

86.5% of NC CTE concentrators graduate

76.7% of NC CTE concentrators pursue further education or training



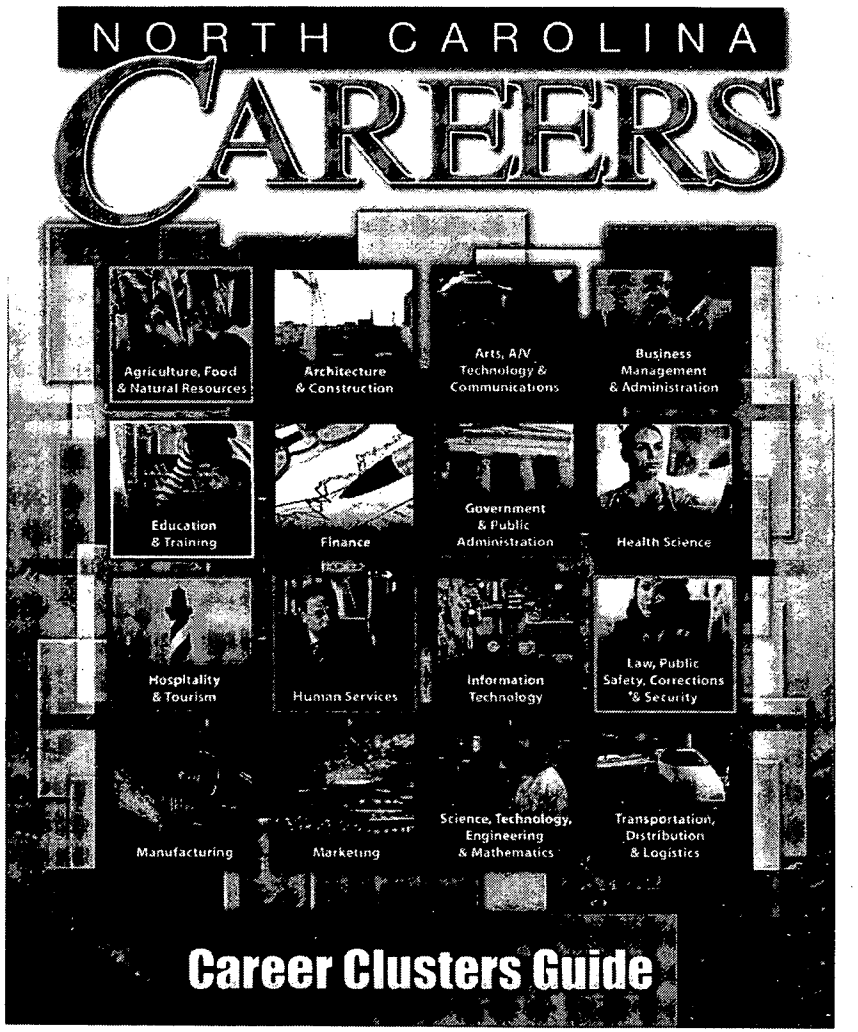
Career Clusters and North Carolina Economic Development

CAREER AND TECHNICAL EDUCATION

Employment Trends in North Carolina
Employment by Career Cluster in 2006 and Projected to 2016

Career Cluster	Total Employment 2006	Total Employment 2016	10-yr Change
Agriculture, Food and Natural Resources	137,620	140,990	3,370
Architecture and Construction	351,980	432,720	80,740
Arts, A/V Technology and Communications	52,070	55,450	3,380
Business Management and Administration	678,070	763,200	85,130
Education and Training	265,470	327,560	62,090
Finance	103,310	121,270	17,960
Government and Public Administration	47,730	51,970	4,240
Health Science	340,240	449,140	108,900
Hospitality and Tourism	488,140	594,110	105,970
Human Services	159,440	213,290	53,850
Information Technology	93,200	116,150	22,950
Law, Public Safety, Corrections and Security	126,170	153,200	27,030
Manufacturing	490,820	470,140	-20,680
Marketing	541,930	617,780	75,850
Science, Technology, Engineering and Mathematics	64,760	75,590	10,830
Transportation, Distribution and Logistics	384,710	421,610	36,900

Newly Released…



North Carolina Career Clusters Guide

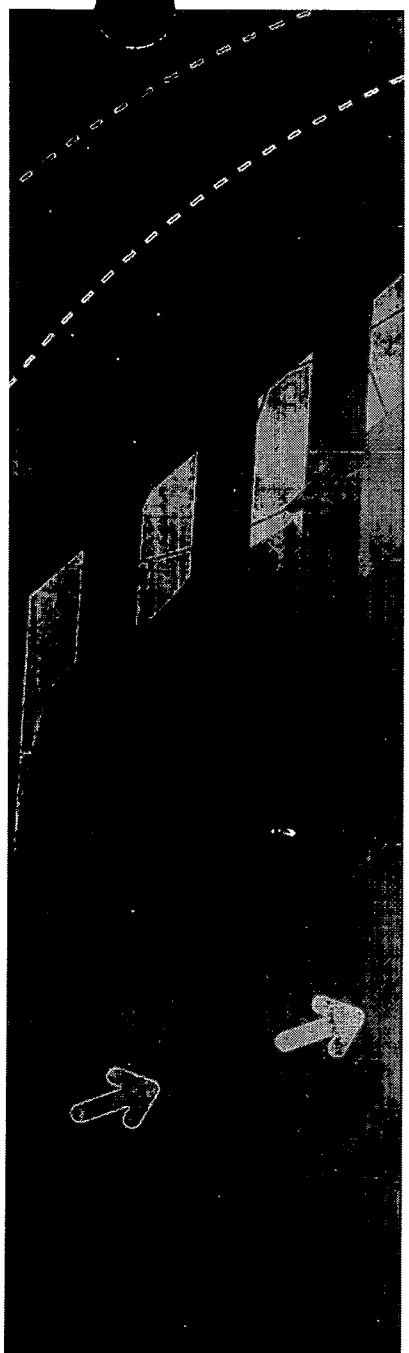
Collaborative Effort

- NC Department of Public Instruction
- NC Community College System

Career Clusters Guide

North Carolina focus:

- Career Clusters and Pathway Charts
- Employment Data
- Career Spotlights



Career Clusters Guide Contents

- Interest Inventory
- Feature Articles
- Graduation Requirements
- Sample Career Cluster Plan of Study
- CTE Student Organizations (CTSOs)

Resources

States' Career Clusters

www.careerclusters.org

NC Career Clusters Guide

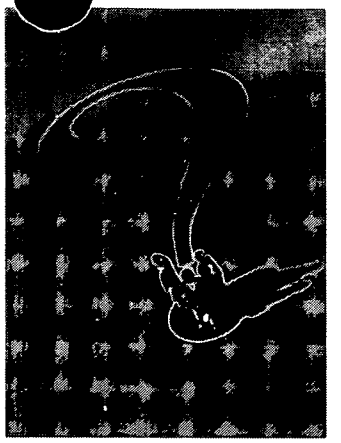
www.ncpublicschools.org/docs/cte/publications/career/nc-career-clusters-guide.pdf

NC Career Outlook Handbook

www.ncpublicschools.org/docs/cte/publications/career/career-handbook.pdf

National Alliance for Partnership in Equity (NAPE)

www.napequity.org



Felicia Gray-Watson, M.Ed.

Interim Section Chief
CTE Support Services

E-mail: fwatson@dpi.state.nc.us
Phone: 919.807.3892

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. Oct. 12, 2009

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
Cam Crew	BPMHC
[illegible]	Ed. Consultant
[illegible]	Public School Forum
Conor Brockett	NCSBA
Tricia Willoughby	NCBCE
Danice Baum	K+L Gates
[illegible]	NC Chamber
Donald Barringer	Office of the Governor
Dawn Shepard Page	NC Association of Educators
Betsy Bailey	Professional Engineers of NC

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. Oct. 12, 2009

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
Teresa Pierre	Wake Early College of Health & Sciences 2901 Holston Lane Raleigh, NC 27609
Justin Harmon	Bertie stem high school
Martynez White	Bertie STEM High School
Sharon Tann	Bertie STEM High School
Kezia Lee	Bertie STEM High School

Joining Our Business & Schools (JOBS) Commission Meeting

AGENDA

October 13, 2009

Room 544 Legislative Office Building

8:30 am – Coffee

9:00 am - Joe Freddoso - President & CEO, MCNC
Karl Rectanus - Director, NC STEM Community Collaborative

9:45 am – Dr. Tony Habit – President, New Schools Project

10:15 am – Wrap Up / Commission Charge – Lt. Governor Walter Dalton

10:45 am – Questions and Answers

Adjourn

NC STEM COMMUNITY COLLABORATIVE

MCNC

JOBS Commission
NC STEM Advisory Panel

[illegible]
President & CEO
MCNC

Karl Rectenwald
Leader
NC STEM Community Collaborative

October 8, 2009

Roster in Numbers.

NC STEM Advisory Panel Agenda

- History & Goals of NC STEM
- Network of STEM Communities
- Community Visioning & Design Process (CVP)
- Role of the JOBS Commission
  - Legislation
  - Activities

NC STEM COMMUNITY COLLABORATIVE

NC STEM Community Collaborative Mission

- North Carolina communities and their youngsters
- STEM education relevance to the local economy
- Structured design process
- Rigorous, experiential academics
- Effective measurement of engagement & outcomes

NC STEM COMMUNITY COLLABORATIVE

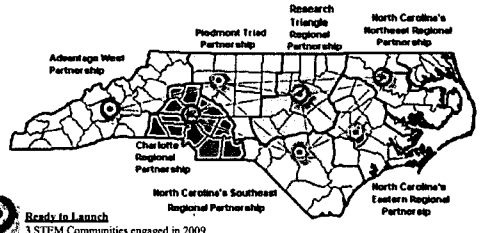
NC STEM & Partner Research

- 500 North Carolina leaders from every sector
- Existing research from higher education and private foundations (incl. University of North Carolina Tomorrow, Economic Visions, Education Research)
- Analysis of 6 other states with STEM initiatives

NC STEM Community Collaborative

- Partnership with Bill & Melinda Gates Foundation, MCNC, STEM Communities, and Institutions
- Connects Local Community Networks with STEM Resources and other Networks through research-based systems-designed Community Collaborative Visioning Process (CVP)
- STEM Community Design Teams in CVP create a locally-sustainable Education Innovation Design Plan, focused on student-centered STEM education tied to economic needs of the region and state.
- 2009 STEM Communities: Davie County Region, Lenoir County Region, and BRAC Region (11 Counties)

Building a Network of STEM Communities



Ready to Launch
3 STEM Communities engaged in 2009

Emerging/Incubating Communities
Future STEM Communities being identified

NC STEM & Partner Research

Too often, dynamics, structure & solutions are:

- Siloed
- One-size-fits-all
- Under Communicated
- Unconnected
- Not locally relevant
- Unfunded

NC STEM COMMUNITY COLLABORATIVE

NC STEM & Partner Research

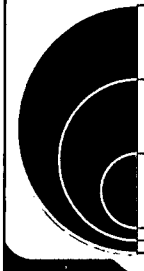
For a stronger base, community engagement can:

- Budget Sustainably
- Local Advocacy
- Local Economic Relevance
- Political Will
- Real World Examples
- Advise Leadership
- Leverage Local, State & National Investments from Public and Private Sources

NC STEM COMMUNITY COLLABORATIVE

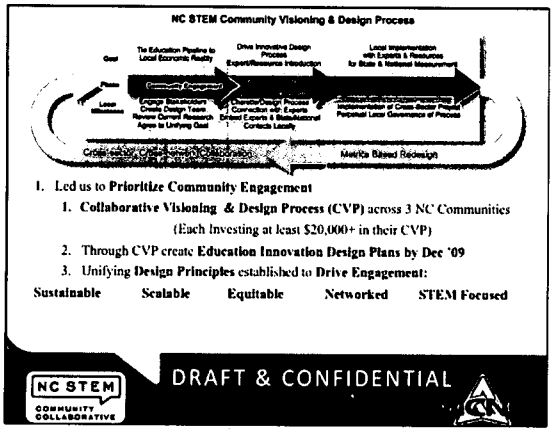
NC STEM & Partner Research–Key Findings

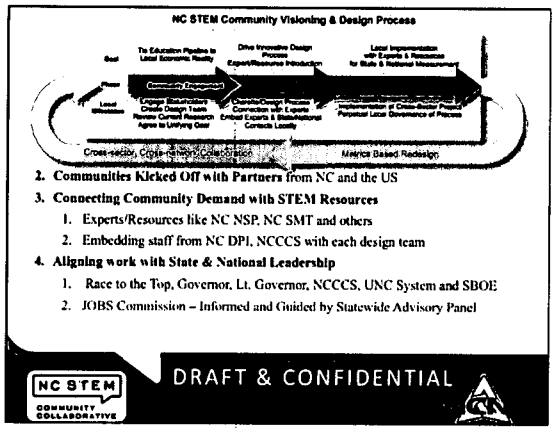
- Three Key Networks for Consideration:

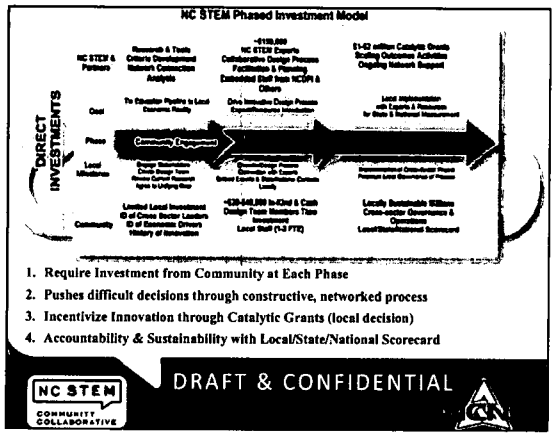


State & National Leadership	• Every Sector • Broad Footprint • Sustainable & Scalable
Experts & Resources	• Specific Core Competency • Limited Visibility • Preservation & Spread
Community Stakeholders	• Responsible for Results • Under Empowered • Day to Day Operations

NC STEM COMMUNITY COLLABORATIVE


NC STEM Community Visioning & Design Process
Metrics Based Redesign
1. Led us to Prioritize Community Engagement
1. Collaborative Visioning & Design Process (CVP) across 3 NC Communities
(Each Investing at least $20,000+ in their CVP)
2. Through CVP create Education Innovation Design Plans by Dec '09
3. Unifying Design Principles established to Drive Engagement:
Sustainable Scalable Equitable Networked STEM Focused
NC STEM
COMMUNITY COLLABORATIVE
DRAFT & CONFIDENTIAL


NC STEM Community Visioning & Design Process
Metrics Based Redesign
2. Communities Kicked Off with Partners from NC and the US
3. Connecting Community Demand with STEM Resources
1. Experts/Resources like NC NSP, NC SMT and others
2. Embedding staff from NC DPI, NCCCS with each design team
4. Aligning work with State & National Leadership
1. Race to the Top, Governor, Lt. Governor, NCCCS, UNC System and SBOE
2. JOBS Commission – Informed and Guided by Statewide Advisory Panel
NC STEM
COMMUNITY COLLABORATIVE
DRAFT & CONFIDENTIAL


NC STEM Phased Investment Model
DIRECT INVESTMENTS
1. Require Investment from Community at Each Phase
2. Pushes difficult decisions through constructive, networked process
3. Incentivize Innovation through Catalytic Grants (local decision)
4. Accountability & Sustainability with Local/State/National Scorecard
NC STEM
COMMUNITY COLLABORATIVE
DRAFT & CONFIDENTIAL

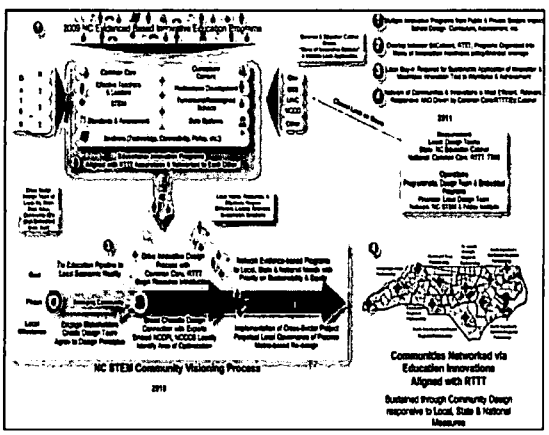
Possible Network Outcomes

- A set of innovative classrooms on the campus of a corporate campuses, including experiential learning and regulated internship co-op opportunities as a part of rigorous STEM skill attainment.
- A region's high school cohort taking innovative STEM curriculum in a hybrid (online onsite) environment using cloud computing and inexpensive Netbooks for cost-effective delivery for all students, building on the virtual world expertise in the region, for more rigorous, accessible STEM learning.
- A model for innovating the 21st century educator in new teaching learning environments, combining multiple content, computing, and subject matter approaches to deeply evaluate impact on STEM approaches.
- A STEM Learn and Earn early-college high school on a re-search-one higher education campus that forges the pathway for higher education's campus and the high school to merge

Innovation is not pre-determined, but facilitated.

NC STEM COMMUNITY COLLABORATIVE

MCNC



Role of JOBS Commission

2009 SL339 excerpts:

"Section 3.(b)The Chair shall appoint from the Commission's membership a North Carolina STEM Community Collaborative Advisory Committee (Community Collaborative) to ensure that the efforts of the Commission and the Community Collaborative are aligned and that the Commission is informed of the Community Collaborative's activities and that the Community Collaborative is informed of the Commission's activities."

NC STEM COMMUNITY COLLABORATIVE

Role of JOBS Commission

"Section 5. The Commission shall also study issues related to economic growth by the creation of measures and metrics which define the readiness of a community to deliver to all stakeholders the services that equip the workforce to be competitive in a STEM-intensive economy, including ensuring that students throughout the education pipeline gain the skills learned from science, technology, engineering, math, and other rigorous subjects. As a part of its study, the Commission may examine issues related to:

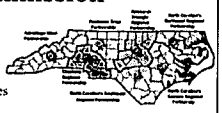
1. *A replicable and perpetual model for aligning efforts of local business, industry, policy, and education stakeholders in community engagement for visioning student-centered learning;*
2. *The documentation and study of the innovative education programs critical for communities to be competitive in the STEM environment in the twenty-first century;*
3. *A framework to network these economic development regions, aligning State, regional, and external investment in replicable innovation,*
4. *Opportunities to leverage existing research programs such as the College Foundation of North Carolina Bridges program, and other resources to maximize the impact of these existing resources and assets to avoid duplication, to achieve greater economies of scale, and to broaden the impact of these efforts by the most cost-effective means possible, and*
5. *Any other topics deemed relevant by the Commission."*

NC STEM COMMUNITY COLLABORATIVE

Role of JOBS Commission

Direction

- Review and Advise on Criteria for Current & Future Ready-To-Launch STEM Communities
- Advise on location of next set of STEM Communities



Funding

We currently anticipate Gates Foundation & MCNC to support 40-50% of catalytic grants.

- Consider leverage for existing investors funding of catalytic grants from:
  - Current/Future Local and State Initiatives
  - NC Foundations and Private Sector Individuals/Companies
  - National Investors
- Provide feedback and support of path for locally sustainable plans to be implemented within local budgets
- Recommendations on effective scaling and sharing of outcomes from STEM Communities

NC STEM COMMUNITY COLLABORATIVE

Role of JOBS Commission

Policy

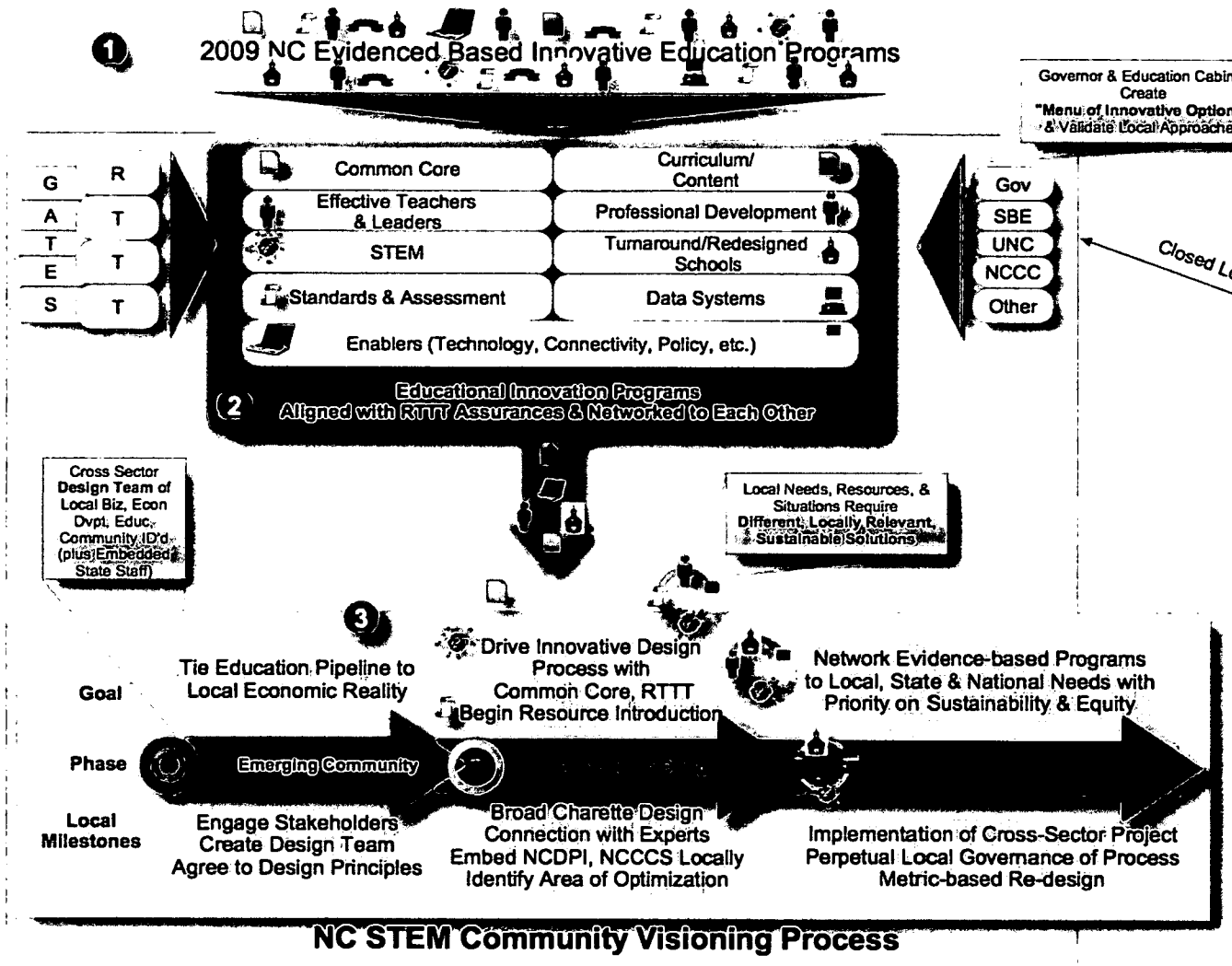
- Consider the Policy Recommendations of STEM Communities to Scale Innovations Statewide
- Expect to see recommendations impacting:

Extending the Learning Day	Innovative Assessment	Alignment of Curriculum
Common Core Standards	Technology Classrooms	Differentiated Pay
Teacher/Leader Development	Experiential Learning	Alternative Tracking
Digital Portfolios	Credit Attainment & Admissions	Mastery Accreditation

Review & Recommend

- Review & Consider STEM Communities Education Innovation Design Plans on:
  - Statewide Policy for Scaling Education Innovation
  - Models for Broad
  - Investment & Economic Development Opportunity
  - Incubation Zones for Education Innovation
  - Networking of Communities, Schools and Businesses
- Make Recommendations to the Education Cabinet & General Assembly as appropriate

NC STEM COMMUNITY COLLABORATIVE



NC STEM Community Visioning Process

2010

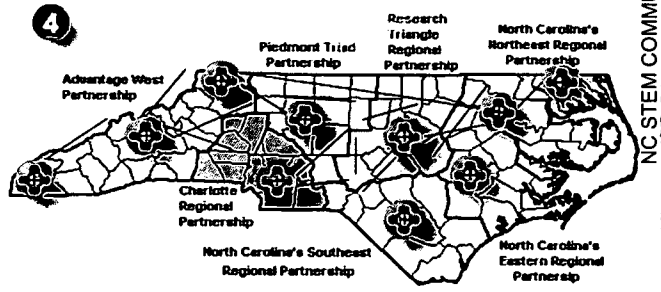
1. Multiple Innovative Programs from Public & Private Sectors Impacts School Design, Curriculum, Assessment, etc.
2. Overlap between EdCabient, RTTT, Programs Organized into **Menu of Innovation** maximizes policy/financial leverage
3. Local Buy-in Required for Sustainable Application of Innovation & Maximizes Innovation Tied to Workforce & Achievement
4. Network of Communities & Innovations is Most Efficient, Relevant, Responsive AND Driven by Common Core/RTTT/Ed Cabinet

2011

Measurement
Local: Design Teams
State: NC Education Cabinet
National: Common Core, RTTT, TIMS

Operations
Programmatic: Design Team & Embedded Programs
Financial: Local Design Teams
Network: NC STEM & Friday Institute

4



Communities Networked via Education Innovations Aligned with RTTT

Sustained through Community Design responsive to Local, State & National Measures

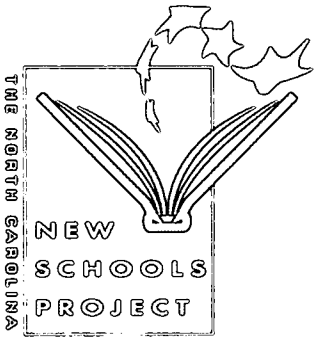
NC STEM COMMUNITY COLLABORATIVE

JOBS COMMISSION - ADVISORY PANEL

MCNC

North Carolina New Schools Project

JOBS Commission
October 13, 2009



NC New Schools Project Overview

History

Established in 2003 as an initiative of the Office of the Governor, the NC Education Cabinet and the State Board of Education with the support of the Bill & Melinda Gates Foundation and others.

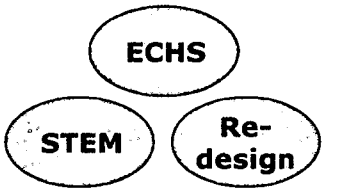
Mission

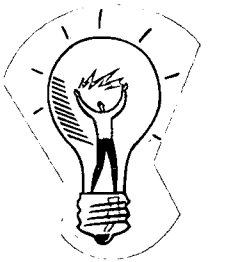
To spark and support systemic, sustainable innovation in secondary schools across the state so that all students graduate prepared for college, work and life.

North Carolina New Schools Project collaborates with public school leaders who possess a deep commitment to change and a singular focus on graduating all students college and work ready

THE NORTH C NEW SCHOOLS PROJECT

North Carolina's Leading Education Innovation Intermediary





Need in NC for innovative approaches to secondary schools...

•NC was one of the lowest performing states in terms of high school graduation in 2004

...resulted in the creation of NCNSP...

•NCNSP launched in 2003 to develop innovative secondary schools in NC

...leading to development of several innovative school models...

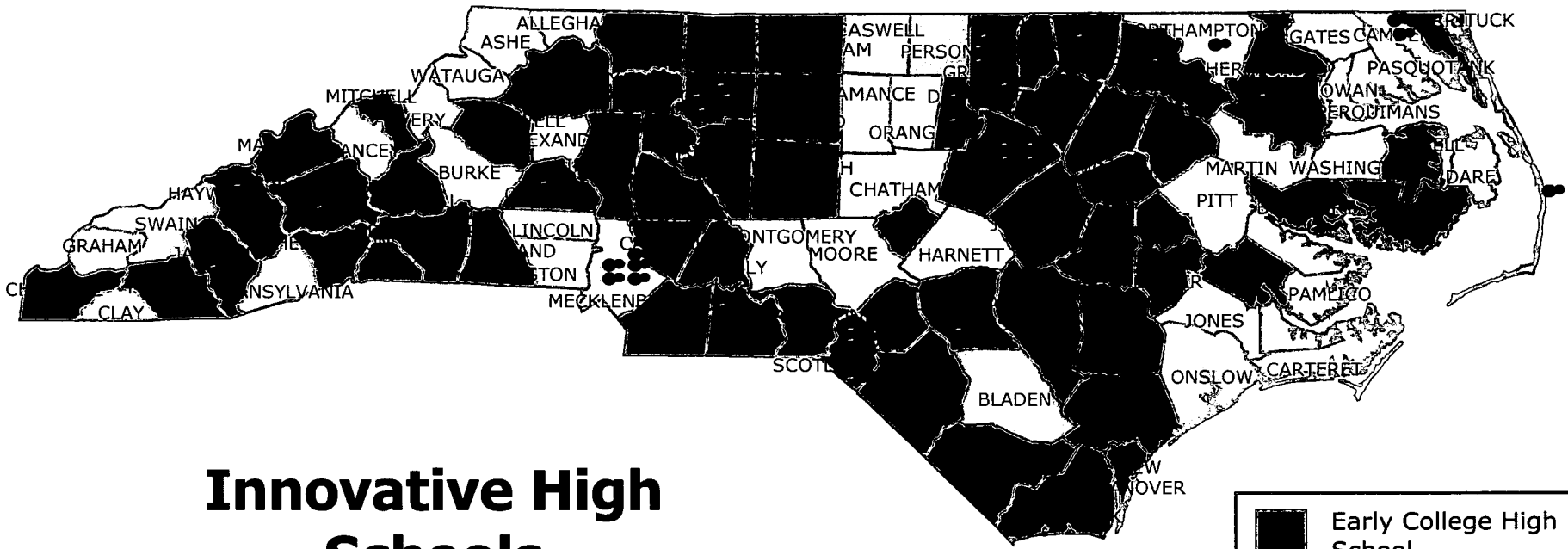
•3 secondary school models and 100+ schools developed

...and positioning NCNSP for innovation intermediary role

•NCNSP uniquely positioned, given its ability to:

- Bring different partners to the table
- Quickly launch schools and services

THE NORTH CAROLINA NEW SCHOOLS PROJECT



Innovative High Schools

North Carolina New Schools Project partners with 64 school districts in the development of 105 innovative high schools.

- Early College High School
- Early College High School (planned)
- Redesigned High School

THE NORTH CAROLINA NEW SCHOOLS PROJECT

Two Kinds of Innovative High Schools

Early Colleges

- Co-located on a college campus, with students graduating high school with two years of college credit
- Enrolls students who are first generation college attendees <u>and</u> who experience failure in conventional schools

Conversions/redesigns

- Transformation of conventional secondary schools into focused and academically rigorous smaller schools and/or smaller learning communities

Key differences from conventional schools

All students complete college prep curriculum*

All students graduate with transferable college credit*

Most schools have a maximum of 100 students per grade

*With the exception of a small percentage of students served in the Occupational Course of Study

THE NORTH C NEW SCHOOLS PROJECT

Overall Results

More students staying in school

Nearly half (48%) of innovative high schools had **no** dropouts during the 2007-08 school year.

More 9th graders being promoted

Nearly three quarters (72%) of the 75 innovative high schools that had 9th grade classes in 2007-08 promoted at least 90% of their 9th graders, with 19 of those schools (25%) promoting 100% of their 9th grades.

Students besting expectations on state tests

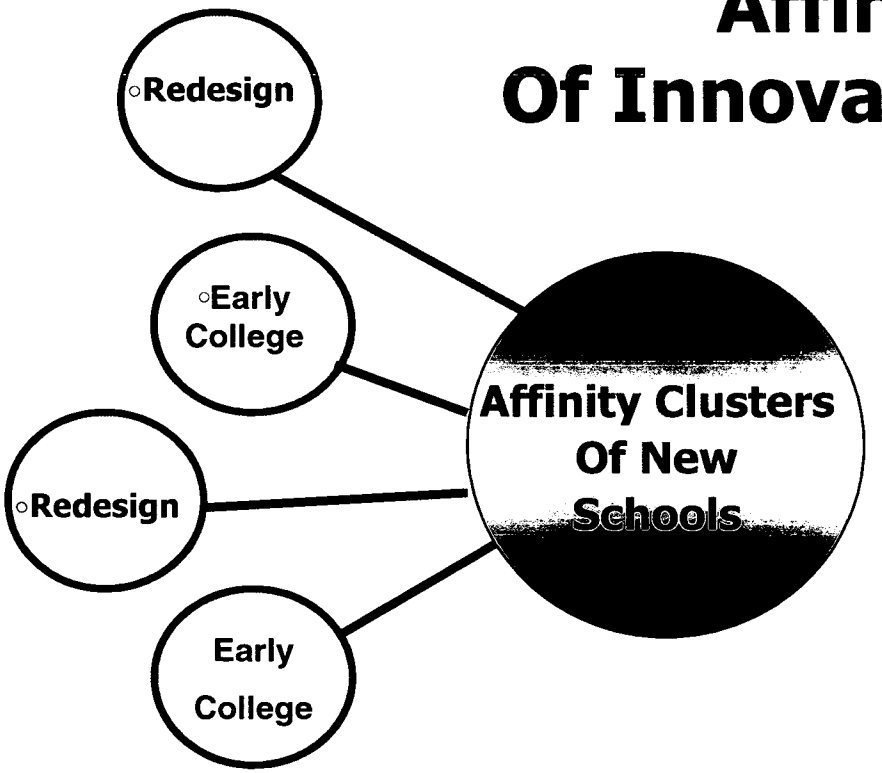
Nearly one third of innovative high schools (31.7 %) had a performance composite greater than 80% in 2008-09, compared to 6.5% of comparison schools and 18% of all traditional 9-12 high schools.

Teachers have more favorable view of their innovative schools

50% "strongly agree" with the statement, "My school is a good place to teach and learn," compared to 34% in conventional high schools.

THE NORTH NEW SCHOOLS PROJECT

Affinity Clusters Of Innovative High Schools



- *Characteristics*
- Higher Education anchor
- Private sectors anchor(s)

- Acquisition of college credit prior to HS graduation
- Curriculum integrated and applied to real world needs
- Workplace experience for teachers and students
- Entrepreneurism is core to design

Virtual Communities:

All Affinity Clusters will be supported by virtual communities through the NCREN fiber network. These communities will allow for peer-to-peer support, banking of lessons and resource materials and real-time connections with higher education and workplace expertise.

THE NORTH C NEW SCHOOLS PROJECT

Affinity Clusters Of Innovative High Schools

Learning Laboratories

University of North Carolina System

Exemplar schools, partnered with the University of North Carolina, are intended to accelerate practices associated with schools that succeed with graduating all students college ready. These schools will assist the statewide network of new schools and aid in the transformation of schools of education in their preparation of pre-service teachers and principals.

Caldwell Early College High School at Caldwell Community College

Cross Creek Early College High School at Fayetteville State University

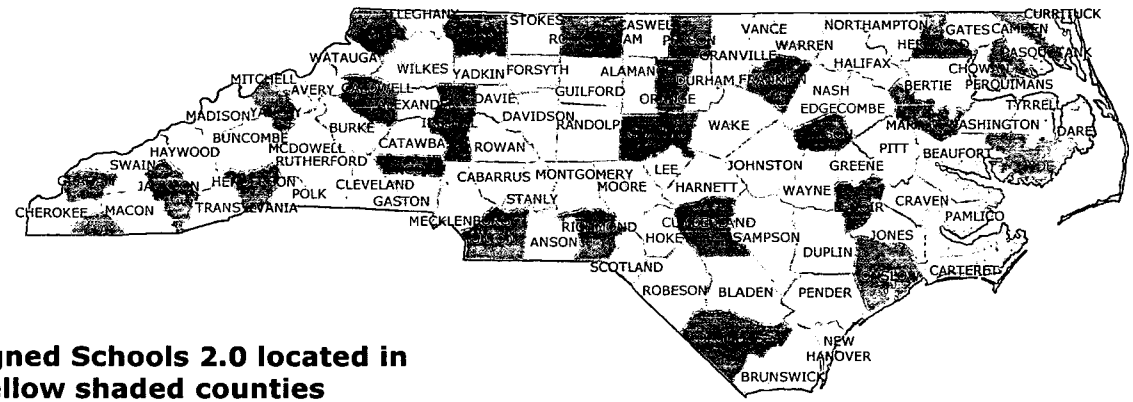
Wayne County STEM High School

Durham New Tech High School at Hillside

Affinity Clusters Of Innovative High Schools

Redesigned Schools 2.0

New schools that integrate one-to-one computing and the pervasive use of data will serve as models for the role of technology to transform teaching to include inquiry and applied learning. During 2008-09 NCNSP began to retool its coaching model to effectively support changed instruction which incorporates technology. Partners include Friday Institute at NC State University, SAS, Golden LEAF Foundation and others.



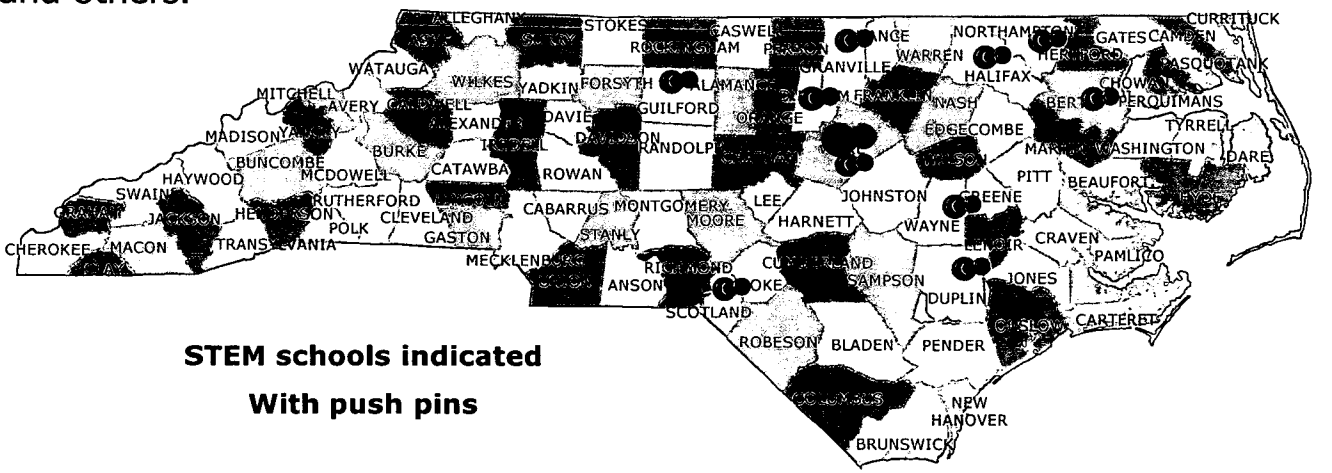
Redesigned Schools 2.0 located in yellow shaded counties

THE NORTH C NEW SCHOOLS PROJECT

Affinity Clusters Of Innovative High Schools

STEM

STEM schools incorporate engineering problem-solving methodology, an emphasis on applied science and mathematics and the pervasive use of technology. The initial cluster of STEM schools provides the foundation for strategic expansion across NC. Currently, NC State University is envisioned as the anchor campus for a STEM Early College High School that will develop curriculum and shape instructional practices that will inform the development of the entire cluster of STEM schools across the state. Partners include NC State School of Engineering, Progress Energy, Duke Energy, Science House and others.



STEM schools indicated

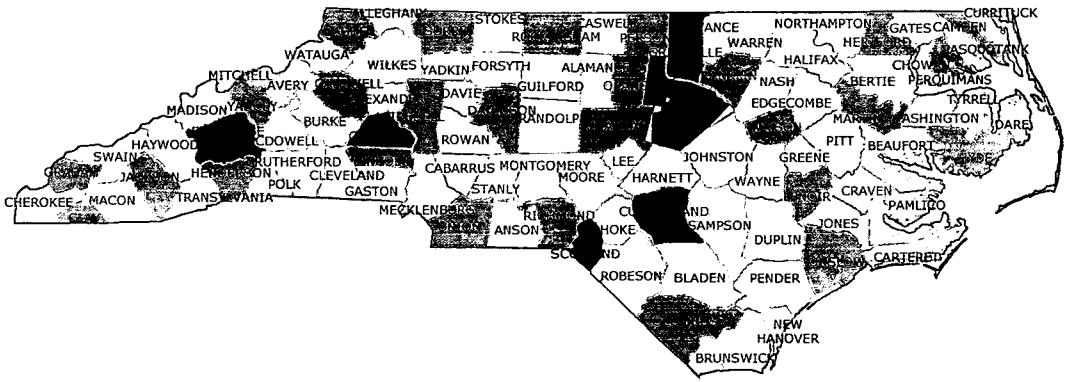
With push pins

THE NORTH CAROLINA NEW SCHOOLS PROJECT

Affinity Clusters Of Innovative High Schools

Health and Life Sciences

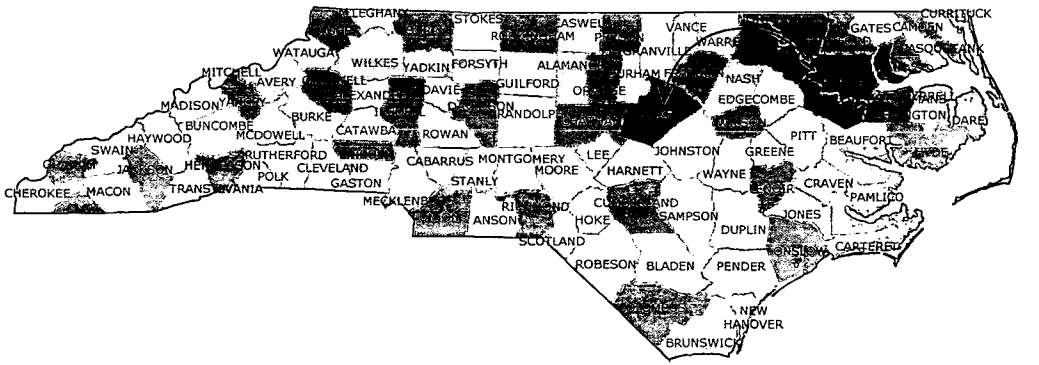
Health and Life Sciences schools will incorporate the medical model of learning with a focus on the health and life sciences and with the pervasive use of technology. Partners include Duke Medical Systems, Blue Cross/Blue Shield of NC and others.



Affinity Clusters Of Innovative High Schools

Biotechnology

Biotechnology and agri-sciences schools will offer applied learning that incorporates advanced science and mathematics and agriculture and life sciences. A regional early college high school in northeastern North Carolina will serve at least six counties. Partners include the NC Biotechnology Center, NC State University, Avoca Farms, Golden LEAF Foundation and others.



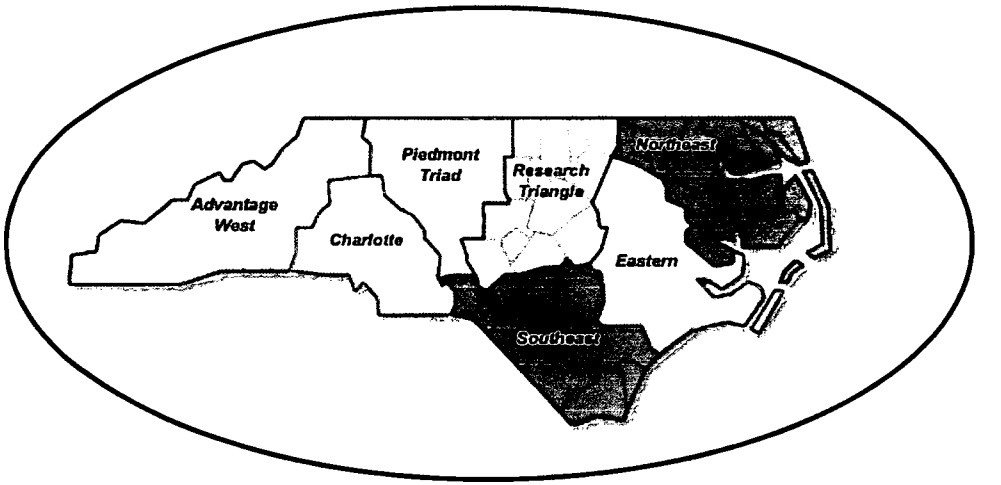
Challenges Going Forward

- Strong and pervasive resistance to change
- Lack of urgency for higher standards aligned with new workforce requirements
  - New definition of "rigor" must include inquiry and demands that students think, problem solve and act on information
- Essential requirement for sustained, high quality and school-embedded professional development
- Need for a transformational approach to the education pipeline in North Carolina

Appendix

Innovation Across Three Levels

School → Demonstrate success with schools across North Carolina →



"Transform a school"

"Demonstrate to all of NC what successful schools look like and increase demand for transformation"

"Transform high school education in North Carolina"

- **Government, education and business leaders leverage NCNSP's success and work together to create widespread innovation**

THE NORTH CAROLINA NEW SCHOOLS PROJECT

Many Innovative Schools Organize Around Academic Themes

Examples of themes	Partners who support themes
○ Biotechnology	○ New Tech Foundation
○ Leadership and public service	○ Asia Society
○ Health and life sciences	○ NC Science, Math, Technology Center
○ Science/Technology/Engineering Mathematics	○ Center for 21st Century Skills
○ International studies	○ Local partners

Schools choose themes based on local community and economic interests

Themes and partners align with Design Principles

THE NORTH C NEW SCHOOLS PROJECT

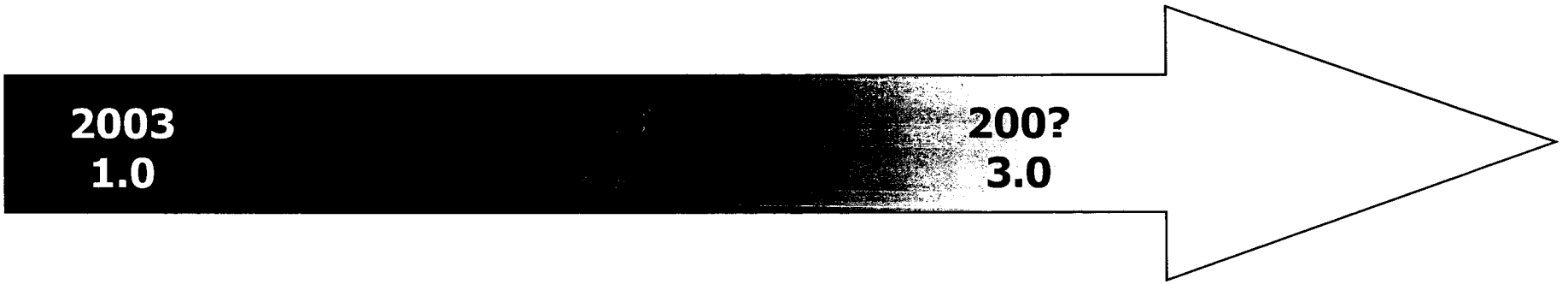
Early College Students

Total enrollment , 2008-09	7,968 students
American Indian	2.1 percent
Asian	2.8 percent
Hispanic	8.2 percent
Black	29.2 percent
White	57.7 percent
Male	40.5 percent
Female	59.5 percent
Low income	39.2 percent

Early College HS Performance

	2007-08	2008-09
Expected Growth	59.5 percent	56.6 percent
High Growth	28.6 percent	28.3 percent
Outperformed Comparison	86 percent	85.7 percent
PC > 80 percent	52.38 percent	46.66 percent
AYP	88 percent	96.6 percent
Median Performance Composite	80.3 percent	79.15 percent

Phases of School Innovation



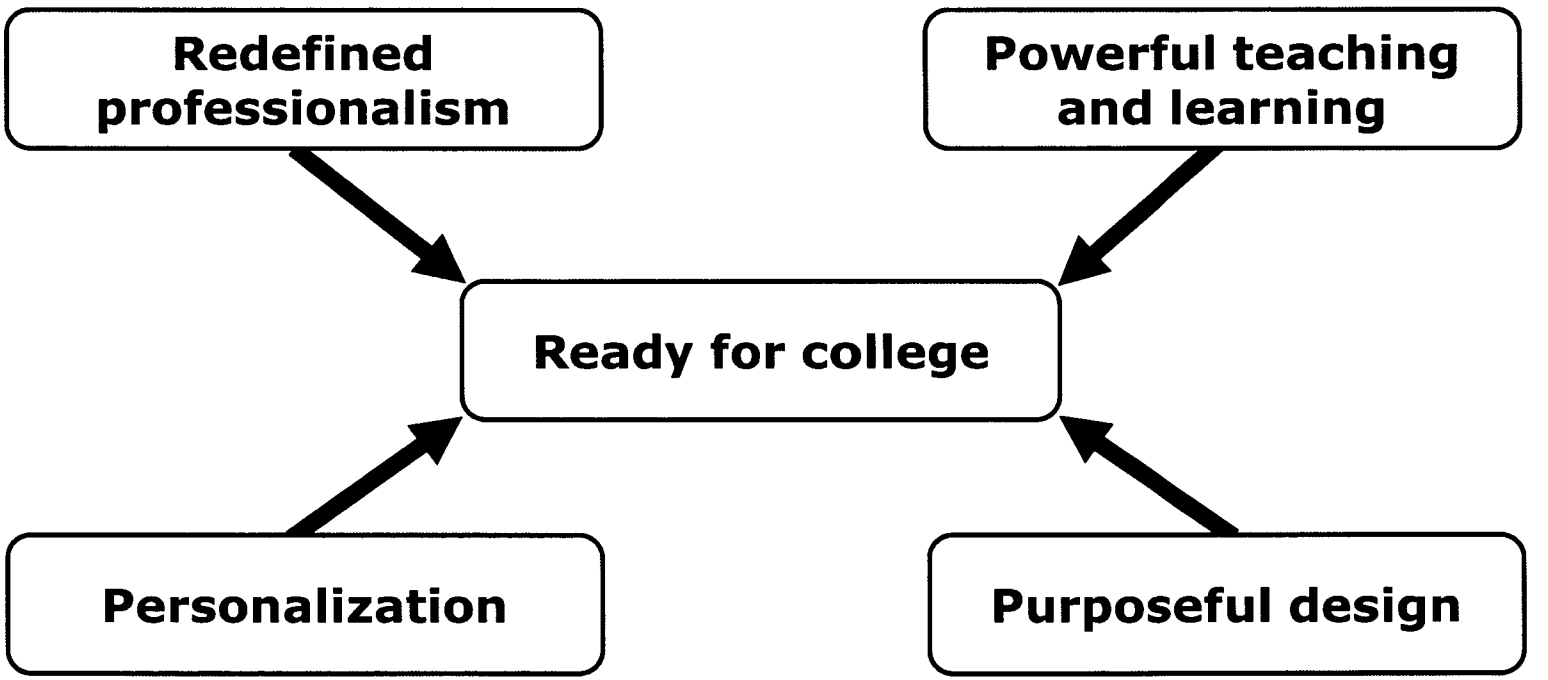
1.0 Purposeful design with an emphasis on all students graduating fully prepared for college, work and life; stronger ties to colleges and universities and a specific plan to ensure that all students graduate with college credit.

2.0 Deeper ties to economic & workforce development; pervasive use of technology including one-to-one computing and integration of online curriculum.

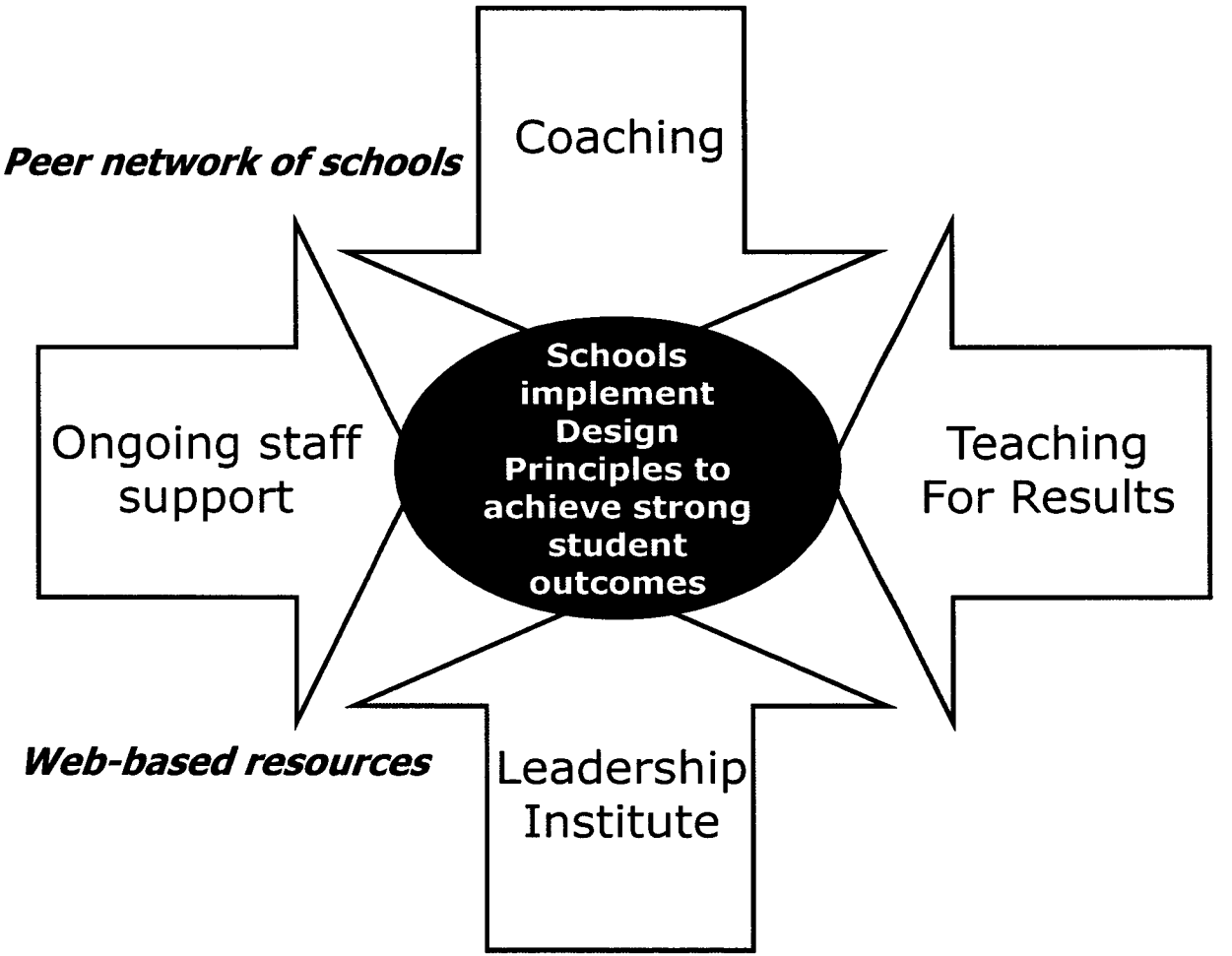
3.0 Parent and community driven demand for customized solutions.

THE NORTH C
NEW
SCHOOLS
PROJECT

Design Principles Define Schools Where All Students Graduate Ready for College, Careers and Life



Integrated System Of School Support Services (IS^4)



- **District leaders**
- **Principals**
- **Teachers**

THE NORTH NEW SCHOOLS PROJECT

MINUTES
JOINING OUR BUSINESSES AND SCHOOLS (JOBS) COMMISSION
MEETING
2009-10 Session
January 19, 2010

The Joining Our Businesses and Schools Commission met on Tuesday, January 19, 2010 in Room 643 of the Legislative Office Building. Lt. Governor Walter Dalton, Chairman, presided. The following members of the Senate were in attendance: Senator Tony Foriest, Senator Harry Brown, and Senator Fletcher Hartsell. The following members of the House were in attendance: Vice-Chair Glazier, Representative Braxton, and Representative Yongue. The following public members were in attendance: Grant Godwin, Laura Bingham, Felicia Watson, Howard Lee, Laura Willoughby, Karl Rectanus, Joe Fredosso, Tony Habit, Sam Houston, Bob Beichner, Susan Purser, Caroline McMullen, Pam Townsend, and Mike Murphy. The following members of the legislative research staff were in attendance: Shirley Iorio and Kara McCraw. Jessica Macaluso, Committee Clerk, was also present at the meeting.

Chairman Dalton called the meeting to order at 2:05pm and welcomed members and guests to the meeting.

The Chair thanked the Committee members for their work and for taking time from their schedules to travel to different economic regions to hear from the public and community leaders on the issues facing their regions.

The Chair recognized Dr. Pamela Townsend, who introduced Dr. Louis Martin-Vega, Dean of the College of Engineering at North Carolina State University. Dr. Martin-Vega reviewed a presentation entitled "The NAE Grand Challenges for Engineering" (Attachment 1). This presentation included 14 Engineering challenges that can be subcategorized into 4 sections: Sustainability, Health, Security, and Joy of Living. Dr. Martin-Vega also reviewed the impact these challenges will have on the economy both in the short term and in the long term. The Chair recognized Senator Foriest, who asked Dr. Martin-Vega about what the economic driver, ie profit, is for private businesses to take on the Grand Challenges. Dr. Martin-Vega responded by saying he felt that there were a combination of factors including profit and incentives that would contribute to private business's involvement. Chairman Dalton commented that the government leadership role should be forward thinking and to foster innovation. At the end of Dr. Martin-Vega's presentation, Chairman Dalton asked Dr. Martin-Vega about NCSU's k-12 outreach program in regards to the Grand Challenges. Dr. Martin-Vega responded that the program is in the early stages and is moving along and can see NCSU leading the way on this initiative nationwide.

The Chair recognized Karl Rectanus, leader of the NC STEM Community Collaborative, who reviewed a presentation entitled "Facilitating a Culture of Innovation" (Attachment 2).

The Chair then recognized Dr. Valerie Brown-Schild, Program Director, and Susan Parry, Assistant Director for Partnerships and Resource Development – Kenan Fellows

Program. Dr.Brown-Schild played a dvd that showed an overview of the Kenan Fellows Program (Exhibit 1). Dr. Brown-Schild then yielded the floor to Ms. Parry, who reviewed the document starting with "Kenan Fellows Program – About The Program" (Attachment 3).

The Chair advised the commission members that due to time constraints the scheduled presentation by legislative research staff will be postponed.

The Chair then opened the floor to the commission members to discuss and ask questions in regards to past and future commission meetings.
Mr. Beichner asked that there be some sort of general accounting of each meeting. The Chair advised that minutes from each meeting will be forthcoming. Several general questions were asked. Senator Foriest invited the Commission members to attend Education Oversight meetings to get a better understanding of some educational issues. Rep. Yongue commented that the Commission should also consider what other countries are doing in regards to STEM. Ms. McCullen asked how the Commission's April report will be assembled. The Chair responded by saying that the Commission would come together with staff to draft the report. Vice-Chair Glazier commented that he feels the commission should move as quickly as possible on initiatives as he feels that other countries are innovating faster than we are. Rep. Braxton commented that the Commission should look at each regions' suggestions and attempt to implement those suggestions as we hear from each region. Mr. Habit commented that there are great ideas coming from our communities but the Commission should be careful that the ideas are sustainable and allow education and business to work deeply and collaboratively together. The Chair then updated the Commission on the Linguistics and Global Learning initiative in the Fayetteville area. He emphasized that while the military is fully supportive of this initiative, they are not the driving force behind it. Vice-Chair Glazier added that the working group is looking at the logistical and nuts and bolts issues around this initiative with the idea that the school would be functioning and moving by 2011. Ms. Bingham asked how courageous and futuristic can we be rather than just noodling around the edges of this issue. She expressed concern about the governance of the issues that the commission is hearing. The Chair expressed that perhaps there needs to be some sort of overarching economic educational board governance. Senator Brown commented that some sort of a regional school board is necessary for governance of these issues. Mr. Houston commented that the legislation surrounding the JOBS commission is very far reaching and will require careful articulation and navigation but is very exciting. Rep. Yongue commented that Denmark has a unique system where education collaborates with business and industry.
The Chair asked the Commission to be thinking of what may work in different areas and to be thinking of business partners.
Vice Chair Glazier commented that he is concerned about the quality of our teachers. The Chair commented that he wants learn and earn and early college programs to be more focused. Mr. Rectanus commented that he feels it's important to focus on the metrics and data to support the programs and to think about the outcomes the commission is trying to drive. Ms. Bingham commented that it would be interesting to know what people would do in their regions if they had $1Billion.
The Chair then appointed 2 subcommittees, as listed.

Governance Subcommittee: Susan Purser, Grant Godwin, Senator Brown, Caroline Mccullen, Karl Rectanus
Northeast Region Subcommittee: Laura Willoughby, Rep. Van Braxton, Senator Foriest, Felicia Gray Watson, Tony Habit
Ms. McCullen feels that the commission could learn a lot from Mr. Rectanus' work with the three regions he is engaged with now. Mr. Rectanus replied he would be happy to go through that information in detail.

The Chair adjourned the meeting at 4:55 p.m. with a reminder that the next Commission meeting would be January 28, 2010 at 1pm on the campus of Nash Community College.

Respectfully submitted,

_____
Lt. Gov. Walter Dalton, Chairman

ATTEST:

_____
Jessica Macaluso, Committee Assistant

VISITOR REGISTRATION SHEET

J.T. Jobs Study Comm. 1/19/10

Name of Committee Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
Trishana Jones	NC YA10
Donald Boringer	Office of the Governor
Betsy Bailey	PENC
Daniel Baum	Troutman Sanders
Allison Waller	Charlotte Chamber
Elizabeth Robinson	NCEMA
John Goodman	NC Chamber

VISITOR REGISTRATION SHEET

J.T. Jobs Study Comm. 1/19/10

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
Stella Dickens	NCCCS

Joining Our Business & Schools (JOBS) Commission Meeting

AGENDA

January 19, 2010

Room 643 Legislative Office Building

2:00 pm – Welcome

2:00 pm - Dr. Louis Martin-Vega, Dean of the College of Engineering – NCSU

- 14 Grand Challenges Facing Engineering
- STEM skills needed to prepare children (k-20) for the new world job market

2:30 pm – Karl Rectanus – Leader, NC STEM Community Collaborative

- Update on STEM & Collaborative work

3:00 pm – Dr.Valerie Brown-Schild, Program Director & Susan Parry, Assistant Director for Partnerships and Resource Development – Kenan Fellows Program

3:20 pm – Shirley Iorio & Kara McCraw

- Briefing on differences between early colleges, redesigned high schools and CTE programs

3:30 pm – Working session of JOBS Commission

5:00 pm – Adjourn

MINUTES
JOINING OUR BUSINESSES AND SCHOOLS (JOBS) COMMISSION MEETING
2009-10 Session
January 19, 2010

The Joining Our Businesses and Schools Commission met on Tuesday, January 19, 2010 in Room 643 of the Legislative Office Building. Lt. Governor Walter Dalton, Chairman, presided. The following members of the Senate were in attendance: Senator Tony Foriest, Senator Harry Brown, and Senator Fletcher Hartsell. The following members of the House were in attendance: Vice-Chair Glazier, Representative Braxton, and Representative Yongue. The following public members were in attendance: Grant Godwin, Laura Bingham, Felicia Watson, Howard Lee, Laura Willoughby, Karl Rectanus, Joe Fredosso, Tony Habit, Sam Houston, Bob Beichner, Susan Purser, Caroline McMullen, Pam Townsend, and Mike Murphy. The following members of the legislative research staff were in attendance: Shirley Iorio and Kara McCraw. Jessica Macaluso, Committee Clerk, was also present at the meeting.

Chairman Dalton called the meeting to order at 2:05pm and welcomed members and guests to the meeting.

The Chair thanked the Committee members for their work and for taking time from their schedules to travel to different economic regions to hear from the public and community leaders on the issues facing their regions.

The Chair recognized Dr. Pamela Townsend, who introduced Dr. Louis Martin-Vega, Dean of the College of Engineering at North Carolina State University. Dr. Martin-Vega reviewed a presentation entitled "The NAE Grand Challenges for Engineering" (Attachment 1). This presentation included 14 Engineering challenges that can be subcategorized into 4 sections: Sustainability, Health, Security, and Joy of Living. Dr. Martin-Vega also reviewed the impact these challenges will have on the economy both in the short term and in the long term. The Chair recognized Senator Foriest, who asked Dr. Martin-Vega about what the economic driver, ie profit, is for private businesses to take on the Grand Challenges. Dr. Martin-Vega responded by saying he felt that there were a combination of factors including profit and incentives that would contribute to private business's involvement. Chairman Dalton commented that the government leadership role should be forward thinking and to foster innovation. At the end of Dr. Martin-Vega's presentation, Chairman Dalton asked Dr. Martin-Vega about NCSU's k-12 outreach program in regards to the Grand Challenges. Dr. Martin-Vega responded that the program is in the early stages and is moving along and can see NCSU leading the way on this initiative nationwide.

The Chair recognized Karl Rectanus, leader of the NC STEM Community Collaborative, who reviewed a presentation entitled "Facilitating a Culture of Innovation" (Attachment 2).

The Chair then recognized Dr. Valerie Brown-Schild, Program Director, and Susan Parry, Assistant Director for Partnerships and Resource Development – Kenan Fellows

Program. Dr.Brown-Schild played a dvd that showed an overview of the Kenan Fellows Program (Exhibit 1). Dr. Brown-Schild then yielded the floor to Ms. Parry, who reviewed the document starting with "Kenan Fellows Program – About The Program" (Attachment 3).

The Chair advised the commission members that due to time constraints the scheduled presentation by legislative research staff will be postponed.

The Chair then opened the floor to the commission members to discuss and ask questions in regards to past and future commission meetings.
Mr. Beichner asked that there be some sort of general accounting of each meeting. The Chair advised that minutes from each meeting will be forthcoming. Several general questions were asked. Senator Foriest invited the Commission members to attend Education Oversight meetings to get a better understanding of some educational issues. Rep. Yongue commented that the Commission should also consider what other countries are doing in regards to STEM. Ms. McCullen asked how the Commission's April report will be assembled. The Chair responded by saying that the Commission would come together with staff to draft the report. Vice-Chair Glazier commented that he feels the commission should move as quickly as possible on initiatives as he feels that other countries are innovating faster than we are. Rep. Braxton commented that the Commission should look at each regions' suggestions and attempt to implement those suggestions as we hear from each region. Mr. Habit commented that there are great ideas coming from our communities but the Commission should be careful that the ideas are sustainable and allow education and business to work deeply and collaboratively together. The Chair then updated the Commission on the Linguistics and Global Learning initiative in the Fayetteville area. He emphasized that while the military is fully supportive of this initiative, they are not the driving force behind it. Vice-Chair Glazier added that the working group is looking at the logistical and nuts and bolts issues around this initiative with the idea that the school would be functioning and moving by 2011.
Ms. Bingham asked how courageous and futuristic can we be rather than just noodling around the edges of this issue. She expressed concern about the governance of the issues that the commission is hearing. The Chair expressed that perhaps there needs to be some sort of overarching economic educational board governance. Senator Brown commented that some sort of a regional school board is necessary for governance of these issues. Mr. Houston commented that the legislation surrounding the JOBS commission is very far reaching and will require careful articulation and navigation but is very exciting. Rep. Yongue commented that Denmark has a unique system where education collaborates with business and industry.
The Chair asked the Commission to be thinking of what may work in different areas and to be thinking of business partners.
Vice Chair Glazier commented that he is concerned about the quality of our teachers. The Chair commented that he wants learn and earn and early college programs to be more focused. Mr. Rectanus commented that he feels it's important to focus on the metrics and data to support the programs and to think about the outcomes the commission is trying to drive. Ms. Bingham commented that it would be interesting to know what people would do in their regions if they had $1Billion.
The Chair then appointed 2 subcommittees, as listed.

Governance Subcommittee: Susan Purser, Grant Godwin, Senator Brown, Caroline Mccullen, Karl Rectanus
Northeast Region Subcommittee: Laura Willoughby, Rep. Van Braxton, Senator Foriest, Felicia Gray Watson, Tony Habit
Ms. McCullen feels that the commission could learn a lot from Mr. Rectanus' work with the three regions he is engaged with now. Mr. Rectanus replied he would be happy to go through that information in detail.

The Chair adjourned the meeting at 4:55 p.m. with a reminder that the next Commission meeting would be January 28, 2010 at 1pm on the campus of Nash Community College.

Respectfully submitted,

Lt. Gov. Walter Dalton, Chairman

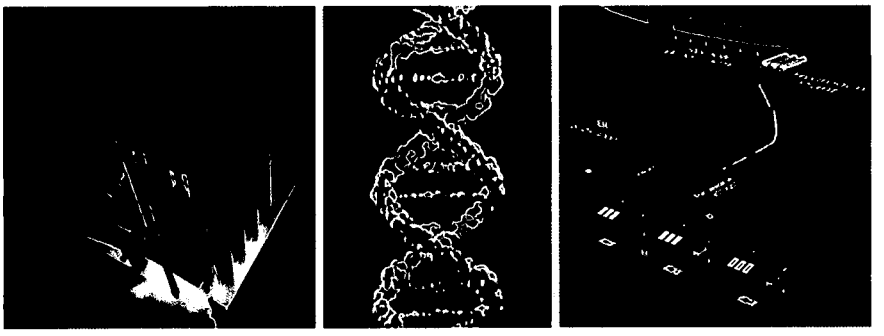
ATTEST:

Jessica Macaluso, Committee Assistant

ATI

NC STATE UNIVERSITY

The NAE Grand Challenges for Engineering



Joint Legislative JOBS Commission

Louis A. Martin-Vega, Ph.D., P.E.
Dean of Engineering

January 19, 2010

nc state ENGINEERING

NC STATE UNIVERSITY

face the challenge

Outline

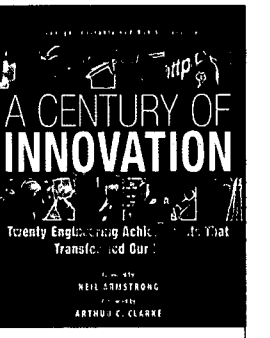
- The NAE Grand Challenges for Engineering
- Impact on the Economy
- Impact on Engineering Education
- Putting the "E" in STEM Education
- Final Remarks

nc state ENGINEERING

NC STATE UNIVERSITY

Greatest Engineering Achievements of the 20th Century

U.S. National Academy of Engineering



1. Electrification
2. Automobile
3. Airplane
4. Water Supply and Distribution
5. Electronics
6. Radio and Television
7. Agricultural Mechanization
8. Computers
9. Telephone
10. Air Conditioning and Refrigeration
11. Highways
12. Spacecraft
13. Internet
14. Imaging
15. Household Appliances
16. Health Technologies
17. Petroleum and Petrochemical Technologies
18. Laser and Fiber Optics
19. Nuclear Technologies
20. High-performance Materials

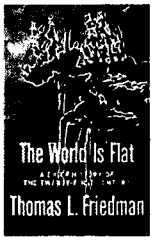
http://www.greatachievements.org/

nc state ENGINEERING

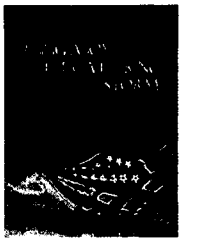
NC STATE UNIVERSITY

Engineering in the 21st Century

Forecasting the profession, NAE, 2004



NY Times columnist on globalization, 2004



30K-foot-view, plus proposals, National Academies, 2005

White House launches new initiative, 2006

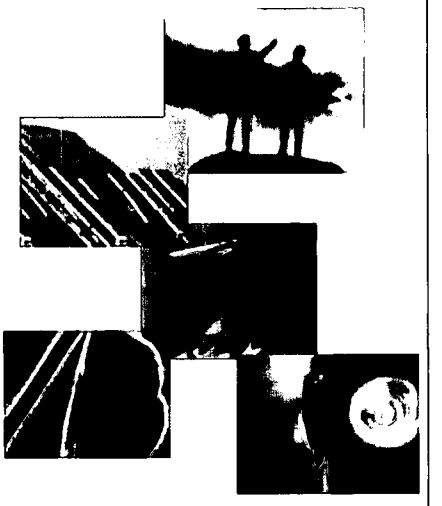
nc state ENGINEERING

NC STATE UNIVERSITY

US National Academy of Engineering

Grand Challenges

- Make solar energy economical
- Provide energy from fusion
- Develop carbon sequestration methods
- Manage the nitrogen cycle
- Provide access to clean water
- Restore and improve urban infrastructure
- Advance health informatics
- Engineer better medicines
- Reverse-engineer the brain
- Prevent nuclear terror
- Secure cyberspace
- Enhance virtual reality
- Advance personalized learning
- Engineer the tools of scientific discovery



nc state ENGINEERING

NC STATE UNIVERSITY

Impact on the Economy

- Sustainability
  - make solar energy economical
  - provide energy from fusion
  - develop carbon sequestration methods
  - provide access to clean water
  - manage nitrogen cycle

  } Energy Economy and Environment
- Health
  - advance health informatics
  - engineer better medicines
  - reverse-engineer the brain

  } Engineering and Life Sciences
- Security
  - restore and improve urban infrastructure
  - prevent nuclear terror
  - secure cyberspace

  } Physical Infrastructure and IT
- Joy of Living
  - enhance virtual reality
  - advance personalized learning
  - engineer the tools of scientific discovery

  } Personal Technologies and Education

nc state ENGINEERING

NC STATE UNIVERSITY

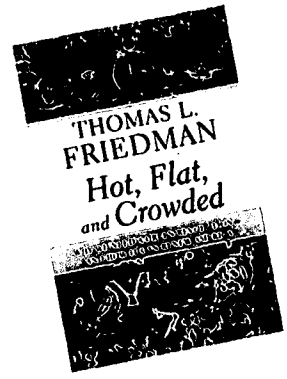
Impact on the Economy

- The impact lies in the "innovations" that will be required to address these challenges. Innovations will come from existing or new companies and will spawn the "jobs of tomorrow."
- Making Solar Energy Economical
  - Innovations for capturing, converting and storing the sun's energy.
  - Businesses that can improve the efficiency of solar cells and lower manufacturing costs and others that can "mimic biological capture of sunshine by photosynthesis."
- Advance Health Informatics
  - Innovations to move from collecting and maintaining information to manipulating, retrieving and making inferences from information to improve quality of health care.
- Engineer Tools of Scientific Discovery
  - Innovations in the design of tools, instruments and systems to acquire new knowledge about the physical and biological worlds.

nc state ENGINEERING

NC STATE UNIVERSITY

Case Study

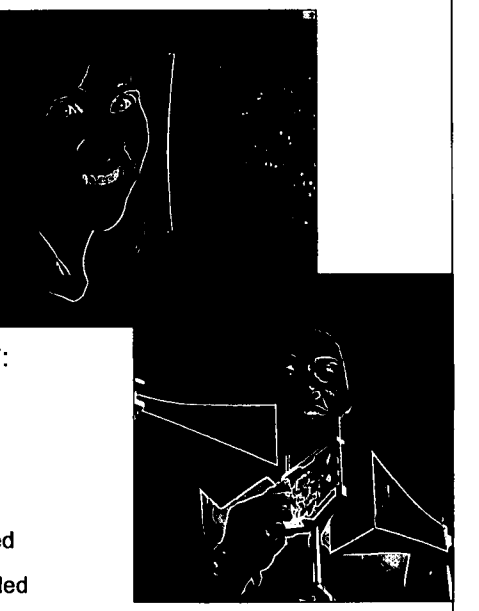


- Erie, PA
  - Erie has a trade surplus with China, Mexico and and Brazil
- Why? – GE Transportation
  - Make big 'ol locomotives that pull long trains
  - Spew out less pollution – less CO2
  - Most "energy efficient" in the world
- Locomotive factory – "Technology Campus"
  - World class engineers working on next generation technologies
  - Hourly workers make DOUBLE the average wage
- Impact on Education
  - GE Foundation has invested $15M in improving STEM education in local schools

nc state ENGINEERING

NC STATE UNIVERSITY

Impact on Engineering Education



Students

- Enrollments Fall 2009
  - Undergraduate 6,050
  - Graduate 2,331
- Degrees awarded (2008-09)
  - Undergraduate 1049
  - Graduate 615
- Among all U.S. engineering colleges*:
  - 4th largest undergraduate enrollment
  - 10th largest graduate enrollment
  - 7th in number of BS degrees awarded
  - 11th in number of MS degrees awarded
  - 22nd in number of PhD degrees awarded

* ASEE figures for 2008

nc state ENGINEERING

NC STATE UNIVERSITY

Academic Departments

- Biomedical Engineering (BME)
- Chemical and Biomolecular Engineering (CBE)
- Civil, Construction, and Environmental Engineering (CCEE)
- Computer Science (CSC)
- Electrical and Computer Engineering (ECE)
- Industrial and Systems Engineering (ISE)
- Materials Science and Engineering (MSE)
- Mechanical and Aerospace Engineering (MAE)
- Nuclear Engineering (NE)

Engineering Departments in Other Colleges

- Biological and Agricultural Engineering (BAE)
- Wood and Paper Science (WPS)
- Textile Engineering (TE)

nc state ENGINEERING

NC STATE UNIVERSITY

Educating Future Engineers

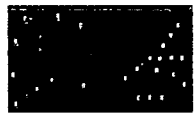
Engineering the Service Sector

Bioengineering

Nanotechnology

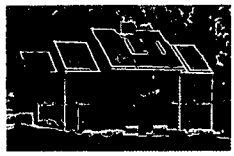
Robotics & Sensor Technology

Emphasis on the integration of research and education



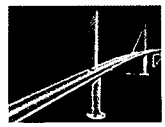
Information & Communications Technology

Advanced Materials & Manufacturing



Energy & Environmental Systems

Transportation & Logistics



Critical Infrastructure

nc state ENGINEERING

NC STATE UNIVERSITY

NSF FREEDM Systems Center

FREEDM – Future Renewable Electric Energy Delivery and Management: $18.5 Million NSF grant led by NC State

Goal: To develop the "**Internet for Energy**" – technology to revolutionize the nation's power grid and speed renewable electric-energy technologies into every home and business.

Universities: NC State is the lead along with partners at Arizona State, FSU/FAMU, Missouri University of S&T, and two European universities

Companies: Over 30 utility companies, electrical equipment manufacturers, alternative energy start-ups, and other established and emerging firms are part of this global partnership.

Education Component: One of the center's key responsibilities is to educate a diverse group of adaptive, creative, globally connected and innovative graduates for the green energy industry through a continuum of educational programs from middle school through the doctoral level.

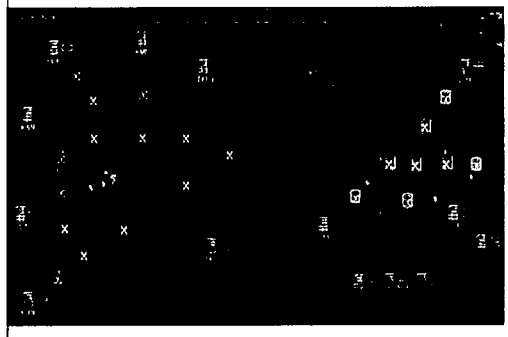
nc state ENGINEERING

NC STATE UNIVERSITY

SOSI: Security

Secure Open Systems Initiative (SOSI)

- created to develop ways to protect open computer systems from attacks
- focuses research areas such as software security, network security, software engineering, and new networking technologies



Virtual Computing Lab (VCL)

- developed at NC State
- cloud computing designed to deliver over-the-network access to high-performance computing services
- expanding to provide access to students at universities and K-12 K-12 schools across the state

nc state ENGINEERING

NC STATE UNIVERSITY

Engineering Entrepreneurs Program (EEP)

- One of the most innovative programs at NC State
- Created in 1993 by Dr. Tom Miller
- Prepares students for technology entrepreneurship
- Program graduates have successful companies

nc state ENGINEERING

NC STATE UNIVERSITY

NAE Grand Challenge Scholars Program

Five Components

1. **Research experience.** Research related to a Grand Challenge.
2. **Engineering+ curriculum.** Engineering education that intersects with public policy, business, law, ethics, human behavior, risk as well as medicine and the sciences.
3. **Entrepreneurship.** Preparing students to translate invention to innovation; to develop market ventures that scale to global solutions in the public interest.
4. **Global dimension.** Developing students who are able to address global challenges and lead innovation in a global economy.
5. **Service learning.** Developing and deepening students' social consciousness and their motivation to bring technical expertise to bear on societal problems.

nc state ENGINEERING

NC STATE UNIVERSITY

Putting the "E" in STEM Education:

NC State's Engineering K-12 Outreach

- Engineering Summer Camps
- RAMP-UP
- Engineering on the Road
- Freshman Engineering Design Day, featuring high school, middle school students
- Teacher Workshops

nc state ENGINEERING

NC STATE UNIVERSITY

The Case for K-12 Engineering Education

- "Our nation will need a steady supply of well-trained engineers, scientists, and other technical workers...as well as a technologically and scientifically literate general public to succeed and prosper in the 21st century" (Augustine, 2007)
- In comparison to K-12 education in science, math & technology, K-12 engineering education is still in its infancy in the U.S.
- As STEM education is currently structured and implemented, it *does not* reflect the natural interconnectedness of the four STEM components in the real world.
- Understanding this interconnectedness is *crucial* to understanding and addressing the NAE Grand Challenges.

nc state ENGINEERING

NC STATE UNIVERSITY

NAE Grand Challenges & K-12 Curricula

- The 14 Grand Challenges contain issues relevant to many aspects of the Standard Course of Study (SCOS) used to construct daily lessons in K-12 schools in North Carolina.
- NC State is among the first engineering schools in the nation to create a structure to map the SCOS to the Grand Challenges.
- Using the Grand Challenges as a platform for teaching demonstrates how the subjects taught in K-12 schools can be used to make real substantive differences in the world.
- Addressing the Grand Challenges covers not just science and engineering, but also social studies, math and language arts.

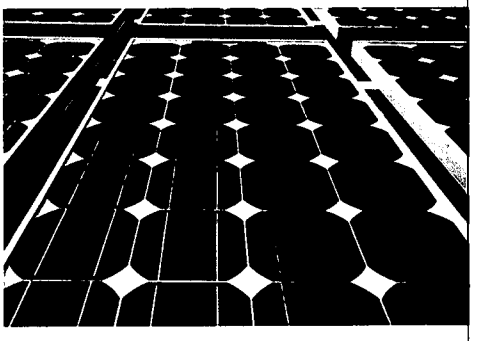
nc state ENGINEERING

NC STATE UNIVERSITY

Grand Challenge: Make Solar Energy Economical

High School Standard Course of Study

- Science
  - Physical science
    - Conservation of energy
    - Direct current applications
    - Characteristics of waves
    - Phenomena of light properties
    - Chemical reactions
  - Chemistry
  - Physics
- Social Studies
  - Geography
  - Economics
  - World history
- Math
  - Algebra (operations, functions, relations)
  - Geometry
  - Functions and modeling
  - Statistics
- Language Arts
- Critical thinking



nc state ENGINEERING

NC STATE UNIVERSITY

Final Remarks

- In the 20th Century…
  - Scientists Discovered, Engineers Created, and Medical Doctors Healed
- In the 21st Century…
  - Science, Engineering and Medicine are totally interdependent and blending together in new ways
    - These intersections lie at the heart of the NAE Grand Challenges.
    - These intersections are creating the "jobs of tomorrow."
    - The "jobs of tomorrow" will require greater "technological literacy"… i.e., the ability to understand and make informed decisions about technological issues.
    - Integrated STEM education is a key component to making this happen.

nc state ENGINEERING

NC STATE UNIVERSITY

Engineering Tomorrow's Economy

Creating jobs. Inventing solutions. Improving lives.

NC State Engineering is committed through its research, education and service to making North Carolina a leader in the global economy.

NC STATE ENGINEERING

ATT 2

NC STEM
COMMUNITY COLLABORATIVE

MCNC

[redacted]

"...you can't have a culture of innovation without a culture of prototyping ..."

-Michael Shrage,
MIT Sloan School,
Author, Serious Play: How the Best Companies Innovate

Quote from http://www.fastcompany.com/magazine/24/schrage.html

NC STEM
COMMUNITY COLLABORATIVE

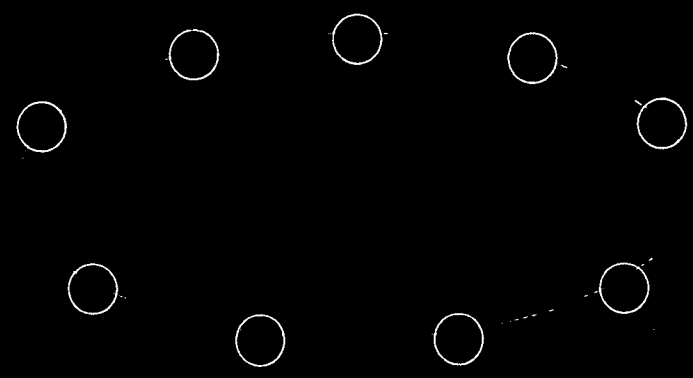
MCNC

North Carolina's STEM Landscape

Hundreds of STEM Assets

NC STEM COMMUNITY COLLABORATIVE

MCNC



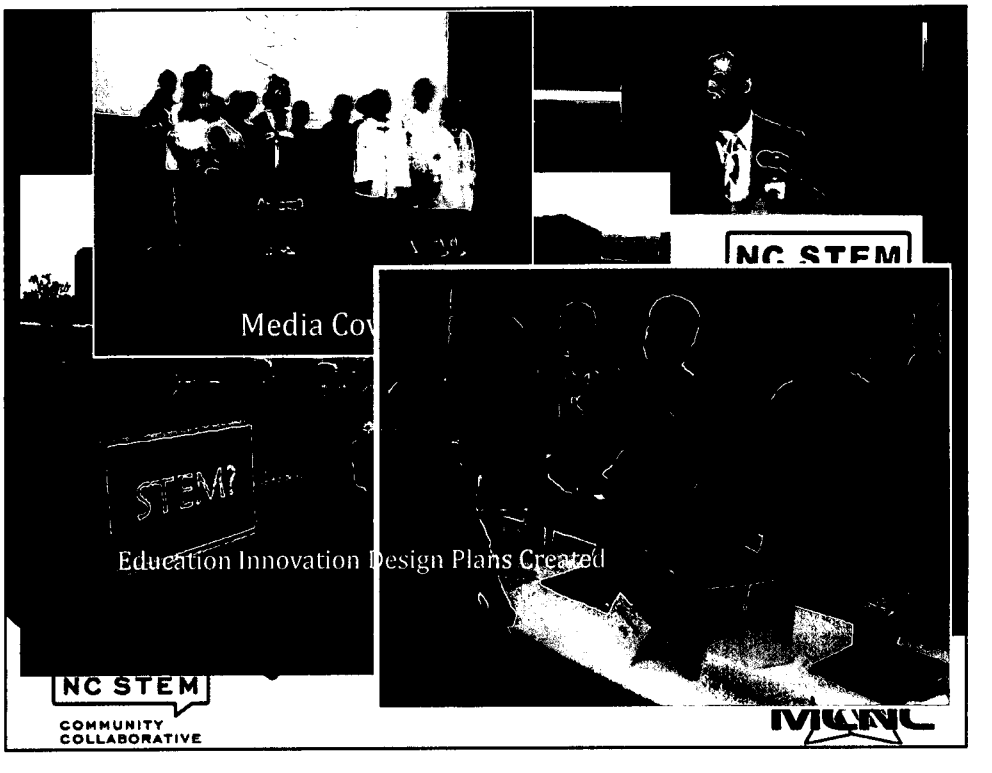
NC STEM COMMUNITY COLLABORATIVE

MCNC

NC STEM Community Collaborative

- Partnership with STEM Communities around the state, housed at MCNC, with the support of Bill & Melinda Gates Foundation, Battelle Memorial Institute, and other expert Partners
- Connects Local Community Networks with STEM Resources and other Networks through research-based systems-designed Community Visioning & Design Process (CVP)
- STEM Community Design Teams in CVP create a locally-sustainable Education Innovation Design Plan, focused on student-centered STEM education tied to economic needs of the region and state.
- 2009 STEM Communities: Davie County Region, Lenoir County Region, and BRAC Region (11 Counties)

NC STEM COMMUNITY COLLABORATIVE



STEM Communities

Community Visioning & Design Process:

Over a 6-9 month period, a STEM Community builds on its own assets by **engaging its community**, identifying **economic and education assets**, and utilizing a **design process to innovate** needed education innovations. All STEM Communities invest in sustainable, equitable, scalable, and collaborative approaches, utilizing:

- Communications & Networking Outreach
- Community-wide Meetings
- Procedural Design
- Facilitated Events & Meetings
- Digital Knowledge Capture
- Network-wide Knowledge Sharing
- Interstate Network Building

Local STEM Design Teams include:

- Business Leaders
- Economic Development Partners
- 3+ Levels of Education
- Government Leadership
- Other Community Leaders
- Innovation Thought Partners:
  - NC DPI
  - Regional Partners
- NC STEM
  - Community Liaison
  - State/National Experts
  - Organized Resources

NC STEM COMMUNITY COLLABORATIVE

2009

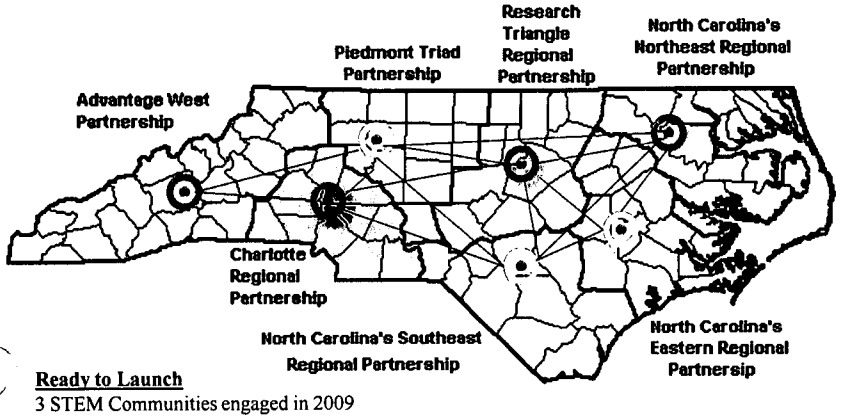
- Rapid deployment of replicable, research-based **Collaborative Visioning Process (CVP)** with 3 Communities (Each Investing at least $20,000 in CVP)

  Davie County **Lenoir County** **Ft. Bragg Region**

- **Kicked Off with Partners** from NC and Beyond – Over 2000 people engaged
- **JOBS Commission** – STEM Advisory Panel & Cross-Sector Advisers Engaged
- First 3 Communities creating **Education Innovation Design Plans**
- **Embedded staff** from NC DPI, NCCCS, Economic Dvpt with each design team
- **Aligned** with Race to the Top, JOBS, SBE, Economic Development, Governor, Lt. Governor, NCCCS and others
- **Connecting Community Demand with STEM Resources**, including NC NSP, NC SMT, NCCAT, NC Public School Forum, Kenan Fellows, Wake Forest CERTL, American Architecture Foundation, Gates Foundation, Battelle Memorial Institute and others

NC STEM COMMUNITY COLLABORATIVE

Building a Network of STEM Communities



Ready to Launch
3 STEM Communities engaged in 2009

Emerging/Incubating Communities
Future STEM Communities being identified

NC STEM COMMUNITY COLLABORATIVE

Davie County STEM Collaborative

Education Innovation Plan:

The Davie County Community is working to create a sustainable K-20 STEM culture by ***building innovative external and internal professional development models*** in ***collaboration with business, industry, government, higher education, school and private partners.*** Innovations to be tested include:

- Teacher staffing/training models
- Teacher learning teams,
- Residency programs,
- The use of blended technology and alternative teacher evaluation systems.

2010 Steps:

- New Davie High School with teacher/STEM design with American Architecture Foundation
- Business & Implementation Planning (Q1-2)
- Sharing Mebane Masters model across network
- Partnering with 2+ UNC Schools of Education for model prototyping

NC STEM COMMUNITY COLLABORATIVE

Ft. Bragg STEM Collaborative

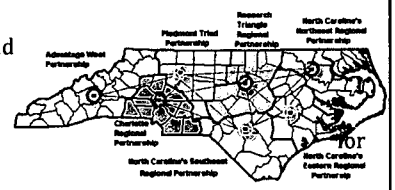
Education Innovation Plan:

The Fort Bragg Region has identified "21st Century Teaching and Learning in Innovative Environments" as the focus of their plan. Through a ***regionaldistributed learning network of enhanced technology classrooms***, the Fort Bragg region can promote and enable integrated learning, investigation, and questioning.

- Teachers connected with cutting edge researchers, subject matter experts and technologically assisted on-site professional development.
- STEM access/skills will become interdisciplinary, international, and virtually unlimited.
- Students will have access to support structures to become experienced problem-solvers, innovative thinkers, and intellectually curious.

2010 Steps:

- Aligning technology enhancements with content and teacher prep from around the state
- Connecting work to business & military assets
- Business & Implementation planning multi-county scaling



NC STEM COMMUNITY COLLABORATIVE

Lenoir County STEM Collaborative

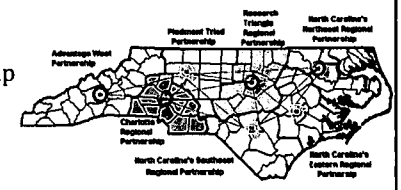
Education Innovation Plan:

The Lenoir County Community will create a ***STEM HUB:***

- Networks internal and external STEM resources to promote experience-based learning opportunities for teachers and students.
- Will serve as an incubator of innovation in areas such as industry-based curricula, STEM research, blended education technology and professional development.
- Anticipated location: on the corporate campus of an aerospace industrial park

2010 Steps:

- Presentation to JOBS Commission 1/28
- Business & Implementation Plan in partnership with NC resources
- Connect with regional aerospace education resources and other clusters



NC STEM COMMUNITY COLLABORATIVE

NC STEM Community Collaborative

NC STEM COMMUNITY COLLABORATIVE

MCNC

2010

NC STEM Community Collaborative will:

- **Transition 3 STEM Communities** to implement their innovations
- **Partner in up to 4 new communities** to deliver Community Visioning & Design Process
- **Recruit private and public sector investments** to support innovation that ties education to local economies
- **Grow and connect STEM network of resources in NC & beyond**

NC STEM Advisory Panel

- **Advise on activities and support mechanisms of NC STEM**
- **Advise on NC STEM role in broader NC landscape**
- **Not a fiduciary or operational board**
- **Provide recommendations in alignment with JOBS Legislation**

NC STEM COMMUNITY COLLABORATIVE

MCNC

Role of JOBS Commission

"Section 5. The Commission shall also study issues related to economic growth by the creation of measures and metrics which define the readiness of a community to deliver to all stakeholders the services that equip the workforce to be competitive in a STEM-intensive economy, including ensuring that students throughout the education pipeline gain the skills learned from science, technology, engineering, math, and other rigorous subjects. As a part of its study, the Commission may examine issues related to:

1. *A **replicable and perpetual model** for aligning efforts of local business, industry, policy, and education stakeholders in community engagement for visioning student-centered learning;*
2. *The **documentation and study of the innovative education programs** critical for communities to be competitive in the STEM environment in the twenty-first century;*
3. *A framework to **network these economic development regions, aligning State, regional, and external investment in replicable innovation**;*
4. *Opportunities **to leverage existing research, programs** such as the College Foundation of North Carolina Bridges program, and other resources to maximize the impact of these existing resources and assets to avoid duplication, to achieve greater economies of scale, and to **broaden the impact of these efforts by the most cost-effective means possible**; and*
5. *Any other topics deemed relevant by the Commission."*

NC STEM COMMUNITY COLLABORATIVE

MCNC

Karl T. Rectanus
Leader, NC STEM Community Collaborative

karl@ncstem.org

NC STEM COMMUNITY COLLABORATIVE

MCNC

KENAN FELLOWS PROGRAM
FOR CURRICULUM AND LEADERSHIP DEVELOPMENT

About the Program

The Kenan Fellows Program for Curriculum and Leadership Development is a competitive two-year fellowship offered to K-12 public school teachers.

The mission of the Kenan Fellows Program is to enhance curriculum relevance for the benefit of all students; engage teachers, business, and universities through unique professional collaboration; and promote growth opportunities for teachers and the teaching profession.

The Kenan Fellows Program for Curriculum and Leadership Development, established in 2000, grew from a community effort to address the retention of effective math and science teachers in North Carolina's Research Triangle region. In response to the work of prominent organizations that have focused public attention on critical needs in our public schools, it recognizes the key role of strong teachers and the value of STEM (science, technology, engineering and math) education in the global economy.

In 2000, the National Commission on Mathematics and Science Teaching for the 21st Century emphasized the importance of high quality math and science instruction to the nation's economic health and made specific recommendations to meet that need, including the establishment of summer institutes, exemplary professional development, good leadership training, and incentive programs to make the teaching profession more attractive. The National Science Board's assessment of the nation's scientific and technical capacity in 2008 showed that despite some recent gains, "most 4th, 8th, and 12th graders do not perform at levels considered proficient for their grade" and "U.S. students perform below average in mathematics and science for industrialized countries."

The Kenan Fellows Program is designed to meet these challenges.

Leveraging Partnership Power

The Kenan Fellows Program taps a wealth of professional expertise in North Carolina's university and private sector research facilities. The program enriches teachers' knowledge and promotes innovation and creativity by supporting collaboration between K-12 public school teachers and professionals in rapidly developing areas of science, technology, engineering and math. Teachers selected as Fellows engage in two-year partnerships with distinguished scientists to learn about important new developments and to gain an understanding of the significance of current research and scientific practice for students.

Energizing School Curriculum

Each Mentor/Fellow pair works to translate the research experience into relevant lessons for use in classrooms. Interaction with practitioners of state-of-the-art science, and professional development in the area of curriculum design helps Kenan Fellows create innovative curricular tools and resources aligned with the North Carolina Standard Course of Study. In Summer Institutes focused on instructional leadership, Fellows build advanced skills in collegial environments that allow for sharing of knowledge and encourage them to apply their experiences in the context of their own classrooms. The 21st Century workplace challenges students to be problem solvers, team players and to think systemically. Relevant and engaging lessons designed by Fellows reflect those needs by providing rich, new opportunities for hands-on, inquiry-based study.

Promoting Teacher Leadership

The Kenan Fellows Program builds strong leadership skills in outstanding teachers eager to develop their understanding of the real "enterprise" of scientific research and translate their new knowledge into improved teaching and learning in their classrooms. Fellows work to develop strong communication and advocacy skills. They engage regularly in dialog with leaders and policy-makers whose work impacts schools and classrooms. They learn how to maximize the effectiveness of the diverse talents in their school communities. Over time, the Kenan Fellows Program seeks to build a network of highly skilled teacher leaders committed to improving the quality of math and science education in classrooms across North Carolina.

###

The Kenan Fellows Program is an initiative of the Kenan Institute for Engineering, Technology & Science, and is generously supported by funding from business, government, foundations, research grants, and individual partners.

www.kenanfellows.org

KENAN FELLOWS PROGRAM
FOR CURRICULUM AND LEADERSHIP DEVELOPMENT

The Kenan Fellow

Kenan Fellows are carefully selected from among the most effective North Carolina public school teachers. While remaining active in the classroom, Fellows participate in a rigorous two-year program that provides opportunities to interact professionally with other outstanding teachers, policy leaders and research scientists, and offers professional development aimed at building strong instructional leadership skills.

Our public schools face challenges as they work to graduate students prepared for the 21st Century: shortages of qualified math and science teachers and a dearth of engaging and relevant instructional materials. There is a pressing need for education leaders who understand the significance of fast breaking changes in STEM fields and who can effectively advocate for instruction that provides young people the skills they need.

Kenan Fellows are prepared to meet the challenge. Fellows work closely with university or private sector research Mentors to learn about significant developments in STEM fields and gain critical insight into current practice. They engage with other successful teachers in discussions with key policy leaders, communication training, and professional development in organizational leadership and advanced curriculum design. Each Fellow produces instructional materials that convey the excitement of interesting new research to K-12 students.

Kenan Fellowships work to keep the very best STEM teachers in our schools and to give them current, 'outside-the-classroom' knowledge. The Fellowships reward and encourage their efforts to see that our schools offer quality math and science programs. The Kenan Fellow cohort of well-informed and highly skilled teachers is an important asset to North Carolina as it readies its young citizens and its economy for the future.

Profile: Roxanne Moses, 6th grade mathematics, science, and social studies teacher at East Mooresville Intermediate School

Given the proximity of NASCAR, it was only natural that the topic of Roxanne Moses' project was "On Track Learning." Mentors Dr. Ed Maxa and Dr. Eric Klang from NC State University, along with 4-H Extension Assistant Jackie Helton, had been working together for a number of years to promote opportunities to connect the excitement of innovative racing technology to the curriculum in math and science classrooms. John Dodson, NASCAR Team Relations Director at the NASCAR Technical Institute, joined the project as a Mentor and was a valuable source of technical knowledge and stories on the history of racing. Though the project was developed to align with the NC Standard Course of Study, it demonstrates the national reach of the Kenan Fellows Program. Teachers from New York and Minnesota have used the lessons. They report that not only did students create interesting and unique designs, they thoroughly enjoyed the experience and mastered the science concepts.

KENAN FELLOWS PROGRAM
FOR CURRICULUM AND LEADERSHIP DEVELOPMENT

The Mentor

University and private sector research Mentors help open the door to the 'real enterprise' of scientific research for K-12 teachers and students. The Mentor provides support for a Kenan Fellow throughout the two-year fellowship, sharing insight into his or her work through discussion, collaboration and observation, and consulting on the development of the Fellow's curriculum project.

Mentors are uniquely equipped to expose Fellows to current developments and technologies by providing 'outside-the-classroom' experiences that give teachers critical perspective on the importance of their role in preparing students for future study and work in STEM fields. Mentors often assist by offering opportunities for networking, presenting and entrepreneurship. In some cases Fellows have co-authored papers with their Mentors, and have accompanied them to conferences or on research expeditions.

The curriculum project is a joint effort between the Fellow and Mentor. The Mentor provides up-to-date scientific expertise and knowledge based on his or her research and the project profile. The Fellow ensures that the project is age appropriate, educationally sound and supports the NC Standard Course of Study. Together, the team works to produce new lessons that are relevant and engaging, and that bring the excitement of cutting-edge science into the classroom.

The Mentor will become familiar with the teacher's work by visiting the classroom to present or co-teach, and will participate in Fireside Chats and other Fellowship events. Participation in the program provides Mentors with the opportunity to contribute to the depth and relevance of instruction at the K-12 level.

Profile: Dr. JoAnn Burkholder, Associate Professor of Aquatic Botany and Marine Sciences at NC State University

Dr. Burkholder has been a longtime supporter of the program, as an advisor, a reviewer for new applicants and a Mentor. She and Southwest Guilford High School teacher Diane Whitaker collaborated on "The Analysis of Water Runoff and Its Implications for Aquatic Wildlife", a curriculum project that teaches students to use storm water collection data gained through authentic field studies, computer mapping, and modeling to better understand the relationship between abiotic factors and the health of aquatic habitats. Ms. Whitaker has had unique field and lab experience, joining Dr. Burkholder on her research vessel on the Neuse River. They have presented together at conferences and Dr. Burkholder has been a frequent guest in the classroom. The true culmination of this partnership came when Ms. Whitaker and two of her students were accepted by The North Carolina International Science Challenge (NCISC) to compete at the 2007 Beijing Youth Science Creation Competition in China.

KENAN FELLOWS PROGRAM
FOR CURRICULUM AND LEADERSHIP DEVELOPMENT

Impact: Kenan Fellows Program for Curriculum and Leadership Development

Since 2001, Kenan Fellowships have been awarded to 108 teachers from 20 North Carolina school districts. The Program continues to expand.

Developing and Retaining Teacher Leaders in NC

An independent evaluator has provided the Kenan Fellows Program with data since 2003. These data suggest compelling program results. For example:

- More than 80% of Kenan Fellows report that their program participation has helped them become instructional leaders in their school, and helped them expand their leadership roles through interactions with educational leaders and policy makers.
- Many Kenan Fellows (53%) have received some type of educational award ***since*** entering the program, such as "Teacher of the Year" in their school or district. In addition, almost half (46%) have received a grant award during this time.
- Approximately three-quarters (76%) of Kenan Fellows have made professional presentations or provided formal professional development to their colleagues at their schools or at state, national and international conferences since joining the program.
- A substantial majority (83%) of all Kenan Fellows are still teaching. All but one of the Fellows who have left the classroom remain in the education field as leaders in some capacity (e.g., education consultant with NCDPI or school principal). Given that often the best STEM teachers leave teaching for other more lucrative professions, the program may provide a cost effective way to encourage Fellows to remain in the classroom or exert their influence more broadly in some other educational capacity.

Kenan Fellows make significant gains in their leadership skills and the extent to which they are involved in leadership activities, as evidenced by pre- and post-test data. The areas most significantly impacted have been mentoring and coaching fellow teachers, conducting classroom action research, and understanding educational policy issues, which are all key program target areas.

Many Fellows describe increased self-confidence since joining the program. They report that it positively impacted their willingness to remain in the profession and be a leader and advocate. As Kenan Fellow Laura Ruble explains:

> *"After my third year as a teacher, I created a list of "alternate professions" to consider. I stuck it out for another year, but still felt relatively isolated. Opportunities for growth and advancement seemed rare, and I felt that I had reached my maximum potential in the classroom. With entrance into the Kenan Fellows Program, I realized that I did have the power to affect change, to advocate for teacher leadership and to improve the profession for myself and others around me. I received professional development, training, valuable insights and even my National Board Certification. I am confident that teaching is where I belong."*

Advancing the Art of Teaching through Innovative Curriculum Development and Dissemination

Almost all Kenan Fellows report significant improvement in their teaching skills, including the use of classroom technology, presentation skills, content knowledge, and research skills. Fellows have provided very highly rated presentations of their curriculum projects at conferences attended by teachers from more than 50 NC counties, the nation and the world. Kenan Fellows not only improve their teaching through program participation, they motivate colleagues to improve; in fact, 86% of former Fellows believe their colleagues have experienced benefits from their participation. As 2010 Fellow Lisa Hibler, a high school chemistry teacher, stated:

> *"The Kenan Fellows program provides the opportunity to expand your understanding of your subject matter so that you can provide students with applications of science as well as future careers in science. Other teachers recognize the value of this knowledge and are grateful when you share materials, time and advice."*

Building Relationships to Enhance STEM Education

A key component of the Kenan Fellows Program is to help Fellows develop partnership-building skills. Partnerships with research mentors and other stakeholders in the effort to improve STEM education are essential to the success of the Kenan Fellows Program and strengthen community and business support for education. Fellows believe these partnerships have broadened their interests and are essential to their success as educators in the 21st century. Holly Hanrahan, an award winning Kenan Fellow, notes:

> *"...I've done things through this program that I hadn't dared dream I was capable of, like speaking internationally to 50 or so NASA and ESA scientists who are responsible for landing spacecraft. Since joining Kenan Fellows in 2002, I am proud of what I've accomplished; people come to me with questions, and I've made hundreds of connections with scientists and educators across the nation."*

Conclusion

Ongoing evaluation[1] suggests the Kenan Fellows Program is clearly fulfilling its goals and provides a much-needed benefit to the state of North Carolina in the areas of science and mathematics education. Outstanding educators are given an opportunity to hone their teaching and leadership skills, making them more likely to remain in the classroom. In addition, Kenan Fellows' work with researchers to develop and disseminate cutting-edge curriculum invigorates STEM education in North Carolina. Results on dissemination of Fellows' new lessons for students and the professional support they provide to their colleagues suggest the Kenan Fellows Program is an effective way to enhance STEM education in North Carolina. Plans are in progress to assess program impact on student achievement, student learning and attitudes towards STEM topics and careers.

---

[1]To access the full report, please go to: www.kenanfellows.org

The Kenan Fellows Program is an initiative of the Kenan Institute for Engineering, Technology & Science at North Carolina State University.

(Fall, 2009)

KENAN FELLOWS PROGRAM
FOR CURRICULUM AND LEADERSHIP DEVELOPMENT

Cost to Support One Kenan Fellow for a Two-Year Fellowship

Program costs:

- Fellow stipend, including
  - Lab materials and supplies
  - Travel and lodging expenses
  - Conference registration and fees to attend and present annually at a recognized conference for professional educators
  - Substitute pay
- Laptop and software
- Web development support
- Tuition and course fees for six graduate credits at NC State University in Curriculum and Instruction or Science Education
- Two Summer Institutes for Professional Development
  - Meals
  - Educational materials and books
  - Presenters
  - Travel and lodging
- Fireside Chats and other meetings and seminars during the academic year
- Mentor stipend

Total cost to support a two-year Fellowship is $25,000.

MINUTES
JOINING OUR BUSINESSES AND SCHOOLS (JOBS) COMMISSION MEETING
2009-10 Session
January 28, 2010

The Joining Our Businesses and Schools Commission met on Thursday, January 28, 2010 in Brown Auditorium at Nash Community College. Lt. Governor Walter Dalton, Chairman, presided. The following members of the Senate were in attendance: Vice-Chair Swindell and Senator Brown. The following members of the House were in attendance: Representative Braxton. The following public members were in attendance: Grant Godwin, Laura Bingham, Felicia Watson, Howard Lee, Laura Willoughby, Karl Rectanus, Sam Houston, Bob Beichner, Susan Purser, Caroline McCullen, Pam Townsend, and Mike Murphy. The following members of the legislative research staff were in attendance: Shirley Iorio and Kara McCraw. Jessica Macaluso, Committee Clerk, was also present at the meeting.

Chairman Dalton called the meeting to order at 1:05pm and welcomed members and guests to the meeting.

The Chair recognized Vice Chair Swindell, who asked the Commission members to introduce themselves and discuss briefly why they believe that the JOBS commission is so important.

The Chair then recognized John Chaffee, President and CEO of the North Carolina Eastern Region Partnership. Mr. Chaffee reviewed a powerpoint entitled North Carolina Eastern Region – An Economic Development Partnership (Attachment 1). He stated that the career clusters that make most sense for his region are advanced manufacturing and healthcare. Mr. Chaffee feels that focusing on these clusters will help the Eastern Region be successful in the current and future economy. The Eastern Region has several initiatives that are focused on these clusters, including the Military Task Force, Defense Aerospace Alliance Committee, BioEast Alliance, and the Global Innovation Network.

Next, the Chair recognized Karl Rectanus, who introduced Tom Vermillion, President of Lenoir County Committee of 100. Mr. Vermillion, along with Rick Davis, NC Site Operations Director for Spirit Aerosystems, Steve Hill, Secondary Education Coordinator for Lenoir Public Schools and Nathaniel Vause, President and CEO of Granville Academy, reviewed a powerpoint entitled Got STEM? Lenoir County STEM Community Collaborative (Attachment 2).

The Chair announced a 15 minute break.

The Chair called the meeting back to order at 2:25pm. He then recognized Tricia Willoughby, Executive Director of North Carolina Business Committee for Education, to moderate a Business and Education Panel. Included on this panel were Dr. Annette

Brown, Assistant Superindendent for Instructional Services and Accountability for Craven County School System, Dr. Bill Carver, President of Nash Community College, Rick Davis, NC Site Operations Director for Spirit Aerosystems, Dan Gerlach, President of the Golden LEAF foundation, Dr. Michael Priddy, Partner in New Hope Foundation and Retired School Superintendent, and Tyree Walker, Chief Human Resources Officer for University Health Services.

First, Ms. Willoughby asked the business members of the panel what skills they are looking for in their workforce. Mr. Walker responded that UHS is looking for strong communications skills, critical thinking skills, and customer service skills. He also stated that they are looking for social media skill sets. Mr. Davis commented that Spirit is looking for engineering skills and technical skills. Mr. Gerlach mentioned that he thinks that leadership skills should not be overlooked.

Ms. Willougby asked the education members of the panel what they are hearing from businesses. Dr. Carver said he was hearing a lot about teamwork and communication skills. Dr. Brown echoed Dr. Carver's comments about teamwork and collaboration. She also mentioned that technology is on the forefront of education collaboration. Dr. Priddy indicated that in North Carolina's rural areas, children don't have as many opportunities to observe work and learn basic customer service skills. There was then a discussion about Allied Health careers. Mr. Walker commented that there are 30 employees at UHS for every 1 doctor. Mr. Davis said that he feels that the STEM initiative in North Carolina is going to help draw new businesses to the state. Dr. Carver stated that strong partnerships, entrepreneurship, and sustainability are all critical because it takes a lot of money to have these sort of educational programs. Mr. Davis stated that his company values continuing education and in fact his company will pay for an employee to have continuing education.

Ms. Willoughby asked the education members about economic development and how they see education adding to economic development. Dr. Carver responded that he sees Nash Community College, and all Community Colleges, as being an integral part of economic development. He stated that many businesses see this economic downturn as an opportunity to aggressively train their employees via the community college system. He added that the early college program adds so much to the community because it allows the community college system to push the training down to 8th grade. Dr. Brown indicated that it had been difficult to keep engineers in Eastern North Carolina. Keeping engineers and other trained, skilled people in the region is critical and that the community colleges are a fundamental part of solving that problem.

Ms. Willoughby then asked the audience for questions.

Earl Brinkman, a member of the audience, relayed a story about a Turkish man who sent his three children to NC universities but wanted them to have their high school education in Turkey and he sees that as a challenge. He also said we should foster innovation.

Dr. Brown commented that you need to consider integration in subjects for high school teachers.

Senator Brown commented that the automobile industry is changing quickly and the workers in that industry need to be able to adapt quickly.

Mr. Beichner wanted to commend the panel for joining our businesses and schools in exactly the way he was hoping to see the JOBS commission work.

Ms. McCullen thanked the panel for reminding the commission members of why the JOBS commission is here. She then outlined several programs that SAS has supported to join businesses and schools together.
Ms. Bingham echoed Ms. McCullen's thanks to the panel. She also stated that she feels that we are at a point where the economic regions need jobs now for the short term but the regions need jobs that are longer termed and sustainable, and that are based on competencies instead of skills.
The Chair thanked the panel for all of their work and their comments. The Chair then turned the meeting over to Senator Swindell to chair the remainder of the meeting.

The Chair then recognized the Principal of the Nash Community College Early College program, who introduced students Drucilla Cofield, Hasan Hasan, and William Heath. The students gave their perspectives on their Early College experiences (Attachment 3).

The Chair then asked the audience for any questions or comments. Dr. Jim Westmoreland, associate dean for external affairs at ECU, expressed the importance of partnerships between the University system and the community colleges.
Rep. Jean Farmer-Butterfield stated that she was familiar with Nash Community College's program and the excellent work they do.

The Chair adjourned the meeting at 4:15pm.

Respectfully submitted,

_____
Lt. Gov. Walter Dalton, Chairman

ATTEST:

_____
Jessica Macaluso, Committee Assistant

1336595

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. Jan. 28, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Jim Chaffee	NCER - Kinston	chaffee@nceast.org
Julie Ricciardi	Peace College	jricciardi@peace.edu
Ellen Berton	Lenoir Co. Schools Kinston	eberton@lenoir.k12.nc.us
Charlie Harrell	Edge. Com. College	harrelle@edgecombe.edu
Kevin Smith	Duplin Early College High School	ksmith@duplinschools.net
Erlene Brogden	Wayne Co. Schools	erlenebrogden@wcps.org
Joe Tolson	NC Gen. Assembly	
Jessie Jones	Edgecombe Comm College	jessiej@embarqmail.com
Amelia Harper	Nashville Graphic Nashville	news@nashgraphic.com
Mary Paramore	PCC	mparamore@email.pitt.edu

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. Jan. 28, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Phil Hamilton	Mount Olive College	phamilton@moc.edu
Jim Pridgen	Farmway Outdoor	JPridgen@Farmway.com
Tammy Longmire	DHHS Vocational Rehab	tammy.longmire@dhhs.nc.gov
Jon Nathan Campbell	Wilson Community College	jc1595@mycwilsoncc.edu
Deborah Lemm	Edgecombe Comm College	lemmd@edgecombe.edu
Steve Rogers	ESC Tobacco Rocky Mt	steve.rogers@ncesc.gov
Tonya M. Faison	Wayne County Public Schs	tonyafaison@wcps.org
Wil Van Dal	NASH CC	wilvan@nashcc.edu
Larry Price	Wilson Co. Schools	larry.price@mail.wilson.k12.nc.us
Jimmie Ford	St. Bd. Comm. College	Jimmieeford@bellsouth.net
Debbie Griffiths	NCC	debg@nashcc.edu

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. Jan. 28, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Mark Sorrells	Golden LEAF Fdn	msorrells@goldenleaf.org
George Cook	Havelock Chamber	nitenfrog@Gmail.Com
Vicki Lemmond	Pate Dawson Co	vlemmond@pdco.com
Earl Brinkley	NCER Eastern Region	efbsr146@aol.com
Michael Fagan	Attends Healthcare	mfagan@Attends.com
Todd Browder	Attends Healthcare	tbrowder@attends.com
Don Gerlach	Golden LEAF	dgerlach@goldenleaf.org
Michael D Priddy	New Hope Foundation	mdpriddy@sadlerlink.net
Tommy Murphy	NC Vec. Rehab.	Tommy.P.Murphy@DHHS.NC.GOV
Michael Bracy	Jones County Schools	michael.bracy@jonesnc.net
Donald Barringer	Office of the Governor	donald.barringer@ncgov

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. Jan. 28, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Susanne Santelle	Greenville - Pitt Chamber	susanne@greenvillenc.org
Sue Dudley	Alliance One Int'l	sdudley@aointl.com
Sherry Pridgen	Vocational Rehab, Rocky Mount, NC	sherry.pridgen@dhhs.nc.gov
Robert M. Jones	Jones County Schools	robot728573@yahoo.com.
Evelyn Shaw Wilson	1809 Stancil Dr. Rocky Mt. N.C. 27801-3034	ewilson@ECPS.US
ARTHUR NAMOTHE	405 FOREST PARK RD ELIZABETH C. NY N.C.	MEFLY01@YAHOO.COM
Patsy Jones	ESC 302 W Tarboro St. Wilson NC 27851	patsy.b.jones@ncesc.gov.
Charles Brogden	Franklin Baking Co. PO Box 228 Goldsboro NC 27530	Charles_Brogden@flocorp.com
Carla Dunston	Nash Community College 522 N. Old Carriage Rd.	cdunston@nashcc.edu

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. Jan. 28, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Caroline McCall	SAS	
Deandra Dixon	Lenoir Community College P.O. Box 188, Kinston NC 28501	deandrafd@yahoo.com
Ed Wilson	Wayne County Chamber of Commerce	ehwilson1944@yahoo.com
ALLAN LIBBY	SURF CITY 28445 Box 2475 · SURF CITY	alibby@townofsurfcity.com
STEPHANIE Duncan	Havelock Chamber of Commerce P.O. Box 21 Havelock, NC 28532	stephanie@havelockchamber.org
Kathy Howard	NC Eastern Region Kinston, NC	howard@nceast.org
LAYNE HARPINE	CRAVEN COMMUNITY COLLEGE NEW BERN, NC	HARPINEL@CRAVENCC.EDU
JIM WESTMORELAND	College of Business EAST CAROLINA University Greenville NC 27858	Westmorelandj@ecu.edu
ALLEN SMITH	Greene - Pitt CHAMBER	allen@greenvillenc.org
Chris Roberson	Greene County 229 Kingold Blvd. Suite D Snow Hill, N.C. 28580	croberson@co.greene.nc.us
CINDI JOLLY	NC STEM, Raleigh NC	cjolly@ncstem.org

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. Jan. 28, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Steve Swan	Butterball LLC	sswan@butterball.com
Beverly Hinson	Butterball LLC	bhinson@butterball.com
JOHN WOOTEN	TARBORO - CEO	wootenwin2@embarqmail.com
Brian Miller	Pitt CC	bmiller@email.pittcc.edu
Harrwood	ECU	harrwood@ECU.EDU
JoBeth Cobb	Tarboro Edgc. Chamber	jbcobb@TarboroChamber.com
Willa Dickens	NCCCS	dickenswl@nccommunitycolleges.edu
David Combs	Mayor Rocky Mount	czicombs@gol.com
Tom Rogers	Rocky Mt. City Council	tom.Rogers@suddenlink.net
Ricky Parks	Political Candidate	rwparks2@gmail.com
Phelps Bullock	Nash Rocky Mount Schools	

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. Jan. 28, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Al Pridgen	Southern Loans	APridgen@Southern-Loans.Com
MARY Wells	Wash Co Comm. Korefiring Cleaners	ONKINA@AOL.COM.
RUSTY STEPHENS	WILSON COM COL.	RSTEPHENS@WILSONCC.EDU
Buster Upchurch	City State Univ	BN Jackson@mail.ncsu.edu
Wendy Marlowe	Nash Comm College 522 N. Old Carriage Rd Rocky Mt, NC 27804	wmarlowe@nashcc.edu
Diane Ivey	Wayne CC PO Box 3002 Goldsboro NC 27533	dtivey@waynecc.edu
Jim Holt	RN Telegram	jholt@rnntelegram.com
Howard Johnson	CTSEHS	
Lawrence Rouse	James Sprunt com. coll	lrouse@jamessprunt.edu
Patrick Miller	Greene Co. Schools	patrickmiller@greene.k12.nc.us

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. Jan. 28, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Wiley Doby	Duplin Co. Schools - Supt. 315 N. Main St. Kenansville, NC 28349	wdoby@duplinschools.net
Kelly Jarman	Lenoir County Schools PO Box 929 Kinston, NC 28502	kjarman@lenoir.k12.nc.us
J. Lynn Cale	ECC	calel@edgecombe.edu
Betty Jo Shepherd	Senator Richard Burr	bettyjo_shepherd@burr.senate.gov
Cindy Ingram	Wilson Econ. Dev. Council	caingram@wilsonedc.com
Aaron Drum	NC Dept Schools Gov. Commission on ED	sdrum@nrms.k12.nc.us
Michael Williams	Turning Point WDB	mwilliams@turningpointwdb.org
Jennifer Short	Halifax County, Chief Court Counselor Department of Juv. Just.	jennifer.short@djjay.nc.gov
Joan McGinnis	Onslow County Schools	joan.mcginnis@onslow.k12.nc.us
Sharon Collins	ECU, Greenville, NC	collinss@ecu.edu
Mical McFarland	Commerce Div. of Workforce Devlpmt.	mmcfarland@nccommerce.com

VISITOR REGISTRATION SHEET

JT. Legislative Jobs Study Comm. 1. 28. 2010

Name of Committee Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	email
Michael Simmons	Turning Point Workforce Development	msimmons@turningpointwdb.org
Kristi Snuggs	Edgecombe Community College	snuggsk@edgecombe.edu
Kelley Deal	Nash Community College	Kdeal@nashcc.edu
Debra H. Allen	Nash-Rocky Mt. Public Schools 930 Eastern Ave, Nashville 27856	dhallen@NRMS.K12.NC.US
Deborah Grimes	LCC	dgrimes@lenoircc.edu
Elaine Harrison	Nash Healthcare System	ewharrison@NHCS.com
John Gessaman	Carolinas Gateway Partnership	jrgessaman@econdev.org
Takyla Smith	MSH Insurance	twsmith@mshins.com
Tony Caravano	US Senator Hagan	
Gregory Royal	OIC	gkRoyal@aol.com

VISITOR REGISTRATION SHEET

JT. Legislative Jobs Study Comm. 1.28.2010

Name of Committee Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	email
EARL SPEIGHT JR	COMMITTEE TO ELECT Frankie Bordeaux NC Senate	aei2120@yahoo.com
Norma Turnage	St. Board of Community Colleges	
Michael Crenshaw	Nash Rocky	
Craig Witherspoon	Edgecombe Co. Schools	cwitherspoon@ecps.us
LaWanna Worden	OCDC 308 Western Blvd Jacksonville NC	lawanna.worden@onslowkids.org
Tyree Walker	University Health Systems	TWalker@PCMH.com
Larry Gracie	Pamlico CC	LGracie@Pamlicocc.edu
Verna Gessman	RBC Bank	verna.gessman@

VISITOR REGISTRATION SHEET

JT. Legislative Jobs Study Comm. 1.28.2010

Name of Committee Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	Email
Candy Scott	Onslow Partnership for Children	candy.scott@onslowkids.org
Annette Brown	Craven Co. Schools	
Jean Farmer-Butterfield	NC General Assembly	

MINUTES
JOINING OUR BUSINESSES AND SCHOOLS (JOBS) COMMISSION
MEETING
2009-10 Session
January 28, 2010

The Joining Our Businesses and Schools Commission met on Thursday, January 28, 2010 in Brown Auditorium at Nash Community College. Lt. Governor Walter Dalton, Chairman, presided. The following members of the Senate were in attendance: Vice-Chair Swindell and Senator Brown. The following members of the House were in attendance: Representative Braxton. The following public members were in attendance: Grant Godwin, Laura Bingham, Felicia Watson, Howard Lee, Laura Willoughby, Karl Rectanus, Sam Houston, Bob Beichner, Susan Purser, Caroline McCullen, Pam Townsend, and Mike Murphy. The following members of the legislative research staff were in attendance: Shirley Iorio and Kara McCraw. Jessica Macaluso, Committee Clerk, was also present at the meeting.

Chairman Dalton called the meeting to order at 1:05pm and welcomed members and guests to the meeting.

The Chair recognized Vice Chair Swindell, who asked the Commission members to introduce themselves and discuss briefly why they believe that the JOBS commission is so important.

The Chair then recognized John Chaffee, President and CEO of the North Carolina Eastern Region Partnership. Mr. Chaffee reviewed a powerpoint entitled North Carolina Eastern Region – An Economic Development Partnership (Attachment 1). He stated that the career clusters that make most sense for his region are advanced manufacturing and healthcare. Mr. Chaffee feels that focusing on these clusters will help the Eastern Region be successful in the current and future economy. The Eastern Region has several initiatives that are focused on these clusters, including the Military Task Force, Defense Aerospace Alliance Committee, BioEast Alliance, and the Global Innovation Network.

Next, the Chair recognized Karl Rectanus, who introduced Tom Vermillion, President of Lenoir County Committee of 100. Mr. Vermillion, along with Rick Davis, NC Site Operations Director for Spirit Aerosystems, Steve Hill, Secondary Education Coordinator for Lenoir Public Schools and Nathaniel Vause, President and CEO of Granville Academy, reviewed a powerpoint entitled Got STEM? Lenoir County STEM Community Collaborative (Attachment 2).

The Chair announced a 15 minute break.

The Chair called the meeting back to order at 2:25pm. He then recognized Tricia Willoughby, Executive Director of North Carolina Business Committee for Education, to moderate a Business and Education Panel. Included on this panel were Dr. Annette

Brown, Assistant Superindendent for Instructional Services and Accountability for Craven County School System, Dr. Bill Carver, President of Nash Community College, Rick Davis, NC Site Operations Director for Spirit Aerosystems, Dan Gerlach, President of the Golden LEAF foundation, Dr. Michael Priddy, Partner in New Hope Foundation and Retired School Superintendent, and Tyree Walker, Chief Human Resources Officer for University Health Services.

First, Ms. Willoughby asked the business members of the panel what skills they are looking for in their workforce. Mr. Walker responded that UHS is looking for strong communications skills, critical thinking skills, and customer service skills. He also stated that they are looking for social media skill sets. Mr. Davis commented that Spirit is looking for engineering skills and technical skills. Mr. Gerlach mentioned that he thinks that leadership skills should not be overlooked.

Ms. Willougby asked the education members of the panel what they are hearing from businesses. Dr. Carver said he was hearing a lot about teamwork and communication skills. Dr. Brown echoed Dr. Carver's comments about teamwork and collaboration. She also mentioned that technology is on the forefront of education collaboration. Dr. Priddy indicated that in North Carolina's rural areas, children don't have as many opportunities to observe work and learn basic customer service skills. There was then a discussion about Allied Health careers. Mr. Walker commented that there are 30 employees at UHS for every 1 doctor. Mr. Davis said that he feels that the STEM initiative in North Carolina is going to help draw new businesses to the state. Dr. Carver stated that strong partnerships, entrepreneurship, and sustainability are all critical because it takes a lot of money to have these sort of educational programs. Mr. Davis stated that his company values continuing education and in fact his company will pay for an employee to have continuing education.

Ms. Willoughby asked the education members about economic development and how they see education adding to economic development. Dr. Carver responded that he sees Nash Community College, and all Community Colleges, as being an integral part of economic development. He stated that many businesses see this economic downturn as an opportunity to aggressively train their employees via the community college system. He added that the early college program adds so much to the community because it allows the community college system to push the training down to 8th grade. Dr. Brown indicated that it had been difficult to keep engineers in Eastern North Carolina. Keeping engineers and other trained, skilled people in the region is critical and that the community colleges are a fundamental part of solving that problem.

Ms. Willoughby then asked the audience for questions.

Earl Brinkman, a member of the audience, relayed a story about a Turkish man who sent his three children to NC universities but wanted them to have their high school education in Turkey and he sees that as a challenge. He also said we should foster innovation.

Dr. Brown commented that you need to consider integration in subjects for high school teachers.

Senator Brown commented that the automobile industry is changing quickly and the workers in that industry need to be able to adapt quickly.

Mr. Beichner wanted to commend the panel for joining our businesses and schools in exactly the way he was hoping to see the JOBS commission work.

Ms. McCullen thanked the panel for reminding the commission members of why the JOBS commission is here. She then outlined several programs that SAS has supported to join businesses and schools together.
Ms. Bingham echoed Ms. McCullen's thanks to the panel. She also stated that she feels that we are at a point where the economic regions need jobs now for the short term but the regions need jobs that are longer termed and sustainable, and that are based on competencies instead of skills.
The Chair thanked the panel for all of their work and their comments. The Chair then turned the meeting over to Senator Swindell to chair the remainder of the meeting.

The Chair then recognized the Principal of the Nash Community College Early College program, who introduced students Drucilla Cofield, Hasan Hasan, and William Heath. The students gave their perspectives on their Early College experiences (Attachment 3).

The Chair then asked the audience for any questions or comments. Dr. Jim Westmoreland, associate dean for external affairs at ECU, expressed the importance of partnerships between the University system and the community colleges.
Rep. Jean Farmer-Butterfield stated that she was familiar with Nash Community College's program and the excellent work they do.

The Chair adjourned the meeting at 4:15pm.

Respectfully submitted,

Lt. Gov. Walter Dalton, Chairman

ATTEST:

Jessica Macaluso, Committee Assistant

Eastern Region JOBS Commission Meeting

Thursday, January 28th
Brown Auditorium – Nash Community College
522 North Old Carriage Road
Rocky Mount, NC 27804

1:00 pm – JOBS Commission Meeting

1:10 – 1:40 pm – North Carolina's Eastern Region Partnership

- Presentation of Vision Plan – John Chaffee, President & CEO

1:40 – 2:10 pm – A Perfect Match: Lenoir County and NC STEM

- *John Chaffee, President - NC Eastern Region*
- *Rick Davis, NC Site Operations Director - Spirit AeroSystems*
- *Steve Hill, Secondary Education Coordinator - Lenoir Public Schools*
- *Nathaniel Vause, President & CEO - Granville Academy North Carolina*
- *Tom Vermillion, President – DEPS & Lenoir Committee of 100*

2:10 – 2:25 pm – Break

2:25 - 3:45 pm – Business & Education Panel

Moderator - Tricia Willoughby, Executive Director – North Carolina Business Committee for Education

- *Dr. Annette Brown, Assistant Superintendent for Instructional Services and Accountability – Craven County School System*
- *Dr. Bill Carver, President – Nash Community College*
- *Rick Davis, NC Site Operations Director – Spirit AeroSystems*
- *Dan Gerlach, President – Golden LEAF Foundation*
- *Dr. Michael Priddy, Partner – New Hope Foundation & Retired School Superintendent*
- *Tyree Walker, Chief Human Resources Officer – University Health Systems*

3:45 – 4:00 pm – Questions & Answers for the Panel

4:00 – 4:15 – Student Early College Presentation

Students enrolled in the Early College program at Nash Community College

- *Drucilla Cofield*
- *Hasan Hasan*
- *William Heath*

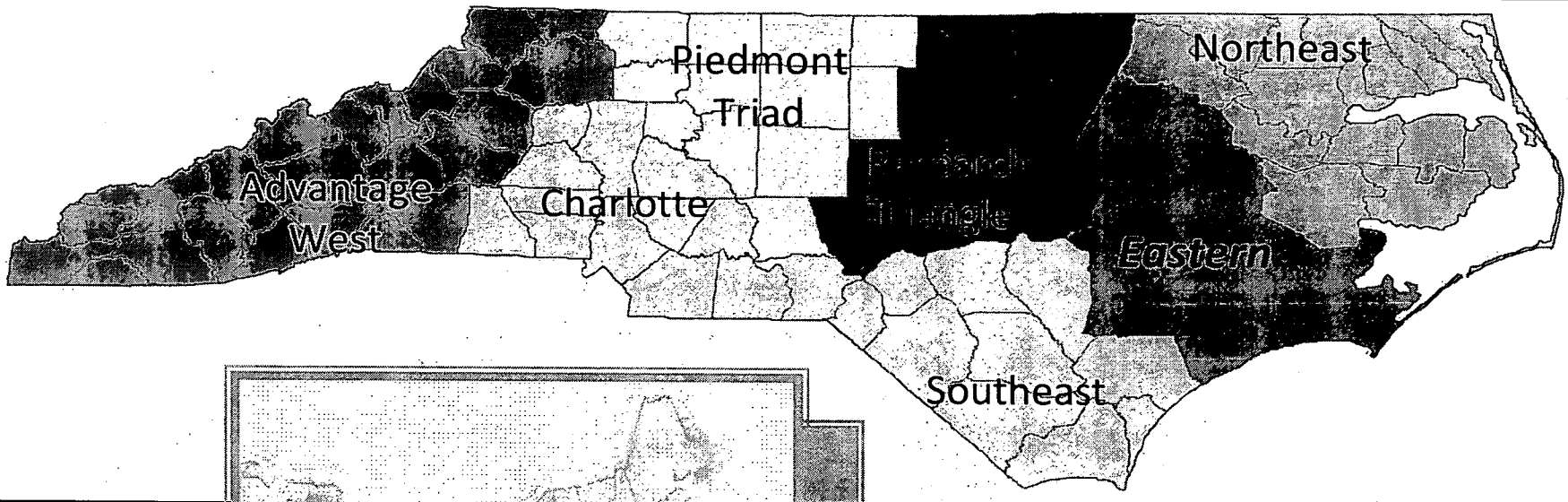
4:15 – 5:00 pm – Public Comments

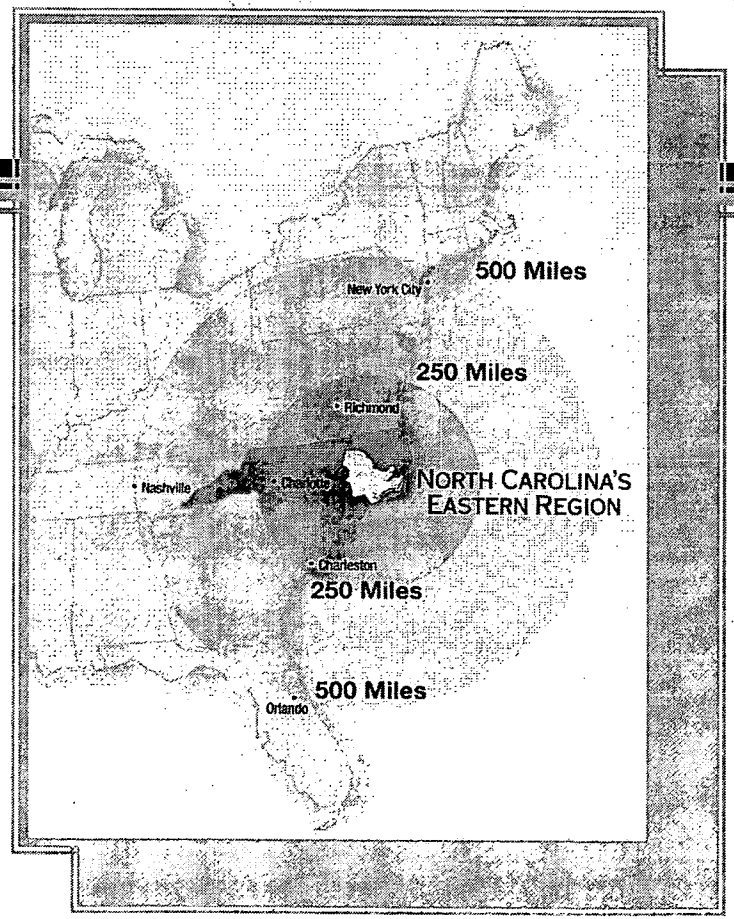
ATT 1

Attachment 1

NORTH CAROLINA'S EASTERN REGION

An Economic Development Partnership





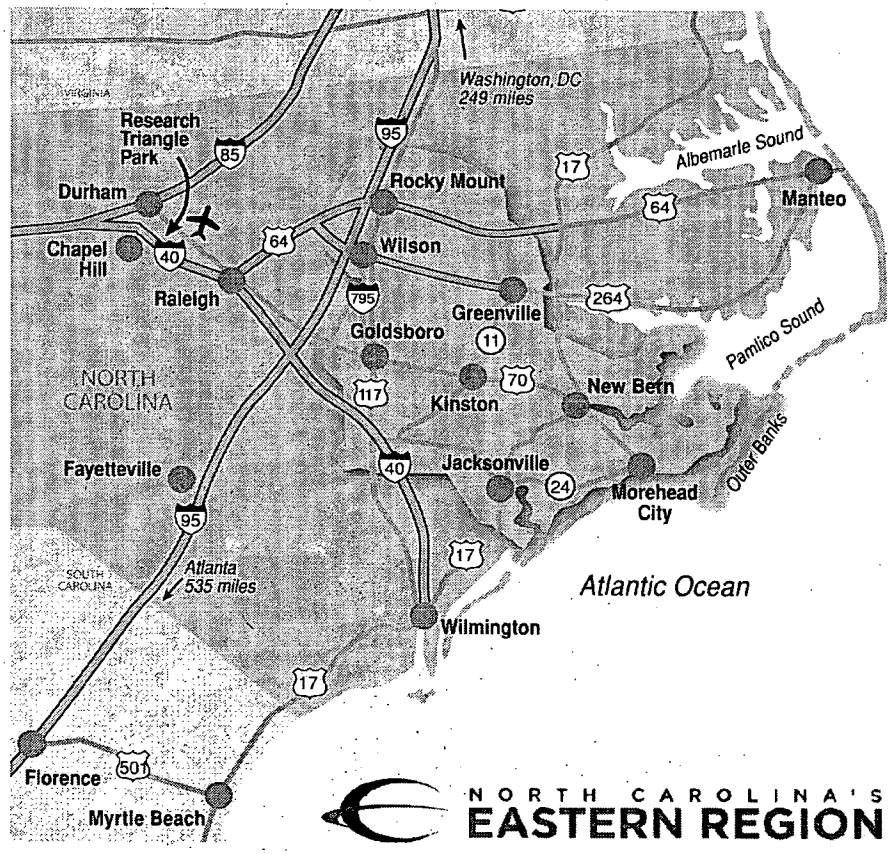
NCPED

North Carolina Partnership for Economic Development

NORTH CAROLINA'S
EASTERN REGION

Geography and Population

- Comprised of 13 counties: Carteret, Craven, Duplin, Edgecombe, Greene, Jones, Lenoir, Nash, Onslow, Pamlico, Pitt, Wayne and Wilson
- Landmass larger than the states of Connecticut and Rhode Island combined
- Population of 1 million
- Five metropolitan areas >100,000 people



Origin and Finances

- Created and Funded by the North Carolina State Legislature in 1993
- A unit of local government
- $22.5 million raised through local taxes
- Revolving loan fund for member counties
- Annual Operating Budget, $2.0 - $2.5

NORTH CAROLINA'S EASTERN REGION

Mission

Promote Regional Economic Development

Creating Growth:

- Low Interest Loans
- Grants
- Business Recruitment
- Business Expansion
- Entrepreneurship
- Tourism

Expanding Capacity:

- Marketing
- Public Relations
- Research
- Partnerships
- Develop New Assets
- Build Relationships

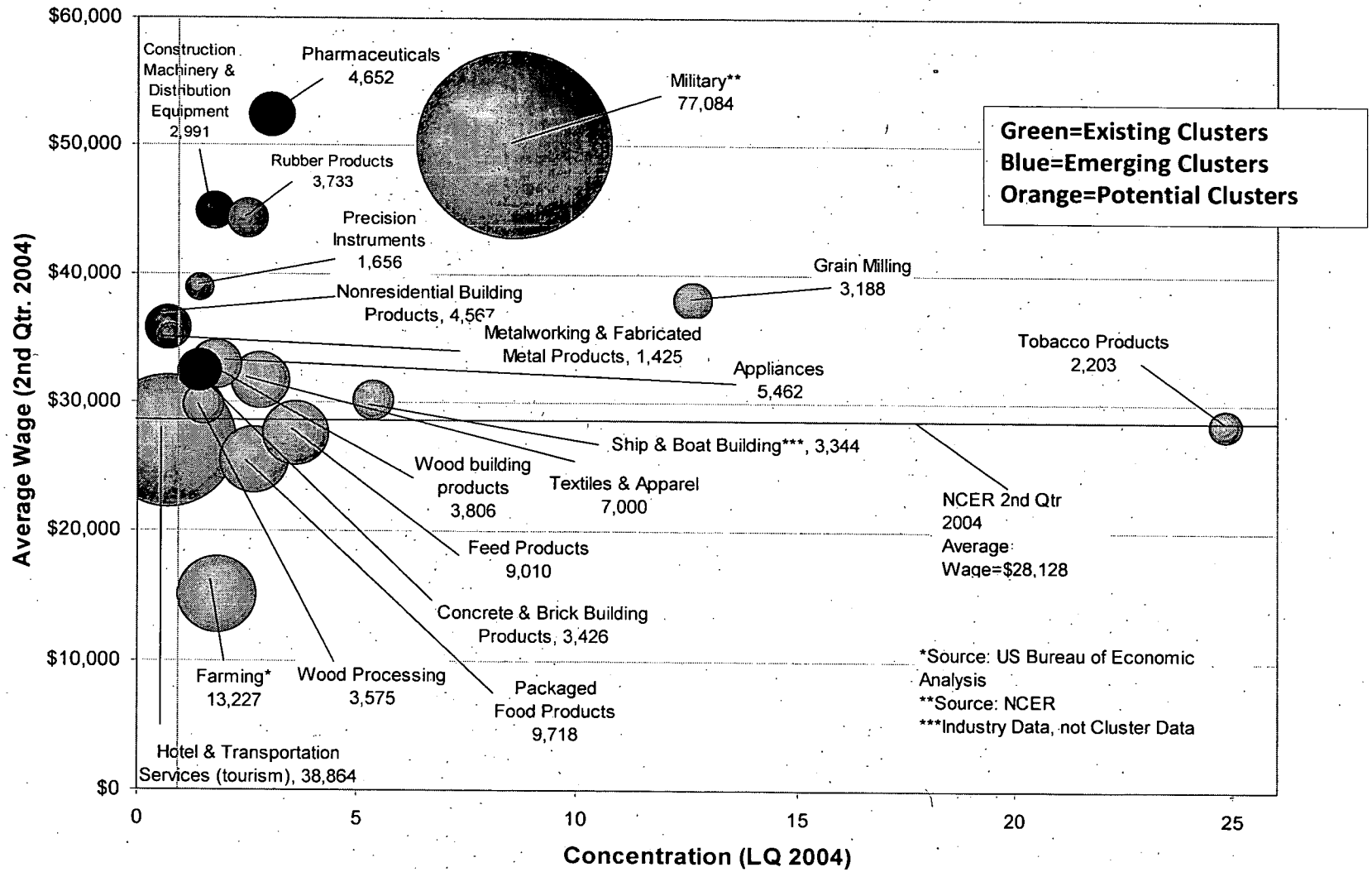
NORTH CAROLINA'S EASTERN REGION

Strategic Visioning Trail

2001	Harvard Clusters of Innovation Study (Atlanta, Pittsburgh, RTRP, San Diego, Wichita)
2003	RTRP Competitiveness Plan (Vision)
2003	RTRP Vision submitted to General Assembly
2004	NC HB 1414, Directs/Funds Strategic Visioning Process in remaining six regions (RTRP funding applies to implementation)
2005	General Assembly appropriates funds for vision implementation

NORTH CAROLINA'S EASTERN REGION

NCER Industry Clusters



NORTH CAROLINA'S EASTERN REGION

Target Sectors (Clusters)

- Advanced Manufacturing
- Aviation/Aerospace
- Marine Trades
- Life Science: Biotechnology/Pharma/Healthcare
- Defense-related Industries
- Tourism/Retiree Attraction
- Value-added Agriculture

NORTH CAROLINA'S EASTERN REGION

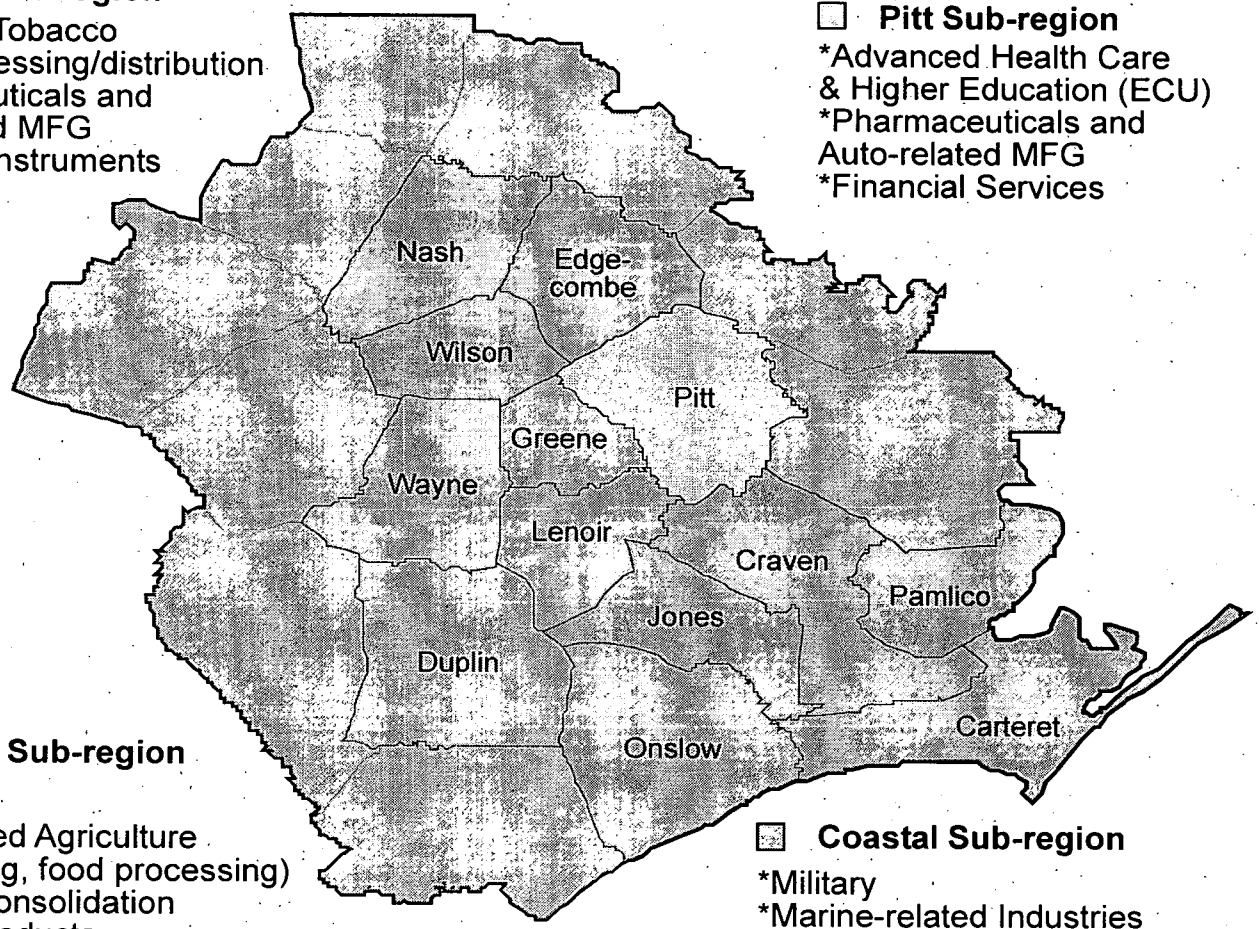
Sub-regions in North Carolina's Eastern Region

North Sub-region

*Textiles & Tobacco
*Food Processing/distribution
*Pharmaceuticals and Auto-related MFG
*Precision Instruments

Pitt Sub-region

*Advanced Health Care & Higher Education (ECU)
*Pharmaceuticals and Auto-related MFG
*Financial Services



Central Sub-region

*Military
*Value-Added Agriculture (e.g. farming, food processing)
*Tobacco Consolidation
*Building Products

Coastal Sub-region

*Military
*Marine-related Industries
*Hotels/transport (tourism)
*Retiree Attraction

NORTH CAROLINA'S EASTERN REGION

Major Initiatives

- BioEast Alliance
  - Life Sciences strategic planning and marketing tool
- Foreign Direct Investment (FDI)
  - Medium/long range recruitment
- Global Innovation Network (GIN)
  - Linking emerging life science regions
- Inception Micro-Angel Fund – East (IMAF-EAST)
  - Early stage/patient capital for entrepreneurs
- Military Growth Task Force (MGTF)
  - Planning for 61,000 population growth in 5 years
- Aerospace/Defense
  - Establish NDI/NDT Institute
- Tourism
  - First in the nation GIS based website
- Workforce Improvement Network (WIN)
  - Enhanced/Integrated WorkKeys Training

NORTH CAROLINA'S EASTERN REGION

NCER WorkKeys Grant: ASPIRE

Assessing
Skills for
Performance
In a
Rebounding
Economy

Model and Mentor In Eastern Region

NORTH CAROLINA'S EASTERN REGION

ASPIRE Alliance – New Partnership in Workforce Development

NORTH CAROLINA'S EASTERN REGION

NORTH CAROLINA CAREER READINESS CERTIFICATE

WorkKeys®

6 Community Colleges:
Wayne, Lenoir, James Sprunt, Pitt, Craven, Carteret

8 Counties:
Wayne, Greene, Jones, Lenoir, Duplin, Pitt, Craven, Carteret

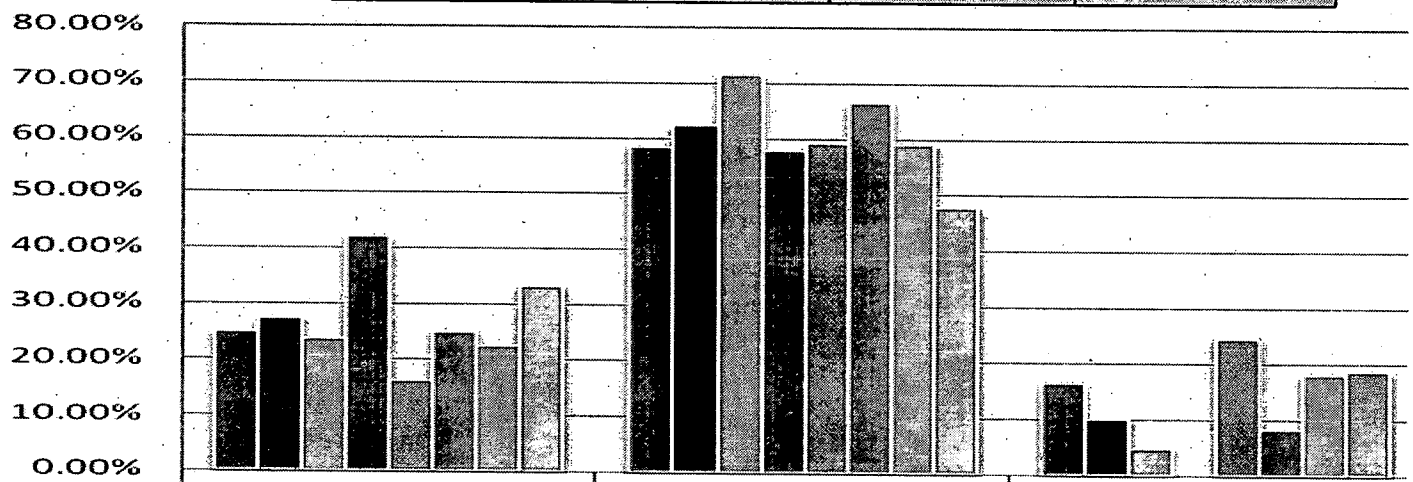
2 Workforce Boards:
Eastern Carolina & Mid-East Commission (Region Q)

Funds Awarded: $225,626

NORTH CAROLINA'S EASTERN REGION

ASPIRE Alliance CRCs Awarded – July 2009 – December 2009

COUNTY	Bronze	Silver	Gold	Total
Carteret	9	24	3	36
Craven	31	81	25	137
Duplin	24	87	36	147
Greene	5	15	1	21
Jones	16	22	0	38
Lenoir	75	171	28	274
Pitt	32	46	18	96
Wayne	191	447	126	764



	Bronze	Silver	Gold
Wayne	25.00%	58.51%	16.49%
Lenoir	27.37%	62.41%	10.22%
Greene	23.81%	71.43%	4.76%
Jones	42.11%	57.89%	0.00%
Duplin	16.33%	59.18%	24.49%
Carteret	25.00%	66.67%	8.33%
Craven	22.63%	59.12%	18.25%
Pitt	33.33%	47.92%	18.75%

NORTH CAROLINA'S EASTERN REGION

Nash, Edgecombe, Wilson - N.E.W. Careers Enhancement Project

NORTH CAROLINA'S EASTERN REGION

NORTH CAROLINA CAREER READINESS CERTIFICATE

WorkKeys®

3 Community Colleges:
Nash, Edgecombe and Wilson

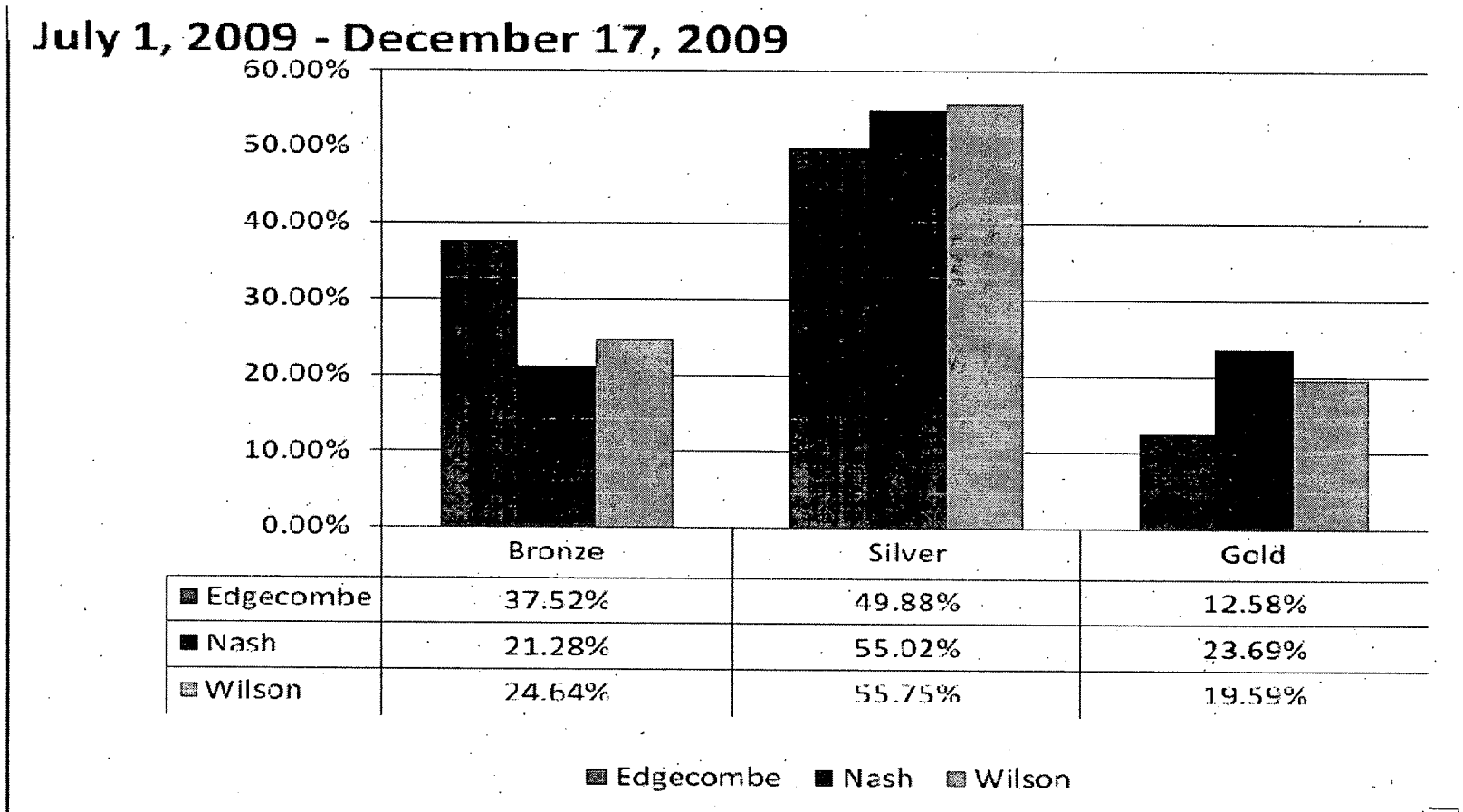
3 Counties:
Nash, Edgecombe and Wilson

Workforce Board:
Turning Point

Funds Awarded: $58,000

NORTH CAROLINA'S EASTERN REGION

Nash Edgecombe Wilson Careers Enhancement Project



Bronze	Silver	Gold	Total
316	420	106	842
53	137	59	249
122	276	97	495

NORTH CAROLINA'S EASTERN REGION

NC Aerospace Workforce Needs Assessment Study

Key Aerospace job needs by occupational group, 2007 - 2017

Occupation	2007 Jobs	2017 Jobs	New Jobs	Replacement Jobs	New & Replacement Jobs
Engineers	1,245	2,607	1,362	260	1,622
Assemblers	1,160	1,861	701	383	1,084
Drafters and Design Technicians	83	146	63	17	80
Electrical/Electronic Technicians	280	486	194	61	255
Fabricators	107	168	61	25	86
Machine Operators	557	849	265	205	470
Machinists	261	409	148	76	224
Mechanics	1,733	2,714	967	250	1,217
Quality and Process Technicians	350	549	199	109	308
First-Line Supervisors	362	592	230	53	283
Logistics	135	241	106	32	138
Total	6,273	10,622	4,296	1,470	5,766

NORTH CAROLINA'S EASTERN REGION

NC Aerospace Workforce Needs Assessment Study

Skill Gaps

Technical

- Blueprint reading
- Precision measurement
- Computer numeric control
- Fabrication welding
- Composites lay-up

Soft and foundational skills (prod. and tech workers)

- Problem solving
- Leadership
- Attention to detail

Soft and foundational skills (engineers)

- Leadership
- Integration/coordination across disciplines
- Project management

Labor Market Gaps

- Sheet metal fabricators
- Mechanics
- Mechanical and Aerospace Engineers

Culture Gap

- Lack of awareness/interest in aerospace

NORTH CAROLINA'S EASTERN REGION

Life Sciences Labor Gaps

Healthcare

- Experienced Registered Nurses (+5 yrs)
- Physical Therapists
- Occupational Therapists
- Speech-Language Therapists
- Pediatric Surgeons, MD's.

BIO Pharma

- Instrumentation technicians
- Plant maintenance personnel
- Electronic technicians
- Validation specialists

Questions?

John D. Chaffee
President and CEO
North Carolina's Eastern Region
3802 Hwy. 58 North
Kinston, NC 28504
252-522-2400
chaffee@nceast.org

www.nceast.org

NORTH CAROLINA'S EASTERN REGION

Attachment 2

Lenoir County
STEM Community Collaborative

JOBS Commission

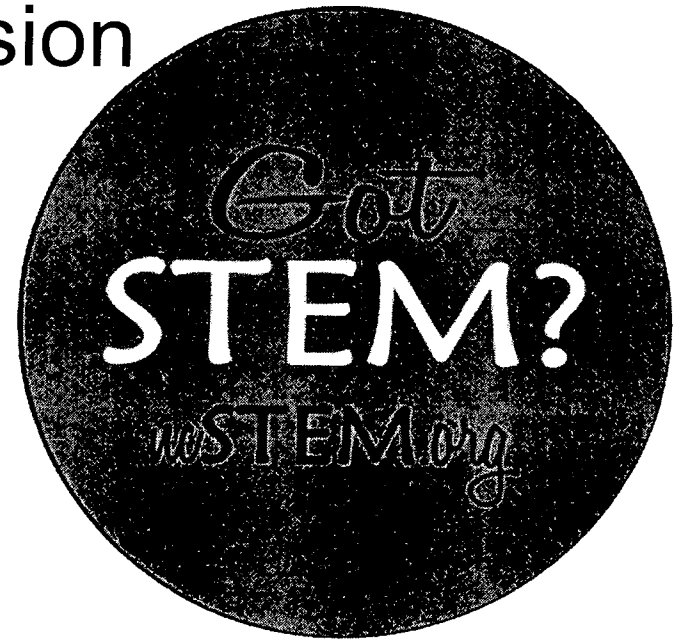
January 28, 2010

The Design Team

- Equal representation from the entire community (Industry, Volunteer Organizations, Government, Higher Education, Public Education, Local Businesses, Citizens)
- Bringing people together like never before (Professional Learning Community at a County Level)
- Identification of key players and plans to build a grassroots initiative

Community Vision

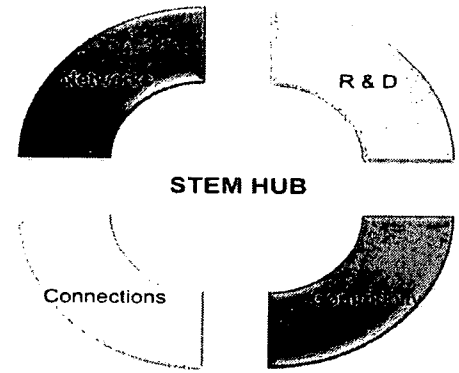
- Created community excitement and interest via STEM campaign and media coverage
- Community forums established to ensure input and collaborative vision



Community's Common Theme

- Selected an issue that is important and vital to the whole community:
  - *There is a need to provide students STEM-rich* ***experienced-based learning opportunities****; students need to understand the relevance of their learning and teachers need partnerships to provide real-world applications of the curriculum.*

Outcomes



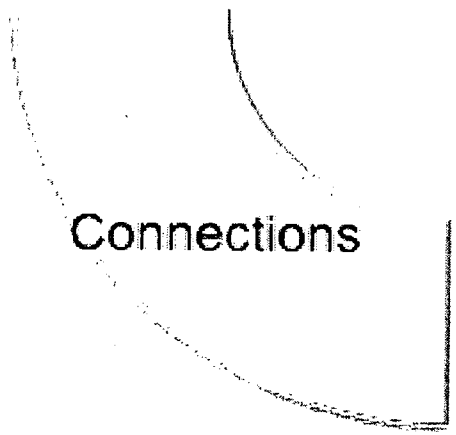
The **STEM HUB** will:

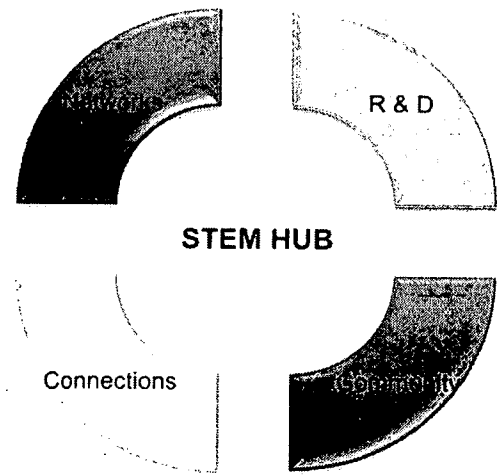
- Build **connections** with industry/business/community/education
- Focus and align **community** services
- Be an **R & D** center for STEM innovations
- Develop national and global **networks**

Connections

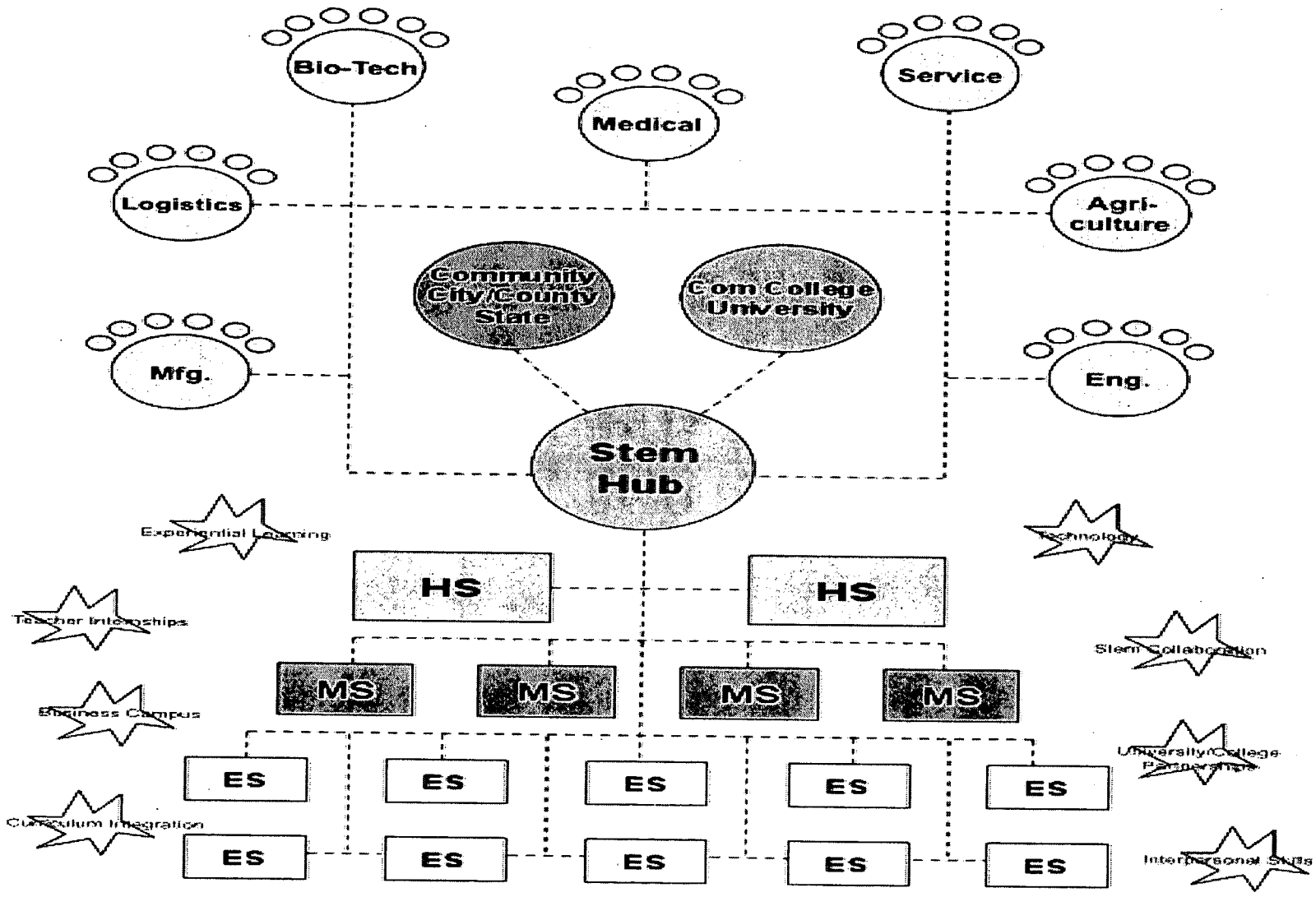
- Industry and business partnerships
  (Ex. School Sponsorships including Teacher Internships, Teacher Externships)

- Experienced based learning opportunities
  (Ex. On-site Classrooms (Spirit), Learning along side Workers)



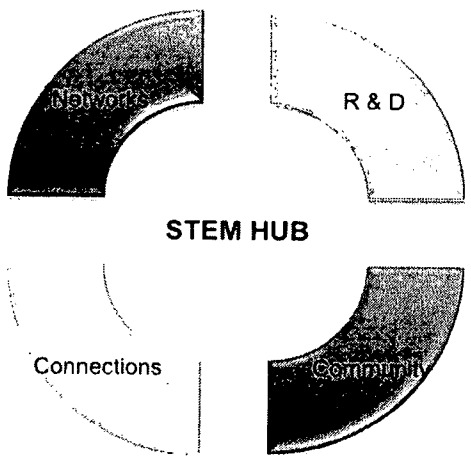


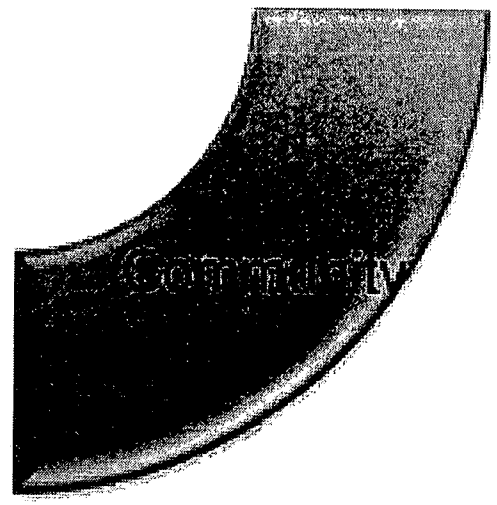
Integrated Stem Process

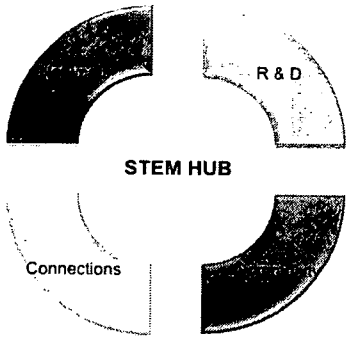


Community

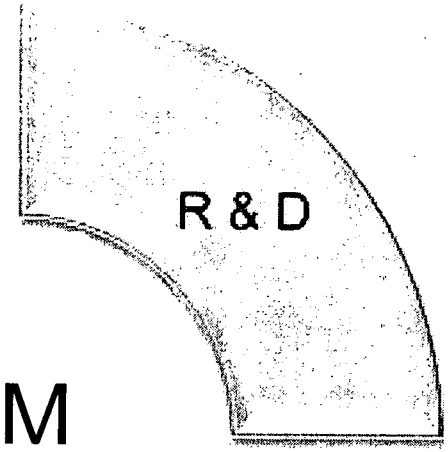
- Coordinated and aligned community services (Ex. Out of School Experiences, Camps, Mentor Programs, Tutors, STEM Competitions, Debates)





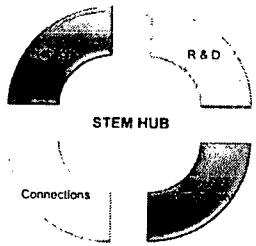


R & D



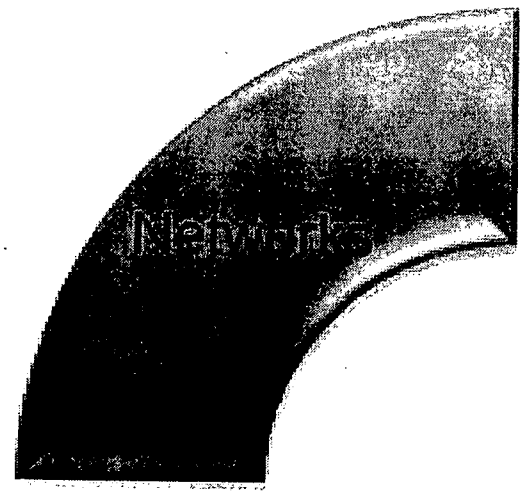
- Serve as an incubator for STEM innovations (Ex. Industry Based Curriculum, Performance Based Assessments, Alternative Teacher Appraisal Systems Based on Multiple Measures)

- Expand **proven practices** (Ex. Internships, Externships, Online Training/Reviews)



Networks

- Build infrastructure to link STEM assets and resources (Ex. Share Embedded Staff, Develop a Searchable Database, Collaboration with Ohio STEM Network and other National and Global Networks)



North Carolina TransPark Center

Location, Location, Location & Education

- Location of STEM HUB has an impact on potential industry/business
- What does research tell us about economic growth and education
- STEM HUB offers an attractive, direct line of communication for industry/business

JOBS Commission
Points of Interest

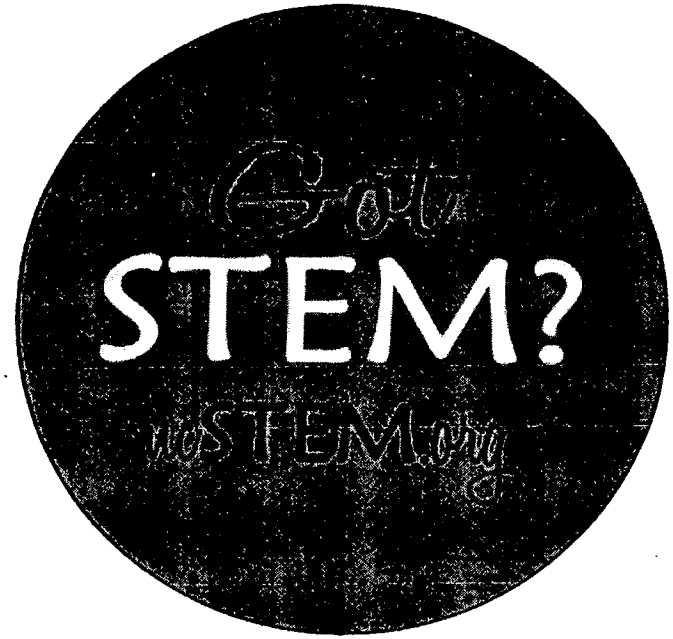
- Replicable model for **aligning efforts** of local business, industry, policy, and education stakeholders

- **Investigate** 21st Century STEM innovative education programs and expand quality programs

- Build **support networks and connections** to share research based STEM educational innovations and develop local, regional, national and global resources

Suggested Policy Reviews

- Abandon agrarian calendar and allow flexibility in time to learn
- Examine compensation models based on multiple measures
- Funding to encourage prototyping
- Incentives for business/industry collaboration
- Course credit for learning outside the classroom



Lenoir County STEM Initiative

Thank You & Questions

JOBS Commission Eastern Region

1. Your regional economic development partnership recently concluded a vision plan. The plan identified Advanced Manufacturing, Agriculture, Life Sciences, Marine Trades,Tourism, Defense and Aerospace as economic development clusters vital to your local economy. Do you believe their findings are an accurate portrayal of the region's economy?

	Response Percent	Response Count
Strongly agree	40.9%	18
Agree	**50.0%**	**22**
Disagree	2.3%	1
Strongly Disagree	0.0%	0
Don't know / no opinion	6.8%	3
If you strongly disagree or disagree, what clusters do you believe exist in Northeastern North Carolina?		2
	answered question	**44**
	skipped question	**0**

Attachment 4

2. In thinking about the economy in your region and the clusters above that have been identified as vital do you believe your region is producing the required workforce to fill these needs? Please describe the workforce needs in each cluster in your region.

	1 Needs completely being met	2 Needs somewhat being met	3 Needs not being met	4 Don't know / not sure	Rating Average	Response Count
Advanced Manufacturing Industry	9.1% (4)	52.3% (23)	38.6% (17)	0.0% (0)	2.30	44
Agriculture Industry	25.6% (11)	55.8% (24)	11.6% (5)	7.0% (3)	2.00	43
Life Sciences Industry	4.5% (2)	47.7% (21)	34.1% (15)	13.6% (6)	2.57	44
Marine Trades Industry	6.8% (3)	31.8% (14)	40.9% (18)	20.5% (9)	2.75	44
Tourism Industry	11.4% (5)	50.0% (22)	31.8% (14)	6.8% (3)	2.34	44
Defense Industry	6.8% (3)	47.7% (21)	22.7% (10)	22.7% (10)	2.61	44
Aerospace Industry	7.0% (3)	32.6% (14)	44.2% (19)	16.3% (7)	2.70	43
				answered question		44
				skipped question		0

3. In this region, members of the education and business communities work together to prepare the local workforce?

	Response Percent	Response Count
Strongly agree	15.9%	7
Agree	50.0%	22
Disagree	22.7%	10
Strongly Disagree	9.1%	4
Don't know / no opinion	2.3%	1
	answered question	44
	skipped question	0

4. In order to facilitate an increased working dynamic between the education and business communities do you agre or disagree with the following statements?

	Strongly Agree	Agree	Disagree	Strongly Disagree	Don't Know	No Opinion	Rating Average	Respon Coun
High School students participating in internships in local business would help better prepare the workforce	56.8% (25)	34.1% (15)	4.5% (2)	0.0% (0)	2.3% (1)	2.3% (1)	1.64	
Teachers would be better prepared in the classroom if they participated in summer externships through business partners	47.7% (21)	36.4% (16)	6.8% (3)	2.3% (1)	4.5% (2)	2.3% (1)	1.86	
Technical leaders from important local companies involved in one of the key clusters have some volunteer obligation to help teachers and students	43.2% (19)	52.3% (23)	4.5% (2)	0.0% (0)	0.0% (0)	0.0% (0)	1.61	
Students are supplied with real world case studies and problems from local companies that are integrated into classroom work. For example, the local engineering firm has students submit ideas for building designs for new buildings or the local bank has students submit model investment portfolio's based on their own research	36.4% (16)	22.7% (10)	20.5% (9)	6.8% (3)	13.6% (6)	0.0% (0)	2.39	
							answered question	
							skipped question	

5. The new 21st century economy jobs have an increased emphasis on Science, Technology, Engineering and Math (STEM) careers. Do you agree or disagree that North Carolina high schools, community colleges and universities are doing enough to prepare the students to compete in the new STEM-based economy?

	Response Percent	Response Count
Strongly agree	0.0%	0
Agree	17.5%	7
Disagree	**62.5%**	**25**
Strongly Disagree	17.5%	7
No opinion	2.5%	1
	answered question	**40**
	skipped question	**4**

6. In your community/region, High Schools are producing students prepared to excel in the STEM careers available in your surrounding region.

	Response Percent	Response Count
Strongly Agree	2.5%	1
Agree	12.5%	5
Disagree	**67.5%**	**27**
Strongly Disagree	15.0%	6
No Opinion	2.5%	1
	answered question	**40**
	skipped question	**4**

7. In accessing the needs of a prepared workforce in your community please respond to the importance of the following skills and their importance:

	Very Important	Important	Somewhat Important	Not Important	Rating Average	Response Count
Ability to apply basic mathematical skills and concepts	92.5% (37)	7.5% (3)	0.0% (0)	0.0% (0)	1.08	40
Understand the sciences and their relevance and application in today's society	60.0% (24)	40.0% (16)	0.0% (0)	0.0% (0)	1.40	40
Read and comprehend materials of varying complexity	90.0% (36)	10.0% (4)	0.0% (0)	0.0% (0)	1.10	40
Incorporate fundamentals, such as good grammar, spelling and sentence structure, in written communication	77.5% (31)	17.5% (7)	5.0% (2)	0.0% (0)	1.28	40
Work effectively as a member of a team	82.5% (33)	17.5% (7)	0.0% (0)	0.0% (0)	1.18	40
Use and integrate information and communication technology	82.5% (33)	17.5% (7)	0.0% (0)	0.0% (0)	1.18	40
Problem solving and analytical thinking	90.0% (36)	10.0% (4)	0.0% (0)	0.0% (0)	1.10	40
				answered question		40
				skipped question		4

8. In your community, student participation in business and government is evident and students are challenged to demonstrate both technical and non-technical skills in the community on a regular basis. This could be through roles in policy or business—like students helping to develop a plan to submit a Golden LEAF grant?

	Response Percent	Response Count
Strongly Agree	10.0%	4
Agree	27.5%	11
Disagree	**45.0%**	**18**
Strongly Disagree	7.5%	3
No Opinion	10.0%	4
	answered question	**40**
	skipped question	**4**

9. Please mark yes or no if you have heard of the following programs:

	Yes	No	Rating Average	Response Count
Early college program / Learn and Earn	**92.5% (37)**	7.5% (3)	1.08	40
New Schools Project	**57.5% (23)**	42.5% (17)	1.43	40
NC STEM Community Collaborative	**60.0% (24)**	40.0% (16)	1.40	40
		answered question		**40**
		skipped question		**4**

10. Of the categories below which groups do you believe have the greatest chance of obtaining employment in your local communities?

	Least Likely	2nd Least Likely	3rd Least Likely	4th Least Likely	Most Likely	Rating Average	Response Count
Recent recipients of a post graduate degree	24.2% (8)	18.2% (6)	12.1% (4)	**30.3% (10)**	15.2% (5)	2.94	33
Recent graduates of a four-year college	11.4% (4)	17.1% (6)	22.9% (8)	**28.6% (10)**	20.0% (7)	3.29	35
Recent graduates of two-year colleges or other training, vocational or apprenticeship program	2.6% (1)	2.6% (1)	28.9% (11)	10.5% (4)	**55.3% (21)**	4.13	38
Applicants who do not have a college degree	22.9% (8)	**48.6% (17)**	14.3% (5)	11.4% (4)	2.9% (1)	2.23	35
High school graduates without further education or training but with five to ten years of work experience	**36.1% (13)**	11.1% (4)	19.4% (7)	22.2% (8)	11.1% (4)	2.61	36
						answered question	**40**
						skipped question	**4**

11. If we had structure in place to help build collaboration and innovation between education and business partners to discuss the relationship between K12 education and the needs of the local workforce, the community would enthusiastically participate.

	Response Percent	Response Count
Strongly Agree	30.0%	12
Agree	**52.5%**	**21**
Disagree	12.5%	5
Strongly Disagree	0.0%	0
No Opinion	7.5%	3
	answered question	**40**
	skipped question	**4**

MINUTES
JOINING OUR BUSINESSES AND SCHOOLS (JOBS) COMMISSION MEETING
2009-10 Session
February 22, 2010

The Joining Our Businesses and Schools Commission met on Monday, February 22, 2010 in Butler Theatre at Fayetteville State University in Fayetteville, NC at 1pm. Lt. Governor Walter Dalton, Chairman, presided. The following members of the Senate were in attendance: Vice-Chair Swindell, Senator Tony Foriest, Senator Harry Brown, and Senator Fletcher Hartsell. The following members of the House were in attendance: Vice-Chair Glazier, Representative Braxton, and Representative Yongue. The following public members were in attendance: Grant Godwin, Laura Bingham, Felicia Watson, Howard Lee, Laura Willoughby, Karl Rectanus, Joe Fredosso, Tony Habit, Sam Houston, Bob Beichner, Susan Purser, Caroline McMullen, Pam Townsend, and Mike Murphy. The following members of the legislative research staff were in attendance: Shirley Iorio and Kara McCraw. Jessica Macaluso, Committee Clerk, was also present at the meeting. The chair recognized Vice Chair Glazier, who asked the Commission members to introduce themselves.

The Chair then recognized Steve Yost, Director of North Carolina's Southeast Region, who reviewed a powerpoint presentation entitled 'North Carolina's Southeast – Bringing the Global Economy Home'(Attachment 1).

The Chair then recognized Dr. Thomas Conway, Vice Chancellor and Chief of Staff, Fayetteville State University, Dr. Jane Smith, Program Manager for Education – Base Closure and Realignment Commission (BRAC) Regional Task Force, Wayne Grant, Senior Associate, Booz/Allen/Hamilton, and Dr. Valerie B. Brown-Schild, Director, Kenan Fellows Program, to present a powerpoint document entitled 'NC STEM Community Collaborative' (Attachment 2).

The Chair then recognized Dr. Larry Keen, President, Fayetteville Technical Community College, and Dr. Frank Till, Superintendent, Cumberland County School System. Drs Keen and Till reviewed a powerpoint document entitled 'Cumberland County Early College High School for Language, Culture, and Diplomacy' (Attachment 3) and a word document of the same title (Attachment 4).

The Chair announced a 10 minute break.

The Chair then turned the meeting back over Chairman Dalton to moderate the Southeastern Region Business Panel. The Chair recognized and introduced the members of the panel: Jeff Corbett, Senior Vice President, Progress Energy Delivery Carolinas, Cheya Dunlap, Senior Vice President, Human Resources, GE Hitachi Nuclear Energy, General David Grange, CEO, Pharmaceutical Product Development (PPD), Inc, Merrideth Hale, Human Resources Director, Campbell Soup Company, Jeanne Scharch,

Director, Fort Bragg Civilian Personnel Advisory Center, and Karen Wrigley, General Manager, DuPont Fayetteville Works Plant.
Each member of the panel talked about their businesses. The Chair asked Ms. Scharch about the civilian jobs around the military community. She spoke about the different types of positions available from blue collar to white collar. She emphasized that you don't have to wear a green suit to work around the military.
Ms. Wrigley said that her company had a hard time finding enough engineers to work at their plant. They need research and creativity in their employees.
General Grange indicated that they are looking for people who are culture-savvy so that they can help integrate a culture into an international company. They need to be able to lead and communicate and understand the global trade environment. The Chair indicated that PPD seemed to have the corporate model of the future with a more horizontal instead of a pyramidal structure. He also indicated that public-private partnerships are incredibly important for the future of education and North Carolina's future economy. The Chair then asked Mr. Corbett to discuss the partnership he is involved with. Mr. Corbitt said that his partnership provides internships and provides a pull into his industry. He indicated that the energy industry has such a need for skilled workers. His partnership has linked up the energy industry up with a STEM school to make sure that the students can see the real world application to the energy education that they are getting in school.

Each Business member talked about how people apply for jobs at their businesses. They all agreed that it is important to internet educated and be able to apply for positions online.

The Chair then asked the panel how best to engage businesses with education. Mr. Corbett said that the key is to have receptive educational systems. He feels that that situation is different around the state. Both Ms. Hale and Ms. Dunlap said that not everyone needs a 4 year degree and they need people who have specific skills.
The Chair thanked the members of the panel for participating.

The Chair then opened up the floor for comments from the audience.
Tony Habit mentioned that NC is hosting a national conference in April about Early College High School.
The Chair adjourned the meeting at 4:37pm.

VISITOR REGISTRATION SHEET

St Leg JOBs Study Comm 2/22/10

Name of Committee Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
Velva Jenkins	Brunswick Community College
John Mattox	FSU Faculty
Jim Simmons	Sandhills Regional Education Consortium

VISITOR REGISTRATION SHEET

JT. Legislative Jobs Study Comm — 2.22.2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	Email Address
Dale McInnis	Richmond Community College	mcinnisd@richmondcc.edu
Greg Phillips	FAYETTEVILLE OBSERVER	
William Friedt	Bladen Community College	wfriedt@bladencc.edu
Jeff Konesky	Bladen Community College	jkonesky@bladencc.edu
Susan Dans	sun-dans@yahoo.com	
Lynda Parlett	Robeson Comm College	lparlett@robeson.edu
Molly Meadowcroft	DuPont Co.	molly.m.meadowcroft@usa.dupont.com
Aaron Fleming	Lee County Schools	afleming@lee.k12.nc.us
Mark Blackwell	UNCW SGA	MBB6533@uncw.edu
Sharon Johnson	Richmond Co. Schools	sharonjohnson@richmond.k12.nc.us
Tom Frye	Harnett Co. Schools	tfrye@harnett.k12.nc.us

VISITOR REGISTRATION SHEET

JT. Legislative Jobs Study Comm — 2.22.2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL ADDRESS
Matt Friedrick	NC Center for Int'l Understanding, Inc	
Bob Fuller	Six Disciplines	
David Sullivan	FTCC	sullivad@faytechcc.edu
Doris Lambeth Warren	Sampson County Schools	djlw@Intrstar.net
Chip Lucas	Cumberland County Schools	chiplucas@ccs.k12.nc.us
Assad Tavakoli	FSU	atavakoli@uncfsu.edu
Sam Price	NC STEM	sprice@ncstem.org
John B. Brown Jr	Trustee, FSU	jbbjr89@aol.com
David Nestor	Lee Co Schools / Adcock & Asso	david@davidnestor.com
Wayne Grant	Booz Allen	GRANT_Wayne@BAH.com
Patricia Faulk	Bladen Co. Schools	pmfaulk@bladen.k12.nc.us

VISITOR REGISTRATION SHEET

JT. Legislative Jobs Study Comm — 2.22.2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL ADDRESS
Jamie Davis	NCNSP	jdavis@newschools project.org
Stuart Blount	Scotland Co. Schools	sblount@scotland.k12.nc.us
Joe Melvin	NCSE	joem@ncse.org
Merrideth Hale	Campbell Soup	merrideth_hale@campbellsoup.com
Brenda K. Jacobs	Robeson Comm. College	bjacobs@robeson.edu
Merle Summers	Robeson County Schools	summersm.psrce@robeson.k12.nc.us
Butch Hooks	Greater Whiteville Chamber of Com.	Whiteville, NC
Misty Harris	Anson EDC	mharris@co.anson.nc.us
Cynthia Hampton	Anson County Schools	Hampton.Cynthia@anson.k12.nc.us
CARL MITCHELL	FTCC	mitchelc@faytechcc.edu
Valerie B. Schild	Kenan Fellows	Valerie_Brown-Schild@ncsu.edu

VISITOR REGISTRATION SHEET

JT. Legislative Jobs Study Comm — 2.22.2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL ADDRESS
Terry Moore	FSU	terrymoore.eaglesnest@gmail
Monte Hervey		monte.hervey@Remc.org
Kerry Jeffreys	Columbus City Schools	kjefferys@columbus.k12.nc.us
Linwood Powell	NSC CB	Powellfay@aol.com
Robin Hardin	Cape Fear Com. college	rhardin@cfcc.edu
Frank Till	Cumberland County Schools	frankfill@ccs.k12.nc.us
Kim Fisher	CCS Board of Ed	KimberlyPFisher@aol.com
Bennet Sacolick	US Army	Bennet.Sacolick@us.army.mil
Barb Tansey	FTCC	tanseyb@faytechcc.edu
Sue Hatley	MCS	sue.hatley@mcpsk12.nc.us

VISITOR REGISTRATION SHEET

JT. Legislative Jobs Study Comm — 2.22.2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL ADDRESS
Johnson Akinleye	UNCW	akinlayej@uncw.edu
Juanita Akinleye	New Hanover Co.	jakinleye@nhcgov.com
Steve Yost	NCSE	steveyost@ncse.org
Bill Council	Richmond CC	bcouncil@richmondcc.edu
Lisa Oxford	Robeson CC	loxford@robeson.edu
Allison Violette	CCS	aviolette@ccs.k12.nc.us
Ginger Stone	Sampson County Schools	gstone@sampson.k12.nc.us
Janice Young	Whiteville Chamber of Commerce	chambercow@weblnk.com
Betty Smith	FTCC	smithbj@faytechcc.edu
Karen Wrigley	DuPont	karen.b.wrigley@usa.dupont.com

VISITOR REGISTRATION SHEET

JT Legislative Jobs Study Comm — 2.22.2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	Email Address
Richard Thompson	VIF 3 Sage Rd Chapel Hill	rhted@earthlink.net
Jeff Shipp	Clinton Sampson Chamber Commerce Star Telephone Membership Corp.	jshipp@stmc.net
Theresa Perry	Cumb. Co. Schools	tperry@ccs.k12.nc.us
Pam Gibson	Cumb Co Schools	pgibson@ccs.k12.nc.us
John Klarkman	NCDPI	jklarkman@dpi.state.nc.us
Larry Keen	FTCC	keenl@faytech.cc.edu
Andrena Scott	Hoke County Schools	ascott@hcs.k12.nc.us
Bob Philpott	Cape Fear Comm. College	rphilpott@cfcc.edu
Freddie Williamson	Hoke Co. Schools	fwilliamson@hcs.k12.nc.us
Renee Lane	BRAC RTF	rlane@bracrtf.com
Scott Morley	USASOC	kenneth.s.morley@us.army.mil

VISITOR REGISTRATION SHEET

JT. Legislative Jobs Study Comm — 2.22.2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL ADDRESS
Dennis L McNair	FSU Photography	dmcnair@uncfsu.edu
Donald Bonnyer	Office of the Governor	donald.bonnyer@nc.gov
David Campos	FSU Sponsored Res	DCamps@UNCFSU.edu
Marvin Butler	NCDOT	mbutler@ncdot.gov
Paryle Nobles	Cumb. Co. Schools	dnobles@ccs.k12.nc.us
Cindi Jolly	NC STEM	cjolly@nestem.org
Theresa Lawson	Laurinburg / Scotland County Chamber of Commerce	tlawson@laurinburgchamber.com
Roland Hall	Town of Roseboro	RolandHall@EmbarqMail.com
Stephen L. Athey	Central Carolina Community College	satheys@cccc.edu
Jon Young	FSU	

VISITOR REGISTRATION SHEET

JT. Legislative Jobs Study Comm — 2.22.2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL ADDRESS
Felicia Evans	SCC PO Box 151 Whiteville NC	fevans@scc[illegible]edu
Barbara Buie	Hoke County Schools	Barbara.[illegible]@[illegible]
Amanda Lee	CFCC 411 N Front St Wilmington, NC	alee@cfcc.edu
Cheya Dunlap	GE Hitachi Nuclear	cheya.dunlap@ge.com
Kelly Charles	FSU SOE	Kjackso[illegible]@[illegible]fsu.edu
Reginald [illegible]	State School[illegible]	[illegible]
James Kelley	FTCC	Kelleyj@faytech[illegible]
Donna Peters	Montgomery County Schools	donna.peters@montgomery.k12.nc.us
Robbie Cauley	Pender Co. Schools	wrcauley@nesu.edu
Eldon Meacham	FTCC	meachame@faytech.cc.edu

VISITOR REGISTRATION SHEET

JT. Legislative Jobs Study Comm — 2.22.2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL ADDRESS
Leontye L. Lewis	FSU (SOE)	llewis@uncfsu.edu
RAY WALTERS	FTCC	waltersr@faytechcc.edu
Jim McCaskill	Richmond Community College	
Charles E. Brown	School Board Member Scotland County Schools	M.brown@sccnc.net
EVERETT B. WARD	NC DOT	EWARD@NCDOT.com
ANNETTE DUNLAP	NCDA&CS	annette.dunlap@ncagr.gov
Roosevelt Wright	FSU Trustee	
Carolyn Walston	Bladen Community College	cwalston@bladencc.edu
Phil Ferrell	Harnett City BOE	pferrell@harnett12.com
Jane Smith	NC Southeast	jane.smith@centurytel.com

VISITOR REGISTRATION SHEET

JT. Legislative Jobs Study Comm — 2.22.2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL ADDRESS
Fred Thomas	Scotland County Schools	fthomas@scotland.k12.nc.us
Tera Martin	Lumberton City Schools	martintd@gmail.com
Gregory Cummings	Robeson City	Greg.Cummings@co.robeson.nc.us
Kendall Gore	ECU	KMG0326@ecu.edu
Barry Kendall		
JOE FREDDOSO	MCNC	JOC@MCNC.org
Penny Kendall		

VISITOR REGISTRATION SHEET

Jt. Legislative Jobs Study Comm 2.22.2010

Name of Committee Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL ADDRESS
Judy Stevens	Montgomery EDC	Judy@montgomery-county.com
Shirley Harris	State Bd. of Ed.	shirley.harris@embarqmail.com
Dr. Heastie	FSU	sheastie@uncfsu.edu
Dr. James P. Cooper	Pamlico County School	JCOOP@MAIL.PAMLICO.NC.US
Joe Leister	FTCC	leisterj@faytechcc.edu
Mary Bailey	FSU	mhbailey@uncfsu.edu
REGINNA Z. FORD	ESC/LMI	reginna.z.ford@ncesc.gov

VISITOR REGISTRATION SHEET

JT. Legislative Jobs Study Comm — 2. 22. 2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL Address
Rep Ehmer-Floyd	WC House	
Greg Taylor	FSU	gtaylor@uwcfsu.edu

Southeast Region JOBS Commission Meeting

Monday, February 22, 2010
Butler Building - Butler Theatre
Fayetteville State University
1200 Murchinson Road
Fayetteville, NC 28301

1:00 pm JOBS Commission Meeting

1:10 pm North Carolina's Southeast

- *Presentation of Vision Plan – Steve Yost, Director – NC's Southeast*

1:40 pm A Perfect Match: Ft. Bragg Region and NC STEM

- Dr. Valerie B. Brown-Schild, Director - Kenan Fellows Program
- Dr. Thomas Conway, VC & Chief of Staff - Fayetteville State University
- Wayne Grant, Senior Associate - Booz | Allen | Hamilton
- Dr. Jane Smith, Program Manager for Education - BRAC Regional Task Force

2:10 pm Language and Global Competency Presentation

- Dr. Larry Keen, President – Fayetteville Technical Community College
- Dr. Frank Till, Superintendent – Cumberland County School System

2:30 pm Cross Creek Early College Presentation

- Briana Murrell
- Lashay Hicks
- Kurtys Neal

2:50 pm BREAK

3:00 pm Southeastern Region Business Panel

Moderator – Lt. Governor Walter Dalton

- Jeff Corbett, Senior Vice President – Progress Energy Delivery Carolinas
- Cheya Dunlap, Senior Vice President, Human Resources - GE Hitachi Nuclear Energy
- General David L. Grange, CEO - PPD, Inc.
- Merrideth Hale, Human Resources Director - Campbell Soup Company
- Jeanne Scharch, Director – Ft. Bragg Civilian Personnel Advisory Center
- Karen Wrigley, General Manager – DuPont Fayetteville Works Plant

4:00 pm Public Comments

Adjourn

NORTH CAROLINA'S SOUTHEAST™

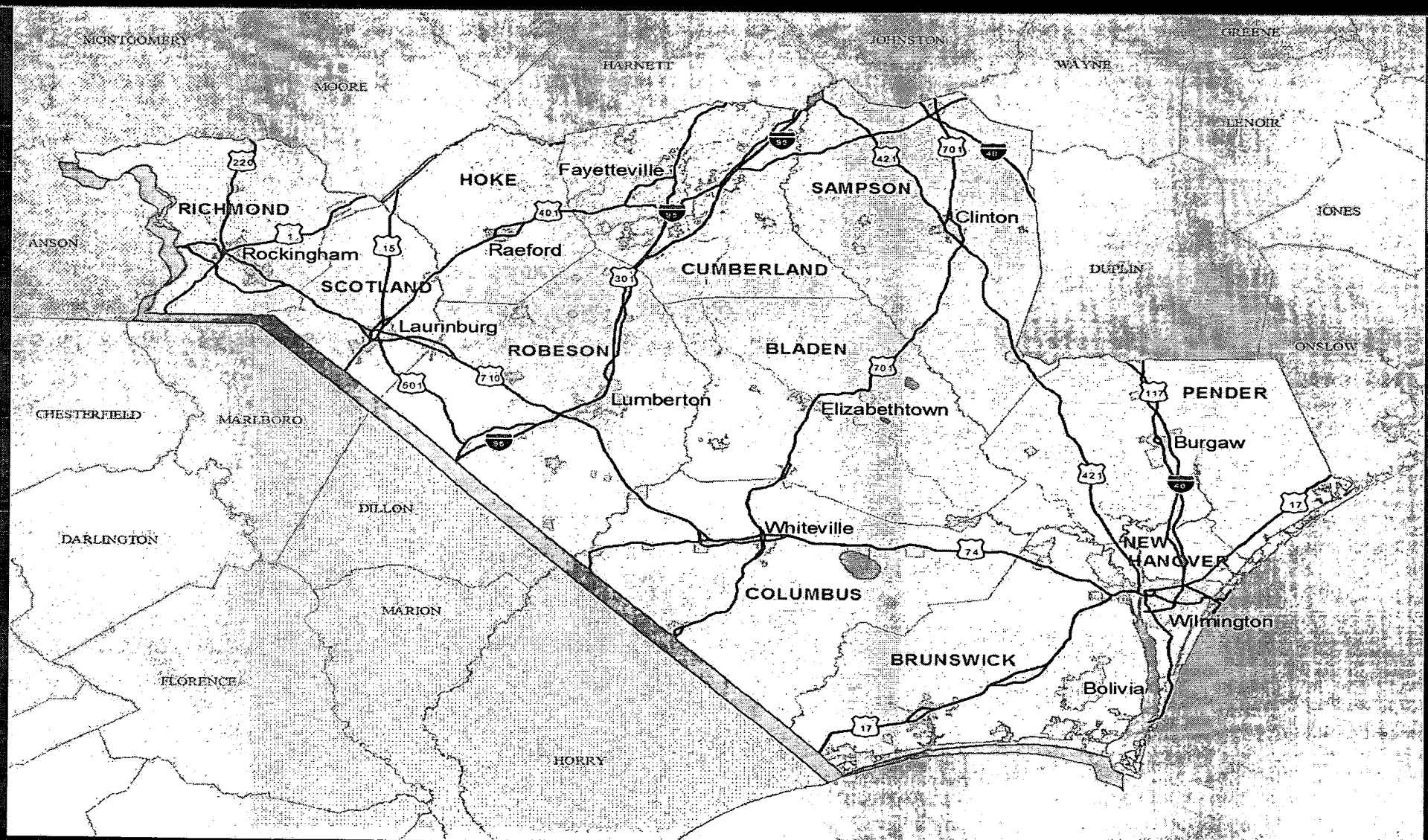
NC JOBS Commission
February 22, 2010

NC PARTNERSHIP FOR ECONOMIC DEVELOPMENT

Bringing the Global Economy Home

ATT 1

The Southeast Region



Geography & Population

- 11 counties: Bladen, Brunswick, Columbus, Cumberland, Hoke, New Hanover, Pender, Richmond, Robeson, Sampson, Scotland
- Land size is 7,500 square miles
- Region is larger than four states
- Population: 1.08 million (2014 – 1.15 million)
- 10% growth since 2000
- Fayetteville & Wilmington: Metro areas (50% of total regional population)

NC's Southeast Mission & Purpose

Leadership for Economic Development :

- Targeted marketing for industry locations & quality job creation
- Facilitate and lead economic development planning initiatives
- Collaborate with other organizations to enhance economic development
- Move the region toward greater global competitiveness

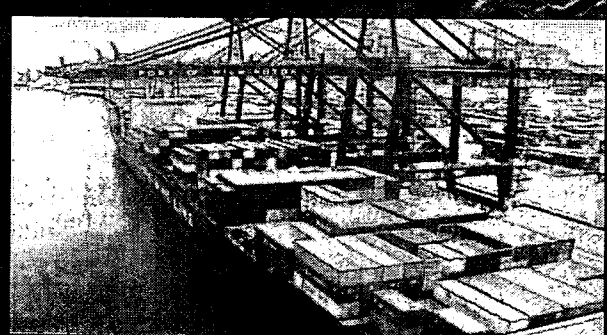
Since 1996 (from NCSE direct marketing efforts)

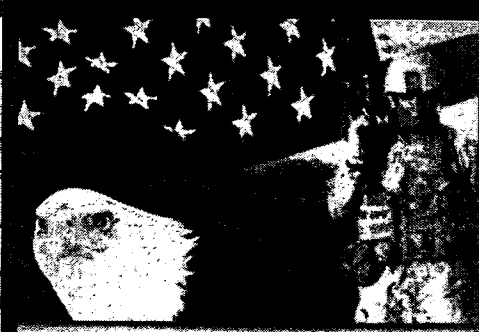
- 8,100 industry jobs created
- $900 million private investment
- 101 industry locations

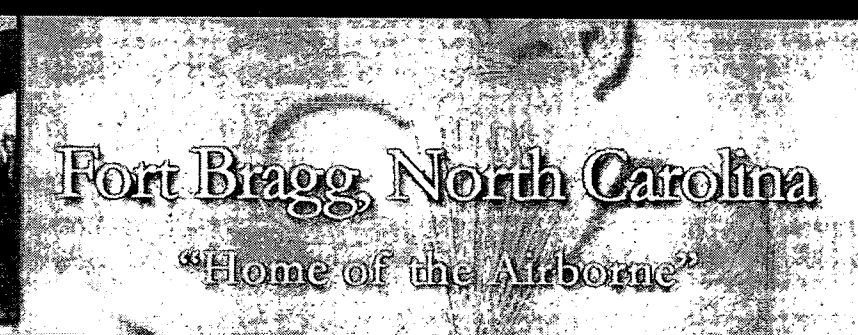
Current pipeline: 2,500+ jobs and $4000+ million (by companies that are considering the region) in variety of industry sectors

Key Regional Economic Assets

- NC Port at Wilmington
- Fort Bragg & BRAC
- Universities & colleges (5)
- Community Colleges (9)
- K-12 Schools
- Transportation/distribution access
- Location midpoint on east coast
- Agricultural base
- Diversified manufacturing base
- Key existing companies
- Growing entrepreneurship base







Workforce Snapshot

	% of workforce		Avg. weekly wage
	2009	2000	2009
Trade/Trans./Utilities	15%	16.5%	$558
Government	19.2%	17.5%	$725
Healthcare/Education	22.2%	17.3%	$697
Manufacturing	*9%*	*14.3%*	*$808*
Hospitality/Food	9.2%	7.9%	$251
Construction	3.9%	4.7%	$704
Business Services	7.4%	7.5%	$712
Public Admin.	6.7%	6.4%	$787
Other	7.4%	7.9%	$487

Unemployment rate: 10.8% (Dec. 2009) (NC – 11.2%)
Poverty Rate: 19.4% (2007)
Workforce: 490,000 (2009)

Source: NC Employment Security Commission & U.S. Census

Educational Attainment

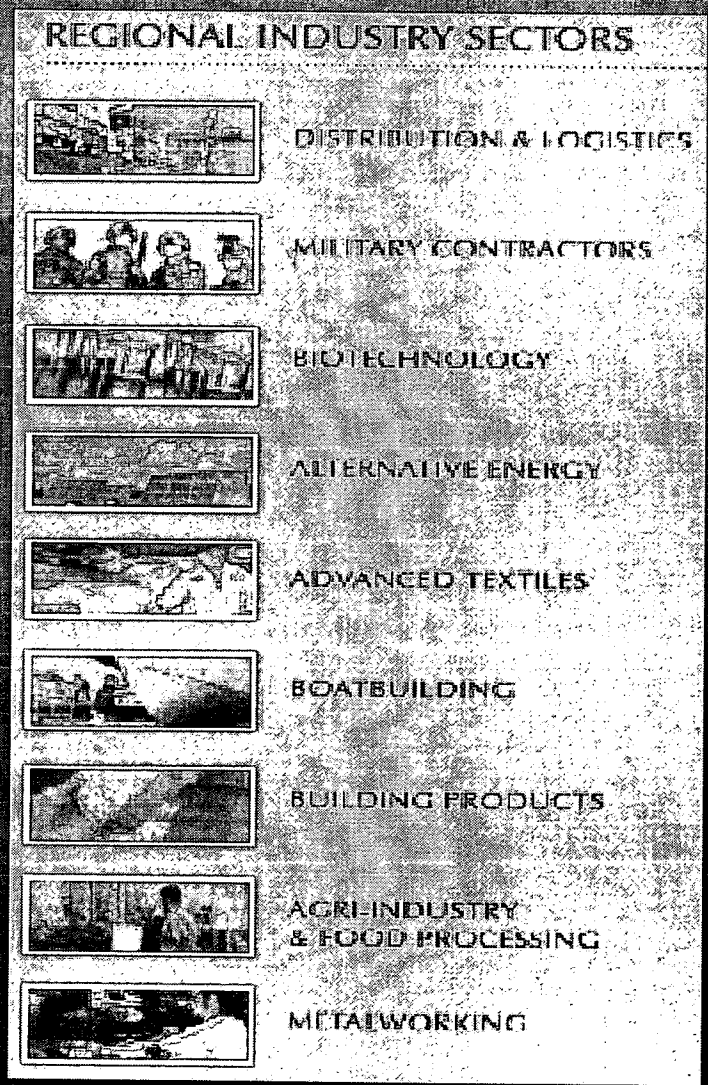
Attainment by Area	NCSE	NC	Rank
2008 (%) High school graduates (25+ years)	81.3%	81.5%	39th
2008 (%) College graduates (25+ years)	19.3%	24.6%	30th

Source: NC Dept. of Commerce

Fortune 500 companies

- 30 fortune 500 companies
- 25,000 jobs = 5% of total workforce
- Mfg. plant, distribution center, or customer service center

Industry Clusters



- Industry cluster analysis completed in 2004
- 2005 – funds appropriated to fund implementation
- Biotechnology, alternative energy, & military contractors added in updates to analysis
- Sub-regional clusters – aerospace & life science
- Many companies are manufacturers
- *Manufacturing is critical to region's growth*
- Military contractors cross several sectors
- Distribution/logistics crosses all sectors

Fastest Growing Sectors

Energy/Alternative Energy
- becoming diversified
- traditional sector is growing
- solar
- nuclear
- bio-mass
- wind turbine mfg.
- bio-fuels (Clean Burn Fuels)
- technical jobs

Food Processing
- agricultural base and production
- NC is top 10 state for this sector
- distribution access
- value added agriculture

Distribution/Logistics
- port modernization/growth
- 30,000 employed in sector
- transportation network
- NC International Terminal
- critical to all sectors

Military Contractors
- Ft. Bragg
- BRAC Initiative
- military business center
- technical jobs

Additional Growth Sectors
- healthcare
- government

Trends in Workforce Skills Requirements

What companies are telling economic developers:

- Globalization – is driving competition in company locations, job skills, & technology
- Higher skilled workforce is a must for quality regional economic growth
- Gaps exist in workforce skills in southeastern region

Global skills required by many companies

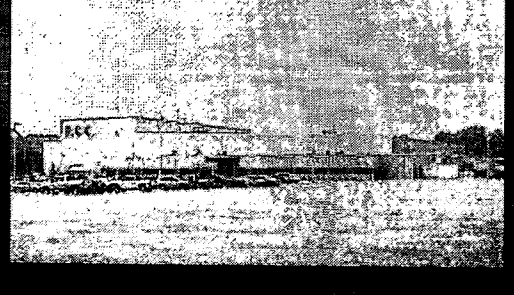
- Critical thinking & problem solving
- Applied technology
- Applied mathematics
- Teamwork
- Locating/using information
- Applied science

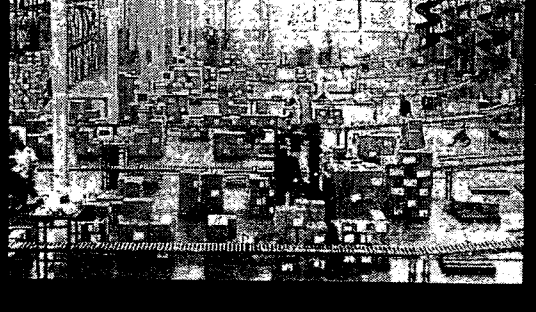
We need the greatest collaboration of academic, government, industry, and workforce than ever before to raise overall workforce skills to a global level

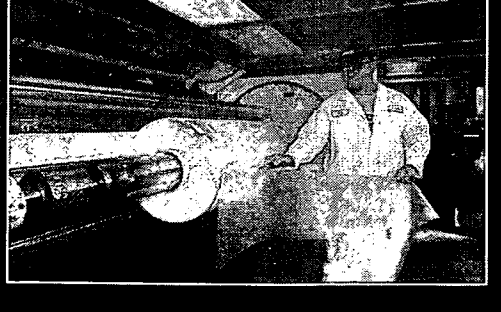
Regional Initiatives

Regional Workforce Analysis

- Identify strengths & weaknesses
- Analyze labor sheds within the region
- Align with targeted industry sectors
- Identify gaps in skills
- Market skill sets for emerging industry sectors
- BRAC analysis is a good example
- Recommendations for enhancing workforce skills
- To begin later this year



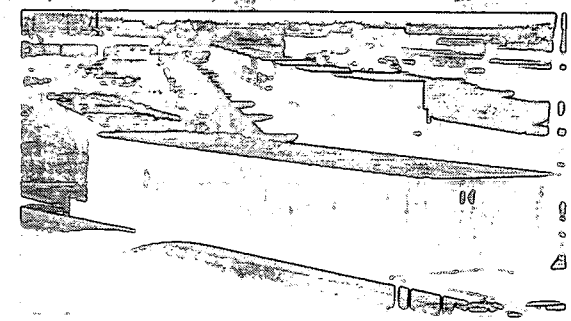




Regional Initiatives

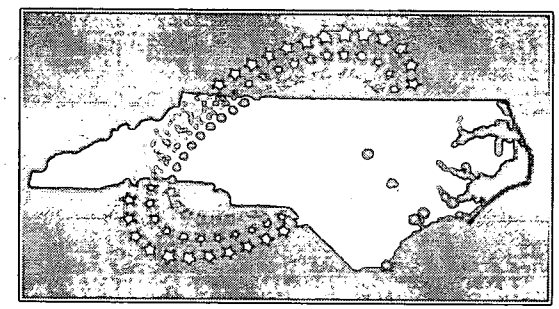
Distribution & Logistics Initiative

- port growth
- NCIT
- state logistics task force
- need more relevant curriculum



BRAC Initiative & Marketing

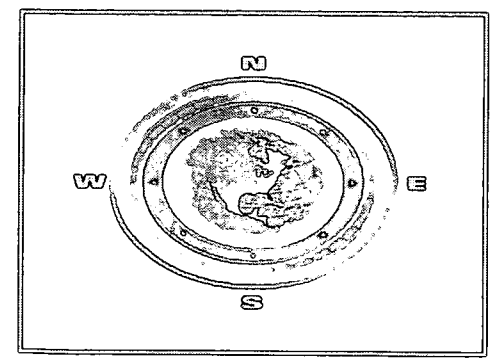
- maximize defense related jobs
- technical jobs
- Wired workforce grant & STEM



Biz Boost

Global Economic Integration Initiative

- global competitiveness
- existing industry
- international marketing
- workforce development



Other Regional Efforts

K-12 Technical Education

STEM (Science, Technology, Engineering, Math) – Expand!

Community Colleges Customized Training

UNC-Wilmington Marine Biotechnology Center

UNC-Pembroke Bio-fuels Project & Training Center

Fayetteville State Center for Economic Education

Methodist College Entrepreneurship Program

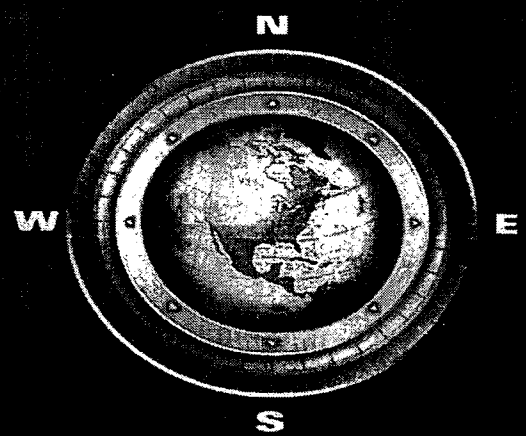
UNC-Wilmington Center for Entrepreneurship

Suggestions

- Implement regional workforce analysis & connect it to training & education programs
- Greater connection of K-12 to economic development
- More global skills education & training at all levels
- Strengthen manufacturing through new and existing industries w/ workforce development (advanced mfg. is the future in this sector)
- Better align workforce skills & training/education with emerging industry sectors

NORTH CAROLINA'S SOUTHEAST™

The Regional Economic Development Marketing Organization for Southeastern North Carolina



Bringing the Global Economy Home

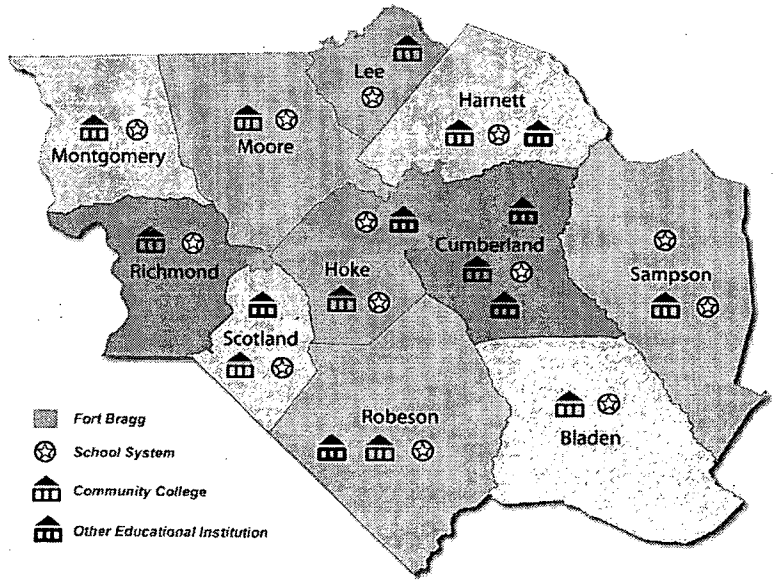
NC STEM

COMMUNITY COLLABORATIVE

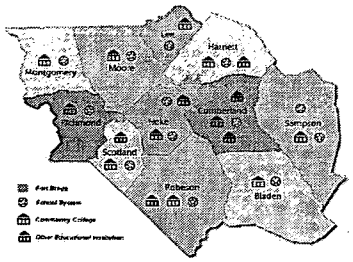
FORT BRAGG AND POPE AIR FORCE BASE

BRAC REGIONAL TASK FORCE

COMMUNITY PLANNING FOR BRAC IMPLEMENTATION



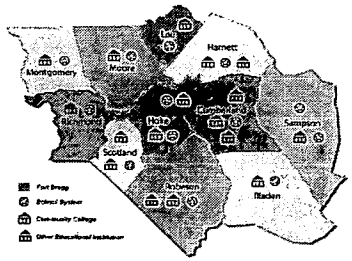
x 112



FORT BRAGG AND POPE AIR FORCE BASE
BRAC REGIONAL TASK FORCE
COMMUNITY PLANNING FOR BRAC IMPLEMENTATION

BACKGROUND

- BRAC RTF serves as liaison between Fort Bragg and surrounding 11 counties
- Education and Workforce identified as major impact areas
- Spring 2009, Fort Bragg regional organizations from all sectors partnered via BRAC RTF as a Ready to Launch Community with NC STEM Community Collaborative
- Regional STEM Design Team engaged for 9 months to create regional vision

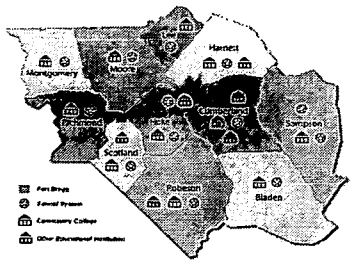


FORT BRAGG AND POPE AIR FORCE BASE
BRAC
REGIONAL
TASK FORCE
COMMUNITY PLANNING FOR BRAC IMPLEMENTATION

ORGANIZATION AND COMMUNICATION

- One regional Design Team
- Innovation Teams at county level with local focus
- Pilot High Schools prototype with community college, university, and business partners

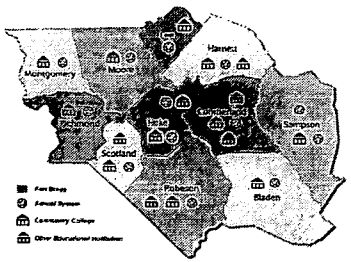
- Community Kick-off September 22, 2009



FORT BRAGG AND POPE AIR FORCE BASE
BRAC REGIONAL TASK FORCE
COMMUNITY PLANNING FOR BRAC IMPLEMENTATION

VISION: The Fort Bragg Region will foster regional economic development by engaging all segments of the community

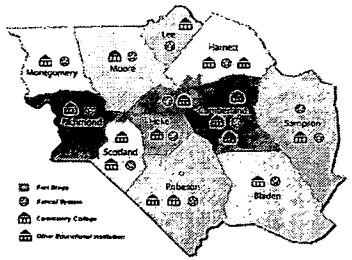
- in creating a culture that values STEM related knowledge,
- in preparing students to be lifelong learners, and
- in educating the regional workforce with the 21st Century skills to successfully compete in a global economy.



FORT BRAGG AND POPE AIR FORCE BASE
BRAC
REGIONAL
TASK FORCE
COMMUNITY PLANNING FOR BRAC IMPLEMENTATION

WHAT WILL WE DO?

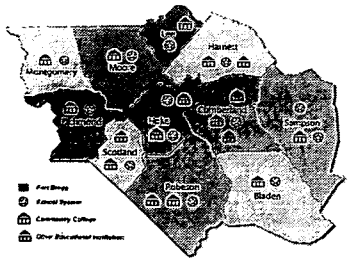
- Focus effort to support **21st Century Teaching and Learning in Innovative Environments**
- Utilize a Distributed Learning Network and Enhanced Technology Classrooms
- Create personalized blended learning experiences including interactive 3D targeted at 'bottleneck' concepts in STEM courses



FORT BRAGG AND POPE AIR FORCE BASE
BRAC
REGIONAL
TASK FORCE
COMMUNITY PLANNING FOR BRAC IMPLEMENTATION

WHY DO IT THIS WAY?

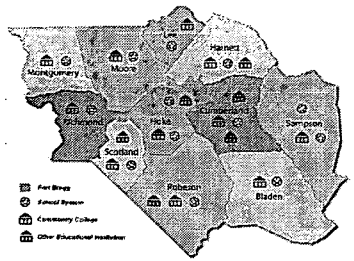
- JOBS – 15,000 predicted in region
- Attract a Defense & Homeland Security Sector
- STEM skills are a necessity for economic growth



FORT BRAGG AND POPE AIR FORCE BASE
BRAC
REGIONAL
TASK FORCE
COMMUNITY PLANNING FOR BRAC IMPLEMENTATION

WHY DO IT THIS WAY?

- Resources must be accessible to everyone
- Connecting Business to Education essential
- Build curriculum continuum through 2+2+2 articulations

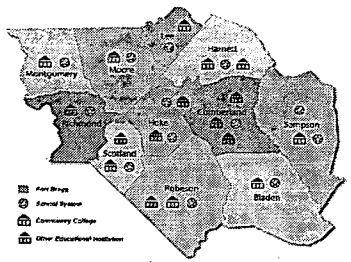


FORT BRAGG AND POPE AIR FORCE BASE
BRAC
REGIONAL
TASK FORCE
COMMUNITY PLANNING FOR BRAC IMPLEMENTATION

HOW DO WE MAKE THIS HAPPEN?

TEACHERS, Equipment, Content, and TEACHERS

- Professional Development
- Kenan Fellows
- Teacher Externships
- Platform for other programs in the future



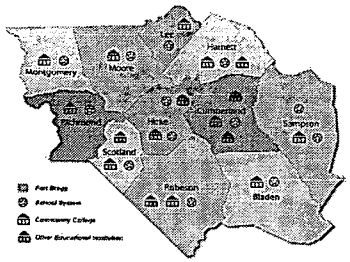
FORT BRAGG AND POPE AIR FORCE BASE
BRAC REGIONAL TASK FORCE
COMMUNITY PLANNING FOR BRAC IMPLEMENTATION

ANTICIPATED OUTCOMES

A digital environment connecting school learning and 'the real world.'

The combined effort will result in

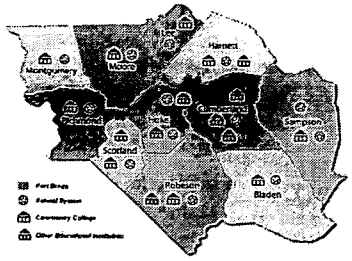
- students more interested in learning
- improved attendance rates
- better performance in fundamental STEM courses
- decreased dropouts
- increased graduation rates
- a more robust workforce



FORT BRAGG AND POPE AIR FORCE BASE
BRAC
REGIONAL
TASK FORCE
COMMUNITY PLANNING FOR BRAC IMPLEMENTATION

SUGGESTIONS

- Our Distributed Learning Network can scale to reform STEM education throughout the state
- Investment in curricular enhancements and professional development (Kenan Fellows) will increase educational innovation and student engagement



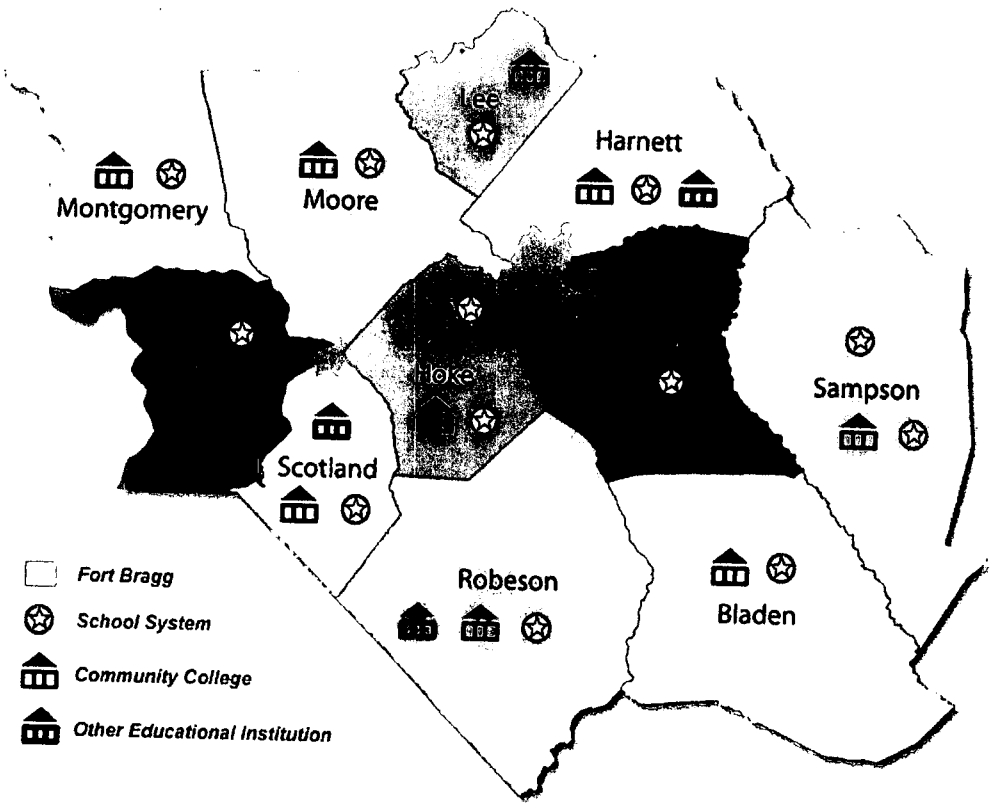
FORT BRAGG AND POPE AIR FORCE BASE
BRAC
REGIONAL
TASK FORCE
COMMUNITY PLANNING FOR BRAC IMPLEMENTATION

WHY IS THIS IMPORTANT?

- Prepare students for workforce
- Provide agile, scalable STEM model
- Attract Defense and Homeland Security industry sectors

NC STEM
COMMUNITY COLLABORATIVE

Fort Bragg Region
Educational Innovation Design Plan
"21st Century Teaching and Learning in Innovative Environments"



The Fort Bragg Region will foster regional economic development by engaging all segments of the community

- in creating a culture that values STEM-related knowledge,
- in preparing students to be lifelong learners, and
- in educating the regional workforce with the 21st Century skills to successfully compete in a global economy.

NC STEM
COMMUNITY COLLABORATIVE

Fort Bragg Region STEM Community Collaborative

Area of Optimization: 21st Century Teaching and Learning in Innovative Environments
The Fort Bragg Region has identified "21st Century Teaching and Learning in Innovative Environments" as the area of optimization for the Education Innovation Design Plan. While the rest of the world has 'flattened,' the majority of today's schools are inhibited by 20th century infrastructure and methodology. Through a distributed learning network of enhanced technology classrooms, teachers and students in the Fort Bragg region will have the structural barriers that prevent rigorous, relevant, robust STEM engagements removed. The Innovative Environments will promote and enable integrated learning, investigation, and questioning. Teachers will be connected with cutting edge researchers, subject matter experts, and technology assisted on-site professional development through the Kenan Fellows Program for Curriculum and Leadership Development. STEM understanding will be interdisciplinary, international, and virtually unlimited. Students will learn in virtual worlds and have access to support structures enabling them to become experienced problem-solvers, innovative thinkers, and intellectually curious life-long learners.

Design Statement: The 11-county region surrounding Fort Bragg has been undergoing a Community Visioning Process in anticipation of the changes coincident with the Base Realignment and Closure (BRAC) actions on Fort Bragg. The opportunity for a vitally needed regional economic transformation is contingent upon increasing the caliber of the workforce. Through a myriad of community engagements the dominant voice has indicated that STEM education could transform the way students are learning in school. Comments and discussions indicate that students need exciting, authentic, technology rich instruction connected to their future life prospects. Teachers need professional development to prepare them to teach in a "21st Century style." Schools were designed for yesterday and inhibit innovative teaching and learning for today and tomorrow. In order for us to engage students effectively for life beyond high school, we must modernize the thinking about how we teach and learn.

History of the Region Design Team's path to identifying the Area of Optimization: The relocation of U.S. Forces Command and U.S. Army Reserve Command to Fort Bragg offer a significant catalyst to regional economic growth especially in the defense and homeland security industry sector. However, a primary concern to attracting such an industry sector to the Fort Bragg region is the lack of a STEM focused, skilled workforce from which to draw potential employees. To address the concern, the BRAC Regional Task Force (RTF) in collaboration with a regional cross-sector Steering Group, has developed a pilot network of Enhanced Technology Classrooms and blended learning experiences, funded by the US Department of Labor, to virtually and physically connect the workforce, economic, and educational assets and resources in a synergy of effort. It is this $5.8 million effort that has been leveraged as the springboard for the Fort Bragg Region's STEM Community Collaborative.

In June 2009, cross-sector institutions from six of the 11 counties committed to participate in the Design Process. In the spring of 2009, severe state travel restrictions limited five of the counties' active involvement. The six participating counties, Cumberland, Harnett, Lee, Richmond, Robeson, and Scotland, were designated Phase I and formed the 30-member Regional Design Group. The group included educators from all levels, business, government, non-profit organizations and foundations. The Phase II counties,

Bladen, Hoke, Montgomery, Moore, and Sampson, remained informed through the Workforce Demonstration Program Steering Group emails, monthly videoconferences, webinars, and a discussion board. The leadership of the Design Team is shared by the BRAC Regional Task Force Education Program Manager and the Grants Coordinator from Robeson Community College.

Engaging all of the 6,700 square mile regional community has required a tiered organizational structure. Tier One is the Design Team which is composed of select representation from each county. Four members of the Design Team then lead the Innovation Teams (Tier Two) at the county level to enlist extensive involvement and ensure that the Design Plan is locally sensitive and responsive. The primary objective of the Innovation Team is to develop deep, rich local engagement and partnerships with business and industry to introduce real-time workforce preparation, validate the innovation, and provide enrichment and enhanced subject matter expertise through our 21st Century Teaching and Learning Environments.

The Regional Kick-off was an opportunity to increase awareness of and solicit support for the STEM imperative. Our speakers addressed the core beliefs that decreased dropout rates, increased graduation rates, and a more highly skilled STEM workforce are necessary for regional economic transformation. These objectives can be achieved if we:

1. Better prepare all students with 21st Century skills to be competitive in a **Science, Technology, Engineering, and Mathematics (STEM)** centered global economy.
2. Engage students in **interactive learning environments** and provide teachers with the state of the art resources to enrich the experience.
3. Develop strong **business collaborations with our schools** to emphasize the values necessary to ensure that students graduate and are prepared to succeed.
4. **Personalize** instruction to interest **and accelerate** students progress toward achieving their potential.

Three primary findings emerged from the public feedback received in the break-out sessions. First, a culture change within our region is going to be necessary to make this a reality. We are working against historical perceptions regarding the value and style of education as well as misperceptions about the meaning and value of STEM. Second, the feedback indicated that students need exciting, relevant instruction connected to their future life prospects. There is a perception that current testing constraints inhibit innovative teaching and learning. In order for us to engage students effectively for life beyond high school, we must change the old mold for schooling. Finally but no less important, the teachers need professional development empowering them to teach in a 21st Century environment.

We promptly initiated regular STEM status updates and Discussion Board to share opportunities, resources, and thoughts about increasing and improving STEM engagement in our schools. A contest, sponsored by Lenovo, was conducted to solicit classroom teachers' suggestions for technology innovations to enhance teaching 21st Century content and skills. The suggestions were collated as part of the knowledge capture. Lenovo provided a new laptop to the winning teacher.

Our Design Team has been diligent in its work of creating a meaningful, purposeful, visionary plan. Progress has not been achieved without healthy discourse. Our leadership team members, coached by consultants through NC STEM Community Collaborative, have continually negotiated, accommodated, and redirected the efforts to achieve consensus. The process has been called "violent agreement."

In Disruptive Classrooms, Clayton Christiansen asks, "Can the system of schooling designed to process groups of students in standardized ways in a monolithic instructional mode be adapted to handle

differences in the way individual brains are wired for learning?" We think that they can if we immerse students in digital resources accommodating personalized learning and empower teachers to use these resources. The redesign of schooling comes from within. Networking the assets of a region has the potential to create a critical funding mass, availing poorer, smaller, rural communities access to otherwise cost prohibitive resources. These changes will not come easily though and, at least initially, will require significant investment.

Proposed Solution Prototype: The Fort Bragg Region prototype proposes a multi-faceted approach to creating an innovative environment for 21st Century teaching and learning. The prototype includes attention to students, teachers, classrooms, partners and strategic administration.

Our regional vision is to establish a distributed learning network to encompass rigorous and relevant K-20 STEM education and job training programs. We will utilize enhanced technology and visualization tools to create "wall-less classrooms" that link students and teachers to learning resources and collaborative partners throughout the region, the nation and the world as well as with research and development, business and industry. One Enhanced Technology Classroom (ETC) will gradually be established in every middle and high school throughout the region. It is important to note that the ETC is not one fixed configuration of technology. Rather, it is a resource room that will be flexible and adaptive to incorporate innovations as they occur. A centralized test and evaluation classroom and regional technology advisory board will serve as a clearinghouse. New course enhancements, or blended learning experiences, will be developed to energize STEM curriculum (algebra I and biology) with simulations and visualization technology.

The distributed learning network will connect "circuits" of external academic, research, and industry experts with classroom activities creating the community collaboration around STEM curricula. "Like subject circuits" across school systems will engage in enhanced technology collaborations or competitions (videoconferencing, wikis, etc). Expanded 2+2+2 articulation agreements between high school, community college, and universities will provide students advanced credit and smooth transitions toward meaningful careers.

A myriad of technological tools will be tested, evaluated and appropriately incorporated (including cell phones, software and applications, computers, visual and digital devices) for continuous improvement of STEM teaching and learning.

Business, industry, and local government partnerships are essential to ensure relevance and real-world connectedness in classrooms and educational projects.

Teachers must be empowered to utilize contemporary instructional methods, engage students' learning styles and take advantage of assistive technology to make learning meaningful and relevant for students. In order to build a strong cohort of STEM teachers, we will partner with the Kenan Fellows Program for Curriculum and Leadership Development. Growing our network of Kenan Fellows annually will create a structured mechanism for nurturing STEM teachers throughout the region. We will leverage our initial investment of locally funded Fellows and the NSF Noyce II grant to expand the model annually. Our University and Community College partners are strong supporters of the staff development and research externships that form the foundation for the Kenan Fellows professional growth experience. Additionally, these universities can integrate the methodology behind Enhanced Technology instruction in their pre-service teacher education programs to graduate STEM and technology sophisticated novice teachers.

The technology resources of the Enhanced Technology Classrooms can be utilized to build professional learning communities throughout the region. Videoconferences can be coordinated to focus faculty on contemporary topics and innovative curricular integrations. Technology and media specialists can be similarly convened to discuss discoveries and resource expertise.

In order to facilitate the educational use of technology in the classrooms at all levels of STEM education, teachers will be supported in the delivery of content via innovative applications.

The region will develop a collaborative model that supports optimally sharing subject matter experts, particularly in difficult to staff areas, between and among regional institutions. An alternatively staffed classroom utilizing a master teacher serving classes crossing school and county boundaries will be piloted.

Regional governance and sustainability will require a structure that details the expectations and accountability for each county level using a "franchise" model. A regional advisory board will include cross-sector membership (business, government, parents, students, non-profits, faith-based groups and others) and each Innovation Team to guide the development and implementation of regionally relevant educational innovation. A new non-profit foundation will be researched as a possible project administrator. The non-profit could also develop an Intellectual Property Policy to spur innovation and distribute royalties to the innovator as well as the project.

A regional Test and Evaluation Site will be established.

Community support will be managed through a volunteer and extra-curricular resource directory online.

Test and Evaluate: The Prototype was socialized against the Design Principles during two meetings facilitated by members of the Design Team. The first meeting was face-to-face and moderately effective. The distance element of Design Team meetings was beginning to weigh on participants, and the group was small (10 people). The second socialization meeting engaged technology via a webinar to maximize group engagement at a very busy time of year, the week before Christmas. The webinar was fast paced with tremendous involvement and contributions. Many new and useful ideas for increasing awareness and participation in each of the six counties emerged. The socialization process is expected to continue as our Prototype is refined.

Design Principle 1: *Equity*

Our community STEM initiative leverages the universal access and mandatory attendance policies of the public school system to establish *equity* as a fundamental characteristic of our Design Plan. Recognizing the diversity of student educational experiences in the public schools, we focused our prototype on Algebra 1 and Biology courses which are mandatory for all North Carolina high school students. As the project matures and expands through a phased approach, we envision an interdisciplinary approach that incorporates technology-based instruction throughout the curriculum – STEM learning through art, music, language, and all other elements of the curriculum. By developing a prototype that inherently includes all segments of the community and expanding it across the entire curriculum, we will educate each student in the STEM-related technical and critical thinking skills defined by our industry partners as crucial in the global economy. The distributed learning approach we have adopted overcomes barriers of time and space to provide equal access to learning resources and subject matter expertise from all schools within the region. In summary, our public school-based EIDP touches each student and provides universal access to the STEM-related learning resources and experiences through a regional distributed learning network.

Design Principle 2: ***Sustainability***

We will sustain this Design Plan by assessing and demonstrating results that foster funding from local and national sources. Leveraging the "seed funding" obtained by grant funding through the BRAC RTF, the prototype will establish the efficacy of our approach. We will use the assessment tools inherent to the public school system, placement testing and assessed student learning at our partner institutions of higher education, and feedback from our industry partners to demonstrate the positive impact on student achievement and preparation for higher education or the 21st Century Workplace. The documented success of our prototype (and later the expanded initiative) will provide the data we need to convince county commissioners, local business and industry, philanthropic individuals and organizations, and grant makers that the return on investment in terms of economic development justifies the required investments. Creation of a regional advisory committee to guide efforts, collect evidence from assessments, and coordinate communication with key constituencies ranging from school administrators and faculty to county commissioners to local business leaders will synchronize activities and provide the means to influence decision makers who control needed resources. Success breeds success.

Design Principle 3: ***Community Engagement***

In order for our communities to become engaged and invested in our Educational Innovation, we must increase their awareness. Every community within the region will need to engage a widespread base of support. The obstacles include time, funding, and long-standing perceptions that "STEM is hard" and only for a select few. This will require commitment to produce results.

Design Principle 4: ***Innovative Professionals***

Our community is fostering regional economic development by creating a culture that values STEM-related knowledge. The educational systems at all levels will optimize key resources which integrate technology-based instruction and engage students. Classrooms will be networked so that students and STEM professionals anywhere in the world can participate in instruction. Students will participate in projects that build an excitement in the area of STEM-related education. Teachers and business partners will create situations that require the use of innovative technology. Professionals in the community are actively working with the students through internships, mentoring programs, apprenticeships, cooperative education, coaching science competitions, youth corps, scouts, etc. The teachers in the region are provided opportunities for STEM-related professional development through specific grant programs such as the NC State Science House (PRISM), High School Challenge, and business partnerships. The Kenan Fellows Program provides STEM externships in local businesses, universities and colleges that expose master teachers to cutting edge topics that assist them with disseminating knowledge to their students and peers.

Design Principle 5: ***Collaborative Networks***

The prototype incorporates a distributed learning network composed of enhanced technology classrooms linked to other schools, community colleges, universities, and business partners. Students will engage in 21st Century learning experiences through videoconferencing, smart board interfaces, streaming instruction, virtual worlds, simulations, and interactive learning objects. Partnerships with business and industry will use innovative technology to create customized learning scenarios. Students will be able to get access to industrial facilities through virtual networks and participate in scientific-related coaching programs at business centers. Some of the partnerships include the Ford Partnership, National Science Foundation, Glaxo SmithKline, Biotechnology Center, Professional Engineers of NC, as well as programs at UNC Pembroke, Fayetteville State University, and NC State University. The community will work with regional and national businesses to build sustainability.

Expected Partners/Governance: The Design Team will transform into a regional advisory board. The Board will include cross-sector membership (business, government, parents, students, non-profits, faith-based groups and others) with representation from each Innovation Team. The Innovation Teams will coordinate efforts at the county level with extensive membership inclusive of all sectors and interests in their local communities. A non-profit foundation structure will be researched as a possible project administrator. Each county will be responsible for meeting standards of participation as established by the Design Team/Advisory Board.

The Prototype leverages significant regional investments in education and workforce development. Among them are the NC STEM Community Collaborative, as well as the $5 million Workforce Demonstration Program and $800,000 NC Department of Commerce American Recovery and Reinvestment Act funded pilot project for Enhanced Technology Classrooms. Additionally, the prototype builds on over $175,000 in local investment and a $1.5 million National Science Foundation Noyce II grant for Kenan Fellows teachers.

Each of these programs has metrics embedded that examine the impact of innovation on student achievement and teacher retention, two of many possible indicators of success.

Communicate: The Communication of the Prototype is ongoing. Meetings within each Phase I county are in progress. Parents and Community Members will be invited to the pilot Enhanced Technology Classrooms for an Open House to experience the possibilities. Students will be convened in focus groups to provide feedback. A DVD describing elements of the innovation is in production for distribution. The digital portfolio as well as websites of all other partners can post links to the DVD and Design Plan. Connecting the pilot schools in each county will allow for regional videoconference collaboration which will enable wider participation.

Redesign: The Design Process is intended to be an ongoing process. Innovation is by its very nature is ever evolving. Creating a framework and organizational structure that is responsive to needs will keep this region looking forward and preparing for the opportunities in our future. Therefore, instruments for the collection, analysis and reporting of outcomes data will be developed and reviewed regularly in order to determine the need for modification of the plan and/or any of its activities.

Collaborative Scorecard: Through improved quality of STEM instruction, engagement, and integration in our educational institutions, our region's dropout rate will decrease, graduation rate will increase, the number of students enrolled and completing STEM programs of study will rise, and opportunities for employment in STEM related jobs will significantly improve.

Targets for improvement by 2013:
Dropout rate: decreased by 5%
Graduation rate: increased by 3%
Number of students enrolled in STEM programs of study: increased by 10%
Number of students completing STEM programs of study: increased by 7%
Number of graduates employed in STEM related jobs: increased by 5%

NC STEM
COMMUNITY COLLABORATIVE

Objective	Task	Measure of Impact
Leverage existing technology to create Distributed Learning Network	Inventory LEA/cc/univ technology assets and compatibility	Complete data from each partner Established linkage between compatible components
Increased use of technology integrated throughout instruction	Identify teachers in first cohort for professional development	4 Teachers in each pilot school = 48
Strengthen teachers use of technology for instruction	Identify teachers throughout region with tech skills to be shared with others	
Scaffold non-STEM teachers to make the connections to STEM applications across the curriculum	Identify teachers in "non-STEM" curricula to develop interdisciplinary STEM network	
Ensure that all schools in region have qualified STEM teachers Demonstrate the viability of shared instructors via technology across district lines	Identify schools in need of STEM certified teachers	A minimum of three collaboratively delivered STEM courses in the region in year one
Provide technology support for STEM teachers	Identify Technology Facilitator positions	One TF for each designated high school in pilot area
Create interactive curriculum enhancements supporting STEM	Identify members for regional discipline-specific curriculum enhancement teams	24 teachers trained in technology enhanced curricular support
Increase learning resources for interactive technology	Continue development of 3D learning objects	Seven blended learning objects supporting Algebra and Biology curriculum
Establish technology facilitated professional learning communities	Link common disciplines across district/service area boundaries	One representative from each district in collaborative team
Increase the number of students entering STEM courses, programs, and majors	Increase 2+2+2 agreements	One fully developed STEM pathway with students engaged by end of phase one
Increase use of technology facilitated collaborations for students	Link classrooms by compatible technology	Each pilot school will establish a minimum of one collaborative learning experience for students beyond the geographic boundary of the district
Establish governing body for regional administration of Educational Innovation Design Plan	Begin paperwork to incorporate the Innovation Team as a regional non-profit that will administer project, develop and disseminate resources	501(c)3 incorporation in process

NC STEM
COMMUNITY COLLABORATIVE

Timeline: We have determined that a phased approach will allow us to implement the innovation in a manageable delivery, leveraging resources, ensuring efficiency, allowing flexibility and responsiveness to technological developments as they occur, and monitoring the outcomes to assess the validity and impact of the components of the plan.

It seems most prudent to consider each phase as a year-long process.

Phase One: Initial cohort for professional development & additional tech tools/personnel - The high schools in the region with Enhanced Technology Classrooms/Community Colleges/Universities
Phase Two: Add one middle school in each district in the region, continue adding high schools
Phase Three: Add one elementary school in each district in the region, continue adding middle and high schools
Phase Four: Continue adding high schools, middle schools and elementary schools until complete

Period	Task	Responsible Agency/Institution
1st Qtr	Inventory district/cc/univ technology assets and compatibility	Innovation Team
	Identify teachers in first cohort for professional development	Innovation Team/Districts
	Identify teachers throughout region with tech skills to be shared with others	Districts/CC/Univ
	Identify schools in need of STEM certified teachers	Districts/Innovation Team
	Advertise for Technology Facilitator positions, 1 for each designated high school in pilot area	Districts
	Identify members for regional discipline-specific curriculum enhancement teams	Innovation Team
	Continue development of 3D learning objects	Design Teams
	Begin linking common disciplines across district/service area boundaries	Innovation Team
	Begin development of 2+2+2 agreements	District Curr Coordinators
2nd Qtr	Begin linking classrooms by compatible technology	District & Institution IT Coordinators
	Hire Technology Facilitators	Districts
	Begin professional development/acclimation to classroom of Technology Facilitators	Districts
	Begin paperwork to incorporate the Innovation Team as a regional non-profit that will administer project, develop and disseminate resources	Innovation Team

Partners: BRAC Regional Task Force, Central Carolina CC , Cumberland Community Foundation, Cumberland Co Education Foundation, Cumberland County Government, Cumberland County Schools, DuPont , Fayetteville State University, Fayetteville Tech CC, Goodyear, Harnett County Schools, Harnett Co Economic Development, Kenan Fellows Program, Lee County Schools, Lenovo , NC Military Business Center, Porter Scientific , Richmond CC, Richmond County Schools, Richmond County Economic Development, Robeson CC, Saab-Barracuda , Scotland County Schools, St Andrews Presbyterian College, SmartHomes, UNC-Pembroke

Stakeholders: Bladen County Community College, Montgomery Community College, Sandhills Community College, and Sampson Community College, Campbell University, Methodist University, Bladen County Schools, Hoke County Schools, Montgomery County Schools,, Moore County Schools, Sampson County Schools, Cumberland County Workforce Development Board (WDB), Lumber River WDB, Triangle South WDB, and Pee Dee WDB. 11 County Boards of Commissioners (Members of the BRAC RTF): Bladen, Cumberland, Harnett, Hoke, Lee, Montgomery, Moore, Richmond, Robeson, Sampson, and Scotland County Boards of Commissioners. State Supported Agencies & Partners: North Carolina Military Business Center; Defense & Security Technology Accelerator; North Carolina Advisory Commission on Military Affairs (Fayetteville Area); North Carolina Military Foundation (Raleigh, NC); North Carolina Technology Association (Raleigh, NC); Small Business & Technology Development Centers (Fayetteville, Wilmington, Chapel Hill, Charlotte, and Pembroke, NC); Bladen County Economic Development Corp, Cumberland County Business Council EDC, Hoke County Economic Development, Lee County ED Corp, Montgomery County ED Corp, Moore County Partners in Progress, Robeson County EDC, Sampson County EDC, Scotland County Chamber of Commerce.

The original partners signed letters of agreement to participate in the Design Team. The plan to ensure continued commitment of the identified and any future partners includes development of a formal Memorandum of Agreement. This will articulate specific resources, responsibilities and personnel dedicated to the successful implementation and on-going administration of the EIDP. It is expected that the partners will assist in sustaining the EIDP through dedication of existing resources such as personnel, equipment and/or fiscal contribution.

In addition to the observations and input of the Design Team, other partners, stakeholders and community members, the development of the EIDP was supported by an extensive literature review. A bibliography of much of this literature is included in the e-portfolio.

Cumberland County Early College High School for Language, Culture and Diplomacy

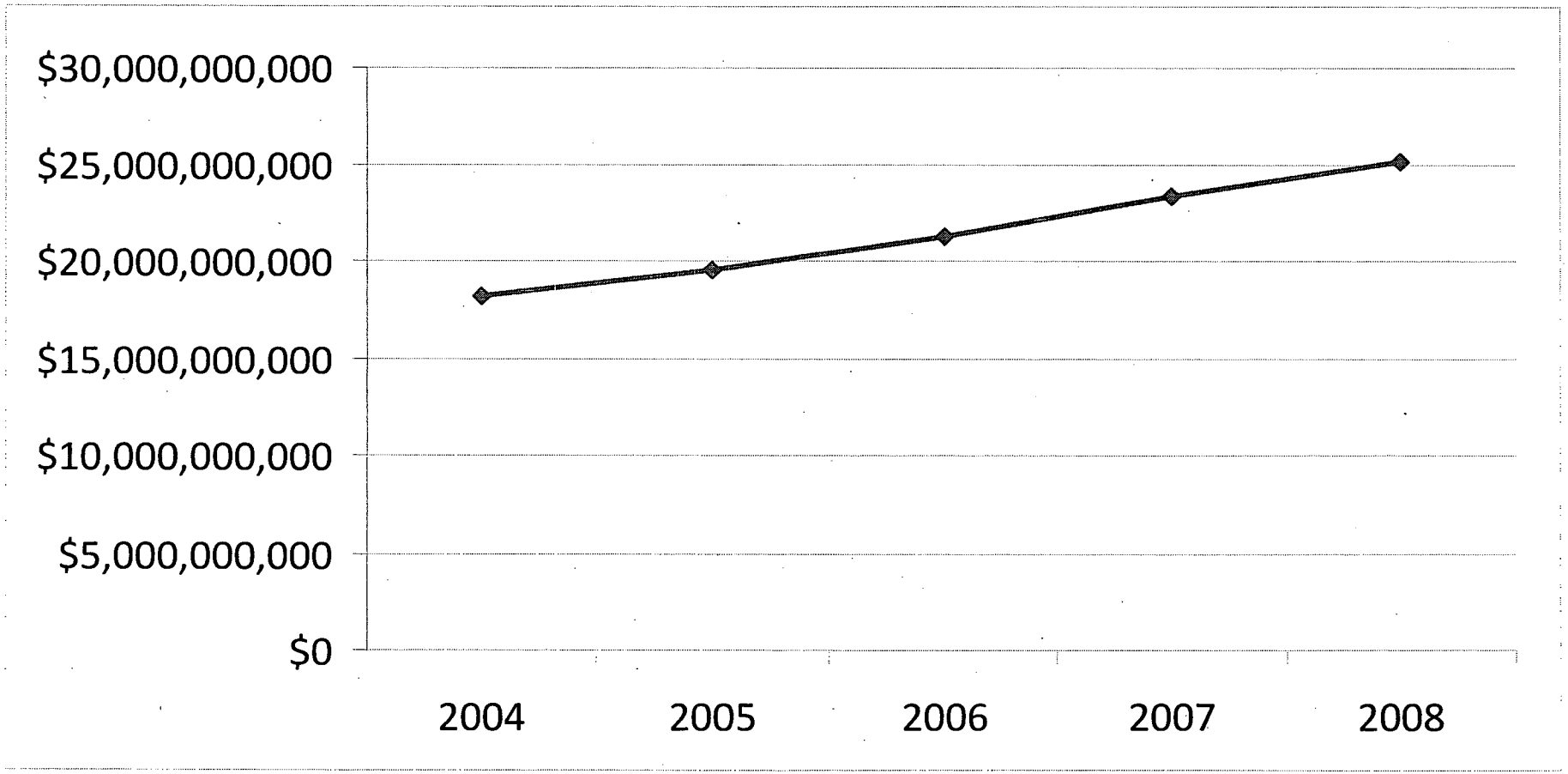
Dr. Frank Till, Superintendent, Cumberland County Schools
Dr. Larry Keen, President, Fayetteville Technical Community College

ATT3

Tomorrow's graduates will be:

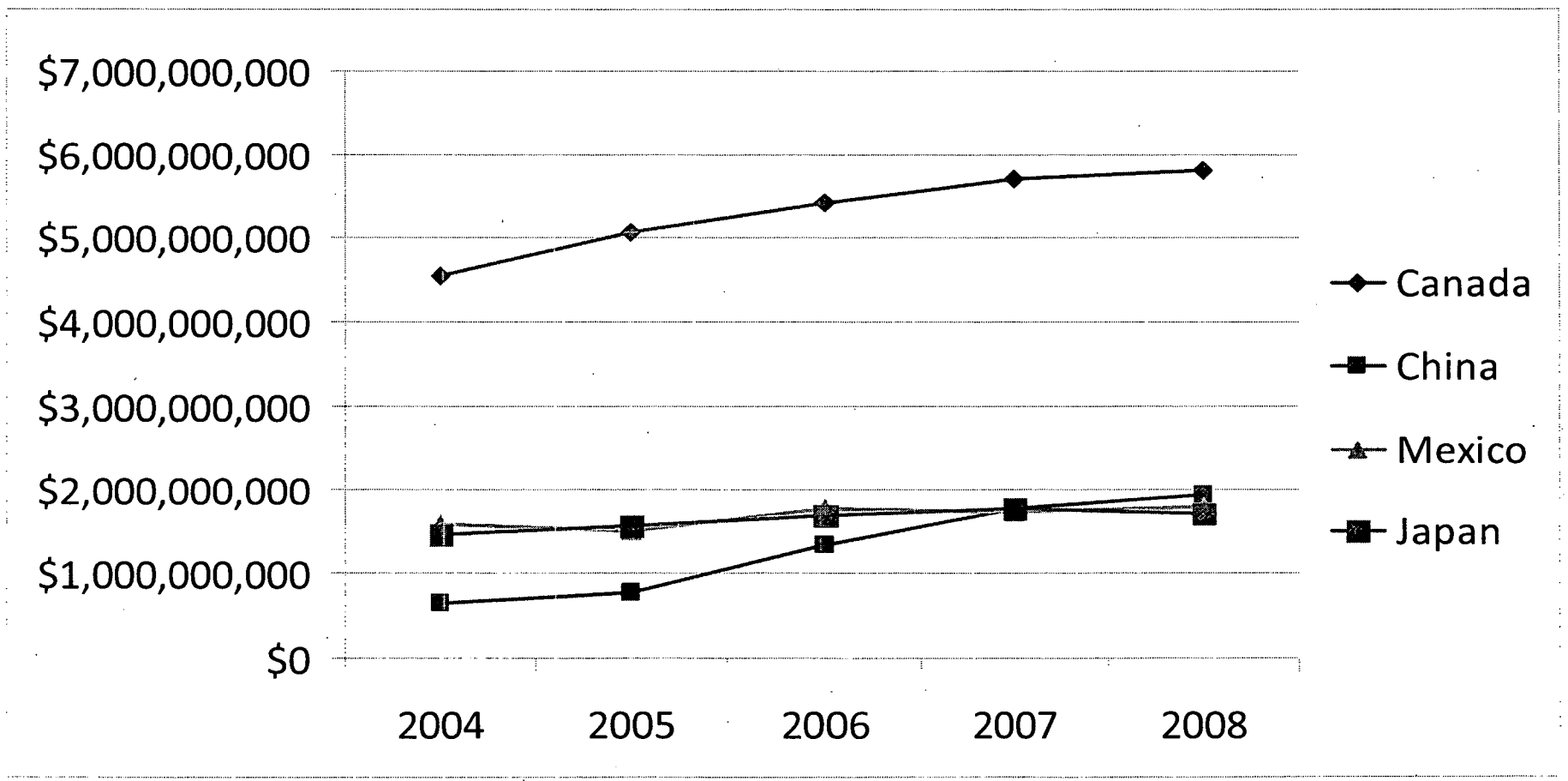
- Selling to the world and buying from the world
- Working for international companies – over 700 operating in NC today
- Managing employees from other countries
- Working on international teams to ensure peace and respond to global challenges like natural disasters, global pandemics, and climate change

Total NC Exports, 2004-2008



Source: WISER, US Census Bureau, Foreign Trade Division

Top NC Trade Partners, 2004-2008



Source: WISER, US Census Bureau, Foreign Trade Division

Cumberland County Early College for Language and Diplomacy

- Governed by the Cumberland County Board of Education and housed at Fayetteville Technical Community College
- Students in grades 9 – 13 earn both a high school diploma and an Associate's Degree or two years of college transfer credit
- Focus on languages and foreign policy studies, areas needed for successful graduates on a dynamic and changing world stage

Cumberland County is Ready.

- Ft. Bragg
- 60 languages are spoken in our students' homes
- Regional economic transformation

Cumberland County Schools

Committed to graduating globally competitive 21st century learners – initiatives include:

- International Schools (Pre-K-8)
- Customized Learning Environments (Early Colleges and PLC's)
- Immersion Program
- Choice Program

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY
SCHOOLS

ATT 4

Cumberland County Early College High School
For Language, Culture and Diplomacy

As globalization plays an ever-increasing role in North Carolina, our students need to have global skills and knowledge in order to work and be successful in an ever-changing, international economy. As they pursue the State Board of Education's mission - that every public school student will graduate from high school globally competitive for work and postsecondary education and prepared for life in the 21st century - Cumberland County Schools' students will build skills in the fields of languages, global business, defense, and diplomacy.

This emphasis on global skills and knowledge has come at the right time. Over the past five years, North Carolina's international exports have grown by over 38%, to over $25 billion in 2008. Our exports reached 210 countries around the world, with our major state trade partners being Canada, China, Mexico, and Japan. Now, more than 700 foreign owned firms operate in North Carolina, and NC ranks eighth in the percentage of our workforce employed by foreign companies. Exports and foreign owned companies mean job opportunities for us right here in North Carolina.

Speaking another language is becoming increasingly important for success in the global economy. Still, the United States has traditionally done a poor job of preparing students to speak other languages and conduct business with other cultures. In North Carolina, to maintain our competitiveness in the world, we must improve our schools' ability to teach languages and cultures. The business community is well aware of the need for improved language and diplomacy education. The Committee for Economic Development, a national group made up of 200 corporate executives and university leaders, called for more language and cultural skills to fill jobs in the business and national security arena in a report released in 2006.

Few communities in North Carolina see the need for global skills and knowledge as well as Cumberland County. In recent years, our military's presence in the world has increased, and with this expansion came a need for more people who can speak other languages and successfully interact in other cultures. It is not just the military that needs language experts, though. According to the BRAC Regional Task Force, by 2013 and beyond, this region will have transformed from a manufacturing-based economy to one that is high-tech defense-related. The jobs that will accompany this transformation will require global knowledge and skills, including the ability to communicate effectively with people of other cultures, speak other languages, and to work innovatively in multicultural teams.

Just as few communities in North Carolina see the need for global skills and knowledge like Cumberland County, few communities are as uniquely-positioned to excel in this field. Cumberland County already possesses a wealth of language resources that extend beyond the

traditional classroom. Sixty languages are spoken in the homes of Cumberland County students now, strong university and community college programs prepare students for the global futures, and Ft. Bragg's Special Warfare Center and School Language and Regional Studies Directorate is the leading defense language and culture education facility on the East Coast.

For future graduates, success will know no single language or culture, nor be bound by traditional borders. Cumberland County is ready to take the lead in preparing North Carolina students for their global future – a future in which graduates will confront and solve global challenges, thrive in an increasingly global economy, and bring hope and security to people across the world. Achieving these critical goals requires coordination among leaders in business, education, and government, as well as an education system in which students' global skills and knowledge are a priority.

Proposal:

To accomplish the described goals and ensure the desired global outcomes for students, the following proposal is presented:

Establish an Early College High School of Language, Culture and Diplomacy under the governance of the Cumberland County Board of Education and housed at and in partnership with Fayetteville Technical Community College. Such a school would serve students grades 9 – 13, ensuring students the opportunity to earn both a high school diploma and an Associate's Degree or two years of college transfer credit, aligned with and feeding into various baccalaureate programs offered at University of North Carolina institutions of higher education. Such an ECHS focusing on languages, culture and diplomacy would take advantage of powerful partnerships with military leadership and higher education institutions including Fayetteville State University and be accessible to the international political, business, and intellectual leaders of the area. The establishment of such a school would be with the formal support and technical assistance of the North Carolina New Schools Project, the Center for International Understanding, World View and VIF (Visiting International Faculty program).

Focus areas:

This one-of-a-kind Early College High School will be recognized for its clear and intense focus on areas needed for successful graduates on a dynamic and changing world stage:

- Languages, with a concentration on what is designated as "less commonly taught languages," (Arabic, Chinese, Japanese, Korean, Russian, Farsi, Persian, and Turkish language families) as well as more familiar Romance languages (French, Spanish).

- Foreign policy studies, including economics, defense and security, diplomatic skills, negotiation and conflict resolution skills, cross-cultural communication skills, international relations and international business.

Proposed Timeline:*

- **July 1-December 31, 2010** – guided preparation of implementation plan to include curriculum development, establishment of protocols for processes such as student recruitment and selection, faculty recruitment, determination of logistical issues (busing, materials and supplies, facilities), MOU among CCS/FTCC/FSU, business and community outreach, communications.
  Deliverable: Implementation plan

- **January 1- February 15, 2011** – Implementation plan review, edit, refinement
  Deliverable: Finalized implementation plan with approval to move forward; signed MOU contingent on full implementation funding

- **February 15 – August 1, 2011** – proceed with implementation (recruit students, hire staff, prepare facilities, reach out to community, etc.)

- **August, 2011** – open school to students according to implementation plan

***Timeline implementation contingent on appropriation of adequate funds.**

MINUTES
JOINING OUR BUSINESSES AND SCHOOLS (JOBS) COMMISSION MEETING
2009-10 Session
March 8, 2010

The Joining Our Businesses and Schools Commission met on Monday, March 8, 2010 at the Embassy Suites in Greensboro, NC. Lt. Governor Walter Dalton, Chairman, presided. The following members of the Senate were in attendance: Vice-Chair A.B. Swindell, Senator Tony Foriest, Senator Harry Brown, and Senator Fletcher Hartsell. The following members of the House were in attendance: Representative Van Braxton. The following public members were in attendance: Grant Godwin, Laura Bingham, Felicia Watson, Howard Lee, Tony Habit, Sam Houston, Bob Beichner, Caroline McCullen, Pam Townsend, Mike Murphy, and Joe Crocker. The following members of the legislative research staff were in attendance: Shirley Iorio and Kara McCraw. Jessica Macaluso, Committee Clerk, was also present at the meeting.

The Chair called the meeting to order at 1:00pm and thanked the committee members and guests for coming.

The Chair then recognized Don Kirkman, President and CEO of NC's Piedmont Triad, who reviewed a powerpoint presentation entitled "Piedmont Triad Region: Aligning Economic Development and Workforce Development" (Attachment 1). Mr. Kirkman discussed the 12 county Piedmont Triad region's strengths and challenges.
Dr. Bingham asked Mr. Kirkman to further discuss the Piedmont Triad's focus on connectivity and leadership. He responded by describing how the region is very fragmented and that if the region had not focused on both connectivity and leadership, they would not have been able to succeed. Dr. Beichner asked Mr. Kirkman how many graduates of higher education stay in the region. Mr. Kirkman stated that more community college graduates stay in the area versus graduates of 4 year programs due, in his opinion, to lack of jobs. Mr. Cocker asked about whether or not the lack of educational attainment extended across the entire region. Mr. Kirkman stated that it varies across the region. He said that Guilford County is improving but this issue has been a challenge across all 12 counties. He feels that the challenge is improving parental attitudes as the previous generation was able to drop out of school and still get good jobs.
Senator Foriest asked what the General Assembly can do to help the region. Mr. Kirkman advised that the regional economic partnership budgets have been reduced to nothing in the 2010-2011 budget and he would like to see the regional economic partnerships' budgets renewed at a higher amount.
Senator Swindell stated concern about the fact that as many people leave the counties to work as come into the counties to work. Mr. Kirkman agreed with Senator Swindell's concerns. The Chair asked how many early high schools have direct partners with the industries. Mr. Kirkman was not sure of the number. The Chair thanked him for his time.

The Chair then had the members of the Commission introduce themselves.

The Chair then recognized Barry Sink, President of Olde Lexington Products, and Newell Clark, President of Standell Properties, who reviewed a powerpoint presentation entitled "Yadkin Valley Regional Career Academy"(Attachment 2). Senator Brown asked if the school was up and running yet. Mr. Clark said they were building it from the ground up so they are not up and running yet. Dr. Bingham asked how they would be funded and the Chair asked how they would be governed as well. Mr. Sink said that the county from which the child comes would be charged the Average Daily Membership (ADM) dollar amount per child. The Chair thanked them for their time.

The Chair then recognized LB Clayton, Vice President Mid-South Region for Old Dominion and Chair of the Piedmont Triad Logistics and Distribution Roundtable. Mr. Clayton reviewed a powerpoint presentation entitled "The Piedmont Triad Region and Old Dominion Freight Line's thoughts on…what's this 'Logistics' stuff anyway…"(Attachment 3). Mr. Clayton described how logistics is a large and growing industry and how there are many opportunities for all education levels in Old Dominion. Rep. Braxton asked what the biggest obstacles were to freight hauling and logistics, other than the cost of fuel. Mr. Clayton responded that congestion on the highways is the biggest obstacle. The Chair thanked him for his time.

The Chair then recognized Dr. Richard Dean, President Emeritus of Wake Forest University Health Sciences. Dr. Dean talked about the skills needed in the Life Sciences. He indicated that the skills needed are constantly evolving and the ones needed now are completely different from what was needed ten years ago. Dr. Dean outlined several different initiatives in the Piedmont Triad region that are assisting in attracting and channeling the interests of students in the Life Sciences. He also indicated that he feels that businesses need to get more involved in ~~the~~ education. The Chair thanked him for his time.

The Chair recognized Don Cameron, President of Guilford Technical Community College. Dr. Cameron introduced Anna Batista, a student at GTCC Middle College. Ms. Batista described how attending GTCC Middle College has positively influenced her academic life. The Chair thanked Ms. Batista for her time.

The Chair called for a 15 minute break.
The Chair called the meeting back to order at 3:30pm.

The Chair then recognized Dr. Linda Bost from Davie County Schools and Larry Colbourne from the Mebane Charitable Foundation, who reviewed a powerpoint presentation entitled "Classroom Education and the Economy – Davie STEM Collaborative" (Attachment 4). Dr. Bingham asked for more clarification around the "STEMifying" of the high schools in Davie County. Dr. Bost described how they worked collaboratively to be sure the STEM education in Davie County was innovative and relevant. Dr. Lee asked if there was any collaboration with higher educational organizations in organizing this collaborative. Dr. Bost replied that they have spoken with schools of education and that the schools are part of the design team. She also stated

that they have a Teacher Academy representative on the design team. The Chair thanked them both for their time.

The Chair then recognized Dr. James Ryan, the founding Dean of the Joint School of Nanoscience at NC A&T and UNC-G. Dr. Ryan reviewed a powerpoint presentation entitled "JSNN: The Impact of Academic – Industrial Partnerships on Research and Economic Development" (Attachment 5). Mr. Murphy (I have Dalton asking this, may not be right though) asked how many students and what the investment has been in the center so far. Dr. Ryan responded there has been an initial amount of $57M and a recurring budget of roughly $4M. The first class is expected to have 10 to 15 students and will eventually have around 120 graduate students.

The Chair then recognized Dr. Cameron from GTCC, who introduced Ryan Kabatchnick, a student at NC State and a former student of GTCC Middle College. Mr. Kabatchnick discussed the structure and nature of the Middle College program at GTCC. He described how students can take as many or as few college classes as they are comfortable with so that the transition from high school to college is easier and more seamless. The Chair thanked him for his time.

The Chair then recognized Stephen Keeney, Senior Manager of Corporate Affairs for Honda Aircraft Company. Mr. Keeney reviewed a powerpoint presentation and showed a video of the type of work Honda Aircraft Company does. Mr. Murphy asked how many employees they would have. Mr. Keeney stated currently 400 employees but potentially up to 1800.Mr. Godwin asked if Honda was able to find qualified employees in the region. Mr. Keeney stated that approximately 40% of their employees are local because of how specific their needs are. Dr. Lee asked the price of the aircraft. Mr. Keeney advised that it was roughly $3.9M.

The Chair then recognized for a final time Dr. Cameron from GTCC, who introduced Ronnie Mock, a student at NC A&T and a graduate of GTCC Early College. Mr. Mock discussed how the GTCC Early College program changed his academic trajectory. The Chair thanked Mr. Mock for his time.

The Chair then opened the meeting up to questions and comments from the public. Lance from Montgomery County asked how they can get a middle college in Montgomery County. The Chair responded that the local Community College Board has to partner with the local school board to focus on the job skills that the local economy needs and the Early College program starts there. The funding is similar to public school funding.
Mike Seers from the Winston Salem Construction Council wanted to emphasize that there are intelligent kids that want to work with their hands and that that interest should not be stigmatized. The school system should offer stepping stones and skills to different career paths. Senator Swindell commented that he understood Mr. Seers' concern but also wanted to confirm that everyone on the Commission is a champion of vocational education and wants to see more on the job training and internships.

Ed Williams commented that he feels that a lot of buildings are going to need to be built in the next 10-15 years to support our economy and new industries and is concerned that the construction workforce is aging and will retire soon and the industry is not attracting young people to replace the retiring workforce. He would like to see more programs to attract people to the many facets of the construction industry.
Sanford Danzinger said he was impressed by the final GTCC graduate. He stated that there are cheaper ways to accomplish the teaching of the skills that Mr. Mock learned at his middle college. He stated that he has taught over 140,000 people to not fall into a victim mentality.
Charlie Bell, HR Director of the Twin City Corridor, which includes several local hotels, described building the curriculum, teachers, and students for an academy for hospitality. He feels that it is very successful and urged the Commission to support these career academies.
Jane Martin, who has a Hispanic marketing company in Forsyth County, wanted to share with the Commission members that her company has just finished a set of DVDs targeted at Hispanic parents to help them interact with the schools their children attend.

The Chair thanked the audience for their interest in their region and their state and adjourned the meeting at 5:25pm.

Respectfully submitted,

_____
Lt. Gov. Walter Dalton, Chairman

ATTEST:

_____
Jessica Macaluso, Committee Assistant

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. March 8, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Curt Lorimer	Randolph Community College	lorimer@trial.rr.com
[illegible]	Montgomery C.C.	[illegible]
Nancy Morton	MCC	MORTONN@montgomery.edu
Martin Collins	Mount Airy	mcollins@mountairy.org
Shirley Bynum	WS/Forsyth Co. Schools	sd.bynum@wsfcs.k12.nc.us
Don Kirkman	PTP	dkirkman@piedmonttriad.com
Mary Rottling	DCCC	merittli@davidsonccc.edu
Dwan E Smith		
Donna McNeil	Davie Co Schools	mcneild@davie.k12.nc.us
Jan Collins	Surry Co. Schools	collinsje@surry.k12.nc.us

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. March 8, 2010
Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
[illegible]	Eden	
LARRY WILKERSON	PIEDMONT COMM College : LOXCREEN CO. INC.	52LW@LOXCREEN.COM
Steve Yokeley	CITY OF MOUNT AIRY	steveyokeley@rogersrealty.com
Jennifer Griffin	WSFCS	jgriffin@wsfcs.k12.nc.us
Beth Parrott	DCCC Trustee	beth@parrottinsurance.com
LBC Clayton	Old Dominion Freight Lines, Inc	lb.clayton@odfl.com
Bob Durand	RCC	rtdurand@randolph.edu
Keith Tobin	Thomasville City Schools	tobink@tcs.k12.nc.us
JAMES KALLAM	COUNTY COMMISSIONER Rockingham	KALLAMJ@JUNO.COM
BOBBY STANLEY	Rockingham county commissioner	—
ROBIN RHYNE		rrhyne@HOTMAIL.COM

VISITOR REGISTRATION SHEET

JOBS Comm — 3-8-2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL
Earlie	Surry County Schools	
Mark Ezzell	NC STEM	mezzell@ncstem.org
Keith Lipscomb	JOBLink	Keith.Lipscomb@greensboro-nc.gov
Donna Hudson	Caswell County	dhudson@caswell.k12.nc.us
Mike Dougherty	City of EDC	MDougherty@EDC.NC.US
Marty Tobey	Dept. of Public Instruct	mtobey@dpi.state.nc.us
GREG GIFT	NC-DPI	gift@dpi.beltline.net
Susan Phelps	Forsyth Tech	sphelps@forsythtech.edu
Anne McNeill	IBM	annmcneil@us.ibm.com
BRUCE SHERMAN	WS/FC SCHOOLS	bsherman@wsfcs.k12.nc.us

VISITOR REGISTRATION SHEET

JOBS COMMISSION — 3-8-2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL
Kay Rogers	Winston Salem Forsyth County Schools	fkrogers@wsfcs.k12.nc.us
Brian Haderlie	Guilford Tech CC	bmhaderlie@gtcc.edu
Stuart Fountain	State Board of Community Colleges	sfountain@tbd.on.c
Michael Miller	Surry Community College	millermb@surry.edu
Randall Parks	Davidson Co Schools S. Dav. High	rparks@davidson.k12.nc.us
Eddie Williams	Buckner Companies	eddiew@bucknercompanies.com
Barbara Long	Elkin City Schools	longb@elkin.k12.nc.us
Bonnie Renfro	Randolph County EDC	brenfro@rcedc.com
Rebecca L Payne	NC DPI	rpayne@dpi.state.nc.us
Louise Uziel	Rockingham Co. Schools	luziel@rock.k12.nc.us
Wayne Szafranski	NC A&TSU	wszafra@ncat.edu

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. March 8, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Richard Dean	Wake Forest UNIV Health Sciences	rdean@wfubmc.edu
DEAN BROWN	City of Mt. Airy	BROWN905@ROADRUNNER.co
Ted Summey	NCDPI	tsummey@dpi.state.nc.us
Scott Sewell	Cook medical	scott.sewell@cookmedical.com
David Rowe	Town of Oak Ridge	hdprowe1@aol.com
Kyle Wolf	Guilford Workforce Development	kyle.wolf@greensboro-nc.gov
Gloria Smith	Lexington City Schools	gsmith@lexcs.org
Annie East	Pilot Mtn, NC	easta@surry.k12.nc.us
Dr. Dulhanty	Davie Co Schools	laudrey@davie.k12.nc.us
Paula Brinkley	Surry Co. Schools	brinkleyp@surry.k12.nc.us
Kate Lehmkuhler	Mack Trucks / Volvo Trucks	Katelyn.Lehmkuhler@volvo.com

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. March 8, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Barry Sink	Olde Lexington Products PO 677 Lexington, NC 27293	sales@oldelexington.com
Jim Reinhardt	209 N Cruteafield St Dobson, NC 27017	reinhardtj@surry.k12.nc.us
Bill Nelson	A-T Chamber PO Box 4634 Archdale 27263	beverly@archdaletrinity Chamber.com
Rob Clapp	GSO Chamber	rclapps@greensboro.org
Elizabeth Standafer	ABSS 1112 Vaughn Rd. Burlington 27215	elizabeth_standafer@abss.k12.nc.us
Theresa Reynolds	PTP	treynolds@piedmontfriedac.com
Larry Colbourne	Merane Foundation	lcolbourne@merane foundation.com
Joan White	O'Hara-HP-Gen'l Fnd Co Workforce Dev. Board (Chair)	jwhite@hprhs.com

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. March 8, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Anita Dallas	Rockingham County Comm	adallas@triad.rr.com
Sam Prize	NCSTEM	sprize@ncstem.org
Cindy Jolly	NCSTEM	cjolly@ncstem.org
Gail Stilwell	Piedmont C.C.	stilfarm@comcast.net
Tess Jordan	Piedmont Triad Partnership	tjordan@piedmonttriadnc.com

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. March 8, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
David Hayes	Surry Co. Schools	hayesda@surry.k12.nc.us
Ashley Hinson	Surry Co. Schools	hinsona@surry.k12.nc.us
Howie Snotherly	Regional Partnership WDB	hwsnotherly@randolph.edu
Doug Atkinson	Atkinson Collaborative Enterprise	Atkinson@enterprise@gmail.com
Ron Hoth	DAVIE COUNTY COMMISSIONER	RHOTH@TRAD.RR.COM
Rodney Shotwell	Rockingham Co. Sch.	rshotwell@rock.k12.nc.US
Nakia Hardy	Rockingham Co Sch.	nhardy@rock.k12.nc.US

VISITOR REGISTRATION SHEET

Name of Committee _____ Date _____

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL
Teresa Mansfield	LabCorp 531 S. Spring St Burl. NC	teresa.mansfield@labcorp.com
Barbara Massey	Alamance Co Chamber of Commerce PO Box 450 Burlington, 27216	barbara@massey@alamancechamber.com
Nancy Routh	Guilford County Board of E	nrouth@bellsouth.net
Brian Lendreth	Guilford County GOP	brian48@[illegible]
Melissa Smith	NC Dept Commerce 7025 Albert Pick Rd. gbo.	msmith@ncecommerce.com
NOTIS PAGIAVLAS	WSSU	pagiavlasno@wssu.edu
Kathy Slovak	Regional Partnership & Pee Dee Workforce	kslovak@regionalcs.org
[illegible]	WSSU	[illegible]@WSSU.EDU
Debra A. Sheppard	Davidson Co Schools	dsheppard@davidson.k12.nc.us
Professor Craig M. Kabatchnick	Director Veterans Legal Program N.C.C.U. School of Law	ckabatchnick@nccu.edu

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. March 8, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Brian Barringer	Regional Partnership	brian_barringer@ncesc.gov
LEROY STOKES	GTCC	LSTOKES@GTCC.EDU
Rita Agnew		
Keil Hoover	NC STATE UNIVERSITY	Keil_Hoover@ncsu.edu
Tom Lambeth	2 Smith Reynolds Fnd.	tlambeth2@triad.rr.com
Judy Thomas	Montgomery EDC	Judy@Montgomery-county.com

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. March 8, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Linda Bost	DCS/Davie STEM	bostl@davie.k12.nc.us
DAN OSHEA	FAIRWAY OUTDOOR ADV.	danie.oshea@fairwayoutdoor.com
Nakia Hardy	RCS Rockingham County Schools	nhardy@rock.k12.nc.us
Mitzi Bond	NCA&TSU	mbond@ncat.edu
Joe Crocker	Commerce	jcrocker@NCcommerce.com
Jim Donnelly	DCCC	
Tom Dayvault	High Point Chamber	tom@highpointchamber.org
Brenda J. Kennedy	WSSU - 601 S. MLK W-S, NC	kennedybj@wssu.edu
Brent Wall	Lexington Housing Authority	cmlha@lexcominc.net
Sara G. Markus		3markus@triad.rr.com

VISITOR REGISTRATION SHEET

JOBS Com 3/8/10

Name of Committee Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS	EMAIL
Carolyn McMananamy	Davie Chamber of Commerce	cmcmananamy@davecounty.com
Fred Mock	Davidson Co Schools	F.Mock@Davidson.NC.US
Jane Martin	Martin & Work Promo	janemartin@mw
Newell Clark	Standell / President	newell@standellcorp.com
Manuel Vargas	W-S state U.	vargasma@wssu.edu
MARICK FLETCHER	BioNetwork	mfletcher@forsythtech.edu
Marty Cooper	Healthcare Careers Code Blue	codeblue@triad.rr.com
Peggy Valentine	WSSU	pvalentine@wssu
Margaret Collins	PTP	mcollins@piedmonttriadinc.com
Kip Blakely	TIMCO	kip.blakely@timco.aero
Ken Scott	Ken Scott	kscott@rock.KR.NC.US

SPEAKING REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. March 8, 2010

Name of Committee **Date**

IF YOU WISH TO SPEAK DURING THE PUBLIC COMMENT PORTION OF THE MEETING, PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Allison Grant	Ala. Citizens for Educ. POB 100, Burlington NC 27216	alamancacitizens@bellsouth.net
Terry Bralley	Alamance County EDC	terry.bralley@alamancecounty.com
Jerry McGuire	MCGUIREJ@UNCG.EDU UNCG	
Bob Gantt	Guilford Co Schools	ganttr@gcsnc.com
Kevin Kimrey	Surry Comm. College	
Steve Jones	Training & Emp. Services City of Greensboro	steve.jones@greensboro-nc.gov

VISITOR REGISTRATION SHEET

Jt. Leg. Joining Our Businesses & Schools (JOBS) Study Comm. March 8, 2010

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM/AGENCY AND ADDRESS	EMAIL ADDRESS
Joe Bennett	city of Thomasville	Bennetj@ci.Thomasville.NC.US
Elizabeth Kremer	RCC	epkremer@randolph.edu
JOHN WALSH	CITY OF LEXINGTON	
John Gray	City of Lexington	johngray@lexingtonnc.net
MIKE SEARS	WINDSOR CONTRACTING	MSEARS@WINDSORINVESTMENTS.COM
Linda Massey	Alamance County Commissioner Chair	lhmassey@bellsouth.net
Carol Davis	WSSU, S.G. Atkins CDC	davisc@wssu.edu

MINUTES

Joining Out Businesses and Schools (JOBS) Commission

Tuesday, May 5, 2012, 10:00 A. M.

Room 544, Legislative Office Building

The Joining Our Businesses and Schools (JOBS) Commission met Tuesday, May 5, 2012 at 10 A. M. in Room 544 of the Legislative Office Building. Lt. Governor Walter Dalton, Commission Chair Presided. The Lt. Governor welcomed a delegation from Moldova visiting the N. C. General Assembly. He explained the scope of the Commission and noted that this was the last meeting of the Commission. He welcomed those newly appointed members to their first and last meeting. And he thanked the Sergeants at Arms for their work.

Lt. Governor Dalton said the Southern Growth Policies Board named the JOBS Commission the Innovator of the Year. The Board is made up of 13 southeastern U. S. States and the JOBS Commission was the North Carolina Award. He said that because of the work done by the Commission, that he had been named Legislator of the Year at a national meeting of the Work Force Professionals.

There is a recommendation that the Business Education Committee in DPI take over the groundwork laid by the Commission.

Pam Townsend was asked to explain the paper to be presented at an international meeting about the N. C. State University/Wake County Public Schools/ STEM Early College School. She said the Engineers Education Forum had accepted the abstract on such a paper to be submitted for consideration. Ms. Townsend said the paper would feature the work the JOBS Commission had done working with the University and the Wake School System to make the school a reality. The Forum will meet in 2013 in Argentina. Final word on acceptance of the paper for presentation will be later this summer.

Lt. Governor Dalton thanks the members of the Commission for the work done over the two and a half year tenure of the JOBS Commission. *(SEE ATTACHMENT: Members and Guests in Attendance.)*

Noting that there have been interim reports made on the Commission's work, Lt. Governor Dalton recognized Commission Counsel, Kara McCraw to present the final report. *(SEE ATTACHMENT: Final Report.)*

Ms. McCraw called attention to page 7 of the Report which provides the Commission results. Then Ms. McCraw explained the various sections.

Following the presentation, Lt. Governor Dalton extended thanks to members of the legislative staff and his staff for the work with the Commission. By way of explanation to the new members, he said the three pilot programs begun under the auspices of the Commission were such that could be used a guides and replicated in other parts of the State for other similar ventures.

He said the North East program was especially noteworthy since it involves five counties and their school systems in a joint venture which crosses county lines. This legislation creates a model that is being studied for a business and schools cooperation in the Yadkin Valley, likewise the International Studies and Language School in Cumberland County has the tacit approval of the U. S. Army at Fort Bragg.

Then upon motion of Laura Bingham and second by Bob Beichner and a unanimous vote the final report was accepted.

The Lt. Governor concluded with an admonition that the work done by the Commission showed such collaborations could be done. He noted there are over 500 STEM initiatives in North Carolina and the work laid down the Commission should be continued to bring some synergy to those efforts and others in the State.

Following a word of thanks from Bob Beichner to the Lt. Governor for his work on the Commission, the meeting was adjourned.

Adjourned at 10:13 A. M.

Ted Harrison

Minutes by Ted Harrison

JOBS COMMISSION May 15, 2012 MEMBERS PRESENT

Bob Beichner

Laura Bingham

Joe Fredosso

Grant Godwin

Tony Habit

Dr. Bill Harrison

Dr. Sam Houston

Pamela Townsend

Karl Rectanus

Felecia Gray-Watson

Sen. Fletcher Hartsell

Sen. Dan. Soucek

Sen Bob Rucho

Rep. Tom Murry

VISITOR REGISTRATION SHEET

JOBS Commission (2011-2012) May 15, 2012

Name of Committee **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
Ford Porter	Dalton for Governor
Beth Lucas	NC Dept. of Commerce
Ben Schaumberg	NCSBA
Matt Garrell	NCSBA
Anna Marshall Wilson	Capstrat
Susanna Davis	Gov Office
Zan Pope	Gov Office

JOINT LEGISLATIVE
JOINING OUR BUSINESSES AND SCHOOLS (JOBS)
STUDY COMMISSION

FINAL REPORT TO THE

JOINT LEGISLATIVE EDUCATION OVERSIGHT COMMITTEE

AND TO THE

2012 SESSION OF THE 2011
GENERAL ASSEMBLY
OF NORTH CAROLINA

A LIMITED NUMBER OF COPIES OF THIS REPORT IS AVAILABLE FOR DISTRIBUTION THROUGH THE LEGISLATIVE LIBRARY.

ROOMS 2126, 2226
STATE LEGISLATIVE BUILDING
RALEIGH, NORTH CAROLINA 27611
TELEPHONE: (919) 733-7778

OR

ROOM 500
LEGISLATIVE OFFICE BUILDING
RALEIGH, NORTH CAROLINA 27603-5925
TELEPHONE: (919) 733-9390

TABLE OF CONTENTS

LETTER OF TRANSMITTAL i

COMMISSION MEMBERSHIP iii

SESSION LAW 2009-339 v

BACKGROUND ix

COMMISSION PROCEEDINGS 1

SUMMARY OF 2011-2012 COMMISSION PROCEEDINGS 3

FINAL COMMISSION RESULTS 7

COMMISSION ENACTED LEGISLATION 12

COMMISSION SUMMARY 2009-2012 13

FINDINGS AND RECOMMENDATIONS 15

APPENDIX 17

STATE OF NORTH CAROLINA

JOINT LEGISLATIVE JOINING OUR BUSINESSES AND SCHOOLS (JOBS)
STUDY COMMISSION

May 15, 2012

TO THE MEMBERS OF THE JOINT LEGISLATIVE EDUCATION OVERSIGHT COMMITTEE AND THE 2012 SESSION OF THE 2011 GENERAL ASSEMBLY OF NORTH CAROLINA:

Attached for your consideration is the final report to the Joint Legislative Education Oversight Committee and the 2012 Session of the 2011 General Assembly of North Carolina. This report was prepared by the Joint Legislative Joining Our Businesses and Schools (JOBS) Study Commission pursuant to S.L. 2009-339.

Respectfully submitted,

Lt. Governor Walter Dalton
Chair

JOINT LEGISLATIVE JOINING OUR BUSINESSES AND SCHOOLS (JOBS) STUDY COMMISSION 2010-2011

COMMISSION MEMBERSHIP

Ex Officio Members

Lt. Governor Walter H. Dalton (Chair)
Hon. Howard N. Lee, Executive Director of the Education Cabinet

President Pro Tempore Appointments

Sen. Harry Brown (Vice Chair)
Sen. Bob Rucho
Sen. Dan Soucek
Mr. Robert J. Beichner
Ms. Valeria Lee
Mr. Mike Murphy
Ms. Felicia Gray Watson
Ms. Laura Willoughby

Speaker of the House of Representatives Appointments

Rep. Nelson Dollar (Vice Chair)
Rep. David R. Lewis
Rep. Tom Murray
Ms. Laura Carpenter Bingham
Mr. Grant Godwin
Ms. Caroline Watts McCullen
Dr. Susan R. Purser
Mr. Roger Shackleford

Governor's Appointments

Dr. William C. Harrison
Ms. Pamela B. Townsend

Upon the initiative of the Chair, the following persons were asked to attend the meetings and provide advice to the Commission.

Mr. Joe Freddoso
Dr. Tony Habit
Sen. Fletcher Hartsell
Dr. Sam Houston
Mr. Karl Rectanus

COMMISSION STAFF

Kara McCraw
Drupti Chauhan

Ted Harrison, Commission Assistant

GENERAL ASSEMBLY OF NORTH CAROLINA
SESSION 2009

SESSION LAW 2009-339
SENATE BILL 1069

AN ACT TO ESTABLISH THE JOINT LEGISLATIVE JOINING OUR BUSINESSES AND SCHOOLS (JOBS) STUDY COMMISSION.

Whereas, the Innovative Education Initiatives Act became law in 2003; and

Whereas, as a result of this act, 52 Early and Middle College programs have been developed as a collaboration between the public schools, the community colleges, and private business; and

Whereas, these schools have generally evidenced a decrease in their dropout rates and, as a result, have won national awards; and

Whereas, North Carolina has seven identified economic development regions, each with its own challenges in today's changing and demanding job market; and

Whereas, North Carolina has numerous innovative public and private programs based in Science, Technology, Engineering, and Mathematics (STEM); and

Whereas, to be efficient with the taxpayers' dollars, to continue to increase the graduation rate, and to prepare our students for twenty-first century jobs, it would be beneficial to map these innovative education programs, including the development of additional Early and Middle College programs and STEM programs, and other public and private education programs that have instructional programs that prepare students to meet the particular employment and workforce preparation needs of the respective economic development regions. In addition, it would be beneficial to develop curriculum frameworks that reflect innovative design principles in some of these schools that would address both regional and statewide employment needs; and

Whereas, the United States Department of Education has identified 16 career clusters as a tool to connect career technical education (CTE) to education, workforce preparation, and economic development; and

Whereas, the North Carolina STEM Community Collaborative/MCNC is supporting the creation of a replicable community visioning process, engaging business, policy, education, and community stakeholders in mapping their local needs and producing a plan for sustainable, local education innovation based in science, technology, engineering, and mathematics; and

Whereas, it would be beneficial to position each region and the State to compete in the regional, national, and global economy by creating a joint legislative study commission to review the vision plans and overall needs of each economic development region as well as the overall needs of the State; and

Whereas, the Commission should advise the North Carolina Education Cabinet and specifically the Department of Public Instruction as they develop standard instructional programs for twenty-first century career paths in accordance with the Early and Middle College and STEM models and study the implementation of pilot programs in these respective regions that will best suit the potential of the region and better prepare students for the increased academic demands of a global economy; Now, therefore,

The General Assembly of North Carolina enacts:

SECTION 1. There is established the Joint Legislative JOBS (Joining Our Businesses and Schools) Study Commission (Commission).

SECTION 2.(a) The Commission shall consist of the following members:

(1) The Lieutenant Governor serving as the Chair.

(2) Two members appointed by the Governor.

(3) Eight members appointed by the President Pro Tempore of the Senate, to include:
   a. Three members of the Senate, with one designated to serve as a vice- chair.
   b. A representative of The University of North Carolina.
   c. A representative of the Department of Public Instruction.
   d. A representative of North Carolina's business and industry.
   e. A public school teacher.
   f. An individual with expertise in STEM education.
(4) Eight members appointed by the Speaker of the House of Representatives, to include:
   a. Three members of the House of Representatives, with one designated to serve as a vice-chair.
   b. A representative of the Community College System.
   c. A representative of the Independent Colleges and Universities.
   d. A representative of the Department of Commerce.
   e. A representative of North Carolina's business and industry.
   f. A representative of North Carolina's school superintendents.
(5) The Executive Director of the Education Cabinet or the Executive Director's designee, serving ex officio.

SECTION 2.(b) Members of the Commission shall serve a three-year term, beginning on July 1, 2009. The terms for members of the House of Representatives or the Senate shall end upon the expiration of the members' legislative term.

SECTION 2.(c) Members shall serve at the pleasure of the appointing authority. Vacancies on the Commission shall be filled by the same appointing authority who made the initial appointment.

SECTION 2.(d) A vice-chair shall serve as Chair in the absence of the Chair.

SECTION 3.(a) The Commission shall study issues related to economic development through innovative schools where instructional program frameworks reflect the high academic standards required of students to be successful as they transition to postsecondary education and future careers, including:

(1) Technical and vocational needs of each economic development region;
(2) Employment and workforce preparation needs of the State as a whole;
(3) The economic vision plans for each economic development region;
(4) The shortage of highly skilled employees such as technicians, teachers, allied health practitioners, including, but not limited to, nurses and doctors, scientists, and engineers;
(5) The 16 career clusters identified by the United States Department of Education as well as additional career paths;
(6) The development of a framework for assessment of readiness of a community or region to support twenty-first century economic demands of business and industry development and the scaling of innovative local programs to impact broader numbers of individuals in communities around the State; and
(7) Any other matter pertinent to connecting career technical education to education, workforce preparation, and economic development through innovative schools.

SECTION 3.(b) The Chair shall appoint from the Commission's membership a North Carolina STEM Community Collaborative Advisory Committee (Community Collaborative) to ensure that the efforts of the Commission and the Community Collaborative are aligned and that the Commission is informed of the Community Collaborative's activities and that the Community Collaborative is informed of the Commission's activities.

SECTION 4. The Commission shall prioritize and customize the career clusters and identify additional career paths and report its recommendations to the State

Board of Education. The Commission shall (i) advise the North Carolina Education Cabinet and specifically the Department of Public Instruction as they develop, incrementally, standard instructional programs for career clusters and their corresponding career paths in accordance with the Early and Middle College model, and (ii) study the implementation of pilot programs in the seven economic development regions of the State that will best suit the needs of the regions and prepare students for the increased academic demands of a global economy.

SECTION 5. The Commission shall also study issues related to economic growth by the creation of measures and metrics which define the readiness of a community to deliver to all stakeholders the services that equip the workforce to be competitive in a STEM-intensive economy, including ensuring that students throughout the education pipeline gain the skills learned from science, technology, engineering, math, and other rigorous subjects. As a part of its study, the Commission may examine issues related to:

(1) A replicable and perpetual model for aligning efforts of local business, industry, policy, and education stakeholders in community engagement for visioning student-centered learning;

(2) The documentation and study of the innovative education programs critical for communities to be competitive in the STEM environment in the twenty-first century;

(3) A framework to network these economic development regions, aligning State, regional, and external investment in replicable innovation;

(4) Opportunities to leverage existing research, programs such as the College Foundation of North Carolina Bridges program, and other resources to maximize the impact of these existing resources and assets to avoid duplication, to achieve greater economies of scale, and to broaden the impact of these efforts by the most cost-effective means possible; and

(5) Any other topics deemed relevant by the Commission.

SECTION 6.(a) The Commission shall, within the first eight months of its creation, meet at least once in each economic development region. The Commission may use any and all appropriate technology to enhance participation in its meetings and to reduce the costs incurred by the Commission. The Chair may appoint a volunteer advisory committee in each economic development region to assist the Commission in its work.

SECTION 6.(b) The Commission shall work closely with the business community across the State and shall encourage businesses and business leaders to partner with the Commission on the work of the Commission and to establish public-private partnerships with the pilot schools.

SECTION 6.(c) The University of North Carolina shall inform the Commission on the work of its constituent institutions on the elementary and middle school fundamental building blocks for secondary STEM success. This work should be a consideration for all communities which engage in visioning student-centered learning. The Commission shall also be informed by The University of North Carolina on its North Carolina STEM program inventory and how to make this inventory available to communities which engage in visioning student-centered learning.

SECTION 7. The Commission shall meet upon the call of the Chair. A quorum of the Commission shall be a majority of its members. The Legislative Services Commission shall grant adequate meeting space to the Commission in the State Legislative Building or the Legislative Office Building. G.S. 120-19 applies to requests made on behalf of the Commission.

SECTION 8.(a) The expenses of the Commission shall be paid by the Legislative Services Commission from available funds appropriated to the General Assembly. The Legislative Services Commission may accept grants on behalf of the State to be used to help defray the expenses of the Commission. Any application and

receipt of grants under this section shall be subject to the requirements of Chapters 120C and 138A of the General Statutes, and Article 14 of Chapter 120 of the General Statutes. Reasonable expenses of the Commission may include the cost of travel on a learning tour of innovative schools both inside and out of the State. Any grants funds received under this section shall be held by the General Assembly in a non-reverting special fund known as the JOBS Commission Fund to be administered by the Legislative Services Commission for expenses of the Commission. Any funds remaining in the JOBS Commission Fund shall transfer to the reserves of the General Assembly upon termination of the Commission.

SECTION 8.(b) Members of the Commission shall receive per diem, subsistence, and travel allowances in accordance with G.S. 120-3.1, 138-5, or 138-6, as appropriate. Individual expenses of five thousand dollars ($5,000) or less, including per diem, travel, and subsistence expenses of members of the Commission, shall be paid upon authorization of the Chair of the Commission. Individual expenses in excess of five thousand dollars ($5,000) shall be paid upon written approval of the President Pro Tempore of the Senate and the Speaker of the House of Representatives.

SECTION 8.(c) With approval of the Legislative Services Commission, the Legislative Services Officer shall assign professional and clerical staff to assist the Commission in its work during the interims between legislative sessions. The Directors of Legislative Assistants of the House of Representatives and the Senate shall assign clerical staff to the Commission. The Commission may contract for additional professional or consultant services in accordance with G.S. 120-32.02.

SECTION 9.(a) The Commission shall make an initial report of the results of its study to the State Board of Education by March 1, 2010. In its report, the Commission shall recommend at least four of the 16 career clusters identified by the United States Department of Education that will best and most broadly serve the immediate employment and workforce preparation needs of the State and the respective regions. Upon consideration of the recommendations of the Commission, the State Board of Education, in consultation with the Department of Public Instruction, shall develop the instructional programs for at least four career clusters and shall implement at least one JOBS Early or Middle College in each of the economic development regions beginning with the 2010-2011 school year where feasible, and in all other regions by the 2011-2012 school year.

SECTION 9.(b) The Commission may make recommendations resulting from its study to the State Board of Education and the Department of Public Instruction from time to time in its discretion.

SECTION 9.(c) The Commission shall monitor the implementation of its recommendations to the State Board of Education and the Department of Public Instruction and shall report and recommend to the General Assembly any legislation necessary to implement its recommendations.

SECTION 9.(d) The Commission shall make an interim report of the results of its study and its recommendations, including any proposed legislation, to the Joint Legislative Education Oversight Committee and the 2010 Regular Session of the 2009 General Assembly no later than May 15, 2010, and to the Joint Legislative Education Oversight Committee and the 2011 Regular Session of the 2011 General Assembly no later than February 1, 2011, and a final report to the Joint Legislative Education Oversight Committee and the 2012 Regular Session of the 2011 General Assembly no later than May 15, 2012. The Commission shall file a copy of each Commission report with the President Pro Tempore of the Senate's office, the Speaker of the House of Representatives' office, and the Legislative Library.

SECTION 10. The Commission shall terminate on June 30, 2012, or upon the filing of its final report in accordance with Section 9.(d) of this act.

SECTION 11. This act is effective when it becomes law.

BACKGROUND

In 2003, the Innovative Education Initiatives Act was enacted by the General Assembly. That legislation instructed the Education Cabinet to set as a priority, cooperative efforts between secondary schools and institutions of higher education to reduce the high school dropout rate, increase high school and college graduation rates, decrease the need for remediation in institutions of higher education, and raise certificate, associate, and bachelor degree completion rates. The Act also created Cooperative Innovative High School Programs, which authorized boards of trustees of community colleges and local boards of education to jointly establish cooperative innovative programs in high schools and community colleges that would expand students' opportunities for educational success through high quality instructional programming. The programs were to target high school students at risk of dropping out of school before attaining a high school diploma, or high school students who would benefit from accelerated academic instruction.

The Innovative Education Initiatives Act gave a statewide impetus to the creation of Early College High Schools, a program profiled by the New York Times in a February 1, 2010 article, and recognized with a 2008 Harvard Innovations in American Government Award. Early College High Schools are high schools with an academically rigorous course of study where students can graduate with both a high school diploma, as well as an Associate in Art or Science degree for college transfer, an Associate in Applied Science for career and technical skills, or two years of university transfer credit. Since the passage of the Innovative Education Initiatives Act, seventy Early College High Schools have been opened in North Carolina. Early College High Schools are physically located on the campuses of high schools, community colleges, and university or college campuses, as well as operating on virtual campuses using online learning and engaging in on-site learning at private businesses. Nearly seventy percent of students enrolled in North Carolina's Early College High Schools identify themselves as first generation college students.

S.L. 2009-339 established the Joint Legislative Joining Our Businesses and Schools (JOBS) Study Commission (JOBS Commission) to study issues related to economic development through innovative schools across the State of North Carolina. The legislation directed that the Lieutenant Governor serve as chair of the JOBS Commission, which consists of twenty members from the business and education communities, with appointments by the Governor, the Speaker of the House of Representatives, and the President Pro Tempore of the Senate. The Executive Director of the Education Cabinet serves as an ex officio member.

The JOBS Commission, as an extension of the work that was begun in 2003 with the passage of the Innovative Education Initiatives Act, was charged with studying issues related to economic development, and the benefit workforce development and preparation might derive from the implementation of innovative high schools. The Commission was specifically to focus on instructional programming frameworks that would reflect high academic standards required of students to allow them to be successful and prepared for 21st Century jobs. The framework should prepare them to transition to postsecondary education and reduce the need for remediation. The Commission was charged with conducting hearings within the seven economic development regions to receive information about the economic vision of each region and what business and industry clusters can be reasonably expected to locate or expand within those regions. The Commission was also directed to seek input about educational preparation within

each region for these 21st Century jobs and connecting career technical education to education, workforce preparation, and economic development through innovative schools.

S.L. 2009-339 directed the Commission to prioritize and customize career clusters, identify additional career paths, and report its recommendations to the State Board of Education. The Commission was also directed to study the implementation of pilot programs in the seven economic development regions of the State that will best suit the needs of the regions and prepare students for the increased academic demands of a global economy. In addition, the Commission was directed to study issues related to economic growth by the creation of measures and metrics which define the readiness of a community to deliver to all stakeholders the services that equip the workforce to be competitive in a STEM intensive economy, including ensuring that students throughout the education pipeline gain the skills learned from science, technology, engineering, math, and other rigorous subjects.

2011-2012 COMMISSION PROCEEDINGS

The Joint Legislative Joining Our Businesses and Schools (JOBS) Study Commission held 3 meetings following the adjournment of the 2011 legislative session and since the last interim report.

October 11, 2011

Welcome / Opening Remarks
- Lt. Governor Dalton

2011 Legislative Update
- Sen. Harry Brown

Business Engagement Guide Overview / Next Steps
- Caroline McCullen, Director – SAS Education Initiatives

Institute for Emerging Issues – Creativity Inc – Social Media Site
- Diane Cherry – Environments Policy Manager, IEI

Updates on JOBS Commission Supported Schools
- Hospitality & Tourism – Alyssa P. Barkley / NC HEF Executive Director
- Five – Year Finance Academy – Kimberly Reynolds
- Northeast Regional Ag-Bio School – Dr. Marshall Stewart
- Cumberland International Early College High School – Lavette Alston – Principal / Valeria Torres-Colon –student
- Wake / NC State University STEM Early College, Rob Matheson – Principal

STEM Statewide Strategic Plan
- NC Superintendent of Public Instruction, Dr. June Atkinson

Race to the Top STEM Anchor Schools and Network Clusters
- Dr. Dana Diesel Wallace, NC New Schools Project

JOBS Commission Discussion & Next Steps
- Whole Commission

February 28, 2012

NC STEM Learning Network
- Sam Houston, President – NC SMT Center
- Karl Rectanus, Leader – NC STEM Community Collaborative

NC STEM Learning Network – STEM Web Portal
- Stephanie Wright, JOBS STEM Community Collaborative Advisory Panel Intern
- Alfred Mays, Web Design Consultant

Yadkin Valley Regional Career Academy
- Barry Sink, Co-Chair of Steering Committee – YVRCA

Education & Business Match – Wake County Pilot

- Kendall Hageman, Education Program Manager – IEI / NC State University
- Judy Peppler, Chief Transformation Officer / Chief of Staff – Wake County PSS
- Caroline McCullen, Director of Education Initiatives – SAS

Northeast Region Agriscience & Biotechnology School

- Dr. Tony Habit, President – NC New Schools Project

Hospitality & Tourism Early College High School

- Alyssa P. Barkley, Executive Director – NC Hospitality Education Foundation

Committee Discussion

- Kara McCraw, Legislative Counsel

May 15, 2012

Overview of Final JOBS Commission Report

- Kara McCraw, Legislative Committee Counsel

Committee Discussion on Final Report

- JOBS Commission Members

SUMMARY OF 2011-2012 COMMISSION PROCEEDINGS

This section of the report provides a brief summary of the Commission meetings since the last interim report. It is not intended to be a complete, official record of those meetings. The official record of the Commission's meetings, including minutes and handouts distributed to the Commission members, is available in the Legislative Library. Previous meeting agendas are attached to this report in Appendix.

October 11, 2011

The Joint Legislative Joining Our Businesses and Schools (JOBS) Commission held its first meeting following the 2011 legislative session on October 11, 2011 at the Legislative Office Building in Raleigh.

Senator Brown provided the Commission with an update of the 2011 Legislative Session. He specifically mentioned the regional schools bill which has a direct effect on the agri-science school in northeastern North Carolina. He expressed the hope that this bill would break down some of the county line barriers and join low wealth counties with wealthier counties for mutual benefit.

Caroline McCullen, Commission Member and Director, SAS Education Initiatives, gave an overview of the Business Engagement Guide which is an outline of ways for businesses to join with schools. The guide addresses how businesses might be able to become involved with experience-based activities involving students. This guide has been compiled from existing materials and sites.

Diane Cherry, Environments Policy Manager for the Institute for Emerging Issues (IEI), talked to the Commission about the IEI's development of a social media site. She mentioned that one of IEI's focuses as a public policy organization is to examine North Carolina's competitiveness.

The next five presenters provided updates on JOBS Commission supported schools:
Alyssa Barkley, Executive Director of the North Carolina Hospitality Education Foundation, spoke about the Pro Start program, which was created by the National Restaurant Association to deal with training in the hospitality, food service and tourism fields. This intensive job training program requires a 400-hour work experience component. Avery County Schools and Asheville-Buncombe County Schools are supportive of the program.

Kimberly Reynolds spoke about the five-year Finance Academy proposal which has drawn interest from five banks in the Charlotte-Mecklenburg area, as well as interest from the Charlotte-Mecklenburg School System and Central Piedmont Community College.

Dr. Marshall Stewart spoke next about the Northeast Regional Ag-Bio School. He said the idea began about five years ago in Bertie County with an early college high school

and that work is still going on. The site for the school, the Vernon James Research Center, is a cooperative operation between NC State University and the NC Department of Agriculture.

Allison Violette, Associate Superintendent for Curriculum, Cumberland County Schools, began the presentation about the Cumberland International Early College High School by thanking all of the various people and organizations that collaborated to create the school. She then introduced the principal of the school, Ms. Lavette Alston, who added her thanks for the support of the Commission. Ms. Alston stated that the freshman class of the Cumberland International Early College High School consists of 54 students. These students chose the school colors (red and black) and the mascot (The Ambassador). As a language and global studies school, the language courses offered include Arabic, Mandarin Chinese, and Spanish. Ms. Alston also noted that all courses offered are honors level. Valeria Torres-Colon, a student at the Cumberland International Early College High School, shared her personal view of the benefits and goals of the school.

Rob Matheson, Principal of the Wake/NC State University STEM Early College, spoke next about the STEM Early College. He said that the school sought to reach the underserved, the underrepresented, and the first time college-goers. He stated that there are 55 students in the freshman class. Currently, the school is located in the Creative Services Building on NC State's campus, but in 2013, the STEM Early College will be located in the newly renovated Cherry Building at Dorothea Dix, which is now part of the Centennial Campus.

Next, Dr. June Atkinson, Superintendent of Public Instruction, spoke on the STEM Statewide Strategic Plan (Plan). She started her presentation by recognizing the members of the Commission for their work with the Plan. She said the Plan on paper was for grades K-12, but with the work of community colleges and universities, the Plan is also aligned with grades K-20. She also mentioned that the draft of the Plan has been shared with about 10 different groups for their input.

Dr. Dana Diesel Wallace of the New Schools Project presented to the Commission on the Race to the Top STEM Anchor Schools and Network Clusters. She said that the integrated curriculum is focused on how content is used in the workforce. Beyond the classroom extends the learning which might not always happen in the classroom. STEM seeks to teach the idea that content can be used in applied ways such as problem solving, collaboration, and communication. Dr. Wallace mentioned the need for coaching to go along with professional development for teachers and the need for content preparation for those teachers. She also mentioned the need for the sharing of knowledge and experience among the various STEM schools so that success can be replicated.

JOBS Commission Discussion and Next Steps

Lieutenant Governor Dalton opened the floor for discussion by asking the Commission members to offer their thoughts on next steps for the Commission. Commission members suggested several strategies to continue and expand the work of the

Commission. These included meeting with editorial boards at newspapers across the State to discuss the Commission's initiatives, involving classroom teachers to develop support for the innovative ideas and strategies, seeking involvement of the broad spectrum of the community in schools, exploring the use of technology in industry and other professions to increase productivity and assist in teacher training, considering additional time for teachers to collaborate and work cooperatively in the school setting, and developing the role of the Commission as an intermediary in education reform.

February 28, 2012

The JOBS Commission met on February 28, 2012 at the Legislative Office Building in Raleigh.

Dr. Sam Houston, President of NC STEM, and Karl Rectanus, Leader of the NC STEM Community Collaborative, presented to the Commission about the NC STEM Learning Network's vision of connecting the various STEM initiatives on the local, state, and national levels. The North Carolina K-12 STEM Strategy, as aligned with post-secondary and economic needs, was approved by the JOBS Commission in October 2011 and adopted by the State Board of Education in November 2011. The Network develops methods of keeping track of STEM efforts from kindergarten to college.

Stephanie Wright, JOBS STEM Community Collaborative Advisory Panel Intern, and Alfred Mays, Web Design Consultant, spoke next about the STEM Web Portal. Ms. Wright provided a profile of STEM assets across the state. Mr. Mays provided a conceptual view of what a STEM website home page might look like.

Next, Caroline McCullen, Director of Education Initiatives at SAS, Judy Peppler, Chief Transformation Officer and Chief of Staff, Wake County Public Schools, and Kendall Hageman, Education Program Manager with the Institute for Emerging Issues and NC State University, spoke about the Education and Business Match-Wake County Pilot. Commission member McCullen said the Commission heard concerns in all seven of the economic development regions for the need to bring business volunteers together with the education system. In order to address this need, the Business subcommittee of the Institute for Emerging Issues created a website and the North Carolina Committee for Business Education added its resources; from there started the conversations with Wake County Public Schools.

Judy Peppler mentioned the need for an "easy button" to connect volunteers with schools. She also mentioned the customization of the website to allow background checks for volunteers and a possible funding request for the first year of operation of the website.

Kendall Hageman demonstrated the website for the volunteer match. She stated that the cost of this pilot is approximately $20,000 per year for Wake County Schools and $104,000 per year statewide.

Barry Sink, Co-Chair of the Steering Committee for Yadkin Valley Regional Career Academy, began his presentation by assuring the Commission that the Yadkin Valley Regional Career Academy would open in August of this year. The Academy is focused on business needs of the Piedmont Triangle area. The TriStem consultant firm has interviewed over 90 CEOs in the area seeking information about business employment needs and ways to form the education system to meet such needs. The Academy's focus is on global linguistics, advanced manufacturing for aviation, and medical infomatics. The first campus will open in Davidson County and the second campus will open in Surry County in August 2013.

Dr. Tony Habit, President of the NC New Schools Project, spoke to the Commission about the Northeast Regional Agriscience and Biotechnology School. He expressed the support from Martin, Tyrrell, Pitt, Washington, and Beaufort counties, and the passage of the Regional Schools Act as being key pieces in the regional school concept. He stated that North Carolina is now third in the nation in biotechnology and while there were job losses during the recent recession, biotechnology jobs increased in North Carolina by 4.1%.

Alyssa Barkley, Executive Director, NC Hospitality Education Foundation, addressed the Commission regarding the Hospitality and Tourism Early College High School. She said that efforts to promote hospitality education in Western North Carolina had connected with STEM initiative interests in the Asheville-Buncombe-Madison County area. There have been meetings with secondary and post-secondary educators, parents, and industry representatives with particular attention given to the Hospitality Association's Pro-Start educational program.

Kara McCraw, Legislative Counsel, presented the Commission with a review of the JOBS Commission work since the creation in 2009.

Commission members discussed the work of the Commission. Pamela Townsend, Commission member, stated that the Commission had made a difference in K-12 STEM education, and that she hoped that strong consideration would be given to how the work of the Commission could go forward, perhaps through the North Carolina Committee for Business Education.

May 15, 2012

The Commission reviewed and approved the Final Report.

FINAL COMMISSION RESULTS

The JOBS Commission worked diligently since its first meeting in October 2009 to study issues related to economic development through innovative schools across the State of North Carolina. The Commission held 17 meetings, including one in each of the seven economic development regions. Through visiting each region, the Commission was able to gather important information about the regional economic vision plans and workforce needs and the employment and workforce preparation needs of the State as a whole. Furthermore, the Commission focused upon advancing science, technology, engineering and math (STEM) education to better prepare students for skilled 21st Century jobs.

The Commission recommended eight pieces of legislation that were signed into law, supported two innovative schools that have opened, supported two innovative schools that are slated to open in 2012, helped develop and pass a statewide STEM education plan, and helped launch a public-private STEM education initiative.

1. Progress of Recommended Pilot Programs

Following the Commission's recommendation in the 2010 Interim Report, planning and development began in three economic development regions for pilot schools focused around specific career clusters, with the goal of these schools serving as prototype models which can accelerate change and improve quality. The Commission finds that the following progress has been made on establishment of these schools and encourages these schools and their partners to continue their efforts.

- **Science, Technology, Engineering and Mathematics (STEM) - Wake County - NC State University STEM Early College High School**

  In the Research Triangle Region, Wake County Public Schools and North Carolina State University (NCSU) have worked with the NC New Schools Project to develop the Wake County/NC State University STEM Early College High School (STEM ECHS). The STEM ECHS has the mission of providing a highly supportive and academically challenging learning environment for students underserved in a traditional high school setting and underrepresented in the STEM disciplines, including first generation college going students, who will graduate prepared to compete globally in careers related to science, technology, engineering, and mathematics.

  The STEM ECHS opened in August 2011 and, as recommended by the Commission, will examine STEM topics through the lens of the 14 Grand Challenges for Engineering identified by the National Academy of Engineering. The STEM ECHS was identified in North Carolina's successful Race to the Top proposal as one of the North Carolina New Schools Project's four STEM anchor schools which will accelerate the development of a fully articulated and coherent

curriculum, instruction, assessment, and professional development model consistent with the NC vision for STEM education. The school was supported by the Professional Engineers of North Carolina and representatives from energy companies across the state.

The STEM ECHS will be permanently located on the NCSU Centennial campus and will have a total population of 250 students. Funding recommended by the Commission enabled the hiring and early start of the principal of the STEM ECHS to prepare for the school's opening.

- **Language and Global Studies - Cumberland International Studies Early College High School**

  In the Southeast Region, Cumberland County Schools and Fayetteville State University, partnering with the NC New Schools Project and the Center for International Understanding, developed the Cumberland International Studies Early College High School (Cumberland ECHS). This effort was supported by the United States military, Visiting International Fellows, World View, and regional businesses.

  The Cumberland ECHS has the mission to graduate all students globally competent, prepared to communicate, collaborate, and compete locally, nationally, and internationally through proficiency in a second language of strategic interest, global and cultural communications, and authentic project-based learning on global issues. The Cumberland ECHS is located on a temporary site near the Fayetteville State University campus. Funding will be required to retrofit a permanent location for the Cumberland ECHS on the Fayetteville State University campus.

  The Cumberland International Early College High School opened in August 2011 with 54 students, all freshmen. Each year the school will add a new class of freshmen, with its first graduating class in 2015.

2. Development of Regional High School Model/Northeast Regional School of Biotechnology and Agriscience

Following the Commission's recommendation in the 2010 Interim Report to establish a regional high school focused on agriscience and biotechnology, the General Assembly created the North Carolina Agriscience and Biotechnology Regional School Planning Commission (RSPC). Based on these reports, the Commission recommended that a board be established to govern a regional school of agriscience and biotechnology which includes representation of local boards of education, higher education partners, business leaders, and parents.

The Commission, after seeking public input, recommended that the regional school be located at the Vernon G. James Research & Extension Center in Washington County, and serve counties in Northeastern North Carolina.

Senators Harry Brown and Fletcher Hartsell introduced Senate Bill 125 for the 2011 legislative session to authorize the Northeast school. Interest in the regional concept prompted expansion of the measure to permit innovative, collaborative schools statewide. Senator Brown expressed to the Senate that this concept had so much potential that it warranted a statewide bill. The final measure, which was signed into law, allows multiple school districts to collaborate and establish regional schools.

- **Northeast Regional School of Biotechnology and Agriscience**

  Following the permitting legislation, school boards in Pitt, Martin, Beaufort, Washington, and Tyrrell Counties expressed interest in participating in the school, with a targeted opening in Fall 2012. The regional early college high school will be operated in conjunction with school districts in the Northeast, North Carolina State University and the NC New Schools Project, and its private sector partner, Avoca Farms. The Board of Directors recently hired a principal and the school is accepting applications for a freshman class to begin in August 2012. The school will open for approximately 60 9th graders in 2012-2013 and will expand to 7th and 10th graders the following school year, adding 120 additional students. The school is expected to add one more class each year for a maximum enrollment of 420 students in grades 7-13.

  The Commission is pleased that the Northeast Regional School of Biotechnology and Agriscience will be the first in North Carolina in which multiple school districts worked together to develop a regional school. The Commission also discussed using this model for a sister school at the North Carolina Research Campus in Kannapolis.

3. Education and Economic Alignment

The Commission found in the 2010 and 2011 Interim Reports that communication between leaders in education and economic development is critical to preparing students to meet employment and workforce preparation needs of each economic development region and the State of North Carolina. In 2010, the Commission recommended that each member of the State Board of Education serve as a non-voting ex officio member of an economic development region to better foster communication and sharing of information in development of instructional programs for 21st Century career paths which best suit the needs of the region. The General Assembly passed this legislation (Senate Bill 1244) in the 2010 legislative session.

The Commission also recommended that the Superintendent of Public Instruction be added as a member of the North Carolina Economic Development Board. The General Assembly passed this legislation (House Bill 181) in the 2011 legislative session.

4. Statewide STEM Visioning Plan

In meetings across the State, the JOBS Commission repeatedly heard about the need for more skilled workers in science, technology, engineering, and math (STEM). In the 2011 Interim Report, the Commission's STEM Advisory Panel, with the help of an intern provided by the Golden LEAF Foundation, documented that while well over 500 efforts related to STEM education are occurring throughout the State, there is some disconnect between these efforts, and there needed to be more collaboration and alignment. The Commission found that a comprehensive plan was needed to connect these initiatives from kindergarten to college and the NC STEM Advisory Panel of the Commission worked with the Department of Public Instruction (DPI) to develop a comprehensive statewide strategic plan.

The work of the JOBS NC STEM Advisory Panel on the development of a State STEM plan was advised and informed by Battelle Memorial Institute, a national leader in STEM Education Strategy; their North Carolina partner, the NC STEM Community Collaborative; and others from an array of organizations with STEM interest. The NC STEM Community Collaborative and its public and private partners also invested resources and expertise to support these goals in the State. The JOBS NC STEM Advisory Panel was supported by and worked directly with DPI and its assigned STEM team on these efforts.

The JOBS Commission endorsed the Statewide STEM plan at its October 2011 meeting. In November 2011, the State Board of Education unanimously endorsed North Carolina's first statewide STEM strategy.

As that report states, "North Carolina's leaders agree that a coordinated, statewide STEM Education strategy with clear direction, support and goals is needed to ensure a workforce that is prepared for the high-skill, high-wage, high-demand jobs of a knowledge-based and innovation economy. The plan must be built on a shared vision that leverages public and private resources in the most effective and efficient manner possible, moving North Carolina further and faster toward a world-class workforce and sustained economic growth and development in a global market."

The strategy calls for increasing STEM achievement through better integrating STEM into the curriculum, a public awareness campaign on the importance of STEM education, and connecting and sharing resources across all 100 counties. The strategy aims to increase connection and collaboration among public schools, the State community college system, the UNC system, and the public and private sectors.

- **NC STEM Learning Network**

  The Commission supported the development of the NC STEM Learning Network, which launched on March 1, 2012 as a public-private partnership. North Carolina has a wealth of STEM resources, but needs to do a much better job of sharing this knowledge and best practices statewide. The NC STEM Learning Network will bring together the State's education systems and private sector to give North Carolina a

vehicle to coordinate the many efforts of government, educators, and businesses to advance STEM education. It has the support of the State's education systems including: The University of North Carolina system, the Department of Public Instruction (DPI), and the North Carolina Community College System. It will be run as a public-private partnership through the N.C. Science, Mathematics and Technology (SMT) Education Center. The NC STEM Learning Network will help guide the implementation of the statewide strategic plan developed in 2011 to better coordinate STEM education initiatives with a goal of increasing student achievement, community involvement, and corporate support for STEM education. Over 500 separate STEM initiatives were identified statewide and this effort would inventory and scale out these initiatives. The NC STEM Learning Network's immediate plans include assisting DPI to develop a network of schools and districts to adopt cutting-edge STEM education programs and trainings, as well as creating a web portal allowing citizens to learn about and connect with STEM education resources in their community, developing quality standards for STEM education and tools to help schools meet those standards, including professional development for teachers; and creating more public awareness of the essential role STEM education plays in the economic vitality of communities. This will give the State a solid structure for the advancement of STEM education.

5. Further Initiatives

The Commission supported the development of the Yadkin Valley Regional Career Academy, which is scheduled to open the first of two planned campuses in August 2012. The Yadkin Valley Regional Career Academy goals are to align with the economic needs of the Piedmont Triad region.

The Commission also supported the efforts to establish a Hospitality and Tourism Early College High School in the Asheville-Buncombe County area. This school is in the planning stages and the Commission encourages its continued development.

JOBS COMMISSION ENACTED LEGISLATION

2010 Session		
Introduced Legislation		**Outcome**
HB 1699/ SB 1198	Educ. Cabinet Est. STEM Priority	SB 1198 was enacted as S.L. 2010-41 and became law effective July 1, 2010.
HB 1700/ SB 1202	Career Acad. As Coop. Innov. High School	This recommended legislation was incorporated into the Budget – S.L. 2010-31, Sec. 7.21. This section became effective June 30, 2010 and applies beginning with the 2010-2011 school year.
HB 1718/ SB 1200	JOBS Commission Pilot Schools	This recommended legislation was partially included in the Budget Money Report, Part F-Item 23 – providing $100K each for the creation of sites in Wake and Cumberland Counties.
HB 1719/ SB 1201	Add'l Flex./Coop. Innovative High Schools	SB 1201 was enacted as S.L. 2010-182. This law became effective August 3, 2010, and applies beginning with the 2010-2011 school year.
H1724/ SB 1199	NC Biotechnology and Agriscience School	SB 1199 was amended in committee and was enacted as S.L. 2010-183 and became effective August 3, 2010.
HB 1826/ SB 1244	SBOE Members Ex. Officio to Econ. Dev. Comm.	SB 1244 was enacted as S.L. 2010-184, and became effective August 3, 2010.
2011 Session		
Introduced Legislation		**Outcome**
HB 181/ SB 124	Add Superintendent to NC Economic Development Board	HB 181 was enacted as S.L. 2011-121, and became law effective June 13, 2011.
SB 125/ HB 264	Regional Schools	SB 125 was enacted as S.L. 2011-241 and became law effective June 23, 2011.

COMMISSION SUMMARY 2009-2012

The JOBS Commission was authorized by S.L. 2009-339 and charged with studying issues related to economic development through innovative schools where instructional program frameworks reflected high academic standards required of students to be successful in transitioning to postsecondary education and future careers.

Pursuant to its charge, the Commission began its work in the fall of 2009 and spring of 2010 by visiting each of the seven economic development regions of the State to investigate and collaborate on regionally-focused economic needs. As part of each visit, the Commission held a public hearing and solicited input from leaders in business, economic development, education, and government. Members heard about the unique strengths of each region as well as the region's specific employment and workforce preparation needs. The Commission received recommendations from the economic development regions on career clusters of importance to each region.

In its 2010 Interim Report to the North Carolina General Assembly, the JOBS Commission recommended the creation of the following:

- A biotechnology and agriscience focused regional school in the Northeast Region.
- A language and global studies focused school in the Southeast Region.
- A STEM focused school in the Research Triangle Region.
- Pilot programs focused on health sciences in the Eastern, Western, and Charlotte Regions.
- A pilot program focused on transportation, distribution, and logistics with a focus on Aerospace in the Piedmont Triad Region.
- A pilot program focused on advanced manufacturing in the Western Region.

As part of the 2010 Interim Report, the Commission also recommended legislation to create regional schools, to make members of the State Board of Education ex officio members of the boards of the economic development regions, to provide more flexibility for cooperative innovative high schools, and to include five-year career academies as a type of cooperative innovative high school. The Commission's STEM Community Collaborative Advisory Committee also encourages investment in STEM programs and expansion of STEM Communities, and recommended legislation to close the STEM gap.

The Commission continued its work in the fall of 2010 and spring of 2011, including receiving updates on pilot development and new models being created around the State, further exploration of issues concerning governance for a regional school model, and additional work on issues related to STEM education.

In the 2011 Interim Report, the Commission recommended continued work on the Wake County - NC State University STEM Early College High School in the Research Triangle Region and the Cumberland International Studies Early College High School in the Southeast Region, and also recommended that a Statewide STEM visioning plan be developed. The Commission also encouraged the development of the Yadkin Valley Regional Career Academy and Contemporary Science Center. The Commission proposed legislation to develop a regional high school model and to add the Superintendent of Public Instruction as a member of the North Carolina Economic Development Board.

As a result of the JOBS Commission's recommendations and legislative proposals, a number of innovative, career-focused high schools have opened. The Wake-NCSU STEM School and Cumberland County Early College High School for Language, Culture and Diplomacy received planning funding from the General Assembly and opened in the fall of 2011. S.L. 2011-241 was enacted enabling the establishment of regional high schools, and the Northeast Regional High School of Biotechnology and Agriscience is currently in planning and will open in the fall of 2012. The Yadkin Valley Regional Career Academy will also open in the fall of 2012. Cooperative and innovative high schools were also granted greater flexibility through S.L. 2010-182.

Increased communication between leaders in education and economic development has also been achieved through the enactment of S.L. 2010-184, placing members of the State Board of Education on the boards of the economic development regions, and S.L. 2011-121, adding the State Superintendent of Public Instruction to the North Carolina Economic Development Board. S.L. 2010-41 directed the Education Cabinet to set STEM education priorities. The Commission's work led to the adoption of the Statewide STEM Strategic plan to align with post-secondary and economic needs by the Commission and the State Board of Education in the fall of 2011. The NC STEM Learning Network is now under development to align and coordinate the Strategic Plan's goals for K-12 with efforts in higher education and the private sector.

FINDINGS AND RECOMMENDATIONS

The JOBS Commission finds that there is a great demand for workers in science, technology, engineering, and mathematics (STEM) related occupations, but that graduates are insufficiently prepared in STEM fields to meet this need, and recommends the continuation of efforts to expand and improve access to STEM education through North Carolina.

The JOBS Commission previously urged the development of a Statewide K-12 STEM strategy aligned with post-secondary and economic needs to address this concern, and finds that progress has been made in this endeavor through the North Carolina STEM Learning Network. The Commission finds that the NC STEM Learning Network, coordinated by the NC Science, Mathematics, and Technology Education Center, connects the State Board of Education and Department of Public Instruction, The University of North Carolina System, and the NC Community College System with the private sector to increase STEM achievement, build public understanding and support of STEM education, and align public and private resources through a number of strategies. The Commission recommends the continuation of efforts to develop the recommended strategies to accomplish the goals of the NC STEM Learning Network.

The Commission finds that, as part of the NC STEM Learning Network, extensive work has been completed to lay the foundation for the NC STEM Portal which will serve as a first stop for stakeholders in STEM and connect individuals to existing STEM resources. The Commission encourages the continued gathering of assets and development of the web portal for this important resource.

The Commission also finds that another prior recommendation, a regional high school focused on STEM, will open this fall. The Northeast Regional Biotechnology/Agri-science School will be a highly innovative STEM school with the goal of supporting a Statewide biotech STEM network and providing professional development to teachers across the region in STEM strategies. The Commission commends the work in establishing this school to serve the needs of the Northeast Economic Development Region and encourages others to use the school as a model for other economic development regions.

The Commission wishes to build upon the successes of the schools it has supported and replicate those models across the state. It is recommended that the Final Report be sent to the membership of the State Board of Education and the Superintendent of Public Instruction. Upon expiration of the Commission, it is recommended that another group continue the Commission's work. The North Carolina Business Committee for Education (NCBCE), a 501(c)(3) nonprofit comprised of business leaders from across the state, shares the Commission's mission of ensuring that every student in North Carolina

graduates from high school ready for life and work in a global society. The Commission recommends that the Final Report be sent to NCBCE and encourages the NCBCE Board to consider helping coordinate future efforts to join our businesses and schools.

APPENDIX

2009-2010 Interim Meetings

October 12-13, 2009
Raleigh, NC

October 12, 2009

Background Information – Legislation and Early Colleges
- Dr. Shirley Iorio, Legislative Analyst
- Kara McCraw, Legislative Analyst

Real World Examples
- Wake Early College of Health and Sciences
  - Teresa Pierre, Principal
- Bertie Science, Technology, Engineering and Mathematics High School
  - Justin Harmon, Student
  - Martynez White, Student
  - Sharon Tann, Guidance Counselor
  - Kezia Lee, Math Teacher

Career-Ready Commission
- Dr. June Atkinson, State Superintendent of Public Instruction

DPI Career Clusters
- Felicia Gray-Watson, Career Development, CTE Support, NC DPI

NC Chamber of Commerce
- Lew Ebert, President, NC Chamber of Commerce

North Carolina Economic Development Regions
- John Chaffee, President & CEO, North Carolina's Eastern Region

North Carolina Community College System
- Dr. Scott Ralls, President, North Carolina Community College System

October 13, 2009

MCNC
- Joe Freddoso, President & CEO, MCNC
- Karl Rectanus, Director, NC STEM Community Collaborative

New Schools Project
- Dr. Tony Habit, President, New Schools Project

November 17, 2009
Williamston, NC

Northeast Region Partnership -Presentation of Vision Plan

- Vann Rogerson, President & CEO, Northeast Region Partnership

Panel Discussion

- Caroline McCullen – SAS, Director Education Initiatives & Commission Member (Moderator)
- Dr. Tony Habit, President, New Schools Project (Early College Program)
- Johnny Jacobs, Controller, Nucor Steel (Business & Industry)
- Dr. Tom Daly III, Martin County Superintendent (Public School System)
- Dr. Willie Gilchrist, Chancellor, ECSU (Local University)
- Dr. Ervin Griffin, President, Halifax Community College (Local Community College)

Regional Perspective

- Dr. Chip Zullinger, Superintendent, Bertie County Schools

STEM

- Dr. Sam Houston, President, NC Science, Mathematics, and Technology Education Center

Public Comments

December 11, 2009
Kannapolis, NC

Charlotte Regional Partnership

- Kenny McDonald, Vice President, Economic Development Services, Charlotte USA

Building Tomorrow's Prepared Workforce

- Grant Godwin, Vice President, Martin Marietta Composites (Moderator)
- Rick Admani, Chief Operating Officer, Diagnostic Devices, Inc.
- John Cox, CEO, Cabarrus Regional Chamber of Commerce
- Scott Lampe, Chief Financial Officer, Hendrick Motorsports
- Rick Parsons, Executive Vice President, Global Staffing, Bank of America
- Catherine Stancombe, Vice President of Human Resources, Duke Energy
- John Torbett, Vice President Business Development, Defense Technologies

Future-Ready Graduates: It Takes a Whole Village

- Caroline McCullen, SAS, Director Education Initiatives (Moderator)
- Dr. Ed Davis, Superintendent, Union County Schools
- Dr. Joan Lorden, Provost & Vice Chancellor for Academic Affairs, UNC-Charlotte
- Dr. Tony Habit, President, New Schools Project
- Dr. Tony Zeiss, President, Central Piedmont Community College

Presentation on Academy Programs

- Greg Gift - Assistant State Director Career and Technical Education, NC DPI

Public Comments

January 19, 2010
Raleigh, NC

14 Grand Challenges Facing Engineering and STEM skills Needed for the New World Job Market

- Dr. Louis Martin-Vega, Dean of the College of Engineering, North Carolina State University

Update on STEM & Collaborative Work

- Karl Rectanus, Leader, NC STEM Community Collaborative

Kenan Fellows Program

- Dr.Valerie Brown-Schild, Program Director
- Susan Parry, Assistant Director for Partnerships and Resource Development

January 29, 2010
Rocky Mount, NC

North Carolina's Eastern Region Partnership Vision Plan

- John Chafee, President and CEO, Eastern Region Partnership

A Perfect Match: Lenoir County and NC STEM

- John Chafee, President and CEO, Eastern Region Partnership
- Rick Davis, NC Site Operations Director, Spirit AeroSystems
- Steve Hill, Secondary Education Coordinator, Lenoir Public Schools
- Nathaniel Vause, President & CEO, Granville Academy North Carolina
- Tom Vermillion, President, DEPS & Lenoir Committee of 100

Business and Education Panel

- Moderator, Tricia Willoughby, Executive Director, NC Business Committee for Education
- Dr. Annette Brown, Asst. Superintendent for Instructional Services and Accountability, Craven County Schools
- Dr. Bill Carver, President, Nash Community College
- Rick Davis, NC Site Operations Director, Spirit AeroSystems
- Dan Gerlach, President, Golden LEAF Foundation
- Dr. Michael Priddy, Partner, New Hope Foundation & Retired School Superintendent
- Tyree Walker, Chief Human Resources Officer – University Health System

Student Early College Presentation

- Drucilla Cofield, Student, Nash Early College High School
- Hasan Hasan, Student, Nash Early College High School
- William Heath, Student, Nash Early College High School

Public Comments

February 18, 2010
Fayetteville, NC

North Carolina's Southeast Vision Plan

- Steve Yost, Director – NC's Southeast
-

A Perfect Match: Ft. Bragg Region and NC STEM

- Dr. Valerie B. Brown-Schild, Director - Kenan Fellows Program
- Dr. Thomas Conway, VC & Chief of Staff - Fayetteville State University
- Wayne Grant, Senior Associate - Booz | Allen | Hamilton
- Dr. Jane Smith, Program Manager for Education - BRAC Regional Task Force

Language and Global Competency Presentation

- Dr. Larry Keen, President, Fayetteville Technical Community College
- Dr. Frank Till, Superintendent, Cumberland County School System

Cross Creek Early College Presentation

- Briana Murrell, Student
- Lashay Hicks, Student
- Kurtys Neal, Student

Southeastern Region Business Panel

- Moderator – Lt. Governor Walter Dalton
- Jeff Corbett, Senior Vice President, Progress Energy Delivery Carolinas
- Cheya Dunlap, Senior Vice President, Human Resources, GE Hitachi Nuclear Energy
- General David L. Grange, CEO, PPD, Inc.
- Merrideth Hale, Human Resources Director, Campbell Soup Company
- Jeanne Scharch, Director, Ft. Bragg Civilian Personnel Advisory Center
- Karen Wrigley, General Manager, DuPont Fayetteville Works Plant

Public Comments

March 8, 2010
Greensboro, NC

North Carolina's Piedmont Triad -Presentation of Vision Plan

- Don Kirkman, President & CEO – NC's Piedmont Triad Partnership

Yadkin Valley Career Academy

- Barry Sink, President - Olde Lexington Products
- Newell Clark, President - Standell Properties

Logistics & Distribution Cluster Breakdown

- LB Clayton, VP Mid-South Region - Old Dominion & Chair of the Piedmont Triad Logistics and Distribution Roundtable

An Overview of Life Sciences, Bioscience & Regenerative Medicine

- Dr. Richard H. Dean, President Emeritus - Wake Forest University Health Sciences

GTCC Middle College Student

- Anna Batista, Anticipated May 2010 graduate from GTCC Middle College

A Perfect Match: Davie County and NC STEM

- Dr. Linda Bost, Davie County Schools
- Terry Bralley, President, Davie County Economic Development Council
- Larry Colbourne, Mebane Charitable Foundation

The Emerging Field of Nanoscience

- Dr. James Ryan, Founding Dean, Joint School of Nanoscience (NCA&T / UNC-G)

GTCC Middle College Graduate

- Ryan Kabatchnick, 2005 GTCC Middle College graduate, 2010 NC State Graduate

Honda Aircraft Company & the Aerospace Industry

- Stephen Keeney, Senior Manager of Corporate Affairs, Honda Aircraft Company

GTCC Middle College Graduate

- Ronnie Mock, 2009 GTCC Middle College graduate, current NC A&T State University student

Public Comments

March 29, 2010
Cary, NC

Research Triangle Region Vision Overview
- Charles Hayes, President & CEO, Research Triangle Region

State Priorities in Economic and Workforce Development
- Secretary Keith Crisco, NC Department of Commerce

STEM / Grand Challenges Early College High School Associated with NCSU
- Dr. Betsy E. Brown, Vice Provost for Faculty Affairs, NC State University
- Horace McCormick Jr., Director, Talent Management, Progress Energy Human Resources
- Pamela B. Townsend, PE, Vice President, AECOM, Inc. & President, Professional Engineers of North Carolina

Creativity & Workforce Competitiveness
- David Burney, Partner and CEO, New Kind consulting firm

Insights on Industry & Education
- Dr. Teresa Helmlinger Ratcliff, Assistant Vice Chancellor for Extension, Engagement & Economic Development, North Carolina State University & Executive Director, Industrial Extension Service

Apex High School Academy of Information Technology
- Maite Ghazaleh, Academy Student, Class of 2011
- Caroline McCullen, Director, SAS Education Initiatives
- Julie Oster, Coordinator, Academy of Information Technology
- Cameron Will, Academy Student, Class of 2010

Public Comments

April 18, 2009
Asheville NC

Chancellor's Welcome and Introduction of Commission
- Dr. Anne Ponder, Chancellor, University of North Carolina Asheville
- Lieutenant Governor Walter Dalton, Chair, JOBS Commission

Advantage West Region Vision Overview
- Scott Hamilton, President & CEO, AdvantageWest Region

Panel Discussion, Work Force Development Needs of Targeted Sectors
- Laura Copeland, VP Work Force Development and Public Policy, Asheville Area Chamber, Moderator
- Phil Webb, Human Resources Manager, Raflatac, Inc.
- Dan Ray, Past President and CEO, American Craft Council and creator of Handmade in America in Western North Carolina
- Troy Tolle, Co-founder and Chief Technical Officer, Digital Chalk
- Mark Burrows, Planning and Economic Development Director, Transylvania County
- Tim Johnston, President and CEO, Sisters of Mercy Urgent Care

Buncombe County Early College High School Presentation
- Margaret Turner, Principal, Buncombe County Early College
- Doug Hutchman, Work-based Counselor, Buncombe County Early College
- Drew Benbow, Student, Buncombe County Early College

- Joan Oriol, Western North Carolina Human Resource Agency

Insights on Hospitality and Tourism Sectors

- Paul Stone, President and CEO, North Carolina Lodging and Restaurant Association
- Stephen Frabitore, Tupelo Honey Café
- Capi Wampler, General Manager, The Ellington Hotel

Joining Businesses and Schools in a Rural County

- Dr. Patricia Mitchell, Director, Ashe County Economic Development

A Future-Focused Work Force for Western North Carolina

- Dr. John W. Bardo, Chancellor, Western Carolina University

Public Comments

May 5, 2010
Raleigh, NC

Commission Discussion and Review of Draft Interim Report

2010 – 2011 Interim Meetings

September 1, 2010
Raleigh, NC

Opening Remarks
- Lt. Governor Walter Dalton

Career Ready Commission
- June Atkinson, Superintendent of Public Instruction

Short Session Overview
- Kara McCraw, Committee Counsel

JOBS Pilot School Updates
- Wake County / NC State University STEM Early College
  - Ruth Steidinger, Senior Director of Secondary Education, High Schools
  - Dr. Betsy Brown, Vice Provost for Faculty Affairs, North Carolina State University

- Cumberland County Language & Global Cultures Early College
  - Dr. Frank Till, Superintendent, Cumberland County Schools
  - Allison Violette, Assistant Superintendent, Cumberland County Schools
  - Ray Walters, Fayetteville Technical Community College

- Agri-science & Biotechnology Early College
  - Tony Habit, President, NC New Schools Project

NC STEM Community Collaborative
- Karl Rectanus, NC STEM Community Collaborative Leader, NC STEM Community Collaborative

October 12, 2010
Fayetteville, NC

National Efforts in Business/Education Collaboration
- Rich Rosen, Corporate Vice-President for Education and Philanthropy, Battelle Memorial Institute

JOBS Pilot School Updates
- Wake County / NC State University STEM Early College
  - Ruth Steidinger, Senior Director of Secondary Education, High Schools

- Cumberland County Language & Global Cultures Early College
  - Dr. Frank Till, Superintendent, Cumberland County Schools

- Agriscience & Biotechnology Early College
  - Dr. Dana Diesel Wallace, Vice-President for School Development, NC New Schools Project

Race to the Top Presentation
- Dr. Bill Harrison, Chair, State Board of Education

Contemporary Science Center – A STEM Incubator School
- Pamela Blizzard, Executive Director, Contemporary Science Center

City of Medicine Academy / Duke Medicine Prototype Update

- Elizabeth Shearer, Principal, City of Medicine Academy
- Dr. Dana Diesel Wallace, Vice President for School Development, NC New Schools Project

Yadkin Valley Regional Career Academy

- Barry Sink, President, Old Lexington Products
- Newell Clark, Principal, Standell Properties

Ft. Bragg Community Collaborative Update

- Lynda Parlett, Director of Grants & Sponsored Programs, Robeson Community College
- Earl St. Julien Jones, Customer Service Specialist, DuPont
- Edgar Murphy, Consultant

November 22, 2010
Raleigh, NC

Early College Second Life Program

- Dr. Austin Bunch, Associate Provost, East Carolina University
- Sharon Collins, Early College High School Program Director, East Carolina University
- Tom Vermillion, Co-Chair, Lenoir County STEM Collaborative
- Steve Hill, Co-Chair, Lenoir County STEM Collaborative
- Rita Spence, Project Coordinator, Lenoir County STEM Collaborative

Early College Updates

- Wake County / NC State University STEM Early College
  - Rob Matheson, Principal, Wake County/NC State University STEM Early College
  - Ryan Haymore, Transition Counselor, Wake County/NC State University STEM Early College
- Cumberland International Studies Early College High School
  - Dr. Frank Till, Superintendent, Cumberland County Schools
- Agriscience & Biotechnology Study Commission
  - Dr. Marshall Stewart, Commission Chair

Governance Subcommittee Update

- Grant Godwin, Subcommittee Chair

Hospitality & Tourism Steering Committee Update

- Paul Stone, Executive Director, NC Hospitality Education Foundation

Business & Education Connectivity

- Greg Gift, Assistant Director, Career and Technical Education, NC Department of Public Instruction
- Tom Haffner, President, P.T. International Corporation
- Tricia Willoughby, Executive Director, North Carolina Business Committee for Education

STEM Connectivity across North Carolina

- Angela Quick, Deputy Chief Academic Officer, NC Department of Public Instruction
- Sam Houston, Co-Chair, NC STEM Collaborative Advisory Committee

January 25, 2011
Raleigh, NC

Statewide STEM Initiative Update

- Sam Houston and Pam Townsend, STEM Advisory Co-Chairs

RTP STEM Incubator School Update

- Pamela Blizzard, Executive Director, Contemporary Science Center

JOBS Pilot Schools Update

- Wake County / NC State University STEM Early College
  - Rob Matheson, Principal, Wake County/NC State STEM Early College
- Cumberland International Studies Early College High School
  - Dr. Frank Till, Superintendent – Cumberland County Schools

Regional Agri-science & Biotechnology Study Commission

- Dr. Marshall Stewart, Commission Chair

Update - Career Academy 5 year conversation

- Jimmy Chancey, Director, Career and Technical Education - CMS

NC Rural Entrepreneurship through Action Learning (NCREAL)

- Dr. Jim Owen, NC Board member and past president of Piedmont Community College
- Delores P. Ali, Marketing Education Consultant, NC Department of Public Instruction
- Arlene Childers, Assistant Director, NC REAL
- Dr. Eleanor Herndon, Interim Executive Director, NC REAL

Finance / Banking Pilot Early College Update

- Paul Stock, Executive Vice President & Counsel, NC Bankers Association

NC Virtual Public Schools

- Bryan Setser, Executive Director

Institute for Emerging Issues Creativity Report

- Anita Brown-Graham, Executive Director - IEI

Report Overview & Discussion

- Kara McCraw – Staff Attorney and Legislative Analyst
- Patsy Pierce – Legislative Analyst

NOTE:

Although the minutes for the JOBS Commission meeting of February 28, 2012 were not voted on at the final meeting, those minutes are included.

MINUTES

JOINING OUR BUSINESSES AND SCHOOLS (JOBS) COMMISSION
Tuesday, February 28, 2012
1:00 PM
Room 544, Legislative Office Building

The Joining Our Businesses and Schools (JOBS) Commission met Tuesday, February 28, 2012 at 1:00 PM in Room 544 of the Legislative Office Building. Lt. Governor, Walter Dalton, Chairman presided. *(SEE ATTACHMENT: MEMBERS AND GUESTS IN ATTENDANCE.)*

On motion of Mr. Murphy and second by Mr. Beichner, the minutes for the October 11, 2011 meeting were approved.

Lt. Governor Dalton welcomed Representative Nelson Dollar, a new appointee to the Commission. Then he noted that there were other new members to the Commission who had not yet arrived. He proceeded to the agenda items.

Citing the agreements reached for cooperation between various representatives of the STEM partners, the Lt. Governor said the formation of a STEM network would save time, effort and money. Dr. Sam Houston, President of the North Carolina Science, Math and Technology Center is leading that effort.

PRESENTATIONS

NC STEM Learning Network

Dr. Houston and Karl Rectanus from the NC STEM Community Collaborative shared the responsibility of presenting the Network vision of connecting the various STEM initiatives on the local, state and national level. *(SEE ATTACHMENT: North Carolina Advancing STEM Education. And Press Release.)*

As noted in the information that was provided, the North Carolina K-12 STEM strategy, as aligned with post-secondary and economic needs, was approved by the JOBS Commission on October 2011 and adopted by the State Board of Education in November. The Network is seen as a way to develop methods of keeping track of STEM efforts from kindergarten on to college. The presenters stressed the need for a public awareness campaign for communities statewide, rather than treating the plan as centered in just a few more urban settings. This is especially necessary with the varying needs and resources in the specific areas of the State.

North Carolina is seen as a leader in STEM education and as such a part of a multi-state 11-member network set to launch later in 2012 and then expand further.

During the discussion, Ms. McCullen pointed out the need to focus on such things as the common core mathematics which follows international benchmarks. She pointed

out that these are different standards from what North Carolina has done before and that these need to be recognized and embraced.

At this point, Lt. Governor Dalton introduced another new member who had arrived: Representative Tom Murry. He pointed out that these members as well as the new Senate appointees: Sen. Rucho and Sen. Soucek, had supported the initiatives the Commission has proposed in the General Assembly: such as the legislation to set up regional high schools and adding educational representation to the regional economic development boards and the statewide Economic Development panel.

STEM Web Portal

Stephanie Wright, an intern who has been working with the JOBS STEM Community Collaborative Advisory group presented the Commission with the profile of STEM assets across the state. *(SEE ATTACHMENT: Assets.)* The census represents the seven economic development regions. Google and Cisco Systems assisted in the work. Alfred Mays, web design consultant added the conceptual view of what a STEM website home page might look like.

Some of the key points for the site would be the use of social networks, such as Facebook and Twitter and ease of access for Spanish-speaking users.

A program report will be made in March. The design phase continues with the building phase to come later.

During questions, Ms. Wright defined some of the resource examples as marine biology programs, potential for teacher development such as in the Charlotte-Mecklenburg schools and educational possibilities that are available through hospitals.

Dr. Houston said that the web portal should be available as soon as possible. Funding is being discussed and as soon as the data collection is finished, and the site design is in place there will be steps to build on to the initial site. Rep. Dollar asked the source of the funds. Dr. Houston said there are some initial funds available through the STEM Center and there was a small grant available from the Battelle Foundation. He said that at some time there would be requests from the North Carolina Learning Network and that would include support for the portal.

Further answering a question from Rep. Dollar, Dr. Houston said such a portal was a venture that could cost as much as you would want, but that the aim was to create a good, sustainable product at an efficient cost. The March report should include some cost factors.

Lt. Governor Dalton said the North Carolina Research Education Network connects all 115 lead education agencies, all the community colleges, all of the public universities and many of the private colleges. North Carolina is one of the few states that has such a network. This is a distinct money-saving network. The STEM Web Portal will be this same sort of "backbone" network. He went on to say that creation of this portal would be a good investment for North Carolina and that the portal must be sustainable.

Karl Rectanus noted the work that Ms. Wright, Mr. Mays and Mark Ezell, the director of communications had put into the asset assessment. He said that information

collected would be available to the members of the Commission, prior to the further reports on the portal development.

THERE IS A CHANGE IN THE AGENDA AT THIS POINT.

Education and Business Match-Wake County Pilot

Commission Member, Caroline McCullen, Director of Education Initiatives at SAS, said this initiative had been called several other things in the past, such as the volunteer network, social media connection, etc. *(SEE ATTACHMENT: Volunteer Network...)*

Ms. McCullen said this embodies all the things the Commission seeks to do. The Commission heard in all the seven economic development regions the need to bring business volunteers together with the education system. The problem was a vehicle that could bring the needs and the resources together.

She said that the Business Subcommittee for the Institute for Emerging Issues looked at the problem and said there was expertise within that group to create a website. The North Carolina Committee for Business Education added its resources. Tackling the task on a statewide basis was considered too much for a first time effort thus discussions began with the Wake County Public School System.

Judy Peppler, Chief Transformation Office for Wake County Public Schools told the commission that Wake County Superintendent Tata said there was the need for an "easy button" to connect volunteers with schools. In addition to the school system's interest in doing the pilot, she said there is the plus for customization of the web site to allow such things as background checks for volunteers when such is needed. WCPSS is seeking funding for the first year of operation of the website.

Kendall Hageman from the Institute for Emerging Issues closed out the formal part of the presentation displaying a view of the web site for the volunteer match. The pilot should cost $20,000 per year. When broken out to the 165 Wake County Schools, that is $121 per year per school. Statewide the cost would be about $104,000 per year, divided over 2524 schools, the figure is $42 per year per school.

During the discussion, Ms. Peppler said a school volunteer would not have to use the web site, but that it would be an additional way for volunteers to learn the needs and match capabilities.

Yadkin Valley Regional Career Academy

Barry Sink, Chairman of the Academy Steering Committee assured the Commission that the Academy would open in August of this year. *(SEE ATTACHMENT: Valley Academy)* He called the school one that was created by business, for business. It is focused on business needs for the Piedmont Triangle area. The original planning grant came from the Piedmont Triangle Partnership, the regional development effort.

A consultant firm, TriStem has interviewed over 90 CEOs in the area seeking information about business employment needs and ways to form the educational system to meet such needs. Projections indicate that there is a coming availability for over a thousand new STEM-related jobs in the area brought on by the retirement of 'baby boomers'. The Yadkin Valley school will be producing about 75 such jobs each year, so industry is looking for ways to replicate the efforts like the Academy.

The focus of the Academy is on global logistics, advanced manufacturing for aviation and medical informatics.

The first campus will open in Davidson County. The second, Northern Campus will open in Surry County in August of 2013. The Academy is working in rural counties and needs to work cooperatively since a single county can't go it alone. Mr. Sink said this process seeks to change the flow of young people who leave the area counties to seek jobs that are available in more urban areas.

He said the idea of the Regional Schools Act which was passed concerning the effort in Northeastern North Carolina was very attractive and that his area had tried for a similar act. He said the leaders in his area are very interested in the future of the regional schools model as a way to roll their efforts into such a structure.

Mr. Beichner asked how the teachers were being prepared for this effort. Mr. Sink said part of the effort was funded by money received from the Race To The Top allocation. Teachers for the Academy would be working through the summer rather than any employment break. He said that one effort seeks to recruit a registered nurse to be on staff doing teaching and mentoring for the health informaticscurriculum.

In response to Rep. Dollar, Mr. Sink said the first class would be 75 students and each succeeding class would be the same size at both the Davidson and the Surry campuses. He went on to say that the school would not be termed a charter school but more of a hybrid. If the school obtains cooperative innovative status, then there could be a fifth year added, ending in a 2-year degree program. Lt. Governor Dalton said the 5-year programs have done very well with their graduation rates and while there has been a halt to such schools, he hoped there would be a resumption later.

The target group for enrollment was the middle 70% of students with an emphasis on first generation college goers—as many as 80% of the enrollment. Mr. Sink said the selection was still a work in progress.

The Lt. Governor noted that one of the major strengths of the Regional Schools Act was a regional governing board. As he said, some of the individual counties would struggle with their tax base in the efforts to support schools, but the banding together of several counties with a regional mechanism made more things possible.

Lt. Governor Dalton continued for the benefit of the new members pointing out the visits the Commission made to the economic development regions to get feedback from the local constituencies and to bring home the different economies of the state wherein 'cookie cutter' approaches don't work necessarily. As an example he noted the position of the Piedmont Triad served by 5 Interstate Highways, 2 railroads, 11 community colleges, 9 colleges and universities and an international airport. No other area has such a mix, or economic profile.

Northeast Regional Agriscience & Biotechnology School

Dr. Tony Habit, President of the New Schools Project, which had been working on the regional school concept in the Northeast prior to the Commission's involvement, made the presentation. *(SEE ATTACHMENT: Northeast Regional* Biotech/*Agriscience school.)* He began by saying he represented Dr. David Peele, President of Avoca Farms in Merry Hill, N. C. Dr. Peele is the regional chairman for the Northeast School. Noting that the world's population reached 7 billion people in October, 2011, Dr. Habit said projections showed the need to double the amount of food and fiber and fuel necessary from agriculture to maintain the quality of life for this population. The question he said was could this be done without degrading the various resources of the planet.

He pointed to the support from the five counties: Martin, Tyrrell, Pitt, Washington and Beaufort and the passage of the Regional Schools Act as key pieces that were in place now. Enrollment for the school will begin this summer.

North Carolina is now third in the nation in biotechnology and while there were job losses during the recent recession, biotechnology jobs increased in North Carolina by 4.1%.

The Lt. Governor said this school was a model for 7th through 13th class years (5-year school), adding a year of college.

Representative Murry asked about the New Schools Project efforts to encourage new science teachers and how pharmacists might fit in this to offer their scientific background without having to stop and seek teaching certification. Dr. Habit said the program working with the UNC Systemseeks to give teachers experience in teaching much like the training for doctors and agreed that there was a great deal of talent that could be tapped as the process continues. The Lt. Governor noted that the lateral entry process could be helpful in this regard.

Hospitality & Tourism Early College High School.

Representing the N. C. Hospitality Education Foundation, Alyssa Barkley said the efforts to promote hospitality education in Western North Carolina had banded with STEM initiative interests in the Asheville-Buncombe-Madison County area. There have been meetings with secondary and post-secondary educators, parents and industry representatives with particular attention given to the Hospitality Association's Pro-Start educational program. She said the steering committee would be meeting again at the end of March working to firm up procedures. The Lt. Governor said based on his conversations with Chuck Pickering at the Biltmore Company more interest could be coming.

Committee Discussion

Commission Counsel, Kara McCraw presented the Commission with a review of the JOBS Commission work since the creation in 2009. *(SEE ATTACHMENT: JOBS Commission Overview 2009-2012.)*

Dr. Habit thanked Lt. Governor Dalton and the members for the vision and the work the Commission had accomplished. Ms. Bingham urged the continuation of the Commission in a non-partisan/bi-partisan since the Commission had served multi-jurisdictional needs in the economic regions of the state. Ms. Townsend said perhaps the work could continue through the North Carolina Committee for Business Education. (*SEE ATTACHMENT: Pam Townsend 2/28/2012.)*

The meeting was adjourned at 2:55 P. M.

Lt. Governor Walter Dalton,
Presiding.

Minutes by Ted Harrison

JOBS Commission Meeting

Tuesday – February 28, 2012 - 1-3 pm
Legislative Office Building – Room 544, Raleigh, NC

1:00 pm ***Welcome & Introduction of New Legislative Members***

1:00 pm ***NC STEM Learning Network***
Sam Houston, President – NC SMT Center
Karl Rectanus, Leader - NC STEM Community Collaborative

1:20 pm ***NC STEM Learning Network – STEM Web Portal***
Stephanie Wright, JOBS STEM Community Collaborative Advisory Panel Intern
Alfred Mays, Web Design Consultant

1:40 pm ***Yadkin Valley Regional Career Academy***
Barry Sink, Co-Chair of Steering Committee - YVRCA

2:00 pm ***Education & Business Match – Wake County Pilot***
Kendall Hageman, Education Program Manager – IEI / NC State University
Judy Peppler, Chief Transformation Officer / Chief of Staff - Wake County PSS
Caroline McCullen, Director Education Initiatives – SAS

2:15pm ***Northeast Region Agriscience & Biotechnology School***
Dr. Tony Habit, President - NC New Schools Project

2:25 pm ***Hospitality & Tourism Early College High School***
Alyssa P. Barkley, Executive Director - NC Hospitality Education Foundation

2:35 pm ***Committee Discussion***
Kara McCraw, Legislative Counsel

ADJOURN

MINUTES

JOINING OUR BUSINESSES AND SCHOOLS (JOBS) COMMISSION
Tuesday, February 28, 2012
1:00 PM
Room 544, Legislative Office Building

The Joining Our Businesses and Schools (JOBS) Commission met Tuesday, February 28, 2012 at 1:00 PM in Room 544 of the Legislative Office Building. Lt. Governor, Walter Dalton, Chairman presided. *(SEE ATTACHMENT: MEMBERS AND GUESTS IN ATTENDANCE.)*

On motion of Mr. Murphy and second by Mr. Beichner, the minutes for the October 11, 2011 meeting were approved.

Lt. Governor Dalton welcomed Representative Nelson Dollar, a new appointee to the Commission. Then he noted that there were other new members to the Commission who had not yet arrived. He proceeded to the agenda items.

Citing the agreements reached for cooperation between various representatives of the STEM partners, the Lt. Governor said the formation of a STEM network would save time, effort and money. Dr. Sam Houston, President of the North Carolina Science, Math and Technology Center is leading that effort.

PRESENTATIONS

NC STEM Learning Network

Dr. Houston and Karl Rectanus from the NC STEM Community Collaborative shared the responsibility of presenting the Network vision of connecting the various STEM initiatives on the local, state and national level. *(SEE ATTACHMENT: North Carolina Advancing STEM Education. And Press Release.)*

As noted in the information that was provided, the North Carolina K-12 STEM strategy, as aligned with post-secondary and economic needs, was approved by the JOBS Commission on October 2011 and adopted by the State Board of Education in November. The Network is seen as a way to develop methods of keeping track of STEM efforts from kindergarten on to college. The presenters stressed the need for a public awareness campaign for communities statewide, rather than treating the plan as centered in just a few more urban settings. This is especially necessary with the varying needs and resources in the specific areas of the State.

North Carolina is seen as a leader in STEM education and as such a part of a multi-state 11-member network set to launch later in 2012 and then expand further.

During the discussion, Ms. McCullen pointed out the need to focus on such things as the common core mathematics which follows international benchmarks. She pointed

out that these are different standards from what North Carolina has done before and that these need to be recognized and embraced.

At this point, Lt. Governor Dalton introduced another new member who had arrived: Representative Tom Murry. He pointed out that these members as well as the new Senate appointees: Sen. Rucho and Sen. Soucek, had supported the initiatives the Commission has proposed in the General Assembly: such as the legislation to set up regional high schools and adding educational representation to the regional economic development boards and the statewide Economic Development panel.

STEM Web Portal

Stephanie Wright, an intern who has been working with the JOBS STEM Community Collaborative Advisory group presented the Commission with the profile of STEM assets across the state. *(SEE ATTACHMENT: Assets.)* The census represents the seven economic development regions. Google and Cisco Systems assisted in the work. Alfred Mays, web design consultant added the conceptual view of what a STEM website home page might look like.

Some of the key points for the site would be the use of social networks, such as Facebook and Twitter and ease of access for Spanish-speaking users.

A program report will be made in March. The design phase continues with the building phase to come later.

During questions, Ms. Wright defined some of the resource examples as marine biology programs, potential for teacher development such as in the Charlotte-Mecklenburg schools and educational possibilities that are available through hospitals.

Dr. Houston said that the web portal should be available as soon as possible. Funding is being discussed and as soon as the data collection is finished, and the site design is in place there will be steps to build on to the initial site. Rep. Dollar asked the source of the funds. Dr. Houston said there are some initial funds available through the STEM Center and there was a small grant available from the Battelle Foundation. He said that at some time there would be requests from the North Carolina Learning Network and that would include support for the portal.

Further answering a question from Rep. Dollar, Dr. Houston said such a portal was a venture that could cost as much as you would want, but that the aim was to create a good, sustainable product at an efficient cost. The March report should include some cost factors.

Lt. Governor Dalton said the North Carolina Research Education Network connects all 115 lead education agencies, all the community colleges, all of the public universities and many of the private colleges. North Carolina is one of the few states that has such a network. This is a distinct money-saving network. The STEM Web Portal will be this same sort of "backbone" network. He went on to say that creation of this portal would be a good investment for North Carolina and that the portal must be sustainable.

Karl Rectanus noted the work that Ms. Wright, Mr. Mays and Mark Ezell, the director of communications had put into the asset assessment. He said that information

collected would be available to the members of the Commission, prior to the further reports on the portal development.

THERE IS A CHANGE IN THE AGENDA AT THIS POINT.

Education and Business Match-Wake County Pilot

Commission Member, Caroline McCullen, Director of Education Initiatives at SAS, said this initiative had been called several other things in the past, such as the volunteer network, social media connection, etc. *(SEE ATTACHMENT: Volunteer Network...)*

Ms. McCullen said this embodies all the things the Commission seeks to do. The Commission heard in all the seven economic development regions the need to bring business volunteers together with the education system. The problem was a vehicle that could bring the needs and the resources together.

She said that the Business Subcommittee for the Institute for Emerging Issues looked at the problem and said there was expertise within that group to create a website. The North Carolina Committee for Business Education added its resources. Tackling the task on a statewide basis was considered too much for a first time effort thus discussions began with the Wake County Public School System.

Judy Peppler, Chief Transformation Office for Wake County Public Schools told the commission that Wake County Superintendent Tata said there was the need for an "easy button" to connect volunteers with schools. In addition to the school system's interest in doing the pilot, she said there is the plus for customization of the web site to allow such things as background checks for volunteers when such is needed. WCPSS is seeking funding for the first year of operation of the website.

Kendall Hageman from the Institute for Emerging Issues closed out the formal part of the presentation displaying a view of the web site for the volunteer match. The pilot should cost $20,000 per year. When broken out to the 165 Wake County Schools, that is $121 per year per school. Statewide the cost would be about $104,000 per year, divided over 2524 schools, the figure is $42 per year per school.

During the discussion, Ms. Peppler said a school volunteer would not have to use the web site, but that it would be an additional way for volunteers to learn the needs and match capabilities.

Yadkin Valley Regional Career Academy

Barry Sink, Chairman of the Academy Steering Committee assured the Commission that the Academy would open in August of this year. *(SEE ATTACHMENT: Valley Academy)* He called the school one that was created by business, for business. It is focused on business needs for the Piedmont Triangle area. The original planning grant came from the Piedmont Triangle Partnership, the regional development effort.

A consultant firm, TriStem has interviewed over 90 CEOs in the area seeking information about business employment needs and ways to form the educational system to meet such needs. Projections indicate that there is a coming availability for over a thousand new STEM-related jobs in the area brought on by the retirement of 'baby boomers'. The Yadkin Valley school will be producing about 75 such jobs each year, so industry is looking for ways to replicate the efforts like the Academy.

The focus of the Academy is on global logistics, advanced manufacturing for aviation and medical informatics.

The first campus will open in Davidson County. The second, Northern Campus will open in Surry County in August of 2013. The Academy is working in rural counties and needs to work cooperatively since a single county can't go it alone. Mr. Sink said this process seeks to change the flow of young people who leave the area counties to seek jobs that are available in more urban areas.

He said the idea of the Regional Schools Act which was passed concerning the effort in Northeastern North Carolina was very attractive and that his area had tried for a similar act. He said the leaders in his area are very interested in the future of the regional schools model as a way to roll their efforts into such a structure.

Mr. Beichner asked how the teachers were being prepared for this effort. Mr. Sink said part of the effort was funded by money received from the Race To The Top allocation. Teachers for the Academy would be working through the summer rather than any employment break. He said that one effort seeks to recruit a registered nurse to be on staff doing teaching and mentoring for the health informaticscurriculum.

In response to Rep. Dollar, Mr. Sink said the first class would be 75 students and each succeeding class would be the same size at both the Davidson and the Surry campuses. He went on to say that the school would not be termed a charter school but more of a hybrid. If the school obtains cooperative innovative status, then there could be a fifth year added, ending in a 2-year degree program. Lt. Governor Dalton said the 5-year programs have done very well with their graduation rates and while there has been a halt to such schools, he hoped there would be a resumption later.

The target group for enrollment was the middle 70% of students with an emphasis on first generation college goers—as many as 80% of the enrollment. Mr. Sink said the selection was still a work in progress.

The Lt. Governor noted that one of the major strengths of the Regional Schools Act was a regional governing board. As he said, some of the individual counties would struggle with their tax base in the efforts to support schools, but the banding together of several counties with a regional mechanism made more things possible.

Lt. Governor Dalton continued for the benefit of the new members pointing out the visits the Commission made to the economic development regions to get feedback from the local constituencies and to bring home the different economies of the state wherein 'cookie cutter' approaches don't work necessarily. As an example he noted the position of the Piedmont Triad served by 5 Interstate Highways, 2 railroads, 11 community colleges, 9 colleges and universities and an international airport. No other area has such a mix, or economic profile.

Northeast Regional Agriscience & Biotechnology School

Dr. Tony Habit, President of the New Schools Project, which had been working on the regional school concept in the Northeast prior to the Commission's involvement, made the presentation. *(SEE ATTACHMENT: Northeast Regional* Biotech*/Agriscience school.)* He began by saying he represented Dr. David Peele, President of Avoca Farms in Merry Hill, N. C. Dr. Peele is the regional chairman for the Northeast School. Noting that the world's population reached 7 billion people in October, 2011, Dr. Habit said projections showed the need to double the amount of food and fiber and fuel necessary from agriculture to maintain the quality of life for this population. The question he said was could this be done without degrading the various resources of the planet.

He pointed to the support from the five counties: Martin, Tyrrell, Pitt, Washington and Beaufort and the passage of the Regional Schools Act as key pieces that were in place now. Enrollment for the school will begin this summer.

North Carolina is now third in the nation in biotechnology and while there were job losses during the recent recession, biotechnology jobs increased in North Carolina by 4.1%.

The Lt. Governor said this school was a model for 7th through 13th class years (5-year school), adding a year of college.

Representative Murry asked about the New Schools Project efforts to encourage new science teachers and how pharmacists might fit in this to offer their scientific background without having to stop and seek teaching certification. Dr. Habit said the program working with the UNC Systemseeks to give teachers experience in teaching much like the training for doctors and agreed that there was a great deal of talent that could be tapped as the process continues. The Lt. Governor noted that the lateral entry process could be helpful in this regard.

Hospitality & Tourism Early College High School.

Representing the N. C. Hospitality Education Foundation, Alyssa Barkley said the efforts to promote hospitality education in Western North Carolina had banded with STEM initiative interests in the Asheville-Buncombe-Madison County area. There have been meetings with secondary and post-secondary educators, parents and industry representatives with particular attention given to the Hospitality Association's Pro-Start educational program. She said the steering committee would be meeting again at the end of March working to firm up procedures. The Lt. Governor said based on his conversations with Chuck Pickering at the Biltmore Company more interest could be coming.

Committee Discussion

Commission Counsel, Kara McCraw presented the Commission with a review of the JOBS Commission work since the creation in 2009. *(SEE ATTACHMENT: JOBS Commission Overview 2009-2012.)*

Dr. Habit thanked Lt. Governor Dalton and the members for the vision and the work the Commission had accomplished. Ms. Bingham urged the continuation of the Commission in a non-partisan/bi-partisan since the Commission had served multi-jurisdictional needs in the economic regions of the state. Ms. Townsend said perhaps the work could continue through the North Carolina Committee for Business Education. *(SEE ATTACHMENT: Pam Townsend 2/28/2012.)*

The meeting was adjourned at 2:55 P. M.

Lt. Governor Walter Dalton,
Presiding.

Minutes by Ted Harrison

JOBS COMMISSION MEMBERS IN ATTENDANCE 2/28/2012

Lt. Governor Walter Dalton

Bob Beichner

Laura Bingham

Tony Habit

Karl Rectanus

Dr. Sam Houston

Dr. Bill Harrison

Mike Murphy

Carolina McCullen

Dr. Susan Purser

Laura Willoughby

Pam Townsend

Rep. Nelson Dollar

Rep. Tom Murry

Sen. Fletcher Hartsell

VISITOR REGISTRATION SHEET

JOBS COMMISSION — 2-28-12

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
Matt Farrell	NCSBA
Brent Lane	UNC Kenan Institute
Julia Adams	The Arc of NC
Judy Penter	WCPSS
Alyssa Barkley	NCHEF

VISITOR REGISTRATION SHEET

Jobs — 2-28-12

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
Jim Ayers	Ed Consultant
Lynne Garrison	NCNSP
Rebecca Pagnol	NCDPI
Barry Sink	Valley Academy
JoAnn Morris	Public School Forum
Andrew Meehan	Capitol
Karen Duquette	Civitas
CS Hollis	TSS
Leanne Winner	NCSBA

MINUTES

THE JOINING OUR BUSINESSES & SCHOOLS (JOBS) COMMISSION

Tuesday, October 11, 2011 2-5 p.m.

LEGISLATIVE OFFICE BUILDING, ROOM 544

The Joining Our Businesses and Schools (JOBS) Commission met on Tuesday, October 11, 2011 at 2 P.M., Room 544 of the Legislative Office Building. Lieutenant Governor Walter Dalton presided. *(SEE ATTACHMENT: Members and Visitors Attending.)* The Lt. Governor welcomed the members of the Commission, and he welcomed Jean Woolard, Patricia Willoughby and Marshall Stewart and thanked them for their help with the Commission. He thanked Sen. Brown and the absent Rep. Glazier for the work in the recent legislative session carrying through objectives the Commission sought.

On motion of Sen. Lee and second from Dr. Murphy, the minutes for the meetings of January 25, 2011, April 19, 2010 and March 29, 2010 were approved.

Senator Brown brought the Commission an update of the 2011 Legislative Session. He cited the addition of 1100 teachers for grades 1-3, a Performance Bonus Package of $21 million, and Intensifying the Reading Skills Program. Of special interest for the Commission was the Regional Schools bill which has a direct effect on the Agri-Science School in Northeastern North Carolina. He expressed the hope that this bill would break down some of the county line barriers that can stymy such efforts which can join low wealth counties with wealthier counties for mutual benefit. That effort involves 5 counties. The bill allows other counties to join. He said the $200,000 recurring money was appropriated for the two Learn and Earn Early Colleges despite the tight budget.

He expressed hope that the past budget was the "bottom" and that the economy would improve.

He said he appreciated the work of the Commission, saying a lot of people didn't know a lot about the Commission and that members might be under-appreciated.

The Lt. Governor thanked Sen. Brown and Sen. Hartsell for their work. He said the Northeast Regional School could be a model for greater things to come. He reiterated thanks to Jean Woolard and Marshall Stewart for their work. He said the involvement of North Carolina State University and Avoca Farms added additional credibility to the Agri-Science project.

He cited the addition of members of the State Board of Education on the regional economic development boards as another bill the Commission supported and saw pass.

PRESENTATIONS

Caroline McCullen, Commission member and Director of Education Initiatives for SAS, presented the Business Engagement Guide, an outline of ways for businesses to join with schools. *(SEE ATTACHMENT: Business Engagement Guide)* Some of the issues address how business might be able to become involved with experience-based activities involving students. This would also give teachers an idea how to be involved with businesses. The idea of calling this a "plan" was changed so that the document would not be telling either side how they must do something.

She said this was compiled from existing materials and sites. She said many of the business contacts were not aware of the information available from the Department of Public Instruction website, or that the site existed.

Step one, they decided, would be to develop a strong business advisory board. This came from the people they interviewed and met.

Ms. McCullen said that project-based learning experiences would be helpful for furthering the development of the guide.

She asked the opinions of the Commission members on the value of such a guide, what should be included or excluded, what form should such a guide take: website(s), booklet, etc., how to disseminate such a guide, and how to update.

She also questioned the connection, if any to the social media system being developed by the Institute for Emerging Issues. *(See Below)*

Mr. Beichner asked how feedback should be made. Kimberly Reynolds on the Lt. Governor's staff was designated as the recipient.

Dr. Harrison asked how to prevent duplication with any other such efforts, i. e. Students at Work. Ms. McCullen said perhaps the information might fall into that organization's purview. She said the sub-committee who had developed this draft definitely did not want to duplicate any efforts. Dr. Houston said it seemed that as the work of the JOBS Commission continued that there would be the need to keep things in one place. However, he said that the Commission might show a link to the State Board of Education and efforts in place there.

Ms. McCullen closed giving additional thanks to the group that worked on the guide.

Lt. Governor Dalton noted that there is a STEM website being developed and said that a graduate student, Stephanie Wright was working on that site. Ms. Wright was at the meeting.

Diane Cherry, Environments Policy Manager for the Institute for Emerging Issues (IEI) brought the Commission the efforts for a social media connection being developed by the IEI. *(SEE ATTACHMENT: Creativity.)*

Ms. Cherry said the focus of the IEI as a public policy organization is to examine North Carolina's competitiveness. One of the issues that grew out of a session on creativity was to bring together teachers and business leaders in a local geographic setting. There was a need to broaden the number of business leaders who were contacted for participation in various school projects.

She said the concept was to link teachers and businesses for short term needs. The plan is for a pilot project that could be scaled up or down based on a specific need.

Lt. Governor Dalton asked who would be able to update the information and if there were royalties that might be paid. Ms. Cherry said these are part of the negotiations to be made.

UPDATES ON JOBS COMMISSION SUPPORTED SCHOOLS

Hospital and Tourism

Alyssa Barkley, Executive Director of the North Carolina Hospitality Education Foundation, made the presentation for this school which is in the early stages of creation. The Foundation is an arm of the North Carolina Hospitality and Tourism Association. A steering committee has been created to direct the focus of the educational efforts. Those efforts will be centered on Western North Carolina, particularly Asheville-Buncombe County. That area boasts a good education system in the middle of a strong tourism section of the state.

The Foundation directs the Pro Start program, created by the National Restaurant Association to deal with training in hospitality, food service and tourism fields. This intensive job training program requires a 400-hour work experience component.

Avery County Schools and the Asheville-Buncombe County schools are supportive of the efforts to offer the sort of training the Foundation and the Association want to develop. Funding is a large concern for the future of the effort. The goal is to have the program set to go in the fall of 2013.

The Lt. Governor took this opportunity to thank Kimberly Reynolds from his staff for her work in association with the Commission supported schools.

Finance Academy

Kimberly Reynolds spoke next with an update on the 5-year Finance Academy proposal which has drawn interest from five banks in the Charlotte-Mecklenburg area, plus involvement of the Charlotte-Mecklenburg School System and Central Piedmont Community College.

A steering committee will direct the efforts and direction of this initiative.

The National Academy Foundation is also involved. This group's existing academies are 4-year schools, but they are looking to see how the experience across the country can be tapped for the feasibility and adaptability to a 5-year school, such as the Finance Academy.

The Lt. Governor said the North Carolina Bankers Association has endorsed the idea of the finance academy.

The Northeast Regional Ag-Bio School

As he proceeded to this presentation, Lt. Governor Dalton thanked Dr. Marshall Stewart from N. C. State and Dr. Bill Harrison from the State Board of Education for their work on this venture. Dr. Stewart noted the work done by Superintendent of Public Instruction, Dr. June Atkinson. State Board of Education Chairman Bill Harrison thanked Rob Hines from the Department of Public Instruction for his work with the project.

The Lt. Governor said the legislative approval indicated the way a regional school should look; such schools don't have to follow this model, but should learn from it.

Dr. Stewart began the presentation saying that regional schools were now considered "cool". The idea began about 5 years ago in Bertie County for an early college high school and that work is still going on. The JOBS Commission plans

intersected easily with those efforts and the upshot was the model for regional schools. Five school systems: Washington County, Pitt County, Tyrrell County, Beaufort County and Martin County signed on and others are expected to join later. A governing board from these five counties is getting ready to start in the next month or so. That board will hire a principal and the target for the school to start is fall 2012. Dr. Stewart went on to note that the site for the school, the Vernon James Research Station, is a cooperative operation between N. C. State University and the N. C. Department of Agriculture.

Cumberland International Early College High School

The Lt. Governor said he was proud to have attended the opening of this School in Fayetteville. He introduced Allison Violette, Associate Superintendent for Curriculum for the Cumberland County Schools who began the presentation. *(SEE ATTACHMENT: Cumberland County)* She said that about a year ago Cumberland County reported the committees were in place. Now, she said, there is a school in place. She thanked all the various people and organizations that collaborated to create the school.

Ms. Violette introduced the Principal of the school, Ms. Lavette Alston, who added her thanks for the support of the Commission. Ms. Alston said the freshman class consists of 54 students. The students chose the school colors: red and black and the mascot, The Ambassadors. As a language and global studies school, the language choices offered now are: Arabic, Mandarin Chinese and Spanish.

The North Carolina New Schools Project plays a major role in the school. All courses offered are honors level.

Valeria Torres-Colon, one of the students, is a first-generation college student. She brought her personal view of the benefits and goals she sees in the School. She possesses knowledge of English and Spanish, so Arabic is her chosen study language. Her plans are to be an OB/GYN surgeon.

The school is currently located at E. E. Smith High School.

In response to questions from Sen. Lee, Ms. Alston said the grade point average varies within the student body and that since this is a choice school, the parents are involved at the beginning and the school works to continue that involvement.

Ms. Violette said a team reviewed the applications to the school and an essay was required. Academic progress was considered, too. The goal was to have between 50 and 75 students, thus this first class rounded out at 54.

Wake/N. C. State University STEM Early College

Rob Matheson, the Principal for the school told the Commission this school had finished 45 days for the school year as of the previous Friday. (October 7, 2011) *(SEE ATTACHMENT: Wake/N. C. State STEM...)* Matheson said the school sought to reach "the under-served, under-represented, first time college-goers".

There are 55 students in this freshman class. Currently the school is located in the creative services building, which did house the radio-television studios for the N. C. State campus. N. C. State is renovating the Cherry Building at Dorothea Dix, now part of the Centennial Campus; that will be the location in 2013.

STEM Statewide Strategic Plan

Superintendent of Public Instruction, Dr. June Atkinson recognized the members of the Commission for their work with the Plan. *(SEE ATTACHMENT: STEM Plan).* She said the Plan on paper was for grades K-12, but was aligned with grades K-20 with the work of community colleges and universities. The draft has been shared with about 10 different groups for input.

The Lt. Governor suggested that an endorsement of the JOBS Commission for the working draft presented would be in order. Upon motion of Dr. Murphy and second by Ms. Townsend the endorsement was passed unanimously. The Plan would go to the State Board of Education for adoption.

RACE TO THE TOP STEM ANCHOR SCHOOLS AND NETWORK CLUSTERS

Dr. Dana Diesel Wallace, from the New Schools Project made this presentation. *(SEE ATTACHMENT: STEM networks)* She termed this as a quick overview of the work. She said much of the work centered on encountering and identifying problems with an eye to seek solutions; some of which might be successful, or not successful. She said failure can be a part of learning experiences.

The integrated curriculum is focused on how content is used in the work force. Beyond the classroom extends the learning which might not always happen in the class.

She said STEM seeks to teach the idea that content can be used in applied ways: problem solving, collaboration, communication, etc.

She brought up the website: Worldomoters. This brought home the need to address issues of food, safe drinking water, etc. She believes today's students will be part of the problem solvers.

She pointed to the need for coaching to go along with professional development for teachers and the need for content preparation for those teachers.

Another challenge was for the sharing of knowledge and experience among the various STEM schools so that success can be replicated.

In answer to a question, Dr. Wallace said that with the benefit from a world renowned leader in mathematics at DPI, North Carolina's common core math system worked with the national and international standards being promoted.

Open Discussion

With the Commission currently destined to phase out at the end of June, 2010, Lt. Governor Dalton asked the Commission members to offer their thoughts about the next steps and the use of the remaining time. Here are those expressions:

Laura Bingham: Said the Commission has produced quality results in a short time. There is a change from incubation to acceleration. She suggested meeting with editorial boards at newspapers across the state to outline the things that the Commission has brought along not just regionally, but statewide.

1. The school district collaborations
2. Increasing the outcomes for underserved population
3. Core partnerships of schools and businesses
4. Public/Private aspect
5. Money to do these things
6. New initiatives tying to current and future economy of the state. Making the case for connecting the dots across the state.

Sam Houston: Hope that the Commission will be extended. As quasi-government not burdened with some of the restrictions. He used the word "nimble" to describe the Commissions ability to work across governmental and public lines. He said the Commission could move quicker than a lot of other venues, i. e. the State Board of Education.
He wondered who would be the ultimate "owner" of the statewide STEM Strategy, who would implement, and could the Commission be such an entity with "encouraging oversight"?

Sen. Lee: Said the Education Cabinet no longer had a staff and really did not exist. He felt the JOBS Commission could cultivate the STEM Strategy. He agreed the Commission could cut across many lines and that STEM could use that ability. He said STEM Strategy should be in the Commission, otherwise the strategy would "not take on a whole lot of life".

Dr. Purser: Said talk has come about "pockets of students" and she referred to Sen. Lee's comments about the Education Cabinet. She said all this shows the need to involve the classroom teacher. She said right now there is professional development available, but there is no time with the current calendar. She

challenged that if there is a true support for the innovative ideas and strategies, the teachers have to be involved. She said there is great training available, but then the teacher has no time to design the way to implement the concepts. She said the development does not provide a "how to" book. There is content knowledge that requires time to be translated into use in the classroom. She said there is a "they can do it on their own time" concept that runs counter to the needs of teachers' lives and their own families. She said, "I want my teachers to have another life."

Houston: Agreed with Dr. Purser. How capable the teacher may be is the ultimate test. He said professional development dollars have been lost and time is always an issue. If the dollars are to be replaced there must be a measurable outcome. The plan for professional development dollars must support what the state is doing.

Bingham: Said she meant to include the bi-partisanship or non-partisanship that has "undergirded" the work the JOBS Commission has done and that should be part of the local level efforts, too.

Lt. Governor Dalton said the bi-partisanship resonates within the state and outside the state, too.

Lee: Said one of the results of the Commission has been the inclusion of resources outside the school. His plans include seeking involvement of the broad spectrum of the community in schools.
He said, "We can no longer think we can leave all 'this' on the back of our teachers and out of schools".
He noted that the Commission had uncovered talent that could be involved: in industry and in parents. He said the Commission was in the position to involve a broad range of this talent in the education process.

Joe Freddoso: Said Dr. Purser had a great point. At the same time he said education and health care were the two "laggards" to embrace technology-based training. There is a big network, but still people need the time to take advantage. There should be time taken to see how other parts of society (industries, etc.) have used technology to increase productivity and to take those lessons to do a better job of training teachers. One of the Commission's efforts could be to figure out how

to take advantage of what is available. SAS, Cisco, MCNC and others reformat the work force to use the tools that are available, but this requires a "step back" to allow the utilization of the tools offered. He said the School of Science and Math would be a good place to start since the school outsources its curriculum to places that need teachers, but does not do a lot of professional development training. At UNC-Chapel Hill there is Learn NC which is a good resource, but basically is unsupervised.

He said the recently-retired Chancellor at WCU, John Bardo has done research concerning rural and urban community economic success. One of the keys to the variance between such rural/urban successes is the underserved population going into engineering.

He questioned how we can have STEM teachers unprepared in content when their preparation is being done at such places as NCSU, UNC-CH, etc. Thus higher education needs to be looked at too. He said the Commission is the only voice outside the sectors of education that could turn such examination into policy.

McCullen: Spoke of the recent trip to Finland to examine the education system. There is a great difference between the U. S. system and Finland's; relating to teacher training. Teachers must have a master's degree to teach. Four years of a teacher's education is spent on content. The last year is spent in the classroom under guidance of a master teacher where they apply the content knowledge. U. S. teachers can't compete with other countries which spent such time educating the teachers. She said one of the ways to create more time is through professional learning communities. Each school must set aside time—different schools need different times—to allow teachers to work together, to collaborate and work together.

Houston: Said Alyssa Chapman at the UNC-General Administration was a contact for Fast Track: a way to get content major students a license to teach in four years. This is modeled after the Teaching Fellows program.

McCullen: Mentioned the North Carolina Chamber of Commerce recommendations; if the state could agree to one way to teach math and science. She said it is a simple idea, but hard to accomplish and perhaps the JOBS Commission could steer the discussion and implementation of such. It might be

easier with the 'common core standards' which the Lt. Governor asked for an explanation. Ms. McCullen said the 'common core standards' are content standards, but not a directive of how to teach. Math needs to be the same content from state to state.
Dr. Houston said the language arts teaching is an example. One college teaches a would-be teacher one way, but then the teacher goes into a place that wants the subject taught a different way.

Rectanus: Said the N. C. Chamber also heard discussions of the role of an intermediary in education reform and some of the research presented might point up the role of the JOBS Commission as such an intermediary. He also said the connectivity of education of such entities as the community college system to the work force could be examined as a future focus of the Commission.

North Carolina Advancing Science Technology Engineering & Mathematics Education

Statewide Strategic Plan
NC STEM Learning Network
Multi-State STEM Network

Joining Our Business & Schools (JOBS) Commission
February 28, 2012

Will Connect North Carolina's many STEM initiatives to local, state and national expert partners to replicate and scale efforts to help all students fill NC jobs.

CAREER & COLLEGE ready, set, go!

PUBLIC SCHOOLS OF NORTH CAROLINA
State Board of Education
Department of Public Instruction

SMT
North Carolina Science, Mathematics, and Technology Education Center

MCNC

BILL & MELINDA GATES foundation

CISCO SYSTEMS

TIES
TEACHING INSTITUTE FOR EXCELLENCE IN STEM

JOBS Commission

Ohio STEM Learning Network

Google

Battelle
The Business of Innovation

THE RESEARCH TRIANGLE PARK

5K FIVE KAHNE
Bank of America

NC STEM provides policy, communication and education expertise to advise decision makers working to align education and economic needs

Why STEM? Why Now?

Today:
400,000+ STEM Related NC Jobs

STEM Jobs will Grow 23% Faster than all other sectors

NC State of the Workforce 2011

STEM Jobs pay 64% more than other jobs in NC.

NC State of the Workforce 2011

63% of STEM Jobs Requiring 2 Year Credentials Pay More Than Non-STEM Jobs Requiring Bachelors Degree

"STEM", Georgetown Center for Education & the Workforce

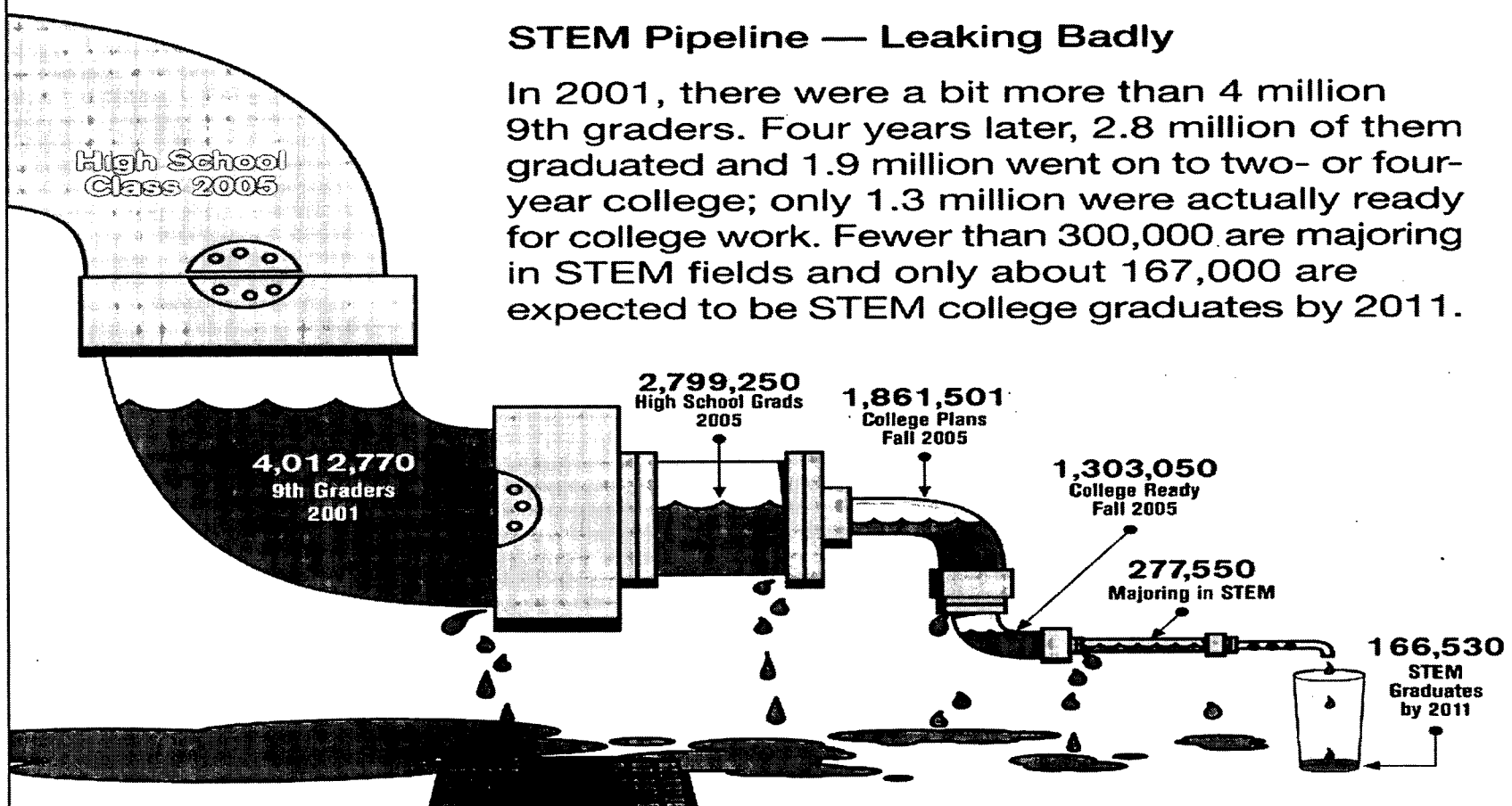
Our education system is not producing enough STEM-capable students to keep up with demand both in traditional STEM occupations and other sectors across the economy that demand similar competencies

"STEM", Georgetown Center for Education & the Workforce

Why is STEM education important?

STEM Pipeline — Leaking Badly

In 2001, there were a bit more than 4 million 9th graders. Four years later, 2.8 million of them graduated and 1.9 million went on to two- or four-year college; only 1.3 million were actually ready for college work. Fewer than 300,000 are majoring in STEM fields and only about 167,000 are expected to be STEM college graduates by 2011.



Source: NCES Digest of Education Statistics; Science & Engineering Indicators 2008

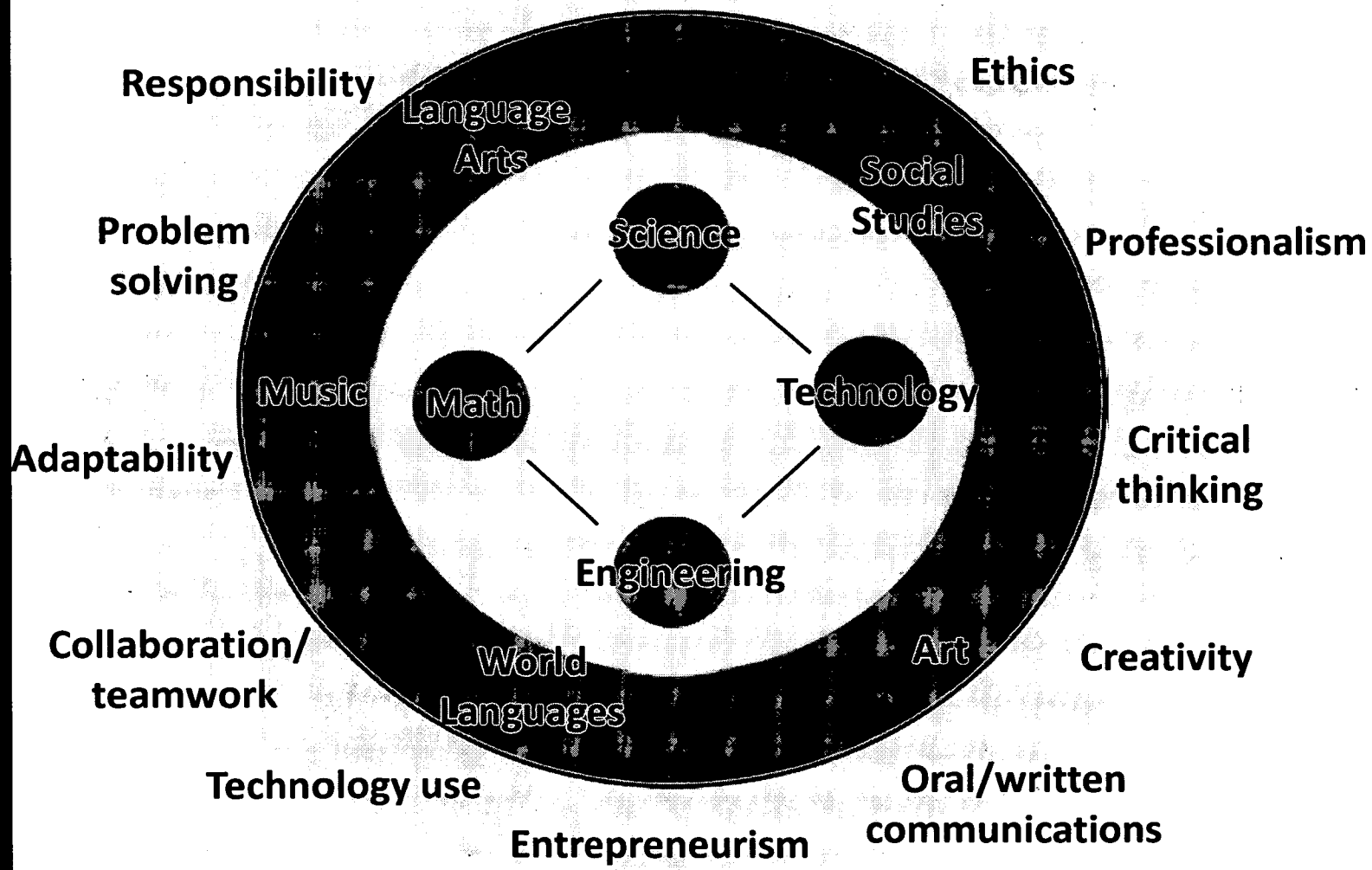
What is STEM education?

STEM education provides young people with innovative project based learning environments that integrate the principles of science, technology, engineering & mathematics into every classroom.

By utilizing STEM education, a typical teacher-centered classroom is transformed into a learning experience facilitated by the teacher and driven by problem solving, group discovery and exploratory learning.

Quality STEM Education

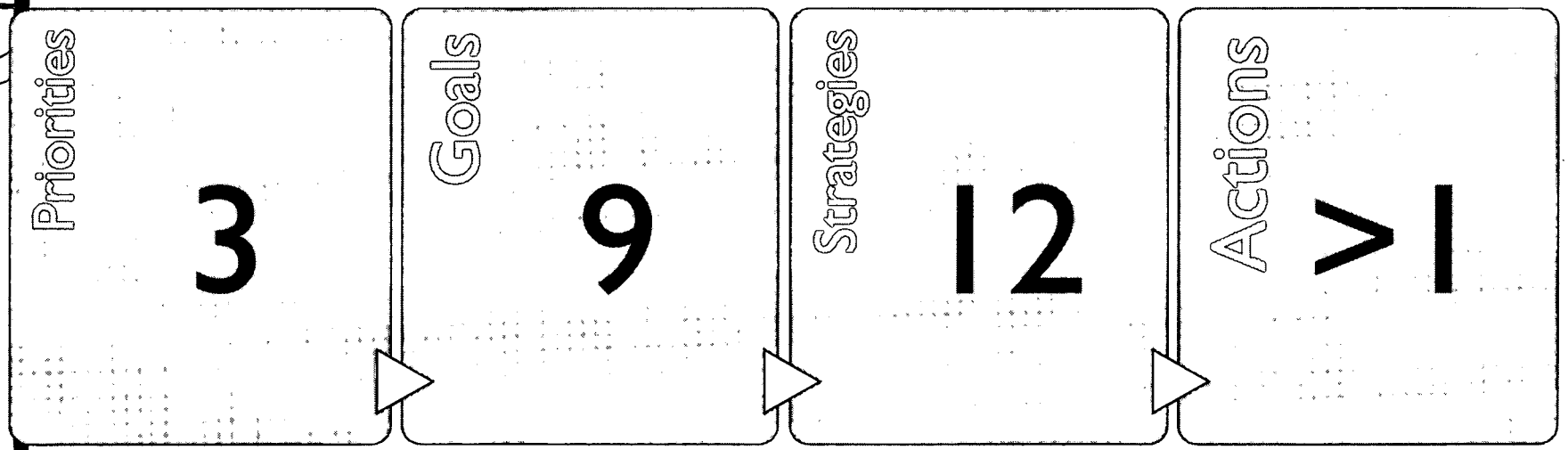
21st Century Skills



What is NC doing? Lots.

- Businesses & Communities in every economic development region reported to the JOBS Commission a significant need for STEM-capable workforce – and shared a local program or initiative.
- NC STEM identified over 500 public and private programs in some aspect of STEM education.
- North Carolina is seen as a leader in STEM education nationally.

Format of Statewide K12 STEM Strategy Aligned with Post-Secondary & Economic Needs



Worked with All Sectors, including Members of General Assembly, NC STEM Advisory Panel of JOBS Commission, Governor's Education Transformation, Education Cabinet Members, Economic Development, Business & Industry, Local Education Agencies, Foundations and Community Members from across the state

North Carolina's Three STEM Priorities

Priorities

Increase STEM Achievement

Build Public Understanding & Support

Align Public & Private Resources

NC Statewide K12 STEM Strategy Aligned with Post-Secondary & Economic Needs

Priority	Goals	Recommended Strategies
Increasing STEM Achievement	Increase student interest in STEM fields and in continuing their education Increase STEM Achievement of K-12 students Increase the graduation rate of students in STEM programs Decrease postsecondary remediation rates Increase the number of teachers prepared and delivering integrated STEM education	***1. Adopt defined list of STEM Attributes*** ***2. Create Measurable Goals & Indicators*** ***3. Identify High-Quality Tools & Supports for Schools & Districts*** ***4. Design a STEM Designation*** ***5. Increase STEM Educator Development***
Build Community Understanding and Support	Increase community understanding, awareness, and support for the economic challenges. Increase the connections, partnerships, and growth of high-quality programs, schools, and tools	***6. Launch a Public Awareness Campaign on STEM*** ***7. Identify and Convene Best Practices*** ***8. Host a One-Stop STEM Web Portal***
Align Public & Private Resources	Increase returns on public and private investments in STEM education Align & coordinate the investments of public & private sector partners to scale high-quality programs efficiently	***9. Invest Public & Private Funds*** ***10. Designate & Fund a Public/Private Partner*** ***11. Incentivize Collaborations*** ***12. Name a Statewide STEM Council***

Endorsed by General Assembly Legislative JOBS Commission, Oct 2011;
Adopted by NC State Board of Education, Nov 2011

North Carolina STEM Learning Network

- Designed to keep North Carolina in a leadership position in education and economic development

- Public Private Partnership to advance multiple strategies and initiatives

- Letter of Intent between NC Department of Public Instruction, NC Community College System and UNC General Administration & NC SMT Center with private sector partners to collaborate on PreK-20 STEM Strategic Initiatives

North Carolina STEM Learning Network

NC DPI, NCCCS & UNC-GA plan to:

1. Develop **K20 STEM Scorecard**
2. Develop **STEM Web Portal** (based on eLearning Commission framework)
3. Lead **Public Awareness Campaign** for Communities Statewide
4. **Network of Schools, Districts & Partners**
5. **Potential Focus Projects**
    1. Common Core Mathematics
    2. STEM Teacher Certifications

Update on National Efforts in STEM

Educate to Innovate

- White House led Initiative under President Obama
- Umbrella initiative, giving rise to Change The Equation, 100kin10, and, starting Fall 2011, design challenges, competitions, other federal led innovations with US Dept of Education

Change the Equation

- Create widespread literacy in STEM as an investment in our nation that empowers us all.
- Work with 110 Business Members to spread small # of programs, create a scorecard, lead advocacy, assist improvement of member programs/investment

STEM Connector

- Collecting & Sharing Statewide Partnerships, Initiatives and contacts
- Launching Fall 2011

Business Roundtable

Tapping America's Potential

- Increase the number of US STEM Bachelor's level graduates to 400,000 to increase American competitiveness
- Policy Advocacy, reports,and broader initiatives

100k in 10

- Collaborative movement created in response to President Obama's call for 100,000 new STEM teachers in 10 years.
- Increase Supply, Retain Excellence, Build the Movement

Other National Scope Initiatives

- STEM Education Coalition
- Innovate to Educate
- International Center for Leadership in Education
- National Governor's Assoc Ctr of Best Practices
- Teaching Institute for Excellence in STEM
- NSF ITEST

Emerging Multi-State STEM Network

DIVERSE STATES, BUT SHARED PERSPECTIVES – WITH EACH OTHER & NATIONAL PARTNERS

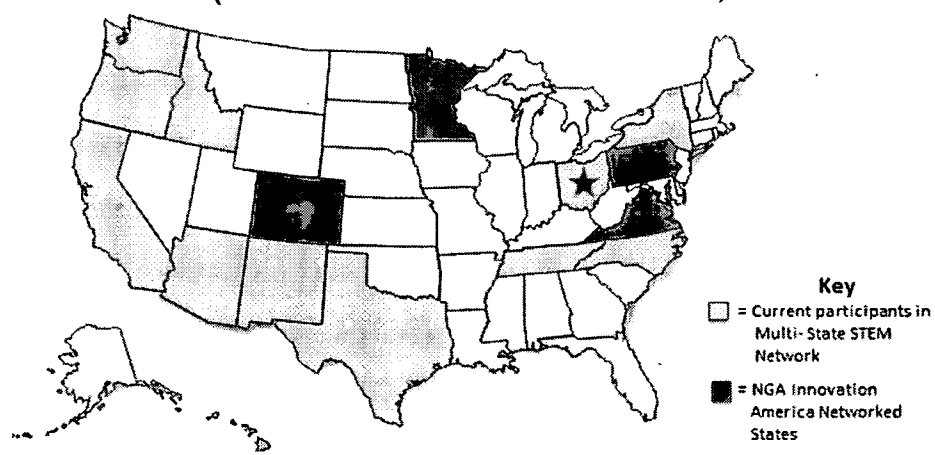
1. ***Create and launch a high-capacity, networked infrastructure charged with critical knowledge capture, dissemination, and utilization***
2. ***Build a shared agenda for student success in STEM that will support individual state needs and our needs as a country.***
3. ***Align and amplify shared messages that inspire and engage the public and policy makers in supporting student success in STEM.***
4. ***Encourage public/private partnerships that strengthen state STEM networks' ability to serve as facilitators and trusted partners to accelerate STEM student achievement.***

(Reference: White House memo, Summer 2011)

North Carolina

Part of Initial 11 Core States

Launching Later 2012



Thank You!

Dr. Sam Houston
NC Science, Mathematics & Technology Education Center
shouston@bwfund.org
(919) 991-5111

Karl Rectanus
NC STEM Community Collaborative
karl@ncstem.org
(919) 248-1107

Attributes of STEM Schools

- **Integrated STEM curriculum, aligned with state, national, international and industry standards** , including:
  - Project-based learning with integrated content across subjects
  - Connections to effective in- and out-of-school programs
  - Integration of technology and virtual learning
  - Authentic assessment and exhibition of STEM skills
  - Professional development on integrated STEM curriculum, community/industry partnerships and postsecondary education connections
  - Outreach, support and focus on underserved, especially females, minorities, and economic disadvantaged
- **On-going community and industry engagement,** including:
  - A communicated STEM plan is adopted across education, communities & businesses
  - Work-based learning experiences, to increase interest and abilities in fields requiring STEM skills, for each student and teacher
  - Business and community partnerships for mentorship, internship and other opportunities that extend the classroom walls
- **Connections with postsecondary education,** including:
  - Alignment of student's career pathway with post-secondary program(s)
  - Credit completion at community colleges, colleges and/or universities

Based on Local, State, National Research and Public feedback from 125+ Practitioners, Educators and Business Leaders

Tools Provided to Schools (Rubrics, Web Portal)

Released: 9:30 AM, FRIDAY FEBRUARY 24, 2012

Editorial Contact: Mark Ezzell: (919) 606.7584 or mezzell@ncstem.org

SMT

North Carolina Science, Mathematics, and Technology Education Center

State leaders hail launch of NC STEM Learning Network

Network focuses on coordinating, advancing STEM for all North Carolina students

RESEARCH TRIANGLE PARK, N.C. (Feb. 24, 2012) – Students across North Carolina will see a boost in science, technology, engineering, and mathematics (STEM) education under a new initiative launching March 1. The NC STEM Learning Network will bring together the state's education systems and private sector to give North Carolina a vehicle to coordinate the many efforts of government, educators, and businesses to advance STEM education.

"North Carolina has amazing STEM resources that will benefit students at all levels, but we need to do a better job of coordinating and sharing these resources," said Dr. Sam Houston, president of the N.C. Science, Mathematics and Technology (SMT) Education Center. "Through this network, we can share the best efforts throughout the state and solicit businesses, agencies, and others to help prepare students for skilled jobs in a rapidly-changing environment."

The SMT Center will coordinate the efforts of the NC STEM Learning Network, which previously operated as NC STEM Community Collaborative, and help guide the implementation of a statewide strategic plan developed in 2011 to better coordinate STEM education initiatives with a goal of increasing student achievement, community involvement, and corporate support for STEM education. This plan was endorsed by the State Board of Education after vetting through the Joining Our Businesses & Schools (JOBS) Commission, and has the support of the state's education systems including UNC General Administration, N.C. Department of Public Instruction (NCDPI), and the N.C. Community College System.

"The key to our state's economic future is a workforce trained in the skills today's businesses require. The NC STEM Learning Network is a unique collaboration that will efficiently take STEM resources statewide and encourage the business community to join us in advancing STEM education for all North Carolina students," said Lt. Gov. Walter Dalton, chair of the JOBS Commission, which early last year called for developing a statewide STEM strategy.

The NC STEM Learning Network's immediate plans to start include assisting NCDPI to develop a network of schools and districts to adopt cutting-edge STEM education programs and trainings as well as creating a web portal allowing citizens to learn about and connect with STEM education resources in their community, developing quality standards for STEM education and tools to help schools meet those standards, including professional development for teachers; and creating more public awareness of the essential role STEM education plays in the economic vitality of communities.

####

(Additional Quotes from Leaders, Page 2)

About NC STEM Learning Network

NC STEM Learning Network is North Carolina's network of schools, programs and partners aligning K20 STEM education efforts with the state's economic needs. Facilitated by the NC Science Mathematics & Technology Education Center, The North Carolina Department of Public Instruction, NC Community College System, and UNC System are working with private partners to ensure all students have the STEM skills to improve the economy.

Copyright © 2012 NC STEM Learning Network. All Rights Reserved.

Editorial Contact: Mark Ezzell: (919) 606.7584 or mezzell@ncstem.org

---

Additional Quotes Available for Use

"This network can help us build on the progress we have been making in science, technology, engineering and mathematics. Our goal is to bring together local school systems, businesses, and STEM resources for use in the classroom."
Dr. June Atkinson
State Superintendent of Public Instruction

"The North Carolina Community College System was created nearly 50 years ago on a foundation dedicated to the highest level of workforce training and education. Today, more than ever, STEM skills are vital to keeping our state's workforce globally competitive. Through the NC STEM Learning Network, our community colleges will be better able to help businesses and students succeed by connecting to our educational and private-sector partners across the state."
Dr. Scott Ralls
President of the North Carolina Community College System

"We all know that to compete effectively in the global economy, North Carolina and the nation desperately need more scientists, engineers, mathematicians, and technology experts. Our UNC campuses are fully engaged in attracting more students to these critical fields and preparing them for successful careers. We hope the NC STEM Learning Network will enable North Carolina to better coordinate existing efforts to advance STEM at all levels of education and help attract needed external resources to the cause."
Tom Ross
President, UNC System

"In today's digital, globally-connected economy, employees with STEM skills and education are frequently essential to business success. The NC STEM Learning Network has great potential as a collaborative approach that will enable North Carolina to effectively and efficiently meet the STEM needs of students of all ages. This initiative is carrying on our state's long heritage of public-private cooperation to capitalize on opportunities and move us forward into the future."
Cynthia Marshall
President of AT&T North Carolina and Past President of the NC Chamber

Online Resources

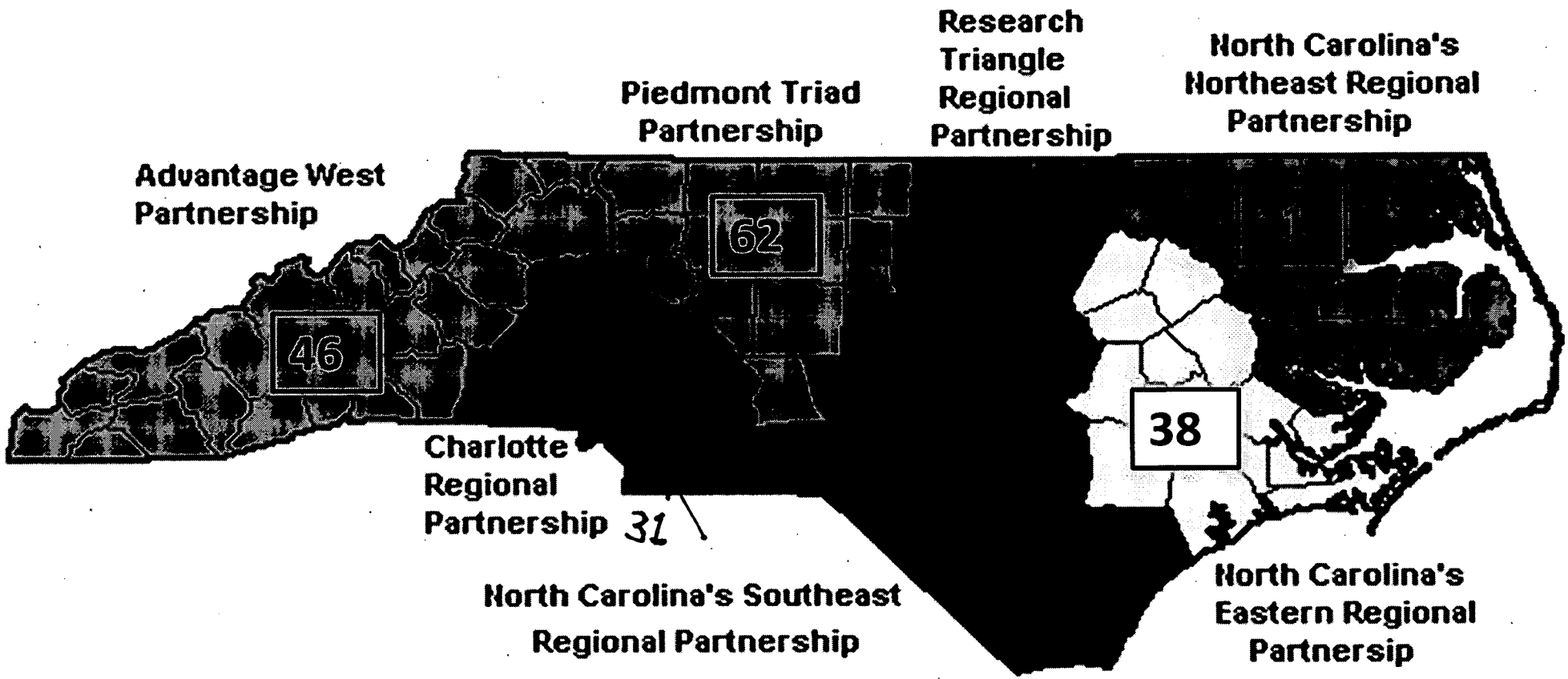
SMT Center: http://www.ncsmt.org/
NC STEM: http://www.ncstem.org
Social: (Twitter) @ncstem (Facebook) http://www.facebook.com/NCSTEM (YouTube) http://www.youtube.com/ncstem
Questions? Please contact us for more details.

Keywords and Tags

NC STEM, SMT Center, North Carolina, STEM, STEM education, rtp, STEM in NC, education, Walter Dalton, JOBS, JOBS Commission, UNC, NCCCS, North Carolina community colleges, Scott Ralls, Tom Ross, Cynthia Marshall, nc stem community collaborative, STEM programs, science, technology, engineering, mathematics, NCDPI, news

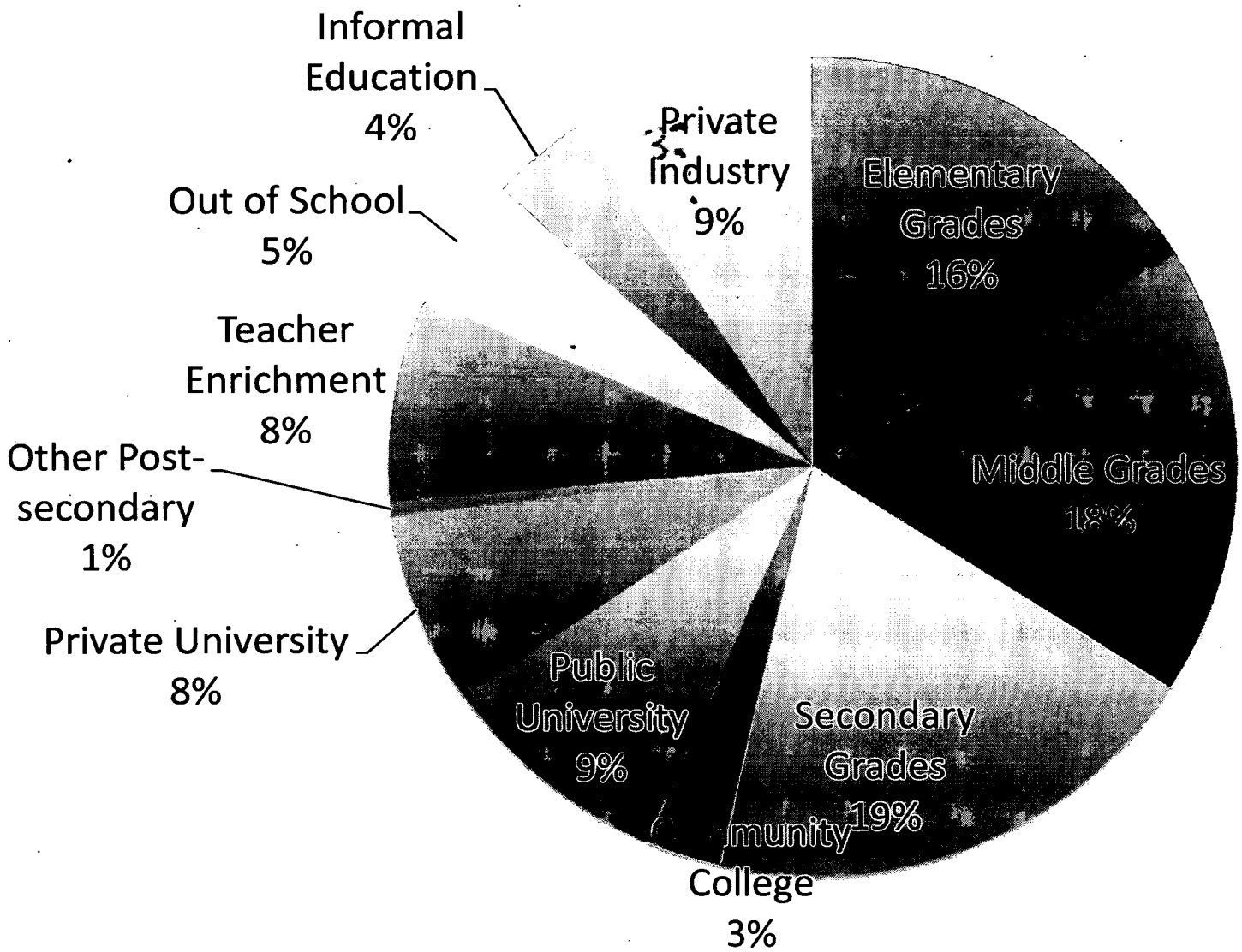
Copyright © 2012 NC STEM Learning Network. All Rights Reserved.

Assets by Economic Development Regions



All of North Carolina	270
National	137
International	34

Number of Resources by Education Level



Public Input

- Over 100 people were involved, either one on one and in sessions
- Held two sessions- initial public input session (August 2011) and design feedback session (February 2012) to gain input into web design outline

Priorities- *based on stakeholder feedback*

- Serve as "First-Stop" for Stakeholders in STEM
- True "Portal" Service Connects to Existing Resources
- Action Oriented Site
  - Find
  - Share
  - Connect
  - Learn
- Resource directory with mapping
- Do NOT house everything or rebuild existing resources
- Equitable Access (Spanish)
- Leverage Networks and Social Media (Facebook, Twitter)
- Activity Tracking to Inform Future Investments (Accountability – usage metrics on STEM, policy makers, STEM Strategies)

Functions- *based on stakeholder feedback*

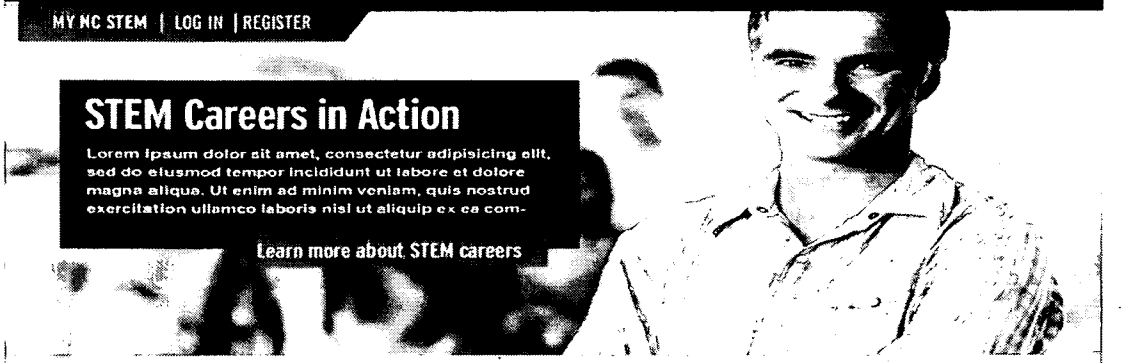
- Searchable Database of Access Points for STEM resources
- Visual Mapping
- Calendar (content push, notification based on profile)
- Multi Language
- Link to Learning Object Repository and Other Databases of STEM Resources
- Social Media
- RSS Feeds (filter)
- Content push based on registration profiles
- Tag Cloud (page by page or "Find" Page)

NC STEM

NC STEM INTRANET | HELP | SEARCH

HOME LEARN FIND SHARE CONNECT

MY NC STEM | LOG IN | REGISTER



STEM Careers in Action

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea com-

Learn more about STEM careers

STEM ACTIVE

Tours
Youtube videos
virtual field trips
career exploration

Calendar
Collection of events and activities
scheduled across

Partners
Parade of support and contributors
Levels of contribution

Opportunities
Grants
Solicitations for Proposals

STEM NEWS & ANNOUNCEMENTS

STATE | 1/27/2012

2011: A Note on STEM's Breakthrough Year

[illegible] STEM [illegible] North Carolina [illegible] year. [illegible] school districts and others have advanced STEM education significantly, but these advancements have not always been coordinated with one another.

NATIONAL | 1/27/2012

NCDPI hosts STEM conference call

More than 100 educators from across the state participated in a webinar on Thursday to provide updates on tools and activities to advance STEM education in North Carolina.

STATE | 1/27/2012

New tool available to help schools improve STEM programs

A free downloadable rubric has been developed to help educators in North Carolina determine the steps needed to develop quality science.

STEM JOBS

Lorem ipsum dolor sit amet, con sectetur adipisicing elit, sed do eiu

Smod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad

Minim veniam, quis nostrud exercita tion ullamco laboris nisi

A MESSAGE FROM THE LT. GOVERNOR

Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Next Steps

Assets

- We will continue to accumulate assets through the use of our existing surveys.
- These assets will continue to be located and updated as long as new information is available.

Web Portal

- A final design document will be completed this month- will outline the technical requirements/consideration s for building the site. Will work with stakeholders to develop resources for building phase.

Volunteer Network Connecting School Needs with the Business Community (WCPSS Pilot Program)

JOBS Commission

February 28, 2012

Collaboration Surfaces a Timely Idea

JOBS Commission visited all regions of NC

- Similar request from every region: Need easier way to connect community volunteers with schools

Institute for Emerging Issues Business Subcommittee

- Recommended development of a web Site to connect volunteers with schools

NCBCE facilitated connection to resources

- Introduced "Volunteer Match" as a viable option

Wake County Public Schools

- Superintendent requested an "Easy Button" to connect volunteers with schools
- Currently redesigning web site
- Demonstration of "Volunteer Match"
- Customized options for addressing barriers
- Decision to move forward and seek funding for pilot with statewide implications

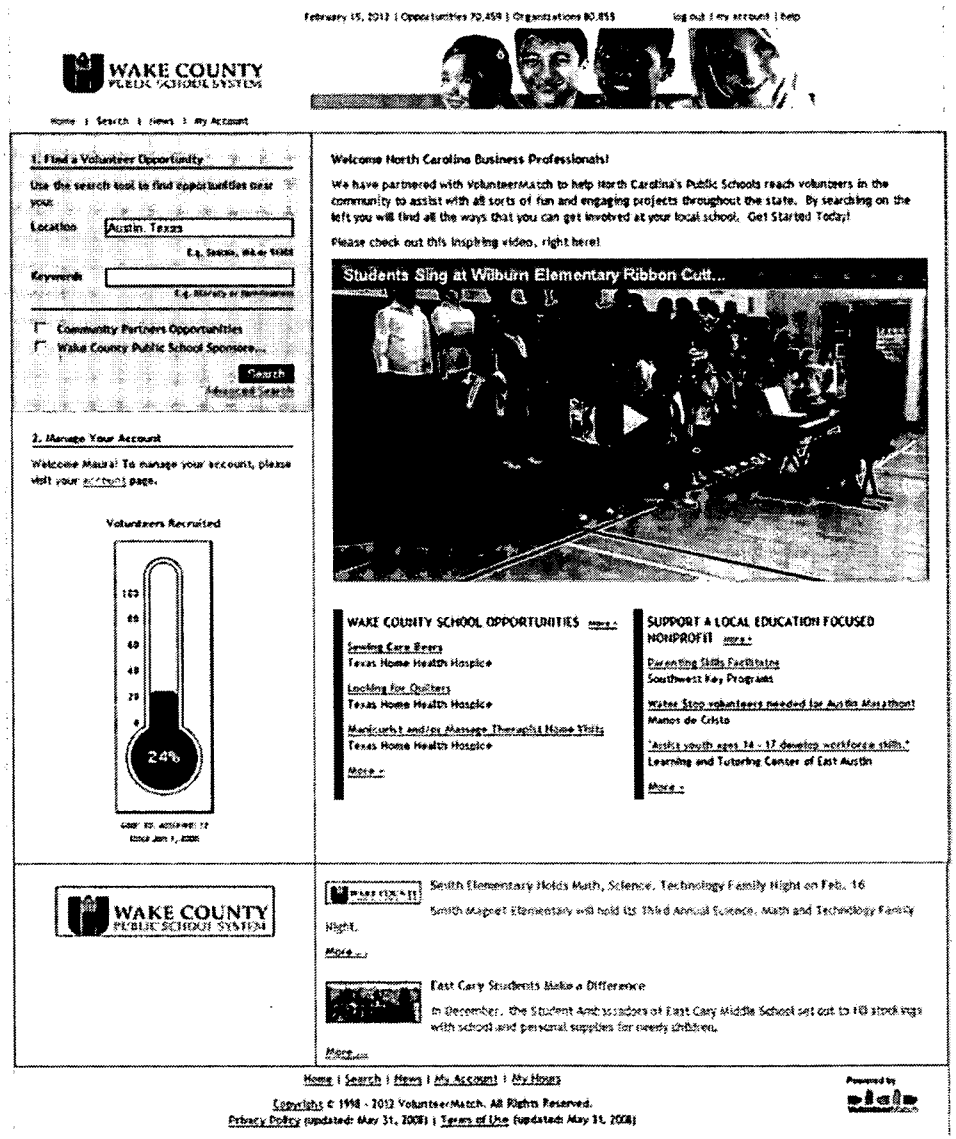
2010 IEI Forum on Creativity

From the 2010 Forum on Creativity came the Business Committee on Creativity working group which recommended:

- Business and K-12 Education must create an online network designed to make direct connections between educators and business
  - Educators would post specific needs and local businesses connect directly with educators on the resources they provide.

Branded Volunteer Site

VolunteerMatch.org
Where volunteering begins.

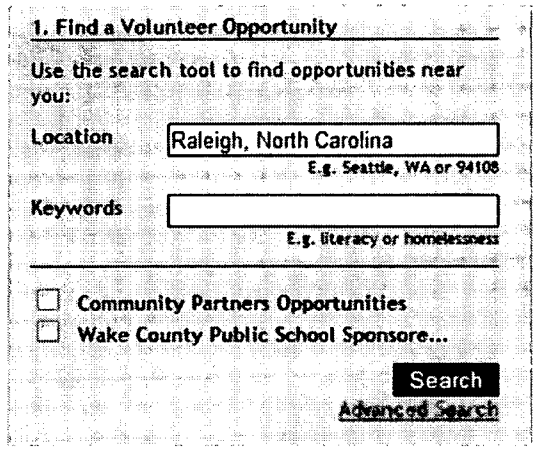


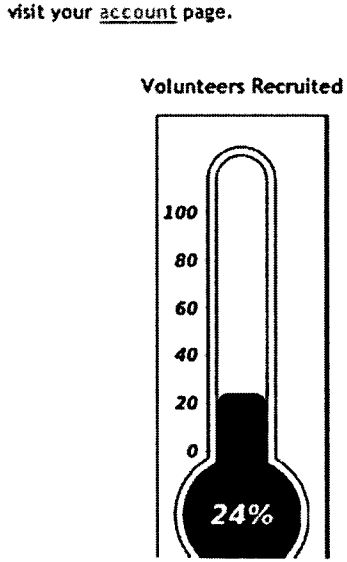
VolunteerMatch
Solutions

Search and Match Volunteers with Opportunities Posted by Schools

VolunteerMatch.org
Where volunteering begins.

Find a Volunteer Opportunity by **location** and **keyword**





- Volunteers search for opportunities with schools uploaded in Preferred Partnership Program only. Volunteers can search by keyword, skills, school name, and location
  - Simplified and powerful search for volunteer opportunities

VolunteerMatch *Solutions*

Confidential and Proprietary

Volunteer / User Search Results

- Result provide detailed project listings from schools, allowing the user to find the perfect match
  - Description, skills needed, requirements, event dates, and location
- Provide Individual Volunteer Accounts to manage participation (hours tracking, feedback, etc.)

Program Administrative Tools

- Custom Report Manager – View organization wide volunteer activity in real time
  - Filter by volunteer date
  - Hours tracking
  - Opportunity / Project Filters (ex. STEM)
- Save, print, export to excel report results

Cost to School District / Year

Preferred Partnership Program

- Volunteer Recruitment Solution for us to 200 NC Schools, Training and Support, Monthly reporting

$12,500/year

Campus Volunteer Tools

- Up to 20,000 Registered Members, Personal Accts, Search & Match, Group Invite, Hours Tracking, Hosting & Maintenance End user Support

$7,500/year

Total: $20,000/year

Wake County = 165 schools

Translates to $121/year per school

Cost to Implement Statewide

Preferred Partnership Program

- Volunteer Recruitment Solution for us to 200 NC Schools, Training and Support, Month reporting $12,500/year
- Each additional block of 100 schools above 200 $2,500/year

Approximately 2,600 schools statewide = $72,500/year

Campus Volunteer Tools

- Up to 20,000 Registered Members, Personal Accts, Search & Match, Group Invite, Hours Tracking, Hosting & Maintenance End-user Support $7,500/year
- **Each additional block of 10,000 members above 20,000 $500/year**

Approximately 500,000 members/volunteers statewide = $31,500/year

Total Statewide = $104,000/year (estimated)

Statewide= 2,524 schools

Translates to $42/year per school

Questions

VALLEY ACADEMY

YADKIN VALLEY REGIONAL CAREER ACADEMY

Overview/Status Report – February 28, 2012

North Carolina JOBS Commission

The Yadkin Valley Regional Career Academy is a bold, multi-county regional initiative to re-invent high school around students' career interests, a rigorous core curriculum integrated with relevant work and community experiences, and innovative uses of technology that result in graduating all students ready for careers and post-secondary education that support the evolving economic needs of the Piedmont Triad Region. The objective of the academy is to develop the globally skilled workforce needed to supply the growth industries of the area. The academy is also a research and development resource to assist high schools in partnering districts in developing innovative, career-relevant curriculum, instructional approaches and uses of technology that will increase graduation rates and post-secondary success in careers and further education. The academy, very different from traditional secondary instruction, is based on contextual and Project Based Learning, student centered instruction where students learn entrepreneurship, responsibility and future-ready work skills in an industry relevant, team driven environment supported by technology. The initial career paths of the academy will be global logistics, advanced manufacturing /aviation, and medical informatics. The core values of the academy include:

- STEM (Science, Technology, Engineering and Mathematics)
- Entrepreneurship/Intrapreneurship
- 21st Century Work Skills

Two secondary areas of focus include:

- Wellness/Healthy Lifestyle
- Innovation/Creativity/Design

The academy curriculum is designed to increase the rigor and relevance of STEM-related core academic content through integration with industry-relevant technical applications and technologies. Curriculums are developed with the intent of the student attaining a minimum of an associate degree at one of the supporting community colleges or up to two years advanced standing in a four year degree program. Students will have the opportunity to earn 30 or more hours of post secondary credit during their academy experience. The academy will include an internship programs during year 11 and year 12, as well as a variety of career-relevant curricula, job shadowing, career orientation and mentoring supported by business and community partners. Depending on the chosen career path, flexible schedules may include 3 or more days of academy instruction or relevant online learning, accompanied by multiple days of an active industry internship.

Valley Academy Status – 2/28/2012

South Campus Opening August, 2012

Classic 1930 school building in central Davidson County

- Building preparation underway
- Student shuttle plans developed
- 4 miles from Davidson County Community College
- Technology center for Davidson County Schools

CEO (Principal) hired – Currently recruiting staff

North Campus Opening August, 2013

Design Concept: The basic instructional concept of the Academy is patterned after career instruction of Scandinavian countries including Finland and Sweden. Students will spend their first two years building a strong foundation in STEM, 21st century skills and entrepreneurship while being involved in career exploration visiting and observing these three career areas. In the third year, students will choose one of the three pathways for focus. These later years will include extensive community college courses, internships in year 3 and year 4, and career related project work.

Instructional Model: The instructional model is a contextual, project based model where academic and technical knowledge is delivered as part of a team based project approach developed around real-world community and business issues.

Admissions/Selection: The target academic population of the Academy is the middle 70% of students. Further, the objective is to attain a population 80% of which are first generation college attendees.

Marketing: Marketing development is being addressed by a professional marketing group who is in the process of developing a new website for the school. On the advice of the group, the steering committee has developed a more marketable name for the school that will be Valley Academy. Community marketing has been heavily focused on the first quarter, 2012, as March will be the month to invite student applications.

Governance: The initial governance model for the school is based on MOU between participating school systems. There are currently four systems involved with the MOU agreement: Davidson, Surry, Lexington and Thomasville. Several other systems are considering involvement. While legally being an entity of the "host" system, the school will be led by an "advisory council" similar to the board model under the SB125 legislation. Additionally, there will be a "business coalition" that will include many regional businesses. The SB125 model will be monitored to determine if this can be potentially applicable for future use.

Primary Challenge: Cooperative and Innovative Classification - This classification is needed to provide for critical staff positions and the necessary access to community college classes to fulfill the objectives of the school.

Draft YVRCA Proposed Course of Study

9th GRADE YEAR 1:"Big Idea:" How will technology shape our FUTURE?

Now It's Up to You: How can your generation resolve Global Challenges? 1. **Core Plus I** (math) paired with but providing sequence for science continued year long and 2. **Integrated Physical Science** (physics, chemistry, space and life sciences) Possible Global Challenges? Provide access to clean water; Develop carbon sequestration methods	
Looking for an Argument? Truth, Lies and Fiction in Advertising and Debate **3. English 9** and *Social Media for Fun and Profit: Responsibility & Risks* Grand Challenge: Advance Personalized Learning or Secure cyberspace? **4. Microsoft Word, Powerpoint & Publisher** (CTE) articulated dual credit for CIS 110 or 115 college credit if demonstrate proficiency *Thinking Like an Entrepreneur* **5. Principles of Business** (CTE) articulated dual credit for BUS 125 college credit, crucial foundation for later economics classes, includes **seminar/field experiences & project-based learning**	
Building a High Performing, Healthy Team & Lifestyle *6.* **Health & Physical Education** integrated with Wake Forest Baptist Medical Center - health & daily exercise/activities for students & staff	

10th GRADE YEAR 2: "Big Idea:" How can WE use technology to shape OUR community and our world?

Live Long and Prosper: How can technology help us live longer and better? 1. **Core Plus II** (math) paired with but providing sequence for science continued year long	
2. **Biology** (integrated with **Biomedical Technology:** cells, disease, structure of body systems and medical inventions) Grand Challenges: Advance health informatics; Engineer better medicines	3. **AP Environmental Science** (possible use of Investigations in Environmental Science?)
Re-designing our Lives: How can we design solutions that could impact a billion people? Economic development, conflict and culture clash/change 4. **English 10** (world literature) and *How Do We Design Elegant Solutions?* To introduce design process applied to engineering, health informatics and Grand Challenges 5. **Technology/Engineering & Design** or **Scientific Visualization I** + **seminar/field experiences & project based learning**	
6. **World History** *how has science & technology impacted societies and current global issues?* Grand Challenge: Preventing nuclear terror	*7.* **Civics & Economics** *How can technology help revitalize our communities?* Grand Challenge: Restore & Improve Urban Infrastructure

11th GRADE YEAR 3: "Big Idea:" Where Can I Make a Difference?

How Does Technology Work? (Global Challenge: Engineer the Tools of Scientific Discovery) 1. **Core Plus III** (math) paired with but providing sequence for science continued year long 2. **Chemistry** or **physics** (with **possible college chemistry or biology** in spring semester)	
Think Globally, Act Locally: How Can We Make a Difference in our Own Community? Connecting Economic & Health Issues Grand Challenges: Restore and improve urban infrastructure & Advance health informatics 3. **English 11** American lit and **ENG 111** Expository Writing or Technical course	
4. **AP US History** how has our past led to the challenges we face now?	
Thinking Like an Entrepreneur Grand Challenges: Restore and improve urban infrastructure & Advance health informatics? *5.* **Entrepreneurship I** CTE seminar + **10 week internship:** (taught by business & career counselor) plus **college** transfer or technical class	*6.* **college** transfer or technical class
7. **Spanish I**	

12th GRADE YEAR 4: "Big Idea:" Choosing Where I Can Make a Difference

How Can We Make a Difference in our Own Community? Connecting Economic & Health Issues Grand Challenges: Restore and improve urban infrastructure & Advance health informatics? *1.* **English 12** and **college ENG 114** Writing for Research or Communications (college credit) or **Technical class**	
Using Data to Make a Difference (Global Challenge: Engineer the Tools of Scientific Discovery) 2. **Core Plus IV** (pre-engineering or pre-college algebra)	
3. **College class** specific to degree	*4.* **Math 155 Statistics** or **College Biology** or Technical **college class** or **virtual business**
5. **Spanish II**	
Thinking Like an Entrepreneur Grand Challenges: Restore and improve urban infrastructure & Advance health informatics? *6.* **Entrepreneurship II:** CTE seminar + 16 week internship or apprenticeship and **college class**	*7.* ***College transfer or technical class*** or **virtual business**

Northeast Regional Biotechnology/Agri-science School

A STEM Early College

- Regional, five-county partnership;
- Goals:
  - Establish highly innovative STEM school;
  - Support statewide biotech STEM network;
  - Provide professional development to teachers across the region in STEM strategies
- Board of Directors selecting principal
- Target 60 ninth graders in year one (2012)
- Add 60 seventh graders in year two (2013)
- One-to-one computing; tech integration
- Golden LEAF Foundation and other foundation to provide start up support

JOBS Commission Overview 2009-2012

The JOBS Commission was authorized by S.L. 2009-339 and charged with studying issues related to economic development through innovative schools where instructional program frameworks reflected high academic standards required of students to be successful in transitioning to postsecondary education and future careers.

Pursuant to its charge, the Commission began its work in the fall of 2009 and spring of 2010 by visiting each of the seven economic development regions of the State. As part of each visit, the Commission held a public hearing and solicited input from leaders in business, economic development, education, and government. Members heard about the unique strengths of each region as well as the region's specific employment and workforce preparation needs. The Commission received recommendations from the economic development regions on career clusters of importance to each region.

In its 2010 Interim Report to the North Carolina General Assembly, the JOBS Commission recommended the creation of the following:

- A biotechnology and agriscience focused regional school in the Northeast Region.
- A language and global studies focused school in the Southeast Region.
- A STEM focused school in the Research Triangle Region.
- Pilot programs focused on health sciences in the Eastern, Western, and Charlotte Regions.
- A pilot program focused on transportation, distribution, and logistics with a focus on Aerospace in the Piedmont Triad Region.
- A pilot program focused on manufacturing with a focus on advanced manufacturing in the Western Region.

As part of the 2010 Interim Report, the Commission also recommended legislation to create regional schools, to make members of the State Board of Education ex officio members of the boards of the economic development regions, to provide more flexibility for cooperative innovative high schools, and to include five-year career academies as a type of cooperative innovative high school. The Commission's STEM Community Collaborative Advisory Committee also encourages investment in STEM programs and expansion of STEM Communities, and recommended legislation to close the STEM gap.

The Commission continued its work in the fall of 2010 and spring of 2011, including receiving updates on pilot development and new models being created around the State, further exploration of issues concerning governance for a regional school model, and additional work on issues related to STEM education.

In the 2011 Interim Report, the Commission recommended continued work on the Wake County - NC State University STEM Early College High School in the Research Triangle Region and

the Cumberland International Studies Early College High School in the Southeast Region, and also recommended that a Statewide STEM visioning plan be developed. The Commission also encouraged the development of the Yadkin Valley Regional Career Academy and Contemporary Science Center. The Commission proposed legislation to develop a regional high school model and to add the Superintendent of Public Instruction as a member of the North Carolina Economic Development Board.

As a result of the JOBS Commission's recommendations and legislative proposals, a number of innovative, career-focused high schools have opened. The Wake-NCSU STEM School and Cumberland County Early College High School for Language, Culture and Diplomacy received planning funding from the General Assembly and opened in the fall of 2011. S.L. 2011-241 was enacted enabling the establishment of regional high schools, and the Northeast Regional High School of Biotechnology and Agriscience is currently in planning and will open in the fall of 2012. The Yadkin Valley Regional Career Academy will also open in the fall of 2012. Cooperative and innovative high schools were also granted greater flexibility through S.L. 2010-182.

Increased communication between leaders in education and economic development has also been achieved through the enactment of S.L. 2010-184, placing members of the State Board of Education on the boards of the economic development regions, and S.L. 2011-121, adding the State Superintendent of Public Instruction to the North Carolina Economic Development Board. S.L. 2010-41 directed the Education Cabinet to set STEM education prioritizes. Work has continued on a Statewide STEM visioning plan that aligns with post-secondary and economic needs, with the NC STEM Learning Network now under development.

It would be a shame not to continue forward with this important work.

JOBS Commission Meeting

Tuesday – February 28, 2012 - 1-3 pm
Legislative Office Building – Room 544, Raleigh, NC

1:00 pm ***Welcome & Introduction of New Legislative Members***

1:00 pm ***NC STEM Learning Network***
Sam Houston, President – NC SMT Center
Karl Rectanus, Leader - NC STEM Community Collaborative

1:20 pm ***NC STEM Learning Network – STEM Web Portal***
Stephanie Wright, JOBS STEM Community Collaborative Advisory Panel Intern
Alfred Mays, Web Design Consultant

1:40 pm ***Yadkin Valley Regional Career Academy***
Barry Sink, Co-Chair of Steering Committee - YVRCA

2:00 pm ***Education & Business Match – Wake County Pilot***
Kendall Hageman, Education Program Manager – IEI / NC State University
Judy Peppler, Chief Transformation Officer / Chief of Staff - Wake County PSS
Caroline McCullen, Director Education Initiatives – SAS

2:15pm ***Northeast Region Agriscience & Biotechnology School***
Dr. Tony Habit, President - NC New Schools Project

2:25 pm ***Hospitality & Tourism Early College High School***
Alyssa P. Barkley, Executive Director - NC Hospitality Education Foundation

2:35 pm ***Committee Discussion***
Kara McCraw, Legislative Counsel

KARA
2009-12

ADJOURN

Print Shop

From: Jesse Mitchell (Printing Services)
Sent: Monday, February 27, 2012 8:27 AM
To: Print Shop
Subject: FW: JOBS Commission
Attachments: JOBSUpdate_022812_StrategyNetwork.ppt

From: Ted Harrison (Sen. Daniel Clodfelter)
Sent: Friday, February 24, 2012 04:15 PM
To: Jesse Mitchell (Printing Services)
Subject: FW: JOBS Commission

And 50 copies of this one, also. Same sort of time frame, please.

From: Reynolds, Kimberly N [mailto:kimberly.reynolds@nc.gov]
Sent: Friday, February 24, 2012 04:06 PM
To: Ted Harrison (Sen. Daniel Clodfelter)
Cc: Kara McCraw (Research)
Subject: FW: JOBS Commission

Please make copies and add to GA computer for JOBS Commission on Tuesday.

I'll send others as soon as I get them.

E-mail correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties by an authorized state official.

Print Shop

From: Jesse Mitchell (Printing Services)
Sent: Monday, February 27, 2012 8:27 AM
To: Print Shop
Subject: FW: JOBS Commission
Attachments: VERSION_NEWS_StateLeadersHailSTEMLearningNetwork_02242012.pdf

---

From: Ted Harrison (Sen. Daniel Clodfelter)
Sent: Friday, February 24, 2012 04:15 PM
To: Jesse Mitchell (Printing Services)
Subject: FW: JOBS Commission

Please run 50 copies of this. I'll get them Monday afternoon about 2. Thanks, Ted.

From: Reynolds, Kimberly N [mailto:kimberly.reynolds@nc.gov]
Sent: Friday, February 24, 2012 04:06 PM
To: Ted Harrison (Sen. Daniel Clodfelter)
Cc: Kara McCraw (Research)
Subject: FW: JOBS Commission

For copies and uploads.

E-mail correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties by an authorized state official.

Print Shop

From: Jesse Mitchell (Printing Services)
Sent: Monday, February 27, 2012 8:27 AM
To: Print Shop
Subject: FW: JOBS Commission
Attachments: VERSION_NEWS_StateLeadersHailSTEMLearningNetwork_02242012.pdf

---

From: Ted Harrison (Sen. Daniel Clodfelter)
Sent: Friday, February 24, 2012 04:13 PM
To: Jesse Mitchell (Printing Services)
Subject: FW: JOBS Commission

From: Reynolds, Kimberly N [mailto:kimberly.reynolds@nc.gov]
Sent: Friday, February 24, 2012 04:06 PM
To: Ted Harrison (Sen. Daniel Clodfelter)
Cc: Kara McCraw (Research)
Subject: FW: JOBS Commission

For copies and uploads.

E-mail correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties by an authorized state official.

Pam Townsend. 2/28/2012

I am concerned about the sunsetting of the JOBS Commission, and how this important work will be monitored, and supported and continue.

I am an engineering practitioner, not in the education field.

I have been so impressed with the results of this JOBS Commission

Because of this Commission, and the leadership and encouragement of ~~Walt~~er Dalton, we are making a huge step forward in the State of North Carolina in getting kids interested in STEM and Engineering, so are kids can be competitive in this global economy.

Specifically,

We opened up a new ncstate/wake county high school, ribbon cutting last fall, focused on the National Academy of Engineering Grand Challenges. Solving the Grand Challenges of the world are the hook to get kids interested in STEM, including under represented kids. Kids want to make a difference.

We held a workshop to develop concepts on how to scale this new high school model across the state. The workshop particants included Randy Atkins, from the National Academy of Engineering.

We are developing new engineering process standards for K-12.

And now we have been asked to develop a abstract for a presentation to the World Engineering Education Forum to be held in Argentina to showcase our work next fall.

So because of the JOBS Commission and the leadership of the Lt. Governor, we have begun to make a huge difference in K-12 STEM education, through out the State, and I am not overstating to say, far beyond.

I hope strong consideration will be given to how we go forward, including perhaps the nonpartisan North Carolina Committee for Business Education.

JOBS Commission Meeting

October 11, 2011

Room 544 – Legislative Office Building

2:00 pm Welcome / Opening Remarks
Lt. Governor Dalton

2:05 pm 2011 Legislative Update
Sen. Harry Brown

2:10 pm Business Engagement Guide Overview / Next Steps
Caroline McCullen, Director - SAS Education Initiatives

2:25 pm Institute for Emerging Issues – Creativity Inc – Social Media Site
Diane Cherry – Environments Policy Manager, IEI

2:35 pm Updates on JOBS Commission Supported Schools
(5 mins) Hospitality & Tourism - Alyssa P. Barkley / NC HEF Executive Director
(2 mins) Five – Year Finance Academy - Kimberly Reynolds
(15 mins) Northeast Regional Ag-Bio School - Dr. Marshall Stewart
(15 mins) Cumberland International Early College High School – Lavette Alston – Principal / Valeria Torres-Colon –student
(20 Mins) Wake / NC State University STEM Early College, Rob Matheson - Principal

3:35 pm STEM Statewide Strategic Plan
NC Superintendent of Public Instruction, Dr. June Atkinson

3:50 pm Race to the Top STEM Anchor Schools and Network Clusters
Dr. Dana Diesel Wallace, NC New Schools Project

4:10 pm JOBS Commission Discussion & Next Steps
Whole Commission

djourn

MINUTES

THE JOINING OUR BUSINESSES & SCHOOLS (JOBS) COMMISSION

Tuesday, October 11, 2011 2-5 p.m.

LEGISLATIVE OFFICE BUILDING, ROOM 544

The Joining Our Businesses and Schools (JOBS) Commission met on Tuesday, October 11, 2011 at 2 P.M., Room 544 of the Legislative Office Building. Lieutenant Governor Walter Dalton presided. *(SEE ATTACHMENT: Members and Visitors Attending.)* The Lt. Governor welcomed the members of the Commission, and he welcomed Jean Woolard, Patricia Willoughby and Marshall Stewart and thanked them for their help with the Commission. He thanked Sen. Brown and the absent Rep. Glazier for the work in the recent legislative session carrying through objectives the Commission sought.

On motion of Sen. Lee and second from Dr. Murphy, the minutes for the meetings of January 25, 2011, April 19, 2010 and March 29, 2010 were approved.

Senator Brown brought the Commission an update of the 2011 Legislative Session. He cited the addition of 1100 teachers for grades 1-3, a Performance Bonus Package of $21 million, and Intensifying the Reading Skills Program. Of special interest for the Commission was the Regional Schools bill which has a direct effect on the Agri-Science School in Northeastern North Carolina. He expressed the hope that this bill would break down some of the county line barriers that can stymy such efforts which can join low wealth counties with wealthier counties for mutual benefit. That effort involves 5 counties. The bill allows other counties to join. He said the $200,000 recurring money was appropriated for the two Learn and Earn Early Colleges despite the tight budget.

He expressed hope that the past budget was the "bottom" and that the economy would improve.

He said he appreciated the work of the Commission, saying a lot of people didn't know a lot about the Commission and that members might be under-appreciated.

The Lt. Governor thanked Sen. Brown and Sen. Hartsell for their work. He said the Northeast Regional School could be a model for greater things to come. He reiterated thanks to Jean Woolard and Marshall Stewart for their work. He said the involvement of North Carolina State University and Avoca Farms added additional credibility to the Agri-Science project.

He cited the addition of members of the State Board of Education on the regional economic development boards as another bill the Commission supported and saw pass.

PRESENTATIONS

Caroline McCullen, Commission member and Director of Education Initiatives for SAS, presented the Business Engagement Guide, an outline of ways for businesses to join with schools. *(SEE ATTACHMENT: Business Engagement Guide)* Some of the issues address how business might be able to become involved with experience-based activities involving students. This would also give teachers an idea how to be involved with businesses. The idea of calling this a "plan" was changed so that the document would not be telling either side how they must do something.

She said this was compiled from existing materials and sites. She said many of the business contacts were not aware of the information available from the Department of Public Instruction website, or that the site existed.

Step one, they decided, would be to develop a strong business advisory board. This came from the people they interviewed and met.

Ms. McCullen said that project-based learning experiences would be helpful for furthering the development of the guide.

She asked the opinions of the Commission members on the value of such a guide, what should be included or excluded, what form should such a guide take: website(s), booklet, etc., how to disseminate such a guide, and how to update.

She also questioned the connection, if any to the social media system being developed by the Institute for Emerging Issues. *(See Below)*

Mr. Beichner asked how feedback should be made. Kimberly Reynolds on the Lt. Governor's staff was designated as the recipient.

Dr. Harrison asked how to prevent duplication with any other such efforts, i. e. Students at Work. Ms. McCullen said perhaps the information might fall into that organization's purview. She said the sub-committee who had developed this draft definitely did not want to duplicate any efforts. Dr. Houston said it seemed that as the work of the JOBS Commission continued that there would be the need to keep things in one place. However, he said that the Commission might show a link to the State Board of Education and efforts in place there.

Ms. McCullen closed giving additional thanks to the group that worked on the guide.

Lt. Governor Dalton noted that there is a STEM website being developed and said that a graduate student, Stephanie Wright was working on that site. Ms. Wright was at the meeting.

Diane Cherry, Environments Policy Manager for the Institute for Emerging Issues (IEI) brought the Commission the efforts for a social media connection being developed by the IEI. *(SEE ATTACHMENT: Creativity.)*

Ms. Cherry said the focus of the IEI as a public policy organization is to examine North Carolina's competitiveness. One of the issues that grew out of a session on creativity was to bring together teachers and business leaders in a local geographic setting. There was a need to broaden the number of business leaders who were contacted for participation in various school projects.

She said the concept was to link teachers and businesses for short term needs. The plan is for a pilot project that could be scaled up or down based on a specific need.

Lt. Governor Dalton asked who would be able to update the information and if there were royalties that might be paid. Ms. Cherry said these are part of the negotiations to be made.

UPDATES ON JOBS COMMISSION SUPPORTED SCHOOLS

Hospital and Tourism

Alyssa Barkley, Executive Director of the North Carolina Hospitality Education Foundation, made the presentation for this school which is in the early stages of creation. The Foundation is an arm of the North Carolina Hospitality and Tourism Association. A steering committee has been created to direct the focus of the educational efforts. Those efforts will be centered on Western North Carolina, particularly Asheville-Buncombe County. That area boasts a good education system in the middle of a strong tourism section of the state.

The Foundation directs the Pro Start program, created by the National Restaurant Association to deal with training in hospitality, food service and tourism fields. This intensive job training program requires a 400-hour work experience component.

Avery County Schools and the Asheville-Buncombe County schools are supportive of the efforts to offer the sort of training the Foundation and the Association want to develop. Funding is a large concern for the future of the effort. The goal is to have the program set to go in the fall of 2013.

The Lt. Governor took this opportunity to thank Kimberly Reynolds from his staff for her work in association with the Commission supported schools.

Finance Academy

Kimberly Reynolds spoke next with an update on the 5-year Finance Academy proposal which has drawn interest from five banks in the Charlotte-Mecklenburg area, plus involvement of the Charlotte-Mecklenburg School System and Central Piedmont Community College.

A steering committee will direct the efforts and direction of this initiative.

The National Academy Foundation is also involved. This group's existing academies are 4-year schools, but they are looking to see how the experience across the country can be tapped for the feasibility and adaptability to a 5-year school, such as the Finance Academy.

The Lt. Governor said the North Carolina Bankers Association has endorsed the idea of the finance academy.

The Northeast Regional Ag-Bio School

As he proceeded to this presentation, Lt. Governor Dalton thanked Dr. Marshall Stewart from N. C. State and Dr. Bill Harrison from the State Board of Education for their work on this venture. Dr. Stewart noted the work done by Superintendent of Public Instruction, Dr. June Atkinson. State Board of Education Chairman Bill Harrison thanked Rob Hines from the Department of Public Instruction for his work with the project.

The Lt. Governor said the legislative approval indicated the way a regional school should look; such schools don't have to follow this model, but should learn from it.

Dr. Stewart began the presentation saying that regional schools were now considered "cool". The idea began about 5 years ago in Bertie County for an early college high school and that work is still going on. The JOBS Commission plans

intersected easily with those efforts and the upshot was the model for regional schools. Five school systems: Washington County, Pitt County, Tyrrell County, Beaufort County and Pitt County [Pitt is mentioned twice here] have signed on and others are expected to join later. A governing board from these five counties is getting ready to start in the next month or so. That board will hire a principal and the target for the school to start is fall 2012. Dr. Stewart went on to note that the site for the school, the Vernon James Research Station, is a cooperative operation between N. C. State University and the N. C. Department of Agriculture.

Cumberland International Early College High School

The Lt. Governor said he was proud to have attended the opening of this School in Fayetteville. He introduced Allison Violette, Associate Superintendent for Curriculum for the Cumberland County Schools who began the presentation. *(SEE ATTACHMENT: Cumberland County)* She said that about a year ago Cumberland County reported the committees were in place. Now, she said, there is a school in place. She thanked all the various people and organizations that collaborated to create the school.

Ms. Violette introduced the Principal of the school, Ms. Lavette Alston, who added her thanks for the support of the Commission. Ms. Alston said the freshman class consists of 54 students. The students chose the school colors: red and black and the mascot, The Ambassadors. As a language and global studies school, the language choices offered now are: Arabic, Mandarin Chinese and Spanish.

The North Carolina New Schools Project plays a major role in the school. All courses offered are honors level.

Valeria Torres-Colon, one of the students, is a first-generation college student. She brought her personal view of the benefits and goals she sees in the School. She possesses knowledge of English and Spanish, so Arabic is her chosen study language. Her plans are to be an OB/GYN surgeon.

The school is currently located at E. E. Smith High School.

In response to questions from Sen. Lee, Ms. Alston said the grade point average varies within the student body and that since this is a choice school, the parents are involved at the beginning and the school works to continue that involvement.

Ms. Violette said a team reviewed the applications to the school and an essay was required. Academic progress was considered, too. The goal was to have between 50 and 75 students, thus this first class rounded out at 54.

Wake/N. C. State University STEM Early College

Rob Matheson, the Principal for the school told the Commission this school had finished 45 days for the school year as of the previous Friday. (October 7, 2011) *(SEE ATTACHMENT: Wake/N. C. State STEM...)* Matheson said the school sought to reach "the under-served, under-represented, first time college-goers".

There are 55 students in this freshman class. Currently the school is located in the creative services building, which did house the radio-television studios for the N. C. State campus. N. C. State is renovating the Cherry Building at Dorothea Dix, now part of the Centennial Campus; that will be the location in 2013.

STEM Statewide Strategic Plan

Superintendent of Public Instruction, Dr. June Atkinson recognized the members of the Commission for their work with the Plan. *(SEE ATTACHMENT: STEM Plan).* She said the Plan on paper was for grades K-12, but was aligned with grades K-20 with the work of community colleges and universities. The draft has been shared with about 10 different groups for input.

The Lt. Governor suggested that an endorsement of the JOBS Commission for the working draft presented would be in order. Upon motion of Dr. Murphy

and second by Ms. Townsend the endorsement was passed unanimously. The Plan would go to the State Board of Education for adoption.

RACE TO THE TOP STEM ANCHOR SCHOOLS AND NETWORK CLUSTERS

Dr. Dana Diesel Wallace, from the New Schools Project made this presentation. *(SEE ATTACHMENT: STEM networks)* She termed this as a quick overview of the work. She said much of the work centered on encountering and identifying problems with an eye to seek solutions; some of which might be successful, or not successful. She said failure can be a part of learning experiences.

The integrated curriculum is focused on how content is used in the work force. Beyond the classroom extends the learning which might not always happen in the class.

She said STEM seeks to teach the idea that content can be used in applied ways: problem solving, collaboration, communication, etc.

She brought up the website: Worldomoters. This brought home the need to address issues of food, safe drinking water, etc. She believes today's students will be part of the problem solvers.

She pointed to the need for coaching to go along with professional development for teachers and the need for content preparation for those teachers.

Another challenge was for the sharing of knowledge and experience among the various STEM schools so that success can be replicated.

In answer to a question, Dr. Wallace said that with the benefit from a world renowned leader in mathematics at DPI, North Carolina's common core math system worked with the national and international standards being promoted.

Open Discussion

With the Commission currently destined to phase out at the end of June, 2010, Lt. Governor Dalton asked the Commission members to offer their thoughts about the next steps and the use of the remaining time. Here are those expressions:

Laura Bingham: Said the Commission has produced quality results in a short time. There is a change from incubation to acceleration. She suggested meeting with editorial boards at newspapers across the state to outline the things that the Commission has brought along not just regionally, but statewide.

1. The school district collaborations
2. Increasing the outcomes for underserved population
3. Core partnerships of schools and businesses
4. Public/Private aspect
5. Money to do these things
6. New initiatives tying to current and future economy of the state. Making the case for connecting the dots across the state.

Sam Houston: Hope that the Commission will be extended. As quasi-government not burdened with some of the restrictions. He used the word "nimble" to describe the Commissions ability to work across governmental and public lines. He said the Commission could move quicker than a lot of other venues, i. e. the State Board of Education.
He wondered who would be the ultimate "owner" of the statewide STEM Strategy, who would implement, and could the Commission be such an entity with "encouraging oversight"?

Sen. Lee: Said the Education Cabinet no longer had a staff and really did not exist. He felt the JOBS Commission could cultivate the STEM Strategy. He agreed the Commission could cut across many lines and that STEM could use that ability. He said STEM Strategy should be in the Commission, otherwise the strategy would "not take on a whole lot of life".

Dr. Purser: Said talkhas come about "pockets of students" and she referred to Sen. Lee's comments about the Education Cabinet. She said all this shows the need to

involve the classroom teacher. She said right now there is professional development available, but there is no time with the current calendar. She challenged that if there is a true support for the innovative ideas and strategies, the teachers have to be involved. She said there is great training available, but then the teacher has no time to design the way to implement the concepts. She said the development does not provide a "how to" book. There is content knowledge that requires time to be translated into use in the classroom. She said there is a "they can do it on their own time" concept that runs counter to the needs of teachers' lives and their own families. She said, "I want my teachers to have another life."

Houston: Agreed with Dr. Purser. How capable the teacher may be is the ultimate test. He said professional development dollars have been lost and time is always an issue. If the dollars are to be replaced there must be a measurable outcome. The plan for professional development dollars must support what the state is doing.

Bingham: Said she meant to include the bi-partisanship or non-partisanship that has "undergirded" the work the JOBS Commission has done and that should be part of the local level efforts, too.

Lt. Governor Dalton said the bi-partisanship resonates within the state and outside the state, too.

Lee: Said one of the results of the Commission has been the inclusion of resources outside the school. His plans include seeking involvement of the broad spectrum of the community in schools.
He said, "We can no longer think we can leave all 'this' on the back of our teachers and out of schools".
He noted that the Commission had uncovered talent that could be involved: in industry and in parents. He said the Commission was in the position to involve a broad range of this talent in the education process.

Joe Freddoso: Said Dr. Purser had a great point. At the same time he said education and health care were the two "laggards" to embrace technology-based training. There is a big network, but still people need the time to take advantage. There should be time taken to see how other parts of society (industries, etc.) have

used technology to increase productivity and to take those lessons to do a better job of training teachers. One of the Commission's efforts could be to figure out how to take advantage of what is available. SAS, Cisco, MCNC and others reformat the work force to use the tools that are available, but this requires a "step back" to allow the utilization of the tools offered. He said the School of Science and Math would be a good place to start since the school outsources its curriculum to places that need teachers, but does not do a lot of professional development training. At UNC-Chapel Hill there is Learn NC which is a good resource, but basically is unsupervised.

He said the recently-retired Chancellor at WCU, John Bardo has done research concerning rural and urban community economic success. One of the keys to the variance between such rural/urban successes is the underserved population going into engineering.

He questioned how we can have STEM teachers unprepared in content when their preparation is being done at such places as NCSU, UNC-CH, etc. Thus higher education needs to be looked at too. He said the Commission is the only voice outside the sectors of education that could turn such examination into policy.

McCullen: Spoke of the recent trip to Finland to examine the education system. There is a great difference between the U. S. system and Finland's; relating to teacher training. Teachers must have a master's degree to teach. Four years of a teacher's education is spent on content. The last year is spent in the classroom under guidance of a master teacher where they apply the content knowledge. U. S. teachers can't compete with other countries which spent such time educating the teachers. She said one of the ways to create more time is through professional learning communities. Each school must set aside time—different schools need different times—to allow teachers to work together, to collaborate and work together.

Houston: Said Alyssa Chapman at the UNC-General Administration was a contact for Fast Track: a way to get content major students a license to teach in four years. This is modeled after the Teaching Fellows program.

McCullen: Mentioned the North Carolina Chamber of Commerce recommendations; if the state could agree to one way to teach math and science.

She said it is a simple idea, but hard to accomplish and perhaps the JOBS Commission could steer the discussion and implementation of such. It might be easier with the 'common core standards' which the Lt. Governor asked for an explanation. Ms. McCullen said the 'common core standards' are content standards, but not a directive of how to teach. Math needs to be the same content from state to state.
Dr. Houston said the language arts teaching is an example. One college teaches a would-be teacher one way, but then the teacher goes into a place that wants the subject taught a different way.

Rectanus: Said the N. C. Chamber also heard discussions of the role of an intermediary in education reform and some of the research presented might point up the role of the JOBS Commission as such an intermediary. He also said the connectivity of education of such entities as the community college system to the work force could be examined as a future focus of the Commission.

Minutes by
Ed Harper

STEM Networks

JOBS Commission
October 11, 2011

NORTH
CAROLINA
NEW
SCHOOLS
PROJECT

Institutional Collaborators

NC State Board of Education

NC Department of Public Instruction

NC Community College System

The University of North Carolina

NC Independent Colleges & Universities

NORTH CAROLINA NEW SCHOOLS PROJECT

STEM Practitioner Collaborators

A Partial List of Content Knowledge and Pedagogy Experts

The William and Ida Friday Institute for Educational Innovation

Kenan Fellows Program at NCSU

The Science House at NCSU

NC Science, Math, and Technology Education Center

The Engineering Place at NCSU

The Discovery Place

NC School of Science and Mathematics

Project Lead the Way at Duke University

National Academy Foundation

NORTH CAROLINA NEW SCHOOLS PROJECT

NCNSP STEM Vision

STEM Schools

- Provide the tools and space for exploration and invention
- Foster a culture of collaborative inquiry among faculty and students

STEM Curriculum

- Emphasizes connections within and between the fields of math and science
- Deeply and meaningfully integrates technology
- Introduces and engages students in the engineering design process
- Highlights the role of STEM in the global society and economy

Beyond the Classroom

- Extracurricular activities, summer programs and internships increase students awareness of and interest in STEM

NORTH CAROLINA NEW SCHOOLS PROJECT

NCNSP STEM Vision

STEM Teaching

- Engages students in learning through active solving of real problems
- Regularly engages students in deep discourse, marked by discipline-based justifications
- Beyond content knowledge
  - Values and cultivates creativity
  - Develops problem solving, communication and collaboration skills

Beyond Standard Measures of Achievement

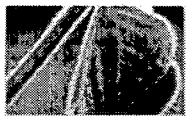
- Excitement about coming to school and enthusiasm for learning
- A passionate interest in the world
- Confidence and perseverance when faced with a challenge
- Ability to gather and analyze relevant information and synthesize knowledge and skills to solve authentic problems

National Academy of Engineers Grand Challenges for Engineering

Make solar energy economical

Provide energy from fusion

Develop carbon sequestration methods

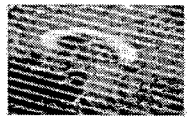

Manage the nitrogen cycle

Provide access to clean water

Restore and improve urban infrastructure

Advance health informatics

Engineer better medicines


Reverse-engineer the brain

Prevent nuclear terror

Secure cyberspace

Enhance virtual reality

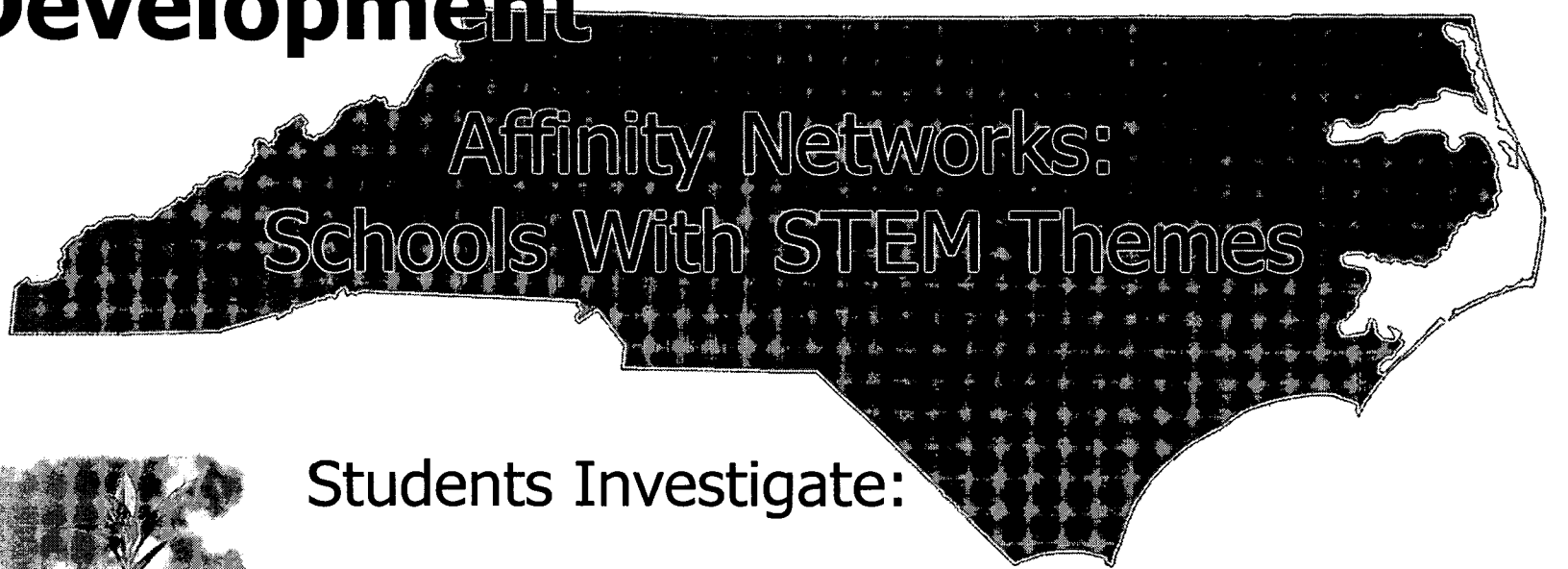
Advance personalized learning

Engineer the tools of scientific discovery

NCNSP and NC DPI have collaborated to create a paper, "The Third Way," which describes how academic and career and technical education are blended to support rigorous content for all students. The Grand Challenges were identified as a framework for learning as they provide context, organization and engagement for students' rigorous learning experiences in and out of school.

NORTH CAROLINA NEW SCHOOLS PROJECT

STEM Education as Economic Development



Students Investigate:

Biotechnology & Agriscience

<u>Grand Challenges for Engineering</u>

- Access to Clean Water
- Manage Nitrogen Cycle
- Engineer Better Medicines
- Carbon Sequestration
- "New Biology"

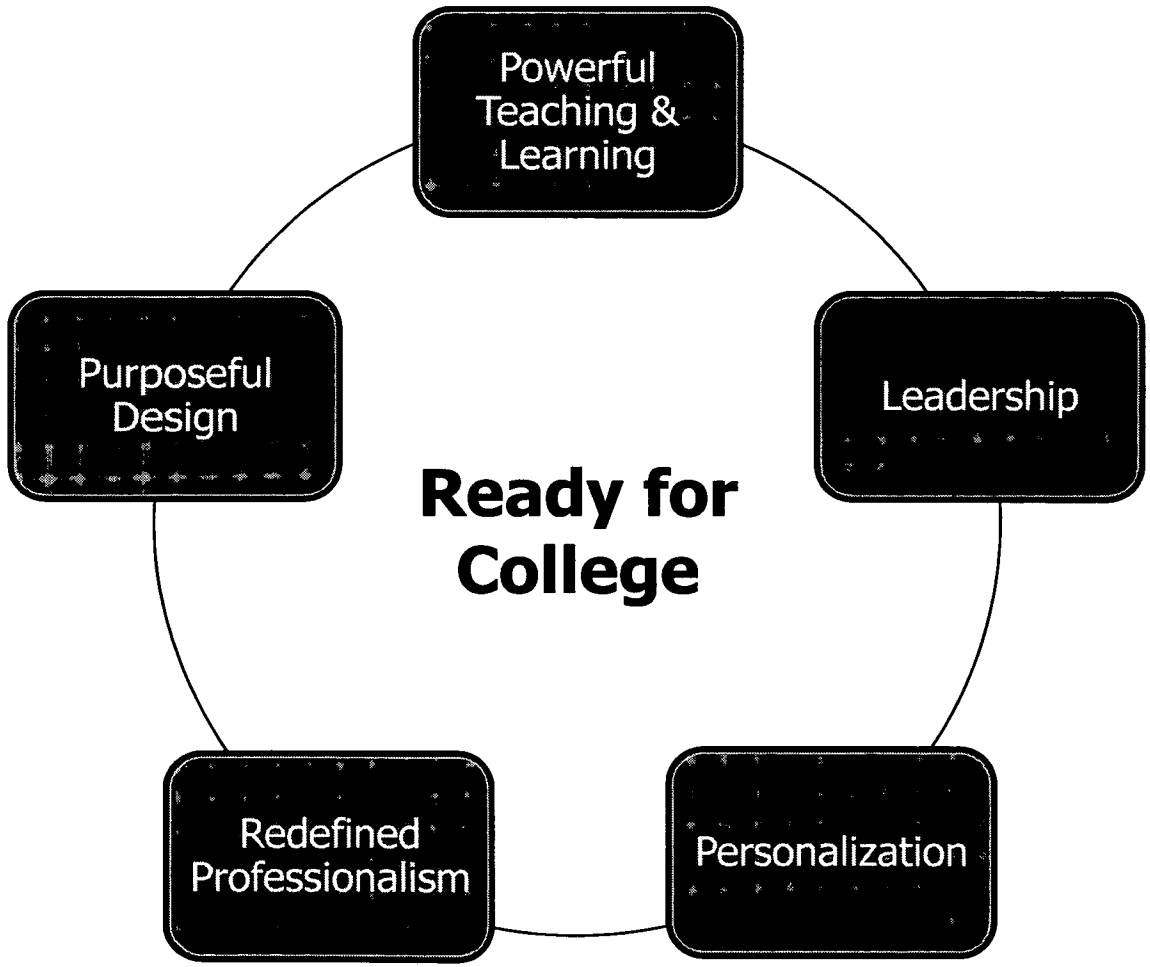
<u>American Society for Agronomy Grand Challenge</u>

Double Food, Feed, Fiber, and Fuel Production on Existing Farm Land in the 21st Century

NORTH CAROLINA NEW SCHOOLS PROJECT

NCNSP Design Principles

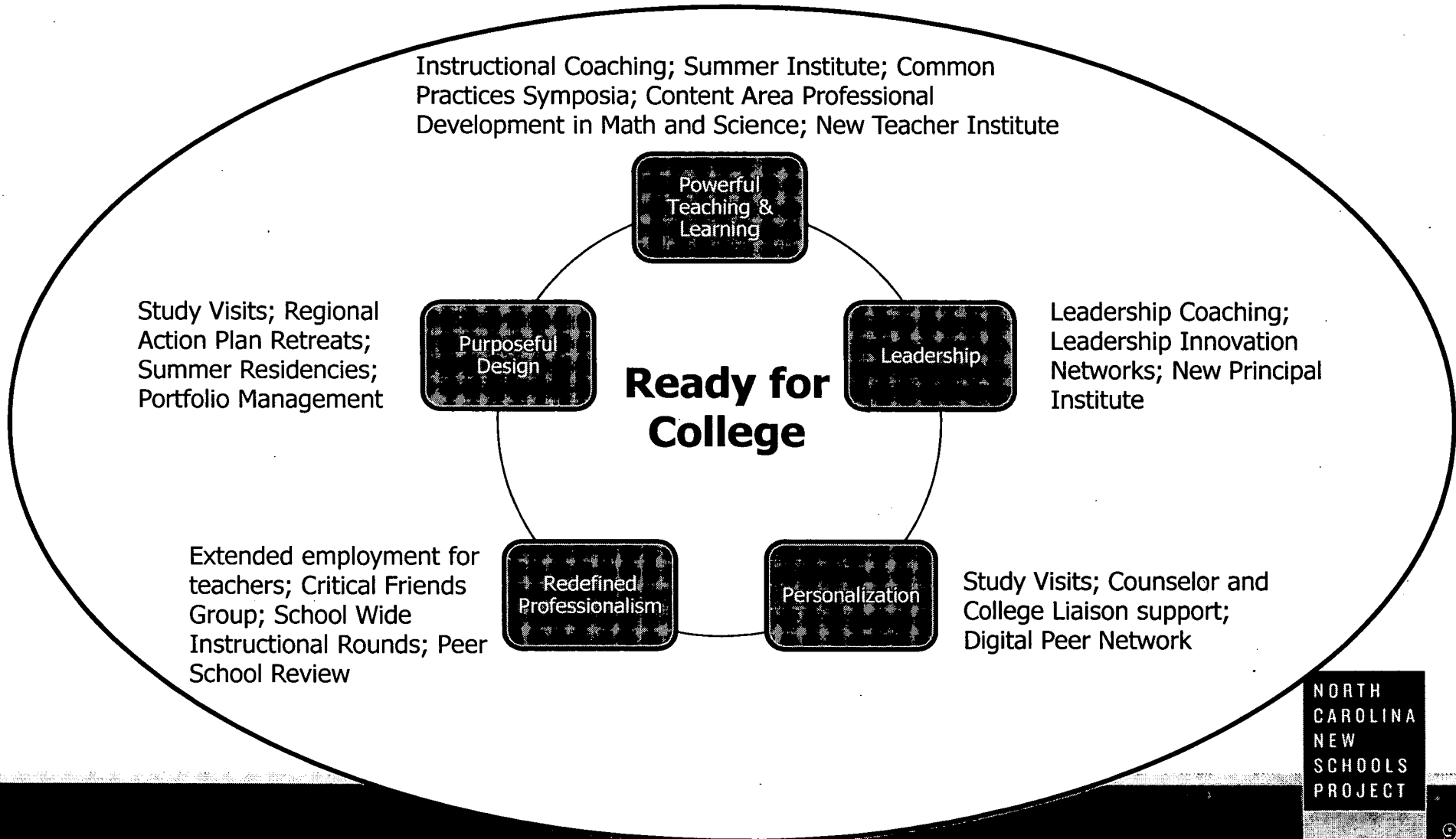
A Framework for Secondary School Innovation



NORTH CAROLINA NEW SCHOOLS PROJECT

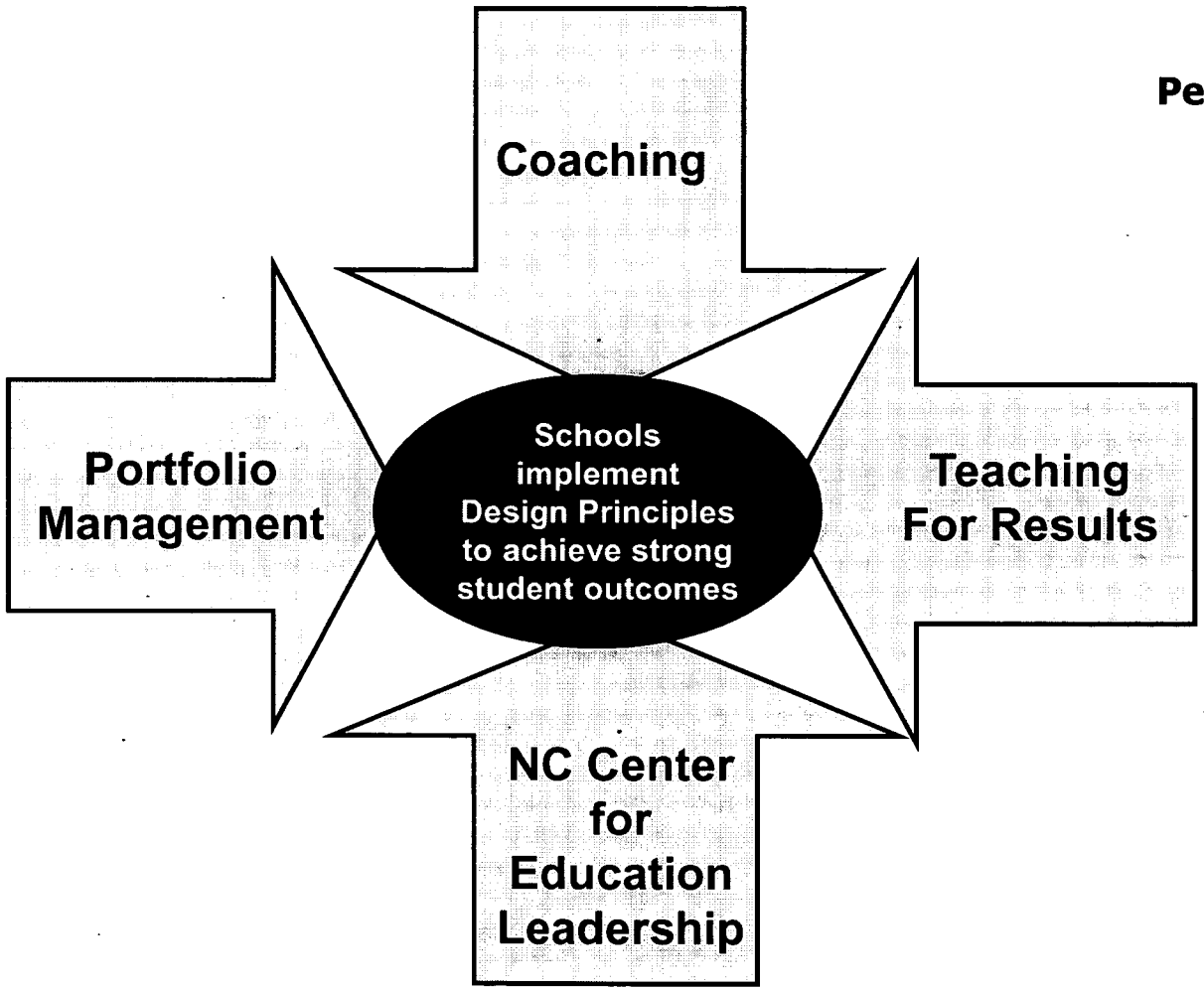
NCNSP Design Principles

NCNSP Integrated System of School Support Services for STEM Schools



NORTH CAROLINA NEW SCHOOLS PROJECT

Integrated System of School Support Services (IS^4)



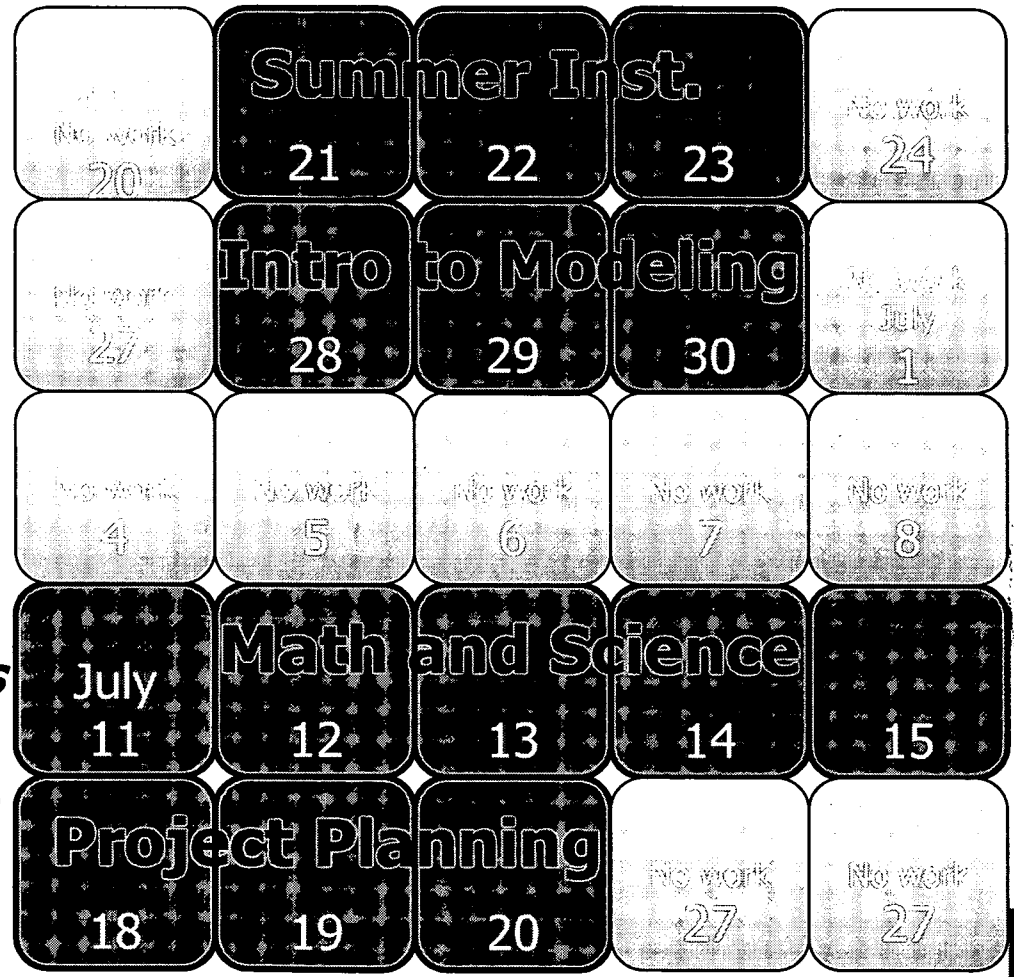
Peer networks of:

- **District leaders**
- **Principals**
- **Teachers**
- **Students**

NORTH CAROLINA NEW SCHOOLS PROJECT

Summer 2011

- **Three days of school team development at Summer Institute**
- **Three days of an introduction to the modeling approach to teaching science**
- **Five days of math- and science-specific workshops using *Core-Plus Mathematics* and *Investigations in Environmental Science***
- **Three days of team project planning**



NORTH CAROLINA NEW SCHOOLS PROJECT

Ninth Grade Themes by Network

- **Health and Life Science**
  - How can food and health affect our future?
- **Energy and Sustainability**
  - What is our "community's" carbon footprint, and how can we reduce it? How can we educate our community about sustainable practices?
- **Biotech and Agriscience**
  - How can life be sustained in our community?
- **Aerospace and Security**
  - Why are aerospace and security important in the 21st century?

NORTH CAROLINA NEW SCHOOLS PROJECT

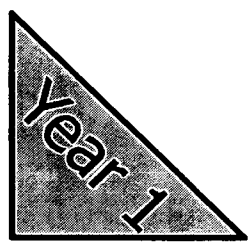
The Building of Curriculum – Year 1

Grade 12

Grade 11

Grade 10

Grade 9



0% Theme-Based Curricula ~100%

Ninth Graders Experience:

- A theme-based project in each content area at least once during the school year
- A grade-level project (capstone, culminating, or other)

NORTH CAROLINA NEW SCHOOLS PROJECT

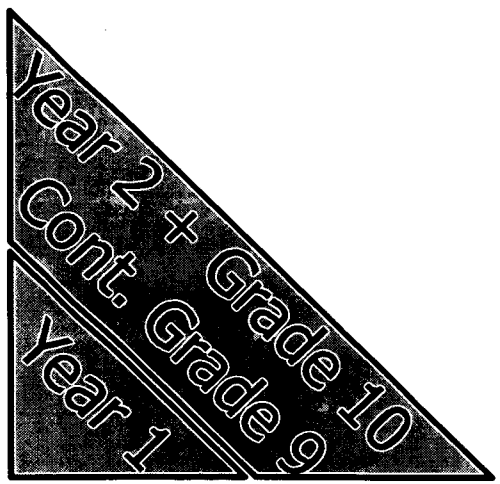
The Building of Curriculum – Year 2

Grade 12

Grade 11

Grade 10

Grade 9

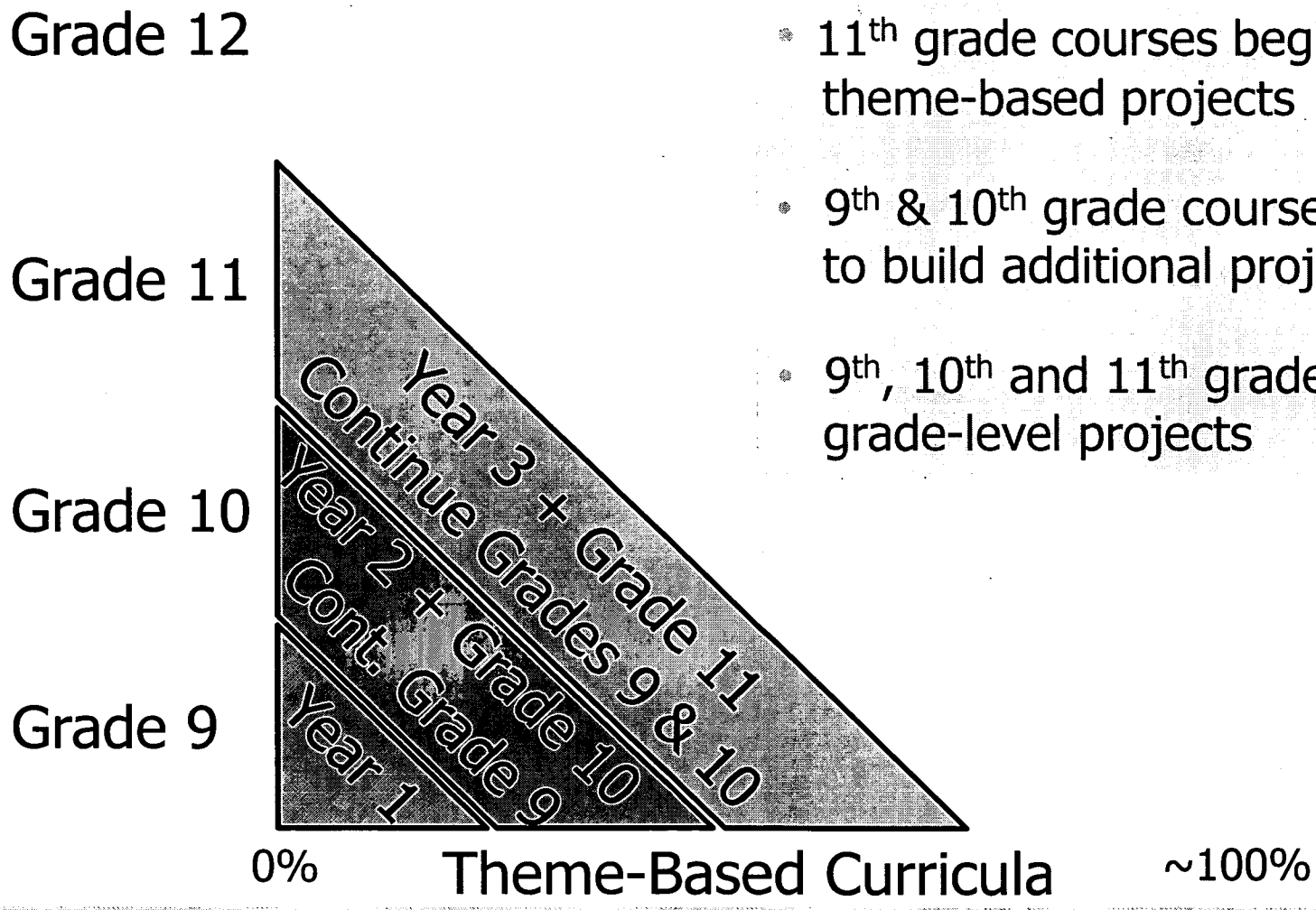


- 10th grade courses begin building theme-based projects
- 9th grade courses build additional projects in additional to Year 1 projects
- Both 9th and 10th grade have grade-level projects

0% Theme-Based Curricula ~100%

NORTH CAROLINA NEW SCHOOLS PROJECT

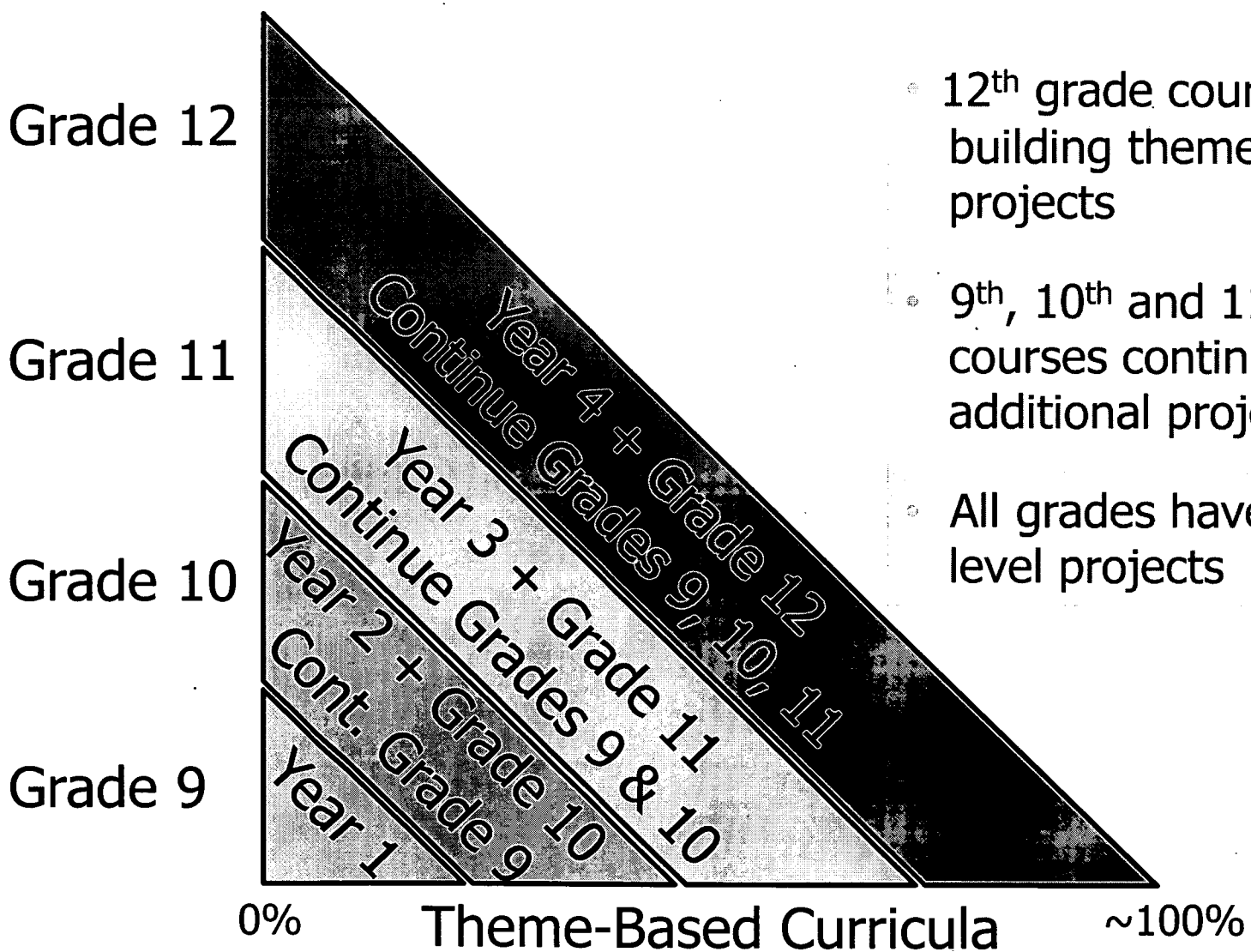
The Building of Curriculum – Year 3



- 11th grade courses begin building theme-based projects
- 9th & 10th grade courses continue to build additional projects
- 9th, 10th and 11th grade have grade-level projects

NORTH CAROLINA NEW SCHOOLS PROJECT

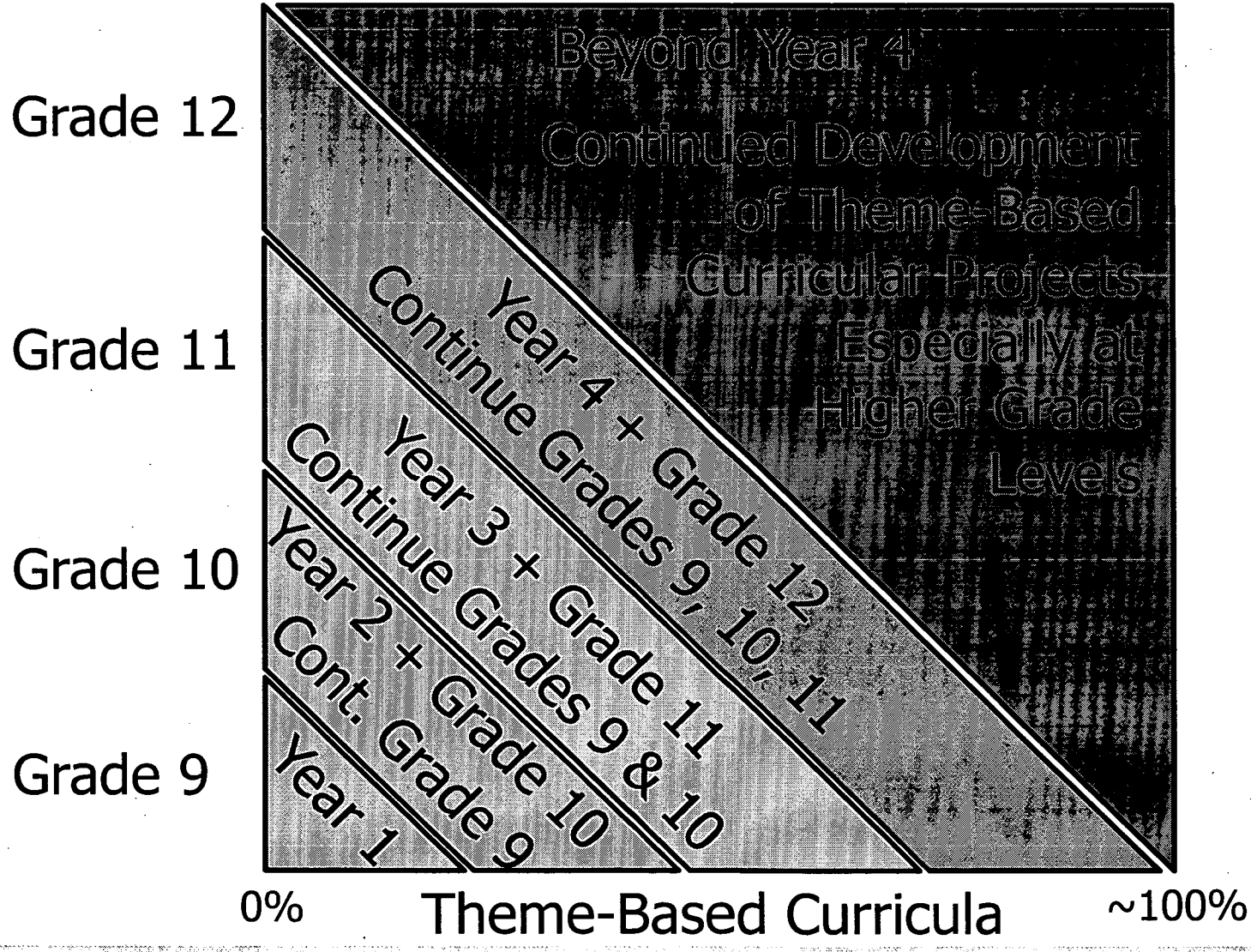
The Building of Curriculum – Year 4



- 12th grade courses begin building theme-based projects
- 9th, 10th and 11th grade courses continue to build additional projects
- All grades have grade-level projects

NORTH CAROLINA NEW SCHOOLS PROJECT

The Building of Curriculum – Cont.



NORTH CAROLINA NEW SCHOOLS PROJECT

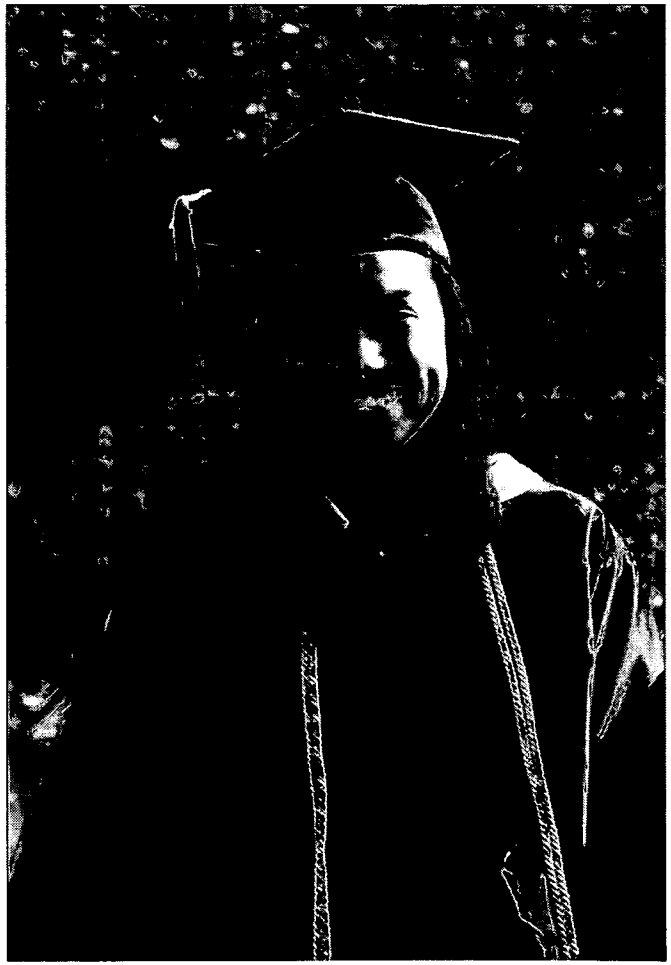
APPENDIX

NORTH
CAROLINA
NEW
SCHOOLS
PROJECT

NCNSP Schools Achieve

Indicator	NC Public Schools	NCNSP Schools
4-year graduation rate, 2010-11	77.7 percent	**85.6 percent**
Black male graduation rate[1]	59.6 percent	**82 percent**
Dropout rate	3.75 percent	**2.3 percent**
EOC composite pass rate	79 percent	**83.3 percent**
Schools >80 percent EOC proficiency	45 percent	**74 percent**
Algebra I pass rate	69.9 percent	**78.3 percent**
Percent taking Algebra II	20 percent	**27 percent**

STEM Schools: More Students Graduate



- Inaugural graduating class of 500 students in June 2011
- Nearly all schools had graduation rate > 90%; four schools had graduation rate > 95%
- More than 75% plan to continue their education at a four-year college or community college

NORTH CAROLINA NEW SCHOOLS PROJECT

Supporting STEM School Development

NCNSP Integrated System of School Support Services for STEM Schools

Powerful Teaching & Learning

NCNSP schools are characterized by the presence of commonly held standards for high quality instructional practice. Teachers in these schools design rigorous instruction that ensures the development of critical thinking, application, and problem solving skills often neglected in traditional settings.

Leadership

Staff in NCNSP schools work to develop a shared mission for their school and work actively as agents of change, sharing leadership for improved student outcomes in a culture of high expectations for all students.

Personalization

Staff in NCNSP schools understand that knowing students well is an essential condition of helping them achieve academically. These high schools ensure adults leverage knowledge of students in order to improve student learning.

Redefined Professionalism

Evident in NCNSP schools are the collaborative work orientation of staff, the shared responsibility for decision making, and the commitment to growing the capacity of staff and schools throughout the network.

Purposeful Design

NCNSP schools are designed to create the conditions that ensure the other five design principles: ready for college, powerful teaching and learning, personalization, leadership and redefined professionalism. The organization of time, space, and the allocation of resources ensures that these best practices become common practice.

Ready for College

NCNSP schools are characterized by the pervasive, transparent, and consistent understanding that the school exists for the purpose of preparing all students for college and work. They maintain a common set of high standards for every student to overcome the harmful consequences of tracking and sorting.

NORTH CAROLINA NEW SCHOOLS PROJECT

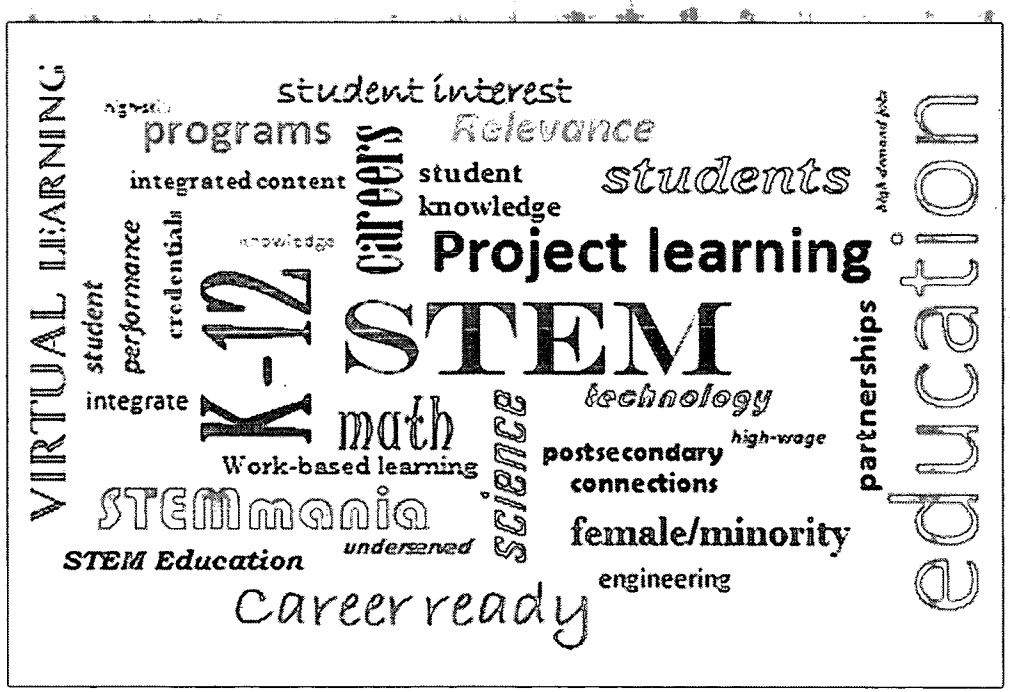
Contact Information

- **Dana Diesel Wallace, Ed.D**
  Vice President for School Development
  NC New Schools Project
  4600 Marriott Drive, Ste. 510
  Raleigh, NC 27612
  919.277.3760
  dwallace@newschoolsproject.org

www.newschoolsproject.org

NORTH CAROLINA NEW SCHOOLS PROJECT

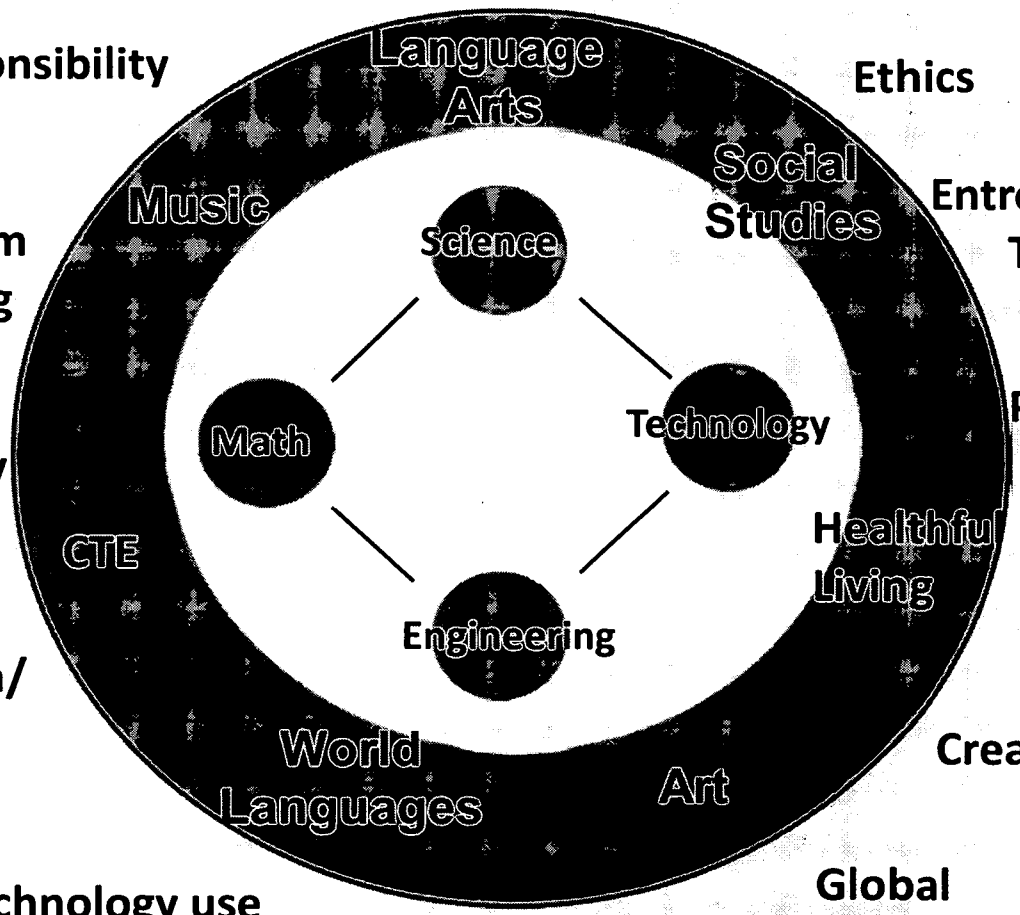
North Carolina's Science, Technology, Engineering, and Mathematics (STEM) Education Strategy



Public Schools of North Carolina

Quality STEM Education

21st Century Skills



Responsibility

Ethics

Entrepreneurial Thinking

Problem solving

Professionalism

Adaptability

Critical thinking

Collaboration/ teamwork

Creativity

Technology use

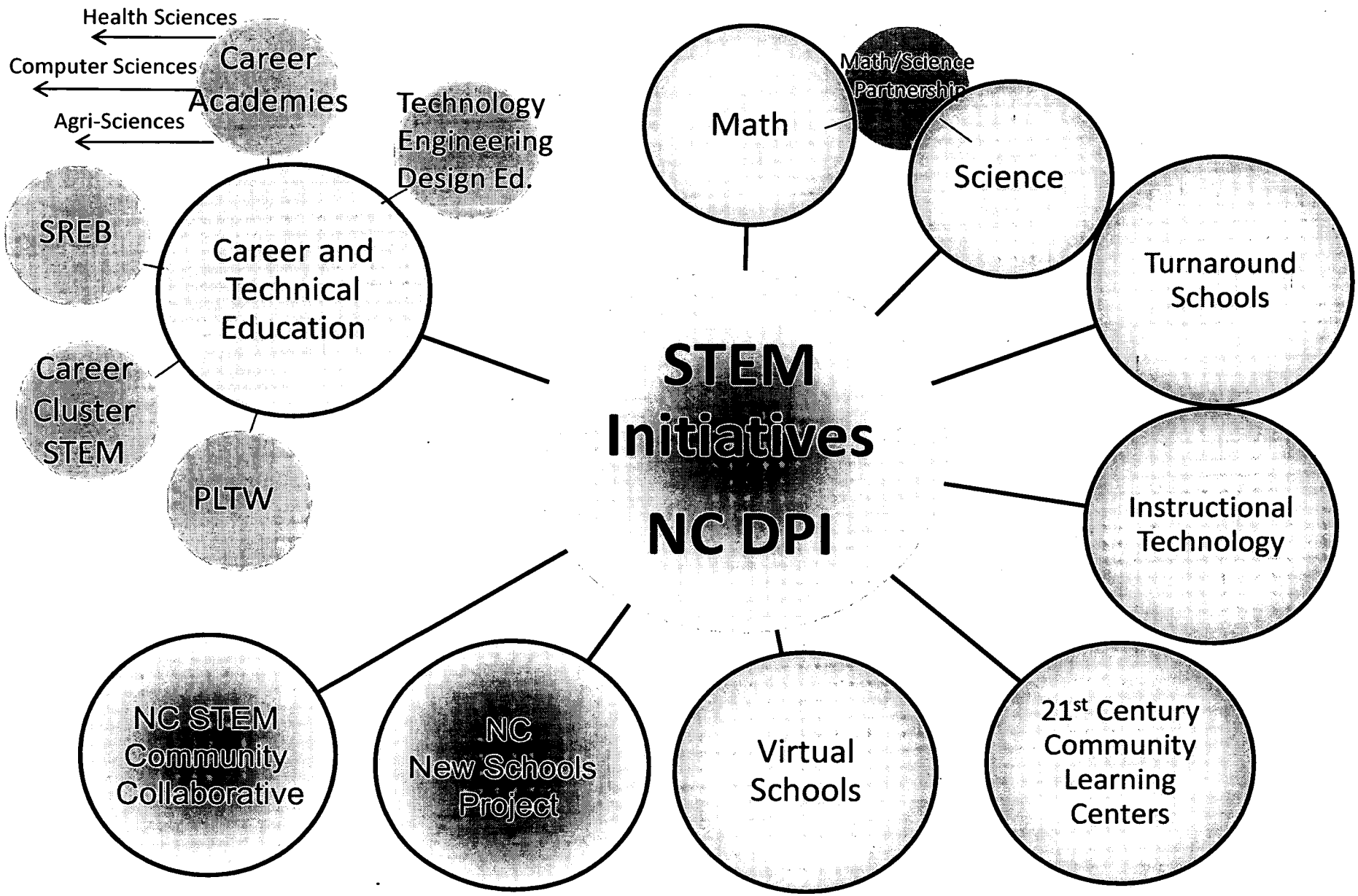
Global Awareness

Oral/written communications

STEM Education Programs

Is this STEM ?

Yes	S	T	E	M
No	S			M
No		T	E	
No	S	T		M
No	S			
No		T		
No			E	
No				M


STEM Initiatives NC DPI
Career Academies
Health Sciences
Computer Sciences
Agri-Sciences
Technology Engineering Design Ed.
Career and Technical Education
SREB
Career Cluster STEM
PLTW
Math
Math/Science Partnership
Science
Turnaround Schools
Instructional Technology
21st Century Community Learning Centers
Virtual Schools
NC New Schools Project
NC STEM Community Collaborative

Attributes of STEM School

- Integrated STEM curriculum, aligned with state, national, international and industry standards
- On-going community and industry engagement
- Connections with postsecondary education

North Carolina's Science, Technology, Engineering, and Mathematics (STEM) Education Strategy

- Improving STEM Achievement
- Bolster Community Understanding and Support
- Connect, Leverage and Increase STEM Resources

Improve STEM Achievement

- Attributes
- Measurable student achievement
- Quality tools and supports

Bolster Community Understanding and Support

- Public awareness
- Leading program and best practices
- One-stop, web-based resource

Connect, Leverage, and Increase STEM Resources

- Public and private
- Collaboration
- STEM Council

Wake NC State University STEM Early College High School

Solving *Grand Challenges* Through STEM

October 11, 2011

Rob Matheson, Principal

Mission Statement

The mission of the Wake NC State University STEM Early College High School is to provide a highly supportive and academically challenging learning environment for students underserved in a traditional high school setting and underrepresented in the STEM disciplines, including first generation college going students, who will graduate prepared to compete globally in careers related to science, technology, engineering, and mathematics.

Targeted Students

WAKE NC STATE UNIVERSITY
STEM
EARLY COLLEGE HIGH SCHOOL
science, technology, engineering, and math

- Underserved students—those who do not maximize their potential in traditional, comprehensive high schools
- Under-represented students—those who are not represented in the STEM disciplines (by gender, ethnicity, etc.)
- First-time college going students in a family
- Willing to accept the challenges of an accelerated high school and college education

Application, Selection, and Demographics

- 312 students applied. 302 "screened" in through paper application due in January 2011—EOG scores, course grades, two essays, three recommendations
- Online application in February 2011
- Pool of 302 students forwarded to the WCPSS Magnet School Office. Standard magnet selection process in March 2011
- 55 students selected
- 43% first-time college goers, 50:50 male/female ratio, over 70% non-white

Personnel

- Five teachers hired: 2 math (one for Integrated Math, the other for Engineering Design)
- Science
- English
- Social Studies
- Dean of Students
- Lead Secretary, Clerical Assistant
- Intervention Coordinator (part-time) and College Liaison (to be hired this fall)

Facility

- Creative Services Building next to NC State McKimmon and Joyner Visitor Centers
- Three large teaching spaces for project-based learning
- Office space
- Courtyard
- Breakfast/lunch and bus transportation provided by the WCPSS

Facility (cont.)

- NC State and the WCPSS in the process of identifying facility for year 2 when we add another cohort of 55 students
- Cherry Building planning/demolition/construction phases on target for completion for June 2013

Wake NC State University STEM Early College High School

Relationships, Relevance and Rigor

Relationships

WAKE NC STATE UNIVERSITY
STEM
EARLY COLLEGE HIGH SCHOOL
science, technology, engineering, and math

- Empowering/supporting teaching staff to create pedagogy, curriculum and personal development plans
- Focus on the new NC Teacher Evaluation Process instrument with an emphasis on 21st Century skills development and assessment
- STEM summer camp—*Students Expanding Minds Together*
- Student—Parent/Guardian—Teacher dynamic

Relationships—Student Values

RESPECT

- Respect people, property, and the environment
- Ethical decision-making
- Scholastic integrity
- Pride in yourself and school
- Express yourself with confidence
- Come to school ready to learn
- Treat others the way you want to be treated

Relationships--Seminar

WAKE NC STATE UNIVERSITY STEM EARLY COLLEGE HIGH SCHOOL science, technology, engineering, and math

- Seminar with two major foci
- "Whole child" development, college environment, university resources, career exploration, etc.
- Socratic seminar—economic, ethical, legal, political, social, and sustainability issues related to the *Grand Challenges*
- "I Have a Dream" speech; Pledge of Allegiance and the American flag

Relationships—Advisory Council and Business Advisory Board

Advisory Council

- 12-15 Members
- Overall governance of the school

Business Advisory Board

- 18-20 members, mostly from the business community
- Provide support and assistance for career exploration, internships,

Relevance—Pedagogy

WAKE NC STATE UNIVERSITY
STEM
EARLY COLLEGE HIGH SCHOOL
science, technology, engineering, and math

- *Learning is the constant, time is the variable*
- *Every student reads, writes, thinks and talks in every classroom every day.*
- Project-based Learning
- Technology—appropriate and meaningful use of 1:1 laptops, SMART, graphing calculators, "clickers," MobiView, etc.
- Socratic seminar and *Paideia* Principles ("upbringing of the child")

Relevance—21st Century Learning Outcomes

WAKE NC STATE UNIVERSITY
STEM
EARLY COLLEGE HIGH SCHOOL
science, technology, engineering, and math

- Mastery of 21st Century *interdisciplinary core content and themes*
- Mastery of *learning and innovation skills* related to creativity and innovation; critical thinking and problem-solving; and communication and collaboration

21st Century Learning Outcomes—cont.

- Development of *life and career skills* such as flexibility and adaptability; initiative and self-direction; social and cross-cultural skills; productivity and accountability; and leadership and responsibility
- Mastery of *information, media, and technology skills*
- *www.21stcenturyskills.org*

Grand Challenges

www.engineeringchallenges.org

WAKE NC STATE UNIVERSITY STEM EARLY COLLEGE HIGH SCHOOL science, technology, engineering, and math

- **Sustainability**
  make solar energy economical
  provide energy from fusion
  develop carbon sequestration methods — Energy Economy and Environment
  provide access to clean water
  manage nitrogen cycle
- **Health**
  advance health informatics
  engineer better medicines — Engineering and Life Sciences
  reverse-engineer the brain
- **Security**
  restore and improve urban infrastructure
  prevent nuclear terror — Physical Infrastructure and IT
  secure cyberspace
- **Joy of Living**
  enhance virtual reality
  advance personalized learning — Personal Technologies and Education
  engineer the tools of scientific discovery

Rigor—Academic and Vocational Goals

WAKE NC STATE UNIVERSITY
STEM
EARLY COLLEGE HIGH SCHOOL
science, technology, engineering, and math

- Completion of NC *Future Ready Core* curriculum that leads to a high school diploma
- All courses (if currently available) taught at the Honors level
- Up to two years of NC State course credit
- Prepared to be productive and effective citizens, and ready for the world of work
- *Grand Challenges for Engineering*

Rigor—Curriculum, Year One

WAKE NC STATE UNIVERSITY
STEM
EARLY COLLEGE HIGH SCHOOL
science, technology, engineering, and math

- Earth Science/Engineering Design I—Yearlong, "A/B" flexible schedule, two credits
- Integrated Math I/II or II/III—Block schedule, two credits
- English I/World Geography—Yearlong, "A/B" flexible schedule, two credits
- Seminar—"whole child" and Socratic seminar

Rigor—Curriculum, Year One

Use of the five "Sustainability" challenges related to Global Issues of Earth Science course as the framework or "backbone" for the first year

- Access to clean water
- Carbon dioxide sequestration
- Nitrogen cycle
- Making solar energy economical
- Fusion energy

Rigor—Curriculum, Year Two Through Four

- Use of the *Grand Challenges* that most relate to the curricula of a particular grade level
- 10th grade Chemistry, 11th grade Biology, and 12th grade Physics;
- Each science class taught in "tandem" with an Engineering Design course (Intro., I, II, and III)
- Paired humanities courses (English II through IV and social studies courses)

Significant Dates

WAKE NC STATE UNIVERSITY
STEM
EARLY COLLEGE HIGH SCHOOL
science, technology, engineering, and math

- August 5th—first day of school
- August 18th—Ribbon-Cutting Ceremony with 150+ people in attendance
- Mid-August—Open House and Parent Orientation
- September 14th—STEM ECHS highlighted on the cover of "EdWeek"
- October 6th—Professional Engineers of NC Silent Auction and Dinner

Community

- NC State—students have Unity IDs, Moodle accounts, e-mail, student IDs
- NC State Master of Administration intern
- STEM ECHS now a Partner of the Centennial Campus
- Parent Teacher Student Association formed
- Business Advisory Board—next meeting at the Joyner Visitor Center on October 17th
- JOBS Business Committee

Partnership with New Schools Project

- Instructional and Leadership Coaches provided for the teachers and Principal
- Participation in continued staff development opportunities for Principal and teachers throughout the school year
- Focus on implementing Design Principles and working with STEM Affinity Network schools

Quotations

WAKE NC STATE UNIVERSITY STEM EARLY COLLEGE HIGH SCHOOL science, technology, engineering, and math

- "The academic load is rigorous and the students are progressing in developing their analytical and high order thinking skills."
- "All students are realizing that the expectations at this school are high and that they are being held accountable for their learning."
- "My student is being challenged, enjoys school, and shares their day with the family."

In the Future

WAKE NC STATE UNIVERSITY
STEM
EARLY COLLEGE HIGH SCHOOL
science, technology, engineering, and math

- Development of assessment system for 21st Century Outcomes (e.g. "Understand the local and global implications of civic decisions")
- Measuring and developing college readiness
- Recruitment of 2012-13 cohort beginning now
- Challenge of replicating the STEM ECHS model components at large comprehensive and rural schools

In the *Race to the Top…*

WAKE NC STATE UNIVERSITY
STEM
EARLY COLLEGE HIGH SCHOOL
science, technology, engineering, and math

I am blessed to have the opportunity to watch the STEM ECHS "run this race" just as a thoroughbred would…..

- We are out of the gate in a sprint
- Entering the first turn positioned well
- In the back stretch I will give the "horse" her stride and……
- In the home stretch I "ask" the school for the final "gear" and win the first race

Contact Information
http://stemec.wcpss.net/

Rob Matheson
Principal, Wake NC State University STEM
Early College High School
1220 Varsity Drive
Raleigh, NC 27606
919-515-2308 (office)
919-986-9390 (cell)
rmatheson@wcpss.net

NC STATE UNIVERSITY

INSTITUTE *for* EMERGING ISSUES

CREATIVITY iNC

JOBS Commission

Diane Cherry

October 11, 2011

Presentation Outline

- Institute for Emerging Issues (IEI)
- Conversations Connecting Teachers with Businesses
- Barriers and Opportunities for Development of a Social Network Site

Who We Are and What We Do

- The Institute for Emerging Issues is a public policy organization dedicated to North Carolina's future competitiveness.
- By supporting collaboration among individuals from all sectors and areas of the state, IEI builds an enduring capacity for progress.

Conversations Connecting Businesses & Teachers

1. IEI's Business Committee on Creativity
   - **Business and K-12 Education Must Create an Online Network Designed to Make Direct Connections Between Educators and Business**
2. IEI's Health Community Forums
   - **Businesses Volunteer in the Classroom to Help Excite Students in STEM Subjects**
3. NC STEM Community Collaborative
4. NC Business Committee on Education

Moving Forward

- Concept is to link teachers to businesses directly for short term needs;
- Pilot program but scalable to 100,000 professionals and businesses signed up;
- Would be referenced through the NC STEM website, NC A+ Schools and through mechanisms directly to teachers.

Barriers to Overcome

- Liability Issues for Background Checks
  - Not all volunteers may be in the classroom
  - NC Dept. of Instruction may offer ideas
  - VolunteerMatch.org
- Technology & Organization with Credibility to Host Site
- Updating Information
- Initial Estimate of Cost $500,000

Opportunities

- Businesses have indicated support
- Good options for host site
  - North Carolina Business Committee on Education
  - North Carolina Science, Mathematics, and Technology Education Center

Two Overarching Questions

- Who owns the initiative and its various components (i.e., education, teacher recruitment, site development)?
- What's the business model (i.e., initial set up costs, advertising)?

NC STATE UNIVERSITY

INSTITUTE *for* EMERGING ISSUES

CREATIVITY iNC

JOBS Commission

Diane Cherry

October 11, 2011

Cumberland International Early College High School

Welcome to the Home of the Ambassadors!

Presented by: Lavette Alston, Principal
Valeria Torres-Colon, Student
Allison Violette, Associate Superintendent

School Information

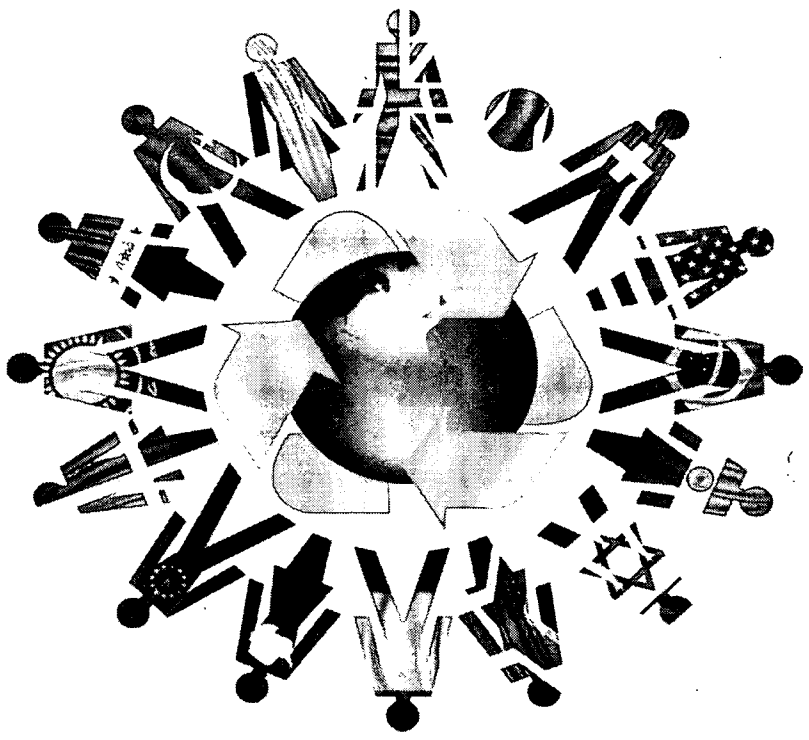
- 54 Freshmen
  - 69.8% African American
  - 13.2% Hispanic
  - 11.3 White
  - 5.7 Asian and Multi
  - 51.8% Free and Reduced Lunch
- 5 Teachers, Counselor, Social Worker, and Clerk
- School Mascot- Ambassadors
- School Colors- Red and Black

CIECHS Vision

All students will graduate globally competent, prepared to communicate, collaborate, and compete locally, nationally, and internationally.

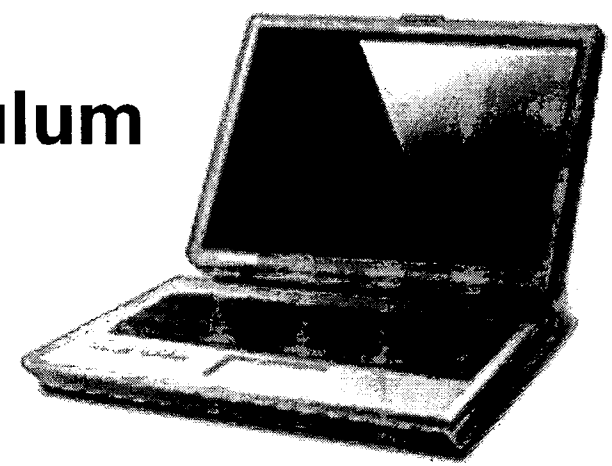
What We Offer…

- **Mentor Program**
- **Global Competence**
  - ***Language Proficiency***
- **International Activities**
  - ***Advisory***
  - ***Partnerships***
  - ***E Pals***



Instructional Practice

- Instructional Framework
  - *Powerful Teaching and Learning Strategies*
- Honors Classes
- Project Based Learning
  - *Technology*
- Rigorous, Global Curriculum
- Laptops for Students



A Student's Perspective…

Valeria

- Why did she choose CIECHS?
- What are her future goals?
- What does she like about CIECHS?
- How is she involved at CIECHS?

Partnerships

- Fayetteville State University
- North Carolina New Schools Project
- Center for International Understanding
- Asia Society
- EE Smith High School

Thank you

- **Thank you for supporting Cumberland International Early College High School!**
- **Come by and see for yourself what a great place Cumberland International really is!**
- **The students are why we do what we do and at Cumberland International failure is not an option!**

We are the:

Ambassadors سفراء *Embajadores* 大使

Priority	Goals	Recommended Strategies
Increasing our student, teacher and institutional STEM Achievement	• Increase student interest in STEM fields and in continuing their education • Increase STEM Achievement of K-12 students • Increase the graduation rate of students in STEM programs • Decrease postsecondary remediation rates • Increase the number of teachers prepared and delivering integrated STEM education	1. *Adopt a set of attributes for STEM schools and programs, aligned with 21st Century Skills, to assist public and private organizations align, coordinate and advance STEM skills for all students.* 2. *Measure a set of measurable indicators along the education-to-workforce continuum to guide the current and future implementation of the STEM Strategy.* 3. *Implement a designation for STEM Schools and Programs, aligned with the STEM Attributes, to drive the goals and measures outlined within this STEM Strategy.* 4. *Identify high-quality tools and supports – such as rubrics, self-assessments – to enable schools, programs and businesses to advance consistent understanding and application of the adopted STEM Attributes.* 5. *Advance professional development for pre-service and in-service educators aligned with the integrated STEM teaching and learning.*
Gaining and sustaining broader Community Understanding and Support for the needs of a knowledge-based economy	• Increase community understanding, awareness, and support for the economic challenges. • Increase the connections, partnerships, and growth of high-quality programs, schools, and tools	6. *Coordinate a public awareness campaign to 100 counties utilizing public/private partnerships, to inspire and engage North Carolina citizens in this economic challenge.* 7. *Identify and convene leading programs, partners and schools to advance and highlight best practices to every county* 8. *Provide a one-stop action-oriented web-based resource for students, teachers, parents, and businesses to access and get involved in STEM learning*
Connecting, Leveraging & Increasing STEM Resources across public and private sectors to improve our citizens and their economic future	• Increase returns on public and private investments in STEM education • Align & coordinate the investments of public & private sector partners to scale high-quality programs efficiently	9. *Invest public and private funds over the next 10 years to scale effective STEM programs, policies and practices throughout every economic development region of North Carolina* 10. *Identify and fund a public/private partner for the coordination, evaluation and monitoring of STEM Education programs and initiatives* 11. *Incentivize collaborations based on evidence-based policies, programs and practice that greatly increases the number of students gaining STEM skills and continuing in STEM fields of work.* 12. *Formally establish a STEM Council to facilitate and coordinate the implementation of North Carolina's comprehensive STEM strategy.*

Business Engagement Guide

Compiled and Developed by the Business Subcommittee of the JOBS Commission

Lieutenant Governor Walter Dalton's Joining Our Businesses and Schools (JOBS) Commission, established through legislation in the 2009 General Assembly, seeks to strengthen the ties between businesses and educators across North Carolina to create a better-prepared workforce and a brighter future for our state's young people.

As part of its work, the privately funded, 20-member commission traveled to each of the state's seven economic development regions over a seven-month period from the fall of 2009 to the spring of 2010. The purpose was to gain a better understanding of how we can prepare students for the jobs of the future by tying education more tightly to the needs and nuances of the regional economy.

Nearly 1,000 citizens attended these regional sessions to share their thoughts, and though the content and tone varied from region to region, several universal themes emerged. For example, speaker after speaker told the Commission that it is critically important to expose young people to the vast array of career possibilities available in the North Carolina economy.

The Commission also heard early and often about the need to equip young people with soft skills such as communications and problem solving. The overriding message was that businesses and educators need to interact more frequently and at deeper levels to make the world of work seem relevant for young people, to equip young people with a vision for the future, and to help them nurture the skills necessary to survive and thrive in the 21st century economy. It also became apparent that no universal template or guide exists for guiding interactions between educators and businesses. Thus, a Business Subcommittee was appointed by the JOBS Commission to develop such a guide.

Purpose

The purpose of this *Business Engagement Guide* is to help schools incorporate current knowledge, skills and understandings valued by business and industry in the local community, as well the global economy. *This guide is not intended to be a complete list of all resources and activities linking businesses and education, but simply a helpful resource for schools and businesses wishing to collaborate.* The ultimate goal is to provide a basic guide to which

businesses and schools can contribute by providing additional examples, templates, documentation, etc.

Intended Audience

The intended audience consists of educators and business leaders. Educators can use the guide to increase their awareness of the latest industry trends and knowledge, enabling them to produce graduates who are better prepared for college, careers and success in the future. Business leaders can benefit from an increased number of graduates with knowledge and experience needed in the local economy. The ultimate beneficiary will be a vital, growing economy in North Carolina's future.

Primary Goals

The primary goals of the Business Engagement Guide are:

- To outline a clear pathway or sequence of tasks involved in implementing activities that connect businesses and schools
- To identify and focus on the broad categories of interactions between businesses and schools that have the potential for the greatest impact
- To list examples of successful programs offering opportunities for businesses and schools to interact
- To clearly define best practices as well as templates, policies and procedures for establishing business advisory boards, student internships, job-shadowing and mentoring experiences, teacher externships, etc.
- To identify local examples of schools and businesses that are implementing these programs in ways that produce benefits for all parties involved
- To provide information about North Carolina laws that govern work-based experiences

Establishing a Business Advisory Board

The first steps in linking business and schools should be to establish a Business Advisory Board and initiate a discussion about how to develop clear and measurable goals that are linked to the school's mission statement and/or the School Improvement Plan. Board duties include electing officers, establishing operating principles (or by-laws), identify operating committees based on Board goals, defining roles and responsibilities for committee chairs and members, and meeting monthly with a planning agenda and published minutes of the meeting. Examples templates and guiding principles for establishing a Business Advisory Board were gathered from successful

efforts in North Carolina. The documents listed below should help to initiate a Business Advisory Board and may also be found online:

- Sample Planning Outline
- Sample Initial Business Advisory Board Agenda
- Sample Inventory of Board member "Skills/Knowledge" based on 21st Century Skills
- Sample Inventory of Board member "Experience with Educational Committee Tasks"
- Sample Board Member Summary Sheet—Goals, Activities, and Objectives (first year)
- Sample Business Advisory Board Agenda (template for meetings after the initial meeting)

Recruitment of initial Board members is crucial in forming a "critical mass" of individuals who can begin the tasks of forming/governing the Board and recruiting of other Board members. Using the members of a Leadership Team, Chamber of Commerce, etc. as sources, identify potential members who express genuine interest in the school. The school's Principal should then engage these potential members in direct conversation, explain the mission of the school, and how the Board would serve as a resource, advocate, and advisor to the partnership between the school and local businesses.

Work-based Learning Experiences

Work-based learning experiences are learning activities that provide practical experience directly related to the workplace. The experience may be paid or unpaid and may last from a few hours to several months. The interactions are coordinated with school-based activities in an attempt to show students the relevance of what they are learning at school. The following links provide more detail:

- Work-based Learning Experiences –NCDPI provides detailed guidance for schools and businesses wishing to engage in work-based learning experiences (definitions, benefits, how to identify and engage partners, etc.):
  - Job Shadowing
  - Cooperative Education
  - Internship
  - Apprenticeship
- NC Economic Development Regions – Map of all regions including links to contacts at local economic development organizations; click on your region for details.
- Local Workforce Development Boards – List of local boards that may offer assistance to North Carolina business partners and school personnel who wish to work together.

- Local Chambers of Commerce – Contact information for local Chambers who may wish to work with schools.

The following examples of successful work-based experiences already established in North Carolina may be helpful to schools and businesses as they consider how to implement the most appropriate programs for their community:

Student Internships

Through an internship, a student learns by taking on a responsible role as a worker in a company or organization. The internship allows students to observe and participate in daily operations, develop direct contact with company personnel, ask questions about particular careers, and perform certain job tasks. Internships may be paid or unpaid. The work experience should be directly related to the chosen career pathway of the student. Best practices suggest that successful internships should include:

- Ongoing conversations between the host business and the participating school
- Clearly defined expectations for all parties
- A careful student selection process including mock interviews
- Accountability that includes regular monitoring of activities while the student is interning and a final student presentation that demonstrates the student's growth and learning.

Detailed guidelines and procedures for establishing an internship program are provided by NCDPI. It is recommended that all parties review these guidelines in order to comply with North Carolina laws. Specific legal guidelines are available online.

See other successful examples, templates:

- The National Academy Foundation supports several North Carolina schools that include internships (See list of North Carolina sites).
- Student Internship Packet created by Apex High School. This packet is based on, but not limited to, guidelines established by the National Academy Foundation. It contains suggested prerequisites for interns, guidelines for mock interviews, expectations, legal agreement templates for students and host businesses, etc.
- Student Internship Packet created by Carl Wunsche Sr. High School, a career academy in Spring ISD, Houston, TX. Contains overview, guidelines, evaluation forms, suggestions for managing interns, etc.

Job Shadowing

Short-term educational experiences that introduce an individual student to a particular occupation by pairing the student with an employee of a business, industry, or agency may be defined as Job Shadowing. By following or "shadowing" the employee, the student becomes familiar with the duties associated with that occupation, the physical setting of the occupation, and the compatibility of the occupation with his or her own career goals. See detailed information provided by NCDPI. Specific examples include:

- Students@Work is a job shadowing effort of the North Carolina Business Committee for Education in partnership with First Gentleman Robert Eaves. The goal is for North Carolina businesses to help middle school students in their community see the opportunities that exist in the workplace. Watch a video about Students@Work to learn how to get involved.
- Junior Achievement is the world's largest organization dedicated to educating students in grades K-12 about entrepreneurship, work readiness and financial literacy through experiential, hands-on programs. (Use the Map to find a program in a North Carolina school near you.)

Cooperative Education

In Cooperative Education experiences, students are engaged in technical classroom instruction that is combined with paid employment directly related to the classroom instruction. The two experiences must be planned and supervised by the school and the employer so that each contributes to the student's career objective. Written cooperative agreements showing the instruction to be provided are developed by the school and employer providing the training. School credit is received for both the on-the-job training and the classroom components. See detailed information provided by NCDPI.

Mentoring

A mentorship typically involves pairing a student (mentee or protégé) with a community professional (mentor) in a one-to-one relationship, with the intent of providing first-hand experience in a career field/cluster of the student's choice. Mentors are encouraged to provide as much hands-on experience as possible and to give learners a view of all aspects of the career, including routine tasks, as well as creative and challenging opportunities. The mentorship differs primarily from an internship experience in that it is a one-to-one relationship. See detailed information provided by NCDPI. Specific examples would include:

- Futures for Kids utilizes technology to connect middle and high school students in North Carolina to real people and companies. These connections reinforce the relevance of education and provide motivation for completing high schools.
- Boys and Girls Clubs strive to enable all young people, especially those who need us most, to reach their full potential as productive, caring, responsible citizens.
- Big Brothers Big Sisters provides children facing adversity with strong and enduring, professionally supported, one-to-one relationships that change their lives for the better, forever.

- NC Communities In Schools - The mission of Communities In Schools is to surround students with a community of support, empowering them to stay in school and achieve in life. It is a part of the national Communities In Schools network, which is the leading dropout prevention organization in the country, and the only such organization that is proven to decrease the dropout rate and increase on-time graduation rates.
- The NC Technology Student Association is part of a nonprofit national student organization devoted to teaching technology education to young people. TSA's mission is to inspire its student members to prepare for careers in a technology-driven economy and culture. The demand for technological expertise is escalating in American industry. Therefore, TSA's teachers strive to promote technological literacy, leadership, and problem solving to its student membership.

Apprenticeship is one of the oldest methods of career preparation. Industry-driven apprenticeship programs are developed for high school students who are at least 16 years old. The development of an apprenticeship opportunity for a student is done collaboratively by the local school, a business partner, education entities, and the N.C. Department of Labor Apprenticeship Bureau. Parents are also a key contributor to a student apprentice having a successful career development experience.

Apprenticeship is recommended for students who have solidified their career choice after participating in other work-based learning programs such as internship or cooperative education. High school apprenticeship combines practical work experience with related academic and technical instruction usually taught at the high school. An apprentice's work-based learning is taught and managed by a journeyman in that occupation. Students continue their learning after high school graduation both on the job and in the classroom while earning a nationally recognized credential and in some instance an associated degree.

The work-based and classroom skills provided to the student are documented in a comprehensive set of work processes and competencies based on industry standards and job education requirements. Students are evaluated on both the educational requirement as well as job performance. The prescribed training plan for the student can last from two to four years.

The apprenticeship work-based model is structured to provide students who complete the training plan with portable credentials, and industry-defined skills that support employers' competitiveness in the global economy.

A working example of a high school apprenticeship model is the Elizabeth City-Pasquotank County Apprenticeship Program. This apprenticeship program was recognized in 2005 by the NC Department of Labor as the state's Outstanding Apprenticeship Program for High Schools/High School Systems. The program connects to the aviation industry in occupation categories that include aircraft mechanics, sheet metal mechanics, and aircraft electronics. The partnership includes local employers the US Coast Guard

and DLS Engineering, Elizabeth City-Pasquotank School System, the College of Albemarle, Elizabeth City State University, and the NC Department of Labor.

Another example is the Apprenticeship 2000 model (www.apprenticeship2000.com). A group of seven employers, students recruited from six public schools systems, and Central Piedmont Community College make up this partnership. The students must meet certain criteria, are interviewed, and attend a company orientation with their parent(s) where they learn about company objectives, job requirements and job benefits. Upon graduation from high school, students continue skill development and professional growth in their apprenticeship. This "earn and learn" model provides the employer with a skilled worker and the apprentice with an associate degree and a rewarding career.
A good reference document for high school apprenticeship in North Carolina is the High School Apprenticeship Handbook issued by NC Career and Technical Education in North Carolina Public Schools.

Project-Based Learning & Experience for the Real World

Classroom projects can be used to promote higher level thinking, develop and master skill knowledge, and prepare students for the work force and higher education. The Buck Institute defines project-based learning: "Students go through an extended process of inquiry in response to a complex question, problem, or challenge. Rigorous projects help students learn key academic content and practice 21st Century Skills (such as collaboration, communication & critical thinking)."

Providing classroom projects that bring relevancy to the classroom environment can be accomplished through:

1. Real-life projects with local business partners
2. Project-based learning

Real-life projects with business partners can be used to engage students and teachers with the classroom curriculum and how it relates to what the students will use after high school. The teacher may engage a local business that provides products or services directly related to the classroom topic. For instance, a machine shop can provide access to welding equipment and teach the students how welding can be used to design and construct solutions to everyday problems; the teacher can show how math, geometry, materials engineering, and chemistry relate to welding and products produced.

Project-based learning is similar, but may or may not engage local business. The New Tech high school program uses project-based learning and uses The Buck Institute (http:/www.bie.org/) as a resource to design and implement project-based learning.

Existing outreach programs would include:

1. **Future City Middle School Outreach Program** (www.futurecity.org) The Future City® Competition lets 6th, 7th, and 8th graders make dreams a reality as they imagine, design, and build cities of the future.
2. **NC Science Olympiad** http://www.sciencenc.com/ - North Carolina Science Olympiad (NCSO) is a nonprofit organization with the mission to attract and retain the pool of K-12 students entering science, technology, engineering, and mathematics (STEM) degrees and careers in North Carolina. Every year NCSO hosts tournaments on university, community college, and public school campuses across the state. Each year, thousands of business and community volunteers coach students and donate their time to making the Science Olympiad a success.
3. **NC Science Festival** http://www.ncsciencefestival.org/ The North Carolina Science Festival is a statewide celebration of science and its impact on education, culture and economics within North Carolina. The first North Carolina Science Festival spanned Sept. 11–26, 2010, and was the first-ever statewide science festival in the United States. UNC's Morehead Planetarium and Science Center founded and coordinates the festival, with participation by museums, parks, community sites and other facilities throughout the state. 17 business partners sponsored more than 400 events across the state.

Other resources for engaging the business community are:

1. North Carolina Business Committee for Education (www.ncbce.org)
2. Chambers of Commerce
3. Economic development commissions
4. Research campuses such as NCRC (http://www.ncresearchcampus.net/index.aspx)
5. Professional organizations such as
   a. PENC – Professional Engineers of North Carolina (www.penc.org)
   b. ASHRAE – American Society of Heating, Refrigeration, & Air-conditioning Engineers (www.ans.org)
   c. ANS – American Nuclear Society (www.ans.org)
   d. ASCE – American Society of Civil Engineers (www.asce.org)

Teacher Externships

Teacher externships represent opportunities for teachers to broaden their own experiences outside the classroom so they can enrich instruction for their students with real world of work problems and opportunities. As schools seek new ways to extend learning beyond the classroom, externships give teachers direct experience in the corporate and business environment, enabling them to more directly connect learning to the world of work.

Externships provide business and industry a means to build awareness about specific industries among teachers who are in the best position to influence the workforce of tomorrow. They also can bring productive value to companies through temporary, educated adults who bring fresh perspective to the job.

Through externships, teachers observe and participate in the workplace and directly gain insight to the academic, technical and interpersonal skills their students will need to be successful in future careers. That experience enriches teachers' instructional approach, making the classroom more relevant and meaningful for students.

Externships typically occur in the summer months or during other school breaks. They range in length from a day to several weeks, with teachers able to more fully immerse themselves in the experience during the longer opportunities. Externs carry out specific projects in the workplace and gain an understanding of corporate goals and principles. Teachers then translate that experience into improved pedagogy, including new methods, labor market information and job skills that meet industry standard.

Some externships are underwritten by grants, such as the competitive Kenan Fellows Program. Others are supported by the corporations or businesses providing the opportunity, with companies paying wages, unemployment taxes and carrying workers' compensation insurance for teacher externs. If the externship occurs during the school year, payment for a classroom substitute teacher will be needed.
Examples and resources:

- The Kenan Fellows Program for Curriculum and Leadership Development, established in 2000, recognizes the key role of effective teachers and the value of STEM (science, technology, engineering and math) education in the global economy.
- The Career Academy Support Network in the Graduate School of Education at the University of California at Berkeley provides a Teacher Externships Guide filled with information, examples and tools for effective externships.
- The Connecticut Business & Industry Association offers a web-based resource site for those interested in teacher externships.

Field Study

Field study is an opportunity for students to leave the classroom to experience learning away from the school campus. This short-term visit to a business or agency expands the learning opportunities for participating students. The field study allows students to observe and investigate activities related to a specific subject and career development objective. It extends the learning environment beyond the school

building, thus emphasizing the relationship between school and work. See detailed information provided by NCDPI.

One example of a field study is provided by the Contemporary Science Center (CSC) in the Research Triangle Park. CSC Field Studies are for classes of 8th grade or high school math, science or technology students. These field studies are created for teachers to bring their students where they experience a day of authentic science that enriches their regular lessons. Each field study guides students through a five-hour, problem-based experience, with cutting-edge science from local companies being the 'relevance' that students respond readily to (and which meets the Standard Course of Study). Each study divides the day into three parts. Initially students learn or review important concepts in very active, social and creative hands-on ways, so they have enough knowledge to address the day's 'problem.' Then they take on the role of researchers and are guided to brainstorm possible solution paths, truly 'inquiring' into the problem at hand. Additionally, each field study has a strong data gathering, analysis and modeling section, where kids experience first-hand how much math is truly the language of science. Computational modeling is often used to speed up the results the class needs for the day. Each day ends with the students presenting and discussing their recommendations for how this company's discovery should be used, as company scientists are required to do.

Again, this document is designed as a guide to better intersect schools, teacher, and students with opportunities to connect with the business community. Building strong connections between the private sector and schools will enhance students' learning experiences, prepare them for life and success in the 21st century and increase the relevance of classroom activities. Such deep partnerships benefit not only the students, but the state as a whole as we fuel the workplace pipeline of the future.

Note: This document is a working list of the things going on in North Carolina and is in no way reflective of all of the activities occurring across North Carolina that can be avenues to link business and education.

DRAFT

Priority	Goals	Recommended Strategies
Increasing our student, teacher and institutional STEM Achievement	• Increase student interest in STEM fields and in continuing their education • Increase STEM Achievement of K-12 students • Increase the graduation rate of students in STEM programs • Decrease postsecondary remediation rates • Increase the number of teachers prepared and delivering integrated STEM education	1. *Adopt a set of attributes for STEM schools and programs, aligned with 21st Century Skills, to assist public and private organizations align, coordinate and advance STEM skills for all students.* 2. *Measure a set of measurable indicators along the education-to-workforce continuum to guide the current and future implementation of the STEM Strategy.* 3. *Implement a designation for STEM Schools and Programs, aligned with the STEM Attributes, to drive the goals and measures outlined within this STEM Strategy.* 4. *Identify high-quality tools and supports – such as rubrics, self-assessments – to enable schools, programs and businesses to advance consistent understanding and application of the adopted STEM Attributes.* 5. *Advance professional development for pre-service and in-service educators aligned with the integrated STEM teaching and learning.*
Gaining and sustaining broader Community Understanding and Support for the needs of a knowledge-based economy	• Increase community understanding, awareness, and support for the economic challenges. • Increase the connections, partnerships, and growth of high-quality programs, schools, and tools	6. *Coordinate a public awareness campaign to 100 counties utilizing public/private partnerships, to inspire and engage North Carolina citizens in this economic challenge.* 7. *Identify and convene leading programs, partners and schools to advance and highlight best practices to every county* 8. *Provide a one-stop action-oriented web-based resource for students, teachers, parents, and businesses to access and get involved in STEM learning*
Connecting, Leveraging & Increasing STEM Resources across public and private sectors to improve our citizens and their economic future	• Increase returns on public and private investments in STEM education • Align & coordinate the investments of public & private sector partners to scale high-quality programs efficiently	9. *Invest public and private funds over the next 10 years to scale effective STEM programs, policies and practices throughout every economic development region of North Carolina* 10. *Identify and fund a public/private partner for the coordination, evaluation and monitoring of STEM Education programs and initiatives* 11. *Incentivize collaborations based on evidence-based policies, programs and practice that greatly increases the number of students gaining STEM skills and continuing in STEM fields of work.* 12. *Formally establish a STEM Council to facilitate and coordinate the implementation of North Carolina's comprehensive STEM strategy.*

North Carolina's Science, Technology, Engineering, and Mathematics (STEM) Education Strategy

EXECUTIVE SUMMARY 2
STEM EDUCATION – AN ECONOMIC IMPERATIVE FOR NORTH CAROLINA 4
Aligning K12 with K20 and Economic Needs 5
THE FRAMEWORK FOR THE STEM EDUCATION STRATEGY 5
Framework-at-a-Glance for Statewide STEM Education Strategy 6
PRIORITY 1: IMPROVING STEM ACHIEVEMENT 8
ATTRIBUTES OF STEM SCHOOLS AND PROGRAMS 8
STEM ACHIEVEMENT MEASURES 9
STEM DESIGNATION 12
STEM TOOLS & SUPPORTS 12
STEM EDUCATOR DEVELOPMENT 13
PRIORITY 2: BOLSTER COMMUNITY UNDERSTANDING & SUPPORT 14
PUBLIC AWARENESS CAMPAIGN 14
BEST PRACTICE IDENTIFICATION 14
ONE-STOP STEM PORTAL 15
PRIORITY 3: CONNECT, LEVERAGE & INCREASE STEM RESOURCES 18
STEM INVESTMENTS 18
PUBLIC/PRIVATE PARTNER 19
COLLABORATION INCENTIVES 20
STEM COUNCIL 21
ENDNOTES 22
APPENDIX I – CURRENT & NEEDED INITIATIVES 23
APPENDIX II – ADDITIONAL PROGRESS MEASURES 27
APPENDIX III – STEM SCHOOLS RUBRIC (DRAFT) 28
APPENDIX IV – WEB-BASED RESOURCE DESIGN DOCUMENTS 28

Public Schools of North Carolina
State Board of Education | Department of Public Instruction

Executive Summary

North Carolina has arguably the finest business climate in America. However, the state is undergoing a critical economic transformation, moving rapidly from a low-skill, low-wage economy to a high-skill, knowledge-based economy driven by technology and innovation. These changes demand an adaptable workforce - one with the science, technology, engineering and math (STEM) skills embedded within the critical 21st Century skills required for successful citizenship. To maintain North Carolina's supremacy, future workers must have the STEM skills leading companies demand and citizenship in the 21st Century now requires for success.

Fortunately, North Carolina can boast a high number of statewide and local STEM education initiatives, as well as strong education standards and public and private organizations promoting education innovation in their communities and regions. No matter their geographic, political, or economic disposition, North Carolina's leaders agree that **a coordinated, statewide STEM Education strategy** with clear direction, support and goals is needed to ensure a workforce that is prepared for the high-skill, high-wage, high-demand jobs of a knowledge-based and innovation economy.[1] The plan must be built on a shared vision that leverages public and private resources in the most effective and efficient manner possible, moving North Carolina further and faster toward a world-class workforce and sustained economic growth and development in a global market.

North Carolina is poised to lead the nation with vibrant STEM-based education and economic systems. It is time for North Carolina to connect the many "islands of excellence" across the state into a bright future for all its citizens and communities. To build and maintain the world-class workforce needed to ensure economic prosperity in a global market, North Carolina must focus on the following three priorities and measure our progress against these strategies:

Priority 1: Increasing our student, educator and institutional STEM Achievement

Strategy: Adopt a set of attributes for STEM schools and programs, aligned with 21st Century Skills, to assist public and private organizations align, coordinate and advance STEM skills for all students.

Strategy: Measure a set of student achievement indicators along the education-to-workforce continuum to guide the current and future implementation of the STEM Strategy.

Strategy: Implement a designation for STEM Schools and Programs, aligned with the STEM Attributes and these student achievement indicators.

Strategy: Identify high-quality tools and supports – such as rubrics, self-assessments – to enable schools, programs and businesses to advance consistent understanding and application of the adopted STEM Attributes.

Priority 2: Gaining and sustaining broader community understanding and support for education innovations that support our economic needs

Strategy: Coordinate a public awareness campaign to 100 counties utilizing public/private partnerships, to inspire and engage North Carolina citizens in this economic challenge.

Strategy: Identify and convene leading programs, partners and schools to advance and highlight best practices to every county

Strategy: Provide a one-stop action-oriented resource for students, educators, parents, and businesses to get involved in the STEM initiative.

Priority 3: Connecting, leveraging & increasing STEM Resources across public and private sectors to improve our citizens and their economic future

Strategy: Invest public and private funds over the next 10 years to scale effective STEM programs, policies and practices throughout every economic development region of North Carolina

Strategy: Identify and fund a public/private partner that coordinates, evaluates and monitorsSTEM Education programs and initiatives

Strategy: Incentivize collaborations based on evidence-based policies, programs and practice that greatly increases the number of students gaining STEM skills and continuing in STEM fields of work.

Strategy: Establish a STEM Council to facilitate and coordinate the implementation of North Carolina's comprehensive STEM strategy.

STEM Education – An Economic Imperative for North Carolina

North Carolina is undergoing a critical economic transformation. The state is moving rapidly from a low-skill, low-wage economy to a high-skill, knowledge-based, technology, and innovation economy, and these changes demand an adaptable workforce. As this transformation occurs, NC's traditional "middle jobs" — those that paid a family-sustaining wage and required minimal formal education or training— are disappearing. Furthermore, impending baby-boom retirements will exacerbate an emerging gap between workers' skills and job demands.

In our state's newly emerging industries, such as agribusiness, advanced manufacturing, technology and research, excellence in *S*cience, *T*echnology, *E*ngineering, and *M*athematics (STEM) is essential. As the President indicated in his 2011 State of the Union address, "We know what it takes to compete for the jobs and industries of our time.... **We need to out-innovate, out-educate, and out-build the rest of the world.**"[2] This country's "success as a nation depends on strengthening America's role as the world's engine of discovery and innovation."[3] Technological innovation accounted for almost half of this country's economic growth over the past 50 years, and almost all 30 of the occupations expected to grow the fastest in the next decade will require at least some background in STEM.[4]

In North Carolina there are approximately 400,000 STEM-related jobs, and more than 70,000 net new STEM-related jobs will be created by 2020. This reflects a growth rate greater than for all other jobs in North Carolina. STEM-related jobs in North Carolina pay 64 percent more than the average job., These STEM-related jobs will serve as the economic engine driving this state's future. Yet, even during the periods of highest unemployment, companies reported difficulty finding qualified workers for STEM-related jobs.[5]

North Carolina has arguably the finest business climate in America. Sources such as Site Selection Magazine, Chief Executive Magazine and Forbes consistently tout North Carolina as a leading state in which to do business. The state was 2nd in the nation for job creation between September 2009 and September 2010, and 5th in the nation for personal income growth since June 2009. There has been a ten percent increase in corporate profits.[6] To maintain that supremacy, workers must have the skills leading companies demand, and those skills are clearly STEM focused.

Both public and private sectors recognize this need, and have stepped up to develop efforts to address it. Through Governor Beverly Perdue's JobsNOW initiative, the state aggressively is working to create jobs, train and retrain its workforce, and lay the foundation for a strong and sustainable economic future. **North Carolina is committed to ensuring its future economic prosperity by building a pipeline of highly skilled workers and increasing the number of high-skill/high-wage/high-demand jobs available to its citizens. This will require achieving higher educational attainment levels for all citizens.**[7]

This critical need is non-partisan, a concern for Republicans and Democrats, public and private citizens, local and state and national leaders. The Lt. Governor's JOBS Commission is a bipartisan effort to align education requirements with today's business needs. In addition, North Carolina can boast of a myriad of STEM programs and initiatives across public and private sectors. These programs are not only designed to produce and inspire the next generation of scientists, technologists, engineers, and mathematicians, but also help prepare ALL students

successfully compete in the 21st century economy. These include programs and activities intended to directly engage students, as well as programs and activities designed to recruit, prepare, and retain effective educators in the STEM areas. North Carolina has strong pockets of promising practices and many strengths to be leveraged across the state.

This critical workforce need combined with a large number of programs and high rate of innovation requires a coordinated STEM Education Strategy to align, innovate, and advance the STEM skills all students need to ensure their success in every community of North Carolina.

Aligning K12 with K20 and Economic Needs

North Carolina has not been idle in STEM education. Through *Career and College – Ready, Set, Go!* and programs such as *Career & College Promise*, North Carolina is leading the transformation of our state's system of public education to ensure all students graduate from high school equipped to succeed in a career, in a two- or four-year college, or in technical training, and prepared to compete successfully in a global, knowledge-based and innovation economy. The Standard Course of Study has been updated based on nationally-recognized Common Core standards and international standards. Teachers and principals are being provided tools and access to professional development that will help them reach all students, and technology is being used to support student learning. Because excellence in STEM skills are essential for our workforce in a global, knowledge-based, and innovation economy, a crucial component of the transformation includes improving STEM Education for all students.

North Carolina recognizes our workforce needs are not that of a single organization, institution or sector. Many of the initiatives to reach these goals should directly connect and leverage existing or future efforts across institutions along the education-to-workforce continuum.

The Framework for the STEM Education Strategy

Students and educators are the focal point of every effective education strategy, but North Carolina understands these critical resources are a vital part of a larger system and environment. Through extended conversation with K20 education system leaders, research of hundreds of local, state and national initiatives, and deliberate engagement of private sector, foundations, economic development and other non-education stakeholders, North Carolina has created the first statewide STEM Education Strategy. The STEM Education Strategy focuses on three immediate and reinforcing priorities, outlines measurable goals and twelve corresponding strategies. These twelve corresponding strategies have been vetted through multiple lenses to position North Carolina as a leader, both educationally and economically.

The North Carolina Department of Public Instruction and NCCCS have produced a list of Current and Needed STEM Initiatives associated with the three priorities, provided in Appendix 1.

Framework-at-a-Glance for Statewide STEM Education Strategy

Priority	Goals	Recommended Strategies
Increasing our student, teacher and institutional STEM Achievement	• Increase student interest in STEM fields and in continuing their education • Increase STEM Achievement of K-12 students • Increase the graduation rate of students in STEM programs • Decrease postsecondary remediation rates • Increase the number of teachers prepared and delivering integrated STEM education	1. *Adopt a set of attributes for STEM schools and programs, aligned with 21st Century Skills, to assist public and private organizations align, coordinate and advance STEM skills for all students.* 2. *Measure a set of measurable indicators along the education-to-workforce continuum to guide the current and future implementation of the STEM Strategy.* 3. *Implement a designation for STEM Schools and Programs, aligned with the STEM Attributes, to drive the goals and measures outlined within this STEM Strategy.* 4. *Identify high-quality tools and supports – such as rubrics, self-assessments – to enable schools, programs and businesses to advance consistent understanding and application of the adopted STEM Attributes.* 5. *Advance professional development for pre-service and in-service educators aligned with the integrated STEM teaching and learning.*
Gaining and sustaining broader Community Understanding and Support for the needs of a knowledge-based economy	• Increase community understanding, awareness, and support for the economic challenges. • Increase the connections, partnerships, and growth of high-quality programs, schools, and tools	6. *Coordinate a public awareness campaign to 100 counties utilizing public/private partnerships, to inspire and engage North Carolina citizens in this economic challenge.* 7. *Identify and convene leading programs, partners and schools to advance and highlight best practices to every county* 8. *Provide a one-stop action-oriented web-based resource for students, teachers, parents, and businesses to access and get involved in STEM learning*
Connecting, Leveraging & Increasing STEM Resources across public and private sectors to improve our citizens and their economic future	• Increase returns on public and private investments in STEM education • Align & coordinate the investments of public & private sector partners to scale high-quality programs efficiently	9. *Invest public and private funds over the next 10 years to scale effective STEM programs, policies and practices throughout every economic development region of North Carolina* 10. *Identify and fund a public/private partner for the coordination, evaluation and monitoring of STEM Education programs and initiatives* 11. *Incentivize collaborations based on evidence-based policies, programs and practice that greatly increases the number of students gaining STEM skills and continuing in STEM fields of work.* 12. *Formally establish a STEM Council to facilitate and coordinate the*

implementation of North Carolina's comprehensive STEM strategy.

Priority 1: Improving STEM Achievement

Increasing student interest and performance in STEM will require a relevant, rigorous curriculum, delivered by educators that have mastered integrated content across subjects, pedagogy, and 21st century instructional tools and assessments. Students and educators will operate in schools that have both effective instructional leaders and the support of parents, business and industry, and the community.

Goals:

- ✓ Increase student interest in STEM fields and in continuing their education
- ✓ Increase STEM Achievement of K-12 students
- ✓ Increase the graduation rate of students in STEM programs
- ✓ Increase the number of educators prepared and delivering integrated STEM education
- ✓ Decrease the postsecondary remediation rates

Strategy: Adopt a set of attributes for STEM schools and programs, aligned with 21st Century Skills, to assist public and private organizations align, coordinate and advance STEM skills for all students.

. North Carolina has strong pockets of promising practices and many strengths to be leveraged across the state. However, we lack a framework to scale what works and a clear declination of the characteristics of a quality STEM education.

Beyond focusing on Science, Technology, Engineering, and Mathematics, STEM Education provides the opportunity to teach students what to do when they do not know what to do, how to process and take action in new and uncomfortable situations, and how to understand, interact, and lead in the jobs, communities, and world in which they live. Effective STEM Education schools and programs are characterized by the following:

Integrated Science, Technology, Engineering and Mathematics (STEM) curriculum, aligned with state, national, international and industry standards

- Project-based learning with integrated content across subjects
- Connections to effective in- and out-of-school programs
- Integration of technology and virtual learning
- Authentic assessment and exhibition of STEM skills
- Professional development on integrated STEM curriculum, community/industry partnerships and connections with postsecondary education connections
- Outreach, support and focus on underserved, especially females and minorities and economic disadvantaged

On-going community and industry engagement

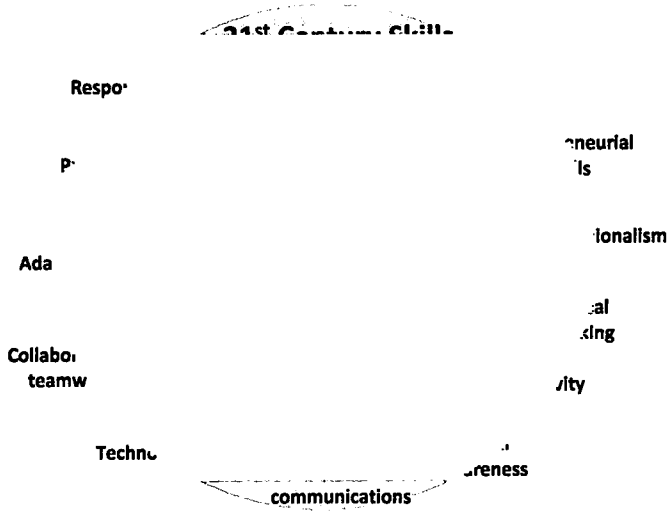
- A communicated STEM plan is adopted across education, communities and businesses
- Work-based learning experiences, to increase interest and abilities in fields requiring STEM skills, for each student and educator
- Business and community partnerships for mentorship, internship and other opportunities that extend the classroom walls

Connections with postsecondary education

- Alignment with students' career pathway with postsecondary program(s)
- Acquisition of postsecondary credit and industry credential while in high school

These attributes are central to the 21st Century Skills expected to be the overall goal of all education in North Carolina, as outlined in Figure 1 below.

Figure 1



Strategy: Measure a set of student-achievement indicators along the education-to-workforce continuum to guide the current and future implementation of the STEM Strategy.

In order to achieve the goals and remain focused on the priorities, no single measure or metric can suffice. And, while individual programs should receive rigorous evaluation and measurement, the Statewide STEM Education Strategy will need data-driven prioritization based on valuable indicators in multiple areas. Both traditional education measures of student achievement (graduation rate, math completion, etc.) and teacher/leader effectiveness measures are part of the prioritization, but must be designated with the end in mind – that is, preparing and growing North Carolina's trained workforce. In order to measure progress and provide ongoing prioritization, North Carolina should define a statewide STEM scorecard, highlighting indicators in four primary areas:

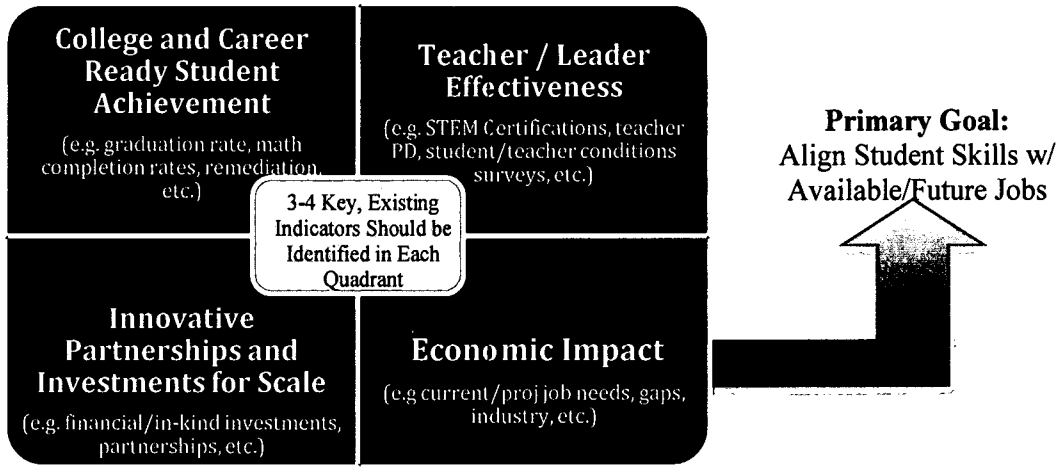


Figure 2.0 – Draft Scorecard areas to track specific progress indicators for STEM Strategy.

The pertinent education measures (student achievement and teacher/leader effectiveness) are currently included within the Career & College: Ready Set Go! initiative funded through Race to the Top, as well as the State Board of Education and NC Department of Public Instruction.

However, in order to effectively "close the gap between the number of existing and future jobs requiring STEM skills and the number of individuals with a valuable, post-secondary credential to fill those jobs" (Reference: SL 2010 41), consistent information on the number, types and availability of jobs in North Carolina's workforce is critical. The NC Department of Commerce and Workforce Commission have deep economic data from which key indicators could be identified.

Finally, financial, in-kind and resource alignment measures should be identified that provide insight into the investments by both public and private sector partners. State investments in these areas, as well as local, state and national investments in financial and in-kind support for STEM related activities – be they from public or private sources – will need to be measured to ensure collaboration, understand return on investment and inform prioritization decisions.

Indicators to Guide State STEM Strategy

The following measures are recommended for immediate compilation in 2011-2012 (baseline). These are listed as aligned with the education-to-workforce continuum:

Birth

*** Measures are aggregated at School, District or State level. Student and Program level data would require Unique Student Identifier.**

The measures listed in black are currently collected, and should be compiled as soon as possible to prepare a baseline. Those listed in "red" are needed and should be prioritized. These measures are aligned and agreed to by K-20 systems. However, until a common unique identifier for students is utilized by all K20 systems, measurement will only be possible in the aggregate (School, District, Region or State level), not the program or student level.

The business sector has often repeated the mantra "what gets measured gets done". By initiating these measures along the education-to-workforce continuum, North Carolina will guide the Statewide STEM Strategy at multiple levels. As soon as possible, the following additional steps should be taken to increase local and state alignment with this strategy:

- Programs, policies and partnerships in current or new initiatives to advance the Statewide STEM Strategy should focus on at least one of the above indicators.
- Common measures and indicators for public and private investments in STEM education should be identified and compiled.
- Where and when possible, North Carolina and its partners should utilize the data compiled to guide and prioritize resources, policies and efforts towards agile decision-making to ensure the largest possible student progression in this STEM pipeline.
- Additional, highly-pertinent measures and indicators may be identified to further enable guidance, policy and focus of the Statewide STEM Strategy
- When available, a common unique student identifier (K-20) should be used to allow for program specific data.

NC DPI and NCCCS have outlined more detailed indicators associated with the STEM Strategy which may also be taken into consideration, included in Appendix II.

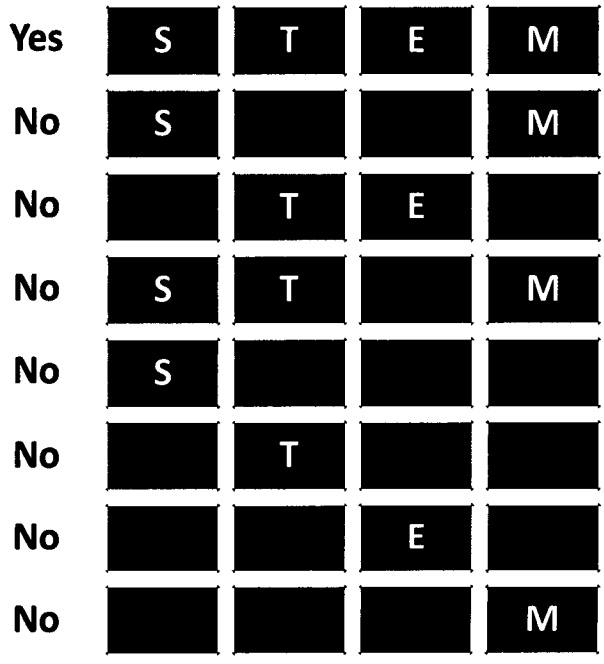
Strategy: Implement a designation for STEM Schools and Programs, aligned with the STEM attributes and measures outlined within this STEM Strategy.

The term "STEM School" or "STEM Program" has become common across the country to designate a school or program with a particular focus on science, technology, engineering and/or math. However, no consistent method for applying the disciplines, rigor or integration of STEM subjects is in place. North Carolina should encourage and support the growth of STEM-focused institutions and programs by creating a STEM Designation for STEM Schools and STEM Programs.

Once adopted, a STEM Designation based on the STEM attributes will provide clear communication and consistent application of the term "STEM" to schools and programs. Much like the role of Leadership in Energy & Environmental Design (LEED) Certification in building standards, a STEM Designation can be a goal, an honor, and a framework for change.

Such a framework provides both a "roadmap" and a "destination" for schools and programs. For those STEM schools/programs able to show evidence of MOST of these attributes, the designation allows clarity and understanding of their approach with some fidelity to the statewide STEM strategy. For others, the designation makes clear where they might continue working with partners, stakeholders, and leaders to achieve the attributes that have not yet been attained in order to be designated a STEM School or program.

Beyond the honor of obtaining a STEM Designation, the adoption of STEM indicators and measures will assist the state, its schools and programs understand on the goals critical along the STEM education-to-workforce continuum.



Is this STEM?

STEM is integrated and advances all subjects. While programs may be effective in one, two, or three of the areas, they will need to show attributes and gains in all four areas for designation.

Strategy: Identify high-quality tools and supports – such as rubrics, self-assessments – to enable schools, programs and businesses to advance consistent understanding and application of the adopted STEM Attributes.

North Carolina should identify and, when needed, support the creation of rigorous, aligned tools and supports to facilitate schools and programs who wish to advance STEM skills for its students. These tools and supports should be evidence-based in nature, aligned with national and international standards, and increase the connectivity and consistency of STEM schools and programs. Organizations, both public and private, should build and share such tools and supports

aligned with the STEM attributes and STEM Indicators, and those tools and supports that are aligned and show value for schools and programs should be considered for endorsement and proliferation by the STEM public/private partner and STEM Council (see Priority 3).

For example, the Golden LEAF Foundation, the William & Ida Friday Institute for Education Innovation at NC State University and the North Carolina STEM Community Collaborative have collaborated on a rubric and self-assessment aligned with the STEM attributes (See Appendix III). The tools were originally designed for evaluation of programs under a private grant initiative. However, through the collaborative efforts, the tools will support schools – especially high schools – and programs within Race to the Top initiative, the Golden LEAF Foundation's STEM grant initiative, and NC State's MISO project documenting STEM projects. Tools and supports such as these should also be identified and distributed to any school or program willing to advance the Statewide STEM Education Strategy. These tools not only support the on-the-ground efforts of schools and programs, but when implemented consistently, provide for increased alignment of public and private investments in STEM students, educators, schools and communities.

Strategy: Advance professional development for pre-service and in-service educators aligned with the integrated pedagogy and project-based learning methods of STEM teaching and learning.

Research shows that the single most important factor in student achievement is the impact of the teacher in the classroom. North Carolina recognizes that the educator in the classroom is part of a large system of education. As the 'point of the spear' for STEM education, the state must invest in training, professional development, tools and certification that allow for teachers and school leaders to master the integrated practices, pedagogy and curriculum to advance the STEM skills, attributes and learning for all students. Whether project-based, problem-based, Socratic, inquiry-based, virtual or other method, teachers will need access before entering the classroom and professional development, learning opportunities, and peer supports to continuously meet the demands of STEM education and improve instruction in the face of changing standards.

In particular, North Carolina should leverage its own substantial efforts with national partners and expertise in the areas of:

- Certification and/or Licensure for STEM Teachers (pre-service and in-service)
- Alternative Licensure methods for STEM Teachers
- STEM Teacher and Leader Development tied to the STEM Attributes and Tools
- Lateral-Entry for STEM Professionals into Education
- Part-time or Split-time STEM Professionals in the Classroom
- Alignment of STEM Teaching with Common Core, National and International Standards

Priority 2: Bolster Community Understanding & Support

Helping citizens understand the urgent need of STEM Education and building a sustained commitment to support STEM Education will require all citizens understand how to get involved and appreciate the consequences of failing to act – for themselves, their children, and their communities. It will require a shared vision of the future is regularly communicated and discussed by leaders in every sector, of every background, and in every community. It will require sharing information in an open, consistent, and straightforward manner. It will require engaging all stakeholders in meaningful ways and inspiring them to action that produces results in both the short- and long-term.

Goals:

- ✓ Increase community understanding, awareness, and support for the economic challenges.
- ✓ Increase the connections, partnerships, and growth of high-quality programs, schools, and tools

Strategy: Coordinate a public awareness campaign to 100 counties utilizing public/private partnerships, to inspire and engage North Carolina citizens in this economic challenge.

Traditionally, STEM education has been the domain of certain geographies (e.g. Research Triangle Park) or certain occupations (e.g.- doctors, engineers, researchers, etc.). The majority of adults in America consider themselves "not a 'math person'". While leaders in North Carolina recognize the economic value of strong STEM education for all students – especially in light of massive economic transformation across the state – there is considerable confusion on how, where and when students, educators and the general public can best get involved, get connected and take action to advance STEM skills.

North Carolina mush engage the general public through traditional and social media efforts to raise awareness STEM education. Such a campaign should include messages that will:

- Convey the economic value of a STEM skills to current and future students and adults.
- Increase awareness of STEM Schools and Programs in every economic development region of the state.
- Illustrate critical education changes and opportunities (e.g.- Common Core Mathematics, Virtual Learning, etc.) in ways that advance understanding and adoption of STEM skills.
- Take advantage of public and private efforts, expertise, and outlets to encourage students, parents educators and business leaders to increase the number of students accessing and completing high-quality STEM programs.

Strategy: Identify and convene leading programs, partners and schools to advance and highlight best practices to every county.

Over 500 schools, programs, non-profits, competitions, private partners, and informal learning organizations have been identified in North Carolina (see "One-Stop Web Resource"). These efforts vary in focus, quality, geography, funding, target audience, and in almost every other category and measure. These programs tend to focus most of their energy and resources on programmatic activities for which they were created – not highlighting themselves or seeking additional partners. However, this critical and varied group of partners, programs and schools offers a wonderful opportunity for the State to maximize

shared resources, align efforts through partnership, collaborate for further reach and value, and innovate new and better practices for the enrichment of STEM skills.

A public/private partner (see "Priority 3") should assist with the identification and convening of STEM Schools, programs and partners to advance and highlight best practices in every economic development region of the state. These best practices can serve as examples to regions without previous access, can spur additional innovations and partnerships, can assist effective programs in growing, and, ultimately, advance student achievement in every county.

Strategy: Provide a one-stop action-oriented resource for students, educators, parents, and businesses to get involved in the STEM initiative.

Access to information about STEM programs and schools is more critical and more available than ever before. However, no single resource for students, educators, businesses and the general public exist in North Carolina. As in other states, a single resource will allow these critical stakeholders access to each other and to STEM schools and programs with which they would like to be involved. For STEM Schools and Programs, such a single resource can assist in growing programs and partnerships.

A STEM Portal – a one-stop action-oriented web-based resource connecting students, educators, businesses and general public with STEM schools and programs – should take advantage of the valuable efforts undertaken by different organizations in the past. The University of North Carolina General Administration has documented university-level programs targeting K12 education as recently as 2009. The North Carolina Science Mathematics and Technology Education Center also documented and provided a searchable listing of programs targeting K12 math and science opportunities, while the North Carolina Business Committee on Education (NCBCE) has an Education Resource Guide for use by business, within which some overlap with STEM Education occurs.

The NC STEM Community Collaborative at the request of the Lt. Governor's Office, with the support of the Department of Public Instruction the Golden LEAF Foundation, have undertaken the design and project scope for a STEM Portal.

- The collaborative effort has documented over 500 organizations, public and private, with some form of STEM program. These include cross-referenced materials from previous efforts, as well as further statewide surveys.
- A Design Charette and focus groups with over 50 students, educators and administrators, business leaders, policy makers and foundation representatives was held at the Burroughs Wellcome Fund August 2011. The session, facilitated and documented by UNC-CH School of Government Professor Shannon Tufts and her team, resulted in a report of the nice-to-have and need-to-have features of a STEM Portal for the different stakeholders.
- Surveys of other States' sites and interviews of State personnel regarding the service, features, costs and lessons learned through similar endeavors have been compiled by Stephanie Wright, graduate intern in mathematics and social sciences.
- Private sector support and partnerships have been successfully sought (over $25,000 from two different companies) to support the design and implementation of such a resource.

A STEM Portal is a tangible, useful tool to attract and activate those who wish to connect and advance STEM skills in their area. These previous efforts should be built upon, and it appears private sector funding and expertise combined with public sector endorsement and hosting would provide a comprehensive, action-oriented web-based resource for stakeholders to advance the Statewide STEM Strategy. (See Appendix III)

Priority 3: Connect, Leverage & Increase STEM Resources

Leveraging public, private, and technology resources will allow North Carolina to achieve the greatest possible impact for its investments. This will require coordination, evaluation, and monitoring of STEM Education programs and initiatives. In addition, this will require formal and informal collaboration between schools, school systems, business and industry, and other private and public sector partners eliminating redundancies, inefficiencies, and inequities. Working together on challenges of scale will require difficult decisions, prioritization, and new models.

Goals:

- ✓ Increase returns on public and private investments in STEM education
- ✓ Align & coordinate the investments of public & private sector partners to scale high-quality programs efficiently

Strategy: Invest public and private funds over the next 10 years to scale effective STEM programs, policies and practices throughout every region of North Carolina

Investments in STEM education have primarily come in the form of federal, state and local public education initiatives – such as *Career & College: Ready Set Go!,* Race to the Top, or Math Science Partnerships, STEM Schools, etc. Public sector investments in education overall are significantly higher than any other source – private foundation grants, private industry philanthropy, and other financial and in-kind investments from non-governmental sources are less than 2% of education investments. Many of these efforts have resulted in valuable impact for target audiences. Investments in local and individual schools and programs should and will continue. However, sustaining innovative initiatives and scaling the best practices and impacts of these investments and their associated programs has been difficult, if not impossible.

Barriers to scaling high-quality and effective STEM efforts include:

- Lack of clear documentation of impact, effort, or growth parameters for programs.
- Lack of sustainable resources – a "pilot" program may be successful, but not be feasible at scale, lack a plan for growth, or be able to access resources to "live" or grow beyond a pilot phase.
- Lack of access to a channel to grow high-growth programs
- Lack of connection, understanding or value of out-of-state or nationally-validated programs already in existence
- Loss of interest, public will or continuous leadership support – due to political realities, issues or programs may be shunned or avoided.
- Non-supportive or blocking policies – innovative programs may be hampered by existing, and sometimes unassociated policies. When policy waiver procedures exist, they can take time, even when expedited.

STEM education, however, presents a unique opportunity to align public and private investments, especially when focused on scaling what works. Private sector partners can see clearly valuable outcomes in the form of a

trained workforce, even in non-traditional areas such as manufacturing and agriculture. The current policy environment also lends itself to policies that will support scaling what works rather than building a new or different effort. Finally, as public sector coffers return either flat or fewer resources, the state will require identification of partners and sharing of responsibility, expertise and models to reach a growing number of students and educators.

In 2010, a number of public and private partners such as The North Carolina Board of Science & Technology recommended an initiative that would include:

- A challenge grant from the State to encourage private sector investments in scaling.
- Identification of and focus on hands-on STEM learning experiences for K-12 grade, with a particular focus on the first 8 years of schooling.
- Success measured through identified student achievement, growth or expansion of programs, increase of access of high-quality programs to all regions, and alignment of programs with ongoing workforce and economic cluster needs of the state and its regions.

The State of Massachusetts, consistently referenced by experts and researchers as a leader in STEM education, recently announced a similar program called "@Scale", to identify programs of high-quality and value to different economic development regions of the state. At the time of launch, public sector funds were in the process of identification, and private sector investments were under consideration once supported publicly.

Given the rapid expansion of North Carolina's knowledge-based economy, the multitude of high-quality programs, and the current environment, a set of public and private sector investments directly focused on scaling programs, policies and practices to every economic development region of North Carolina over the next decade must be identified and coordinated to dramatically increase the STEM skills of North Carolina's workforce.

Strategy: Identify and fund a public/private partner for the coordination, evaluation and monitoring of STEM Education programs and initiatives.

Leveraging public, private, and technology resources will allow North Carolina to achieve the greatest possible impact for its investments. This will require coordination, evaluation, and monitoring of STEM Education programs and initiatives. In addition, this will require formal and informal collaboration between schools, school systems, business and industry, and other private and public sector partners eliminating redundancies, inefficiencies, and inequities.

This will require a public/private partner with:

- Sufficient access to and in-house STEM expertise and business management;
- A unique, established network of local, state and national STEM partners, networks and experts;
- A willingness to prioritize the scaling and connectivity of high-quality and effective programs across the K20 education-to-workforce continuum above any single program;
- The endorsement, support, guidance and input of public and private leaders from across the local, state, and national STEM education, education policy and innovation landscape; and
- The capacity to accept public or private resources and quickly disperse them, in consultation with NC DPI and other partners, to a network of partners, schools and programs.

The role of this public private partner will include working with NC DPI, and other public and private stakeholders in North Carolina and beyond, to:

- Define the attributes, protocols and resources to quickly and formally enact the recommendations of the Statewide STEM Education Strategy;
- Support districts and schools engagement with each other and with state and national partners, either in person, online or by other means;
- Support effective decision-making, measurement and reporting on STEM tools, policies and practices;
- Research and recruit public and private experts, assets and resources for North Carolina's STEM needs;
- Accept, coordinate and rapidly disperse public and private investments for scaling high-quality STEM programs; and
- Advise on the alignment of policies, practices and partnerships with K20, private, and other sectors impacting STEM education, and vice versa.

The North Carolina STEM Community Collaborative currently has all of the required attributes, is under contract with NC Department of Public Instruction for delivery and advisement on the framework for this STEM Strategy (until March 2012), and has signaled its willingness to organize its future operations, recruit resources and serve as the state's public/private partner for STEM needs of the state, prioritizing the effort above any program with which it currently engages.

Strategy: Incentivize collaborations based on evidence-based policies, programs and practice that greatly increases the number of students gaining STEM skills and continuing in STEM fields of work.

STEM Education occurs at the local level – in the classroom, at the home, in a museum, at a business. As referenced, over 500 organizations engaged in STEM programs are documented. Many of these STEM programs quietly and effectively engage students, increase learning, and serve their target audience. Collaborations with other organizations occur – when mutually beneficial or led by visionary leaders – but, too often, funding, self-interest, energy, and/or programmatic incongruities serve as barriers to large to overcome.

North Carolina should incentivize collaborations of programs, schools and partners to advance the number of students gaining STEM skills and continuing fields of work. Incentives like the following, when requiring collaboration, have helped overcome barriers:

- Collaborative Grants – supporting evidence-based programs to extend to new geographies or new target audiences through multi-stakeholder collaboration
- Challenges or Competitions – setting up competitions or design challenges can fuel multi-stakeholder collaboration by providing a goal and some honor or resources for success. X Prize, Ashoka Challenge, or US Department of Education challenges are examples for possible emulation.
- Honors & Awards – celebration of partnerships, innovation and collaborations that extend student STEM skills and STEM fields of work. The Burroughs Wellcome Fund, NC SMT Center, and NC DPI and many others award individuals and organizations in Science or Math. Such incentives focused on collaborations should also be considered.
- Media or Travel Support – by providing resource support for travel to face-to-face conferences or study trips or supporting media attention for viable policies, programs and practice across organizations, the barriers for resource-stretched organizations can be overcome.

Strategy: Establish a formal STEM Council to facilitate and coordinate the implementation of North Carolina's comprehensive STEM strategy.

Science, Technology, Engineering, and Mathematics (STEM) education is vital in positioning NC to have a world-class workforce capable of competing in a global market.

It is recommended that North Carolina formally establish a STEM Council to facilitate and coordinate the implementation of North Carolina's comprehensive STEM strategy. It is imperative North Carolina develop and maintain continuity among the STEM efforts of the Department of Public Instruction, community colleges, public and private universities and the private sector.

Endnotes

This document serves as a ***Draft Framework for this Statewide STEM Strategy***, with the concurrence of the Governor's Education Cabinet, North Carolina's education systems' leadership, the Joint Legislative Joining Our Business & Schools (JOBS) Commission, the NC STEM Advisory Panel, and other public and private partners. The information, recommendations and findings of this report are informed by a broad set of research, reports, data, interviews, initiatives and efforts, including but not limited to:

- *Career & College: Ready Set Go!* North Carolina's K20 Education Plan, The Honorable Governor Beverly Perdue
- Statewide meetings and research of the NC Joining Our Business & Schools (JOBS) Commission, chaired by The Honorable Lt. Governor Walter Dalton
- The Governor's Education Cabinet, North Carolina General Assembly "SL 2010-41 Education Cabinet to Set STEM Priority & Goals", and research conducted by Education First Consulting
- The Career-Ready Commission Report, 2010, chaired by Superintendent June Atkinson
- UNC Tomorrow Report (2008), Inventory of University STEM Programs For K12(v2, 2009), and other research of the University of North Carolina System and its institutions
- NC Community College System Listening Tour, SuccessNC (2010), interviews and other data of NC Community College System and its institutions
- Advancing Innovation in NC (2009), Letter to Governor Beverly Perdue on STEM Needs (2010) and other research and data from the NC Department of Commerce and the NC Board of Science and Technology
- Interviews, research, findings and recommendations of the NC STEM Advisory Panel as well as 600+ local, state and national leaders from public and private organizations, conducted by the NC STEM Community Collaborative
- Publications from the Presidential Office of Science & Technology, US Department of Education, National Governor's Association, US Chamber of Commerce, Business-Higher Education Forum, Manufacturing Institute, Battelle, the Bill & Melinda Gates Foundation and others.

Appendix I – Current & Needed Initiatives

The following section highlights **Current Initiatives** and **Needed Initiatives** at the K-12 and Community College level, aligned with the goals within each of the three priorities.

Priority I: Increase STEM Achievement

Current Initiatives
K-12

1. STEM initiative is included in the Race to the Top federal grant to spur public school innovation to include:
   - Great teachers and leaders
   - Quality standards and assessments
   - Turnaround of lowest-achieving schools
   - Data systems to improve instruction
2. Common Core Standards are adopted in Mathematics and Language Arts; essential standards are adopted for all courses to be implemented 2012-2013
3. Ninety schools have Project Lead the Way (PLTW) programs to encourage students to enter the engineering profession
4. Seventy-two STEM Career Academies in Career and Technical Education (CTE) are operating in the State
5. The North Carolina New Schools Project (NC NSP) is developing 50 STEM schools (20 of which are RttT). The STEM curriculum reflects the state's economic workforce needs in North Carolina. The schools initially include the areas of energy and sustainability; health and life science; aerospace and advanced manufacturing; and biotechnology and agriscience.
6. Nine Transformation schools have STEM as strategy for improvement
7. The North Carolina Virtual Public Schools (NCVPS) is developing eight STEM courses to provide quality teaching resources to remote and low achieving programs.
8. At DPI the 21st Century Community Learning Centers (21st CCLS), under Title IV B federally funded out-of-school projects, are infusing STEM activities into programs.
9. Career and College Promise is a state initiative to broaden and strengthen postsecondary completion.

Community Colleges

10. Completion by Design aims to build on proven, existing practices already underway at a number of forward-thinking community colleges by focusing on new approaches to key events during students' educational experience, from the first time they connect to the college through completion.
11. Enhance Math Capabilities by furthering the development of student math competencies for in-demand STEHM (Science, Technology, Engineering, Health and Math) careers by developing lab-based math instructional models and alternatives to the algebra/calculus track. Work with UNC System to develop General Education certificate requirement prior to transfer with inclusion of gatekeeper math and English courses.
12. National Association of Manufacturing (NAM) Endorsed Skills Certification System involves aligning manufacturing-related associate degree programs at NC Community Colleges such as machining or mechanical engineering technology with accepted third party industry credentials like National Institute of Metal Working (NIMS) or the Manufacturing Skills Standards Council (MSSC) certifications. In obtaining industry-valued certifications, community college students will

demonstrate to prospective employers that they possess the skills and knowledge to be valuable employees.

13. Expand Health Care Programs through weighted funding and greater use of distance education/simulation to enhance instruction and meet clinical requirements.
14. Facilitate College Readiness Standards by collaborating with State Board of Education/DPI to further utilization of community college placement testing prior to 12th grade and coordinate development of remediation strategies to include summer developmental bridge programs. Work with DPI and UNC System to develop alignment between common core high school standards, community college gatekeeper English and math courses, and UNC English and math requirements.
15. Strengthen Technical Education by reengineering technical education to allow for umbrella degrees in information, engineering, transportation, environmental, energy and building technologies with common general education core and stackable credentials/certificates and integrated emphasis on sustainability.
16. Focus Technology-enhanced Initiatives on developing media-based curriculum content, and expanding and coordinating capabilities for immersive learning, simulation, e-books and professional development to support strategic course development targets such as technical education's academic and technical cores; developmental and gatekeeper math redesign; concept-based nursing and health information technology curriculums; and certificate of transfer courses.

Needed Initiatives and Actions
K-12

1. Incorporate STEM strategies in Common Core and Essential Standards for staff development
2. Expand Math and Science for a fourth course in a sequence to include STEM curriculum strategies to encourage students to continue their education in STEM fields
3. Identify Level IV Math and Science substitute courses in the Programs of Study
4. Incorporate STEM strategies in science, technology, engineering and mathematics to develop interest in STEM related occupations
5. Define and support needs of career academies and identify success stories to share
6. Develop plan for recruiting underrepresented minorities and connect with community programs for after school
7. Develop virtual courses to offer STEM related courses in remote areas
8. Develop engineering standards for K-5, 6-8, 9-12 and infuse in curriculum
9. Encourage schools to take the college credit exam with PLTW courses
10. Encourage students to take four courses of the PLTW STEM curriculum
11. Assure schools in Turnaround status who are using a STEM strategy for their improvement plan have access to all resources and communications in STEM and receive the opportunity to participate
12. Provide staff development with teacher education instructors, teachers, counselors and school leaders on:
    a. STEM curriculum
    b. Community and industry engagement
    c. Connections with postsecondary
13. Create, recruit, hire, train, and retain NC STEM teachers initiative to produce the best and brightest professional educators

14. Collaborate with teacher education to support the lateral entry program to recruit teachers to teach in STEM areas

Community Colleges

15. Increase opportunities for entry level job training and degree attainment tied to industry certifications and licensure, and integration with Career Readiness Credentials and employability skills training.
16. Develop model for degree completion to support joint statewide targets with UNC System.

Priority II: Bolster Community Support
Current Initiatives
K-12

1. MCNC NC STEM Community Collaborative provides a single organizing unit for both public and private organizations to support scaling what works in STEM education.
2. Regional Education Services Alliances (RESA) provide coordination of regional activities in educational areas and the
   Economic Development Education Regions coordinate economic development in seven regions with State Board of Education members participating in each region.
3. The NC New Schools Project (NCNSP) collaborates with the private sector and higher education in the development of networks of STEM schools and districts, including on-going work and leadership through economically themed Industry Innovation Councils. NCNSP also convenes state and national conferences to build support and understanding for the need for comprehensive innovation in schools to ensure students graduate college and career ready.

Needed Initiatives and Actions
K-12

1. Build a Statewide STEM website for all North Carolina
   - Identify and connect schools
   - Identify resources and programs
   - Create a communication portal for schools
2. Build marketing plans on STEM career opportunities, course needs in school, and postsecondary options to recruit students, educators, parents and the community
3. Market the National Association of Engineers 14 Grand Challenges for Engineering to K-12 educators to:
   - Promote an awareness of STEM related issues
   - Identify issues facing the US in the 21st Century
   - Integrate them throughout education
4. Educate educators, parents and students about our need for STEM educated professionals capable of solving 21st Century concerns
5. Market STEM programs including summer programs for teachers , counselors and students
6. Market North Carolina School of Science and Math's programs for enrichment and professional development for teachers and counselors
7. Increase collaboration among schools, community colleges, colleges and universities, businesses, museums and other interested groups

Community Colleges

8. Enhance and expand the reach of the community college system STEM outreach through the use of BioNetwork's Mobile Training and Outreach program

Priority III: Leverage, Connect and Increase STEM Resources

Current Initiatives
K-12

1. The NC New Schools Project is developing STEM schools that serve as models for professional development and for the State curriculum in four theme areas as well as STEM literacy.
2. NC STEM Community Collaborative is building a web based network of STEM schools, resources, professional development and the ability to communicate among schools
3. The North Carolina School of Science and Mathematics provides specialized curriculum for 650 full-time students; Advanced Placement courses and enrichment programs to nearly 4000 students statewide, and professional development for more than 5000 North Carolina educators
4. Golden LEAF Foundation is supporting 10 STEM grants to grades 4-9
5. Engineering is Elementary® (EiE) sponsored by the Museum of Science in Boston, MA, is a project fostering engineering and technological literacy among children. The curriculum promotes K-12, science, technology, engineering and mathematics (STEM) learning and connects with literacy and social studies. There are three (plus 11 have received training) school systems in North Carolina using this curriculum. Professional development is sponsored by a staff member in the North Carolina State University College of Engineering
6. 4-H is developing STEM curriculum for out-of-school programs
7. NC Science, Math and Technology Education Center, through an USED Investing in Innovation (I3) Grant, is validating the implementation and impact of science inquiry-based instruction and materials in 46 schools (grades 1-8; 1100 teachers) in 7 districts over five years.
8. Burroughs Wellcome Fund supporting 5 low-performing elementary schools and one low wealth district for a six-year Singapore Math initiative, funding up to 8 new afterschool programs each year across the state that offer STEM activities, and identifying and funding for five years master STEM teachers to work with their districts and the state.
9. The Kenan Fellows Program for Curriculum and Leadership Development pairs at least 50 outstanding, practicing North Carolina teachers annually with STEM leaders in industry, education and academia for a summer of research and intensive professional advancement, driven by North Carolina's specific economic development needs to increase STEM literacy and produce effective lessons for K12 educators.
10. NC Center for Afterschool Programs is partnering with the NC Museum of Natural Sciences to host annual statewide Youth STEM Summits and more broadly connect museums across the state with afterschool programs in the arenas of education, outreach, and professional development.

Needed Initiatives and Actions
K-12

1. Catalog programs and resources available to STEM K-12
2. Define STEM attributes for North Carolina public schools

3. Identify resources to support STEM inside and outside of the agency
4. Identify programs inside and outside the agency to infuse STEM education
5. Provide structure for private and public funds and in-kind resources to efficiently support scaling programs that are working to reach more students, educators, and communities

Community Colleges

6. Enhance weighted funding for technical education programs at community colleges.

Appendix II – Additional Progress Measures

The following sections highlight additional Progress Measures at the K-12 & Community College level, aligned with the three priorities.

Potential Progress Measures/Indicators
Increase STEM Achievement
K-12

1. The percentage of STEM students graduating from high school in four years is increased
2. Fewer STEM students require remediation in postsecondary
3. There is an increase in postsecondary enrollment in STEM areas
4. The number of schools obtaining a STEM designation is increased
5. Student achievement in mathematics and science is improved.
6. There is greater inclusion of mathematics and science in the elementary schools
7. The number of students taking a fourth course in a sequence of math and science is increased
8. The number of students in a STEM career pathways is increased
9. The number of students continuing their education in STEM is increased
10. More underrepresented females, minorities, and economically disadvantaged students are in level four courses
11. The underrepresented females, minorities, and economically disadvantaged students in postsecondary education in STEM areas are is increased
12. The number of students completing virtual STEM courses is increased
13. Engineering standards are developed for K-5, 6-8, 9-12 and infused in curriculum
14. The number of students who complete college exams for PLTW courses is increased
15. The number of students in four PLTW courses is increased
16. STEM initiatives helped decrease the number of schools in Turnaround status
17. All teachers have access to job-embedded professional development to build educator capacity in both content and pedagogy for STEM learning experiences
18. The number of teachers and administrators participating in quality STEM education professional development is increased
19. The number of teachers qualified to teach in STEM areas is increased

Community Colleges

20. Percentage of first-time fall credential-seeking community college students who successfully complete ("C" or better) at least twelve hours within their first academic year
21. Percentage of previous developmental math students successfully completing a credit math course with a "C" or better upon the first attempt (within one year of developmental completion).

22. Percentage of first-time fall community college credential-seeking student graduation, transfer, or still enrolled with 36 hours after six years
23. Percentage of community college associate degree completers and those who have completed 30 or more credit hours with a GPA of 2.00 or better at a four-year college or university after two consecutive semesters within the academic year.

Bolster Community Understanding

1. Website portal is developed to connect schools identifying resources and create an communication portal for schools
2. Marketing plan is developed for :
   - Career opportunities
   - Postsecondary options
   - 14 Grand Challenges
   - Community Understanding
3. Data systems are established to measure student success and inform school personnel and legislature about how to improve the delivery of STEM education
4. Collaboration among interested groups is evident

Leveraging & Connecting Resources

1. Directory of programs and resources and professional development is defined for school use
2. Curriculum in STEM areas has infused project-based activities for all teachers
3. Aerospace; Health Sciences; Pre-engineering; and Agriscience and Biotechnology curriculum are developed for schools
4. There is an increase in the number of resources available to the schools for STEM education
5. There is an increase in the number of STEM out-of school programs available

Appendix III – STEM Schools Rubric (Draft)

(pdf)

Appendix IV – Web-based Resource Design Documents

(pdf)

---

[1] Education First, *North Carolina Education Cabinet: STEM Stakeholder Interview Findings*, March 8, 2011.
Additional References

[2] President Barack Obama, *State of the Union Address*, January 25, 2011

[3] White House Press Release, *President Obama to Announce Major Expansion of "Educate to Innovate" Campaign to Improve Science, Technology, Engineering and Math (STEM) Education*, September 16, 2010

[4] Change the Equation, *Why STEM?* www.changetheequation.org, 2011

[5] NC Commission on Workforce Development, *State of the North Carolina Workforce 2011-2020*, June 2011.

[6] NC Office of the Governor, *Jobs Now*, www.governor.state.nc.us, 2011

[7] NC Commission on Workforce Development, *State of the North Carolina Workforce: An Assessment of the State's Labor Force Demand and Supply 2007-2017*, January 2007

JOBS Commission Meeting

Wednesday, September 1st / 2 pm – 5pm

Room 544 – Legislative Office Building, Raleigh, NC

2:00 pm – JOBS Commission Meeting

- Brief remarks from Lt. Governor

2:10 – 2:30 pm – Career Ready Commission

- Presentation of report – Secretary June Atkinson

2:30 – 2:40 pm – Short Session Overview

- Kara McCraw – Committee Counsel

2:40 – 3:30 pm – JOBS Pilot Early College Updates

- NCSU / Wake County STEM Early College
- Cumberland County Language & Global Diplomacy Early College
- AgriScience/Biotech Regional Early College

3:30 – 3:45pm – NC STEM Community Collaborative Update

- Karl Rectanus - Director NC STEM Community Collaborative

3:45 – 4:30 pm - Next Steps

4:30 – 5 pm – Public Comments / Discussion

MINUTES

Joint Legislative Joining Our Businesses and Schools (JOBS) Study Commission
Wednesday, September 1, 2010
2:00 p.m.
Room 544, Legislative Office Building

The Joint Legislative Joining Our Businesses and Schools (JOBS) Study Commission met Wednesday, September 1, 2010 in Room 544 of the Legislative Office Building. Lt. Governor Walter Dalton, Chairman of the Commission presided. *(SEE ATTACHMENT: Members and Guests Attending.)* The Lt. Governor thanked the Legislative members for their work supporting the various initiatives proposed by the Commission during the recent Session. *(SEE ATTACHMENT: Agenda.)*

PRESENTATIONS

Career Ready Commission Update

Superintendent of Public Instruction, Dr. June Atkinson provided the Commission with an update on the DPI recommendations growing out of the Career Ready Commission. *(SEE ATTACHMENT: Atkinson.)* She said the Career Ready Commission had sought to determine *what* needed to be done and viewed the JOBS Commission as the people who would develop the *how* of creating career ready students.

Dr. Atkinson noted the graduation rate progress overall, including the rate for career-tech students. She also noted the graduation rates of some Redesigned Schools. These schools have been operating some 4 or 5 years. One of them, Highland School of Technology in Gaston County had a 100% graduation rate: the fifth year that school's graduation rate has been above 98%. She said the Early Colleges program had also shown increases in graduation rates, but there were too many to list.

In terms of school accountability, she predicted that the State Board of Education would establish the American College Testing (ACT) standard for college-ready students. This will be joined with Workkeys, another testing instrument developed by ACT Inc. She expects this Board action in January.

The Career Ready commission supported redesigning of any school with a graduation rate of 75% or lower over a two-year period. This resulted in legislation passed in the last Session. There are also federal School Improvement Grants for the lowest performing schools in the state. These schools must undergo a redesign to qualify for the grants. Some of the Race to the Top funds just allocated to the state can be used for redesign schools to move toward early colleges and STEM focus.

The Career Ready Commission has recruited some 275 business leaders who are willing to work with schools both on the local district level and statewide to develop a Career-Tech Education Strategic Plan.

Dr. Atkinson said there is an identifier system to track students from Pre-Kindergarten on through their educational career to provide evidence-based results of how students are doing and have done in their school career and after. DPI staff is also working with local school systems to promote high school entrepreneurship and business development courses. Some courses may be offered online through a virtual high school.

Race to the Top money can be used to establish a network of STEM schools with a support system.

Dr. Murphy asked about the graduation rate for Early College schools. Dr. Atkinson said there was only a small number of such school that have been in existence to provide such rate, but of those who do have a record, the graduation rate was above 90%.

Dr. Atkinson explained the Workkeys program as a certification process that students could achieve. This achievement would provide students with a nationally recognized credential. She said over 500 North Carolina businesses will give employment preference to students who have achieved the accreditation. The Community College system is also moving to recognize the Workkeys certification.

Senator Foriest asked if there are other re-designed schools that have shown high graduation rates such as the 4 she showed in the handout. Dr. Atkinson said these schools were "cherry picked" to provide a sample.

In response to Ms. McCullen, Dr. Atkinson said these re-designed schools are organized around career clusters, rather than an English department, Math department, Foreign Language department, etc. In addition there is a connection between the school and business and industry. The students in these schools have at least two adults participating in their course of study. One of whom is a mentor from business and industry. Tony Habit added that there is also the consideration whether the changes are being made in an existing school with a new faculty, or starting in a new location with an inherited faculty. There is also the consideration of choice: was the student assigned to this school or there by choice.

When asked by Dr. Murphy how many redesigned schools existed, Dr. Atkinson said there are112 schools within schools, such as the Apex Information Technology School, there are 35 redesigned schools and 71 early college schools.

Lt. Governor Dalton noted that North Carolina is being pro-active and seeking out the best practices to capture those practices for use in other parts of the state. He praised DPI and others working to this end. Dr. Atkinson said the goal is a graduation rate above 95% as the norm.

The Lt. Governor said that the certificate program is promoted by Dr. Gene Bottoms of the Southern Regional Educational Board who supports students coming back to school to obtain a GED with certification in certain skills to be job-ready. He went on to say that North Carolina does a better job of catching dropouts. He said that the state has approximately 22,000 dropouts each year, but that the Community College System attracts nearly 17,000 of these to obtain GED or high school certification. He said the redesigned schools are a key to closing the dropout gap. Dr. Atkinson said DPI, the Community College System and Communities in Schools are seeking a dropout prevention grant.

At this point, the Lt. Governor congratulated Governor Perdue, Dr. Atkinson and Education Cabinet Chairman Lee for the efforts in obtaining $400 million in federal funds from the Race to the Top program. He said the JOBS Commission was mentioned in a very positive light as part of the North Carolina efforts.

At this time, the Lt. Governor noted the presence and welcomed a new member to the Commission, Valeria Lee. He pointed out she had been head of the Golden Leaf Foundation, the Rural Center and served on various other boards and commissions. The Lt. Governor also announced that Roger Shackleford, head of Workforce Development with the N. C. Department of Commerce, would be joining the Commission, too,

JOBS Commission Legislation/Outcomes

After thanking the Legislator members of the Commission for their work in passing the various legislative initiatives the JOBS Commission had recommendation, the Lt. Governor recognized Commission Counsel Kara McCraw to present the legislative scorecard from the 2010 General Assembly Session. *(SEE ATTACHMENT: Jobs Commission Recommended Legislation Outcomes and Summaries.)*

There were six recommendations from the Commission for legislative action. The first was for the Education Cabinet to set Science, Technology, Engineering and Mathematics (STEM) education priorities. That became law on July 1, 2010. The Education Cabinet will provide reports to the JOBS Commission and the Legislative Education Oversight Committee annually in November.

The recommendation for Career Academies as Cooperative and Innovative High Schools was included in the overall budget bill. It begins with the 2010-2011 school year.

The JOBS Commission Pilot Schools was approved with $100,000 to be provided for each of the Wake County and Cumberland County school systems.

The Cooperative/Innovative high schools will have the same flexibility as charter schools except for personnel matters.

The Regional School Planning Commission was approved as the entity charged with the task of -developing a plan for a model Agriscience/Biotechnology high school by January 1, 2011. The JOBS Commission had originally proposed a regional Agriscience and Biotechnology school in the northeastern part of the state.

State Board of Education members in the various education districts will become non-voting, ex-officio members of the Regional Economic Development Commission effective August 3, 2010.

The order of the JOBS Pilot Early College Updates was changed from the order shown on the Agenda.

JOBS Pilot Early College Updates

Lt. Governor Dalton said the Commission will receive regular progress reports from the three pilot Early College programs. He introduced the representatives from the Cumberland County Early College for Language, Culture and Diplomacy: Dr. Frank Till,

Superintendent of Cumberland County Schools, Allison Violette, Assistant Superintendent of Cumberland County Public Schools and Ray Walters from Fayetteville Technical Community College.

(SEE ATTACHMENT: Cumberland ECHS, JOBS Update.)

Following the presentation, the Lt. Governor recognized, Millie Ravenal from the North Carolina Center for International Understanding and noted her support for the Cumberland County pilot. He also said that the Base Commander at Ft. Bragg had called to lend his support to the effort, even though the military could not make a formal endorsement of the initiative.

Since the timeline is for students to start August 1, 2011, the Lt. Governor asked if that timeline was appropriate. Dr. Till said there were some facility issues to be addressed, but since the languages were already part of the curriculum the broad concept was practical.

Senator Brown, whose district includes Camp Lejeune and the New River Air Station, said the Cumberland County program would be good to duplicate in his area.

North Carolina State University Wake School STEM

Ruth Steidinger from the Wake County Public Schools and Betsy Brown from NC State University, reported on this collaboration which began in 2008. *(SEE ATTACHMENT: Wake-N. C. State STEM Early College High School.)*

The ultimate location will be the Cherry Building on the perimeter of the NCSU Centennial Campus. N. C. State has allocated $3 ½ million to renovate this building and bring it up to code as a business/education facility. The renovation will delay occupying the building by July 2011. There will be temporary quarters for the fall term, but a yet- to-be- found space will also need funds for renovation.

There is a transition counselor, Ryan Haymore. He will recruit students and is paid through grant money. The new principal and lead secretary will be hired the first of 2011.

The Kenan Institute for Engineering Technology and Science will provide Fellowships to all the teachers who are hired.

Senator Foriest asked how the school would address the issue of diversity. Ms. Steidinger said the application was very extensive and that the program is charged with enrolling students who are underrepresented in the STEM initiative. Ultimately there will be a lottery system used since each class will only have 50 students. Ms. Brown said that references from guidance counselors will be part of the process, too.

Tony Habit said the original vision of then-Chancellor Oblinger was to serve students who were not doing well in math, and to provide a demonstration to the rest of the State.

Lt. Governor Dalton said that having the "brand" of N. C. State University as the premise is expanded across the state will raise the interest of potential students, plus raise the interest of economic development representatives.

The Lt. Governor posted a prelude to the next presentation concerning a regional STEM school. He remembered that Dr. Purser had said at the outset there was a real task in taking six counties and trying to create one school. He said that nothing says the school must be in the northeastern part of the state. He said other areas have said that if the northeast does not want to have such a school, those areas would like to be considered.

AgriScience/ Biotech Regional Early College

Tony Habit, Director of the New Schools Project gave the presentation of what evolved out of the legislation that would have created a regional STEM school. He said that he and the Chairman of the State Board of Education will be talking again with various leaders in the northeastern corner of the state.

He suggested that the JOBS Commission examine the four school prototypes that are being supported in the Race To The Top program, since North Carolina has qualified for funds under that.

NC STEM Community Collaborative Update

Karl Rectanus, Director of the STEM Collaborative, provided an update for new members and others. *(SEE ATTACHMENT: NC STEM Update)* Mr. Rectanus outlined the framework of the Collaborative and opportunities to grow in several regions across the state. He noted that there was interest not only in biotechnology, but motor sports and other economic interests in the various regions. He urged support from the JOBS Commission for funding to expand the network of STEM programs and STEM communities.

As a way of moving the meeting into the **Next Steps** agenda item, the Lt. Governor recognized Paul Stone, President of the North Carolina Restaurant and Lodging Association who had made a presentation at the Commission's April 19th meeting in Asheville. *(SEE ATTACHMENT: North Carolina Hospitality Industry-from April meeting.)* Mr. Stone said the hospitality industry was second only to the health care industry in terms of need for people. He asked the JOBS Commission to consider hospitality industry for the possibility of a pilot program in the Early College Curriculum. He suggested that this be centered in the western part of the state. The Lt. Governor thanked Mr. Stone for coming to present this idea. The Lt. Governor said the Eastern Band of the Cherokee's hotel project would create the largest hotel in North Carolina and was the 6th largest construction project in the United States.

The Lt. Governor called attention to the outline of future steps for the Commission. *(SEE ATTACHMENT: Timeline)* He said he expected the schools involved thus far would provide progress reports at each meeting. He said as the several clusters were considered, the projects that involved the issue of governance would be of major importance as various governmental entities became involved.

Responding to a question from Mike Murphy, Lt. Governor Dalton said he did not expect the Commission to do as much traveling this year as last year. He did say there was a possibility of a meeting in Fayetteville in October. Some individual members or a sub-committee might go to a region for a meeting, but not as many full Commission meetings on the road.

Joe Fredosso asked that the Commission hear from such organizations as Battelle or the Gates Foundation about what is going on nationally with projects that were in the scope of the Commission's goals. He also suggested that the Commission hear the quantitative basis of job growth for North Carolina.

Ms. McCullen said each region had presented the need for "soft skills" which are part of the North Carolina graduation project. She suggested that the Commission examine the mechanisms already in place which could be used to fulfill the "soft skill" need. The Lt. Governor agreed with that and said there had been contact made to the Commission about the job needs in information technology, financial services, aerospace and entrepreneurship.

Mr. Habit said it would be helpful to hear from such firms as Jobs for the Future about what they were learning across the country. He also said those using the Race to the Top funding would benefit from advice from the Commission about tying the uses to job growth needs. He said a study was being made to learn the cost and return for different kinds of schools, and he invited anyone to participate in offering thoughts to the consultants and DPI about the structure of the study.

Ms. Townsend said it was not too early to consider the focus of the Commission in light of the Grand Challenges concept.

Representative Braxton said he was disappointed that the northeastern program did not work. He said it was important to get the Commission to get the program right to build consensus. Lt. Governor Dalton said the idea or plan was not the problem in making the program come about. He said it was more about jurisdictional and governance issues that caused the problem. Then he posed a question to Mr. Habit as to how the AgriScience/Biotech proposal fulfills the idea of a two year college credit if it was based on a range of 7th grade through 12th grades. Mr. Habit said that deeper thinking on the idea might suggest a 7th through 13th range. He also noted that if the northeastern project was located at the Vernon James Agricultural Center the PhD faculty members there could teach college level courses since the Center is part of North Carolina State University.

Mr. Houston observed that students decided what they did not want to be before they decided what they wanted to be and that those ideas formed early during elementary school years. He said the Commission stood in a good place to have influence on getting the "ball rolling" in those early years. He said that elementary students should be developing the same skills needed in the graduation project: ability to speak, write, solve problems, etc. Thus the skills were developed early into the potential work force.

Senator Brown returned to the subject of the northeastern project with the opinion that the ability to cross county lines was necessary not just for that project but for many other opportunities in education and other fields. Mr. Fredosso said realizing the concentration of low performing schools in that area should increase the effort to make

the program work there due to the need. He also agreed with the point raised by Mr. Houston regarding early education to put all skills into play.

Lt. Governor Dalton advised that the next meeting could be the first week in October, perhaps October 6th or 7th and might be in Cumberland County.

The meeting was adjourned at 3:48 p.m.

Lt. Governor Walter Dalton, Chair
Presiding

Senator A. B. Swindell, Vice Chairman

Representative Rick Glazier,
Vice Chairman

Minutes by Ted Harrison

Public Schools of North Carolina

Career-Ready Commission Update

Dr. June Atkinson
State Superintendent
September 1, 2010

Career-Ready Commission

JOBS Commission

What ⟷ How

Public Schools of North Carolina

Six Policy Goals

Public Schools of North Carolina

Progress – Graduation Rate

2005-06	2009-10
68.9%	74.2%

Public Schools of North Carolina

Graduation Rate for Career-Tech Concentrators

2008-09

86.7%

Public Schools of North Carolina

Redesigned Schools Graduation Rates

- Highland School of Technology – 100%
  Gaston County
- Central Academy of Technology – 97.2%
  Union County
- Weaver Academy – 100%
  Guilford County
- O'Berry Academy – 87.7%
  Mecklenburg County

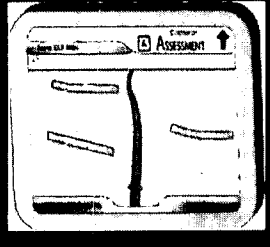
Public Schools of North Carolina

Early Colleges

Public Schools of North Carolina

Public Schools of North Carolina

School Accountability



✓ACT
✓Workeys

Public Schools of North Carolina

High School Redesign
75 Percent

- General Assembly Legislation
- School Improvement Grants
- Race to the Top Funding

Public Schools of North Carolina

Career-Tech Education Strategic Plan

Public Schools of North Carolina

Data System

Public Schools of North Carolina

Economic Development Regions and SBE Alignment

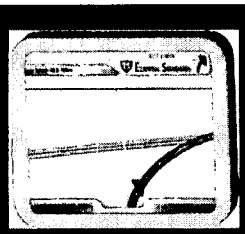
Public Schools of North Carolina

Increase in HS Entrepreneurship and Business Development Courses

Public Schools of North Carolina

STEM

Public Schools of North Carolina



Destination --

Career- & College-Ready

Destination --

Globally Competitive

Public Schools of North Carolina

JOBS Commission

Recommended Legislation Outcomes and Summaries
2010 Session

Introduced Legislation		Outcome
HB 1699/ SB 1198	Educ. Cabinet Est. STEM Priority	SB 1198 was enacted as S.L. 2010-41 and became law effective July 1, 2010.
HB 1700/ SB 1202	Career Acad. As Coop. Innov. High School	This recommended legislation was incorporated into the Budget – S.L. 2010-31, Sec. 7.21. This section became effective June 30, 2010 and applies beginning with the 2010-2011 school year.
HB 1718/ SB 1200	JOBS Commission Pilot Schools	This recommended legislation was partially included in the Budget Money Report, Part F-Item 23 – providing $100K each for the creation of sites in Wake and Cumberland Counties.
HB 1719/ SB 1201	Add'l Flex./Coop. Innovative High Schools	SB 1201 was enacted as S.L. 2010-182. This law became effective August 3, 2010, and applies beginning with the 2010-2011 school year.
H1724/ SB 1199	NC Biotechnology and Agriscience School	SB 1199 was amended in committee and was enacted as S.L. 2010-183 and became effective August 3, 2010.
HB 1826/ SB 1244	SBOE Members Ex. Officio to Econ. Dev. Comm.	SB 1244 was enacted as S.L. 2010-184, and became effective August 3, 2010.

Summaries of Enacted Legislation

Education Cabinet Establish Science, Technology, Engineering, and Mathematics Priority

S.L. 2010-41 (SB 1198) directs the Education Cabinet to set science, technology, engineering, and mathematics (STEM) education priorities by doing all of the following:

- Setting as a priority an increase in the number of students earning postsecondary credentials in the STEM fields to reduce the gap between needed credentialed workers and available jobs in those fields by 2015.
- Encouraging and monitoring progress of cooperative efforts between secondary schools and institutions of higher education (IHEs) to prepare students for postsecondary study of STEM subjects and identify and support IHE's efforts to increase the number of students seeking and successfully completing postsecondary certificates or degrees in STEM fields.
- Determining measurements for assessing the number of available jobs in the State in STEM fields and the number of students earning postsecondary credentials in those fields at all IHEs in the State.
- Identifying federal, State, and local funds that may be used to support this priority as well as pursuing private funds that could be used to support this priority.

The Education Cabinet must report annually on its activities under this section to the Joint Legislative Education Oversight Committee and to the JOBS Commission by November 1, 2011, on established measurements, efforts to reduce the identified gap, and sources of funding to support these efforts.

This act became effective July 1, 2010. (DC)

Cooperative and Innovative High Schools

S.L. 2010-31, Sec. 7.21(a) and (b) (SB 897, Sec. 7.21(a) and (b)) adds a five-year career academy operating within an existing high school to the current models of cooperative innovative high school programs. These programs must continue to use the existing school code assigned by the Department of Public Instruction (DPI) and maintain records to identify and evaluate students in the program distinct from the general school population.

This section became effective June 30, 2010 and applies beginning with the 2010-2011 school year, excepted as otherwise provided. (SK)

Additional Flexibility/Cooperative Innovative High Schools

S.L. 2010-182 (SB 1201) provides additional operating flexibility to Cooperative Innovative High Schools by clarifying that these programs have the same exemptions from statutes and rules as charter schools, except for those pertaining to personnel.

This act became effective August 3, 2010, and applies beginning with the 2010-2011 school year. (SK)

Establish Regional School Planning Commission

S.L. 2010-183 (SB 1199) and S.L. 2010-152, Part XXIX (SB 900, Part XXIX) create the Agriscience and Biotechnology Regional School Planning Commission (Commission) to develop and plan a regional school of agriscience and biotechnology. The Commission will include up to nine members appointed by the chair of the State Board of Education no later than September 1, 2010. The Commission, in developing its plan, must ensure the model is replicable, sustainable, and scalable, and must:

- Consider the school's governance, funding for operational and capital needs, personnel, admissions and assignment of students, transportation, school food services, and other relevant issues.
- Solicit proposals from interested regions seeking to host the school and identify the school's location.
- Identify potential business partners for the school.
- Consult with North Carolina State University and the North Carolina Research Campus and establish connections between those institutions and the school.

The Commission must report on its plan to the State Board of Education, the Joint Legislative Joining Our Businesses and Schools (JOBS) Study Commission, and the Joint Legislative Education Oversight Committee by January 1, 2011.

This act became effective August 3, 2010. (KM)

State Board of Education Members Ex Officio to Economic Development Commission

S.L. 2010-184 (SB 1244) makes the State Board of Education members representing the following education districts ex officio non-voting members of the following economic development commissions:

- Education District 1: North Carolina's Northeast Commission.
- Education District 2: North Carolina's Eastern Region.
- Education District 3: Research Triangle Regional Partnership.
- Education District 4: Southeastern North Carolina Regional Economic Development Commission.
- Education District 5: Piedmont Triad Partnership.
- Education District 6: Charlotte Regional Partnership, Incorporated.
- Education Districts 7 and 8: Western North Carolina Regional Economic Development Commission.

For the three economic development regions not created in statute (Charlotte Regional Partnership, Piedmont Triad Regional Partnership, and Research Triangle Regional Partnership), the act makes inclusion of the State Board of Education member as an ex officio non-voting member on the Commission a condition for the receipt of State funds.

The act also adds the Secretary of the Department of Cultural Resources as an ex officio non-voting member of the Economic Development Board located within the Department of Commerce.

This act became effective August 3, 2010. (DC)

Cumberland ECHS for Language, Culture and Diplomacy

JOBS Commission Update
September 1, 2010

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Military Community

Where parents seek to send their children...

...and children want to come.

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Collaborative Partnership

- Cumberland County Schools
- Fayetteville Technical Community College
- North Carolina New Schools Project
- Center for International Understanding

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY
SCHOOLS

Supporting Partners

- U.S. Military
- Visiting International Fellows
- World View
- Fayetteville State University
- Business

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY
SCHOOLS

Steering Committee

- Serves as the "owners" and "decision-makers"
- Responsible for Mission, Vision and Goals
- Representatives:
  - Cumberland County Schools
  - Fayetteville Technical Community College
  - North Carolina New Schools Project
  - Center for International Understanding
  - Lt. Governor's Office

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY
SCHOOLS

Planning Development Committee

- Development of various components of Implementation Plan
- Teachers, Principals, Central Office Staff
- Support from Military experts, Institutes of Higher Education (IHEs), organizational professionals such as World View and Visiting International Fellows

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY
SCHOOLS

Deliverables

- Implementation Plan - December, 2010
- School Opening – August, 2011

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Milestones

- Mission, Vision, Goals – September 2010
- Planning Development & local BOE approval – September-December, 2010
- Implementation Plan due – December, 2010
- SBOE Approval Process – January, 2011
- Plan Implementation – January – July, 2011
- Opening for students – August, 2011

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Steering Committee

- Serves as the "owners" and "decision-makers"
- Responsible for Mission, Vision and Goals
- Representatives:
  - Cumberland County Schools
  - Fayetteville Technical Community College
  - North Carolina New Schools Project
  - Center for International Understanding
  - Lt. Governor's Office

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Planning Development Committee

- Development of various components of Implementation Plan
- Teachers, Principals, Central Office Staff
- Support from Military experts, Institutes of Higher Education (IHEs), organizational professionals such as World View and Visiting International Fellows

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Deliverables

- Implementation Plan - December, 2010
- School Opening – August, 2011

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Milestones

- Mission, Vision, Goals – September 2010
- Planning Development & local BOE approval – September-December, 2010
- Implementation Plan due – December, 2010
- SBOE Approval Process – January, 2011
- Plan Implementation – January – July, 2011
- Opening for students – August, 2011

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Planning Development Sub-committees

- Curriculum/Program Development
- School and student organizational issues such as student scheduling and school day format
- Student Selection & Support
- Community & Legislative Advocacy
- Professional Development
- Administrative Logistics

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Advisory & Advocacy Committee

- Provide feedback on development items
- Serve as advocate for project within their spheres of influence
- Representatives include:

Business	Military
Legislature	County Government
World View & VIF	Local BOE
Fayetteville State University	

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Budget Support

Budget provided for key planning elements:

- **Planning Oversight** – personnel support for Professional Development, Technical Assistance, and Change Management
- **Program Development and Support** – Study Visits, Research & Development, Curricular Materials
- **Planning Support** – Meeting cost, supplies, travel

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Cumberland ECHS for Language, Culture and Diplomacy

JOBS Commission Update
September 1, 2010

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Military Community

Where parents seek to send their children...

...and children want to come.

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Collaborative Partnership

- Cumberland County Schools
- Fayetteville Technical Community College
- North Carolina New Schools Project
- Center for International Understanding

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY
SCHOOLS

Supporting Partners

- U.S. Military
- Visiting International Fellows
- World View
- Fayetteville State University
- Business

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY
SCHOOLS

Diversity

- Students from 36 different countries
- In addition to English, the top six languages spoken are: Spanish, Korean, German, Vietnamese, Chinese, and Arabic
- More than 48 native languages spoken
- 24% (12,543) of students are military connected

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

CCS Initiatives

- Opening New Century International Elementary school as our 2nd internationally themed elementary school
- 2010-2011 - Spanish will be offered in seven elementary schools (3 Immersion Programs and 4 FLES programs)
- 2010-2011 - Mandarin Chinese will be offered at New Century International Elementary School, Anne Chesnutt Middle School, and 71st High School
- Additionally, CCS has the unique opportunity to become the first U.S. Department of State designated Global School District in the country.

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Planning Framework
2010-2011

- Committee Structure
- Project Support
- Deliverables
- Timeline
- Budget

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Committee Structure

- Steering Committee
- Planning Development Committee
- Advisory and Advocacy Committee

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY SCHOOLS

Wake NC State University STEM Early College High School

Ruth Steidinger, WCPSS

Betsy Brown, NC State University

In the Beginning.....

- August 2008 – At the time,Superintendent Burns, Chancellor Oblinger, and BOE Chair, Rosa Gill signed a letter of intent agreeing to the development of an early college
- A leadership team was established with representation from NC State, Wake County Public Schools, and a coach from NCNSP
- This team established sub-committees based on the components of the RFP. Each sub-committee had appropriate departmental representation from NC State and Wake County Public Schools
    - Curriculum Sub-Committee
    - Organization/Logistics Sub-Committee
    - Student Issues Sub-Committee
- October 30, 2008 – Kick-off Meeting to begin the planning for this school – sub-committees began work on their timeline
- Work of the sub-committees were anchored in the mission of the school

School's Mission

"The mission of the Wake NC State University STEM Early College High School is to provide a highly supportive and academically challenging learning environment for students underserved in a traditional high school setting and underrepresented in the STEM disciplines, including first generation college going students, who will graduate prepared to compete globally in careers related to science, technology, engineering, and mathematics".

Curriculum

- Students will take the courses required for the NC Future Ready Core Course of Study for a high school diploma. These are the same basic requirements as at all NC public high schools. However, all courses will carry the theme of science, technology, engineering, and math throughout the curriculum and be taught in an innovative fashion (project-based learning)
- Students will examine science, technology, engineering, and math topics through the lens of the Grand Challenges for Engineering from the National Academy of Engineering. The 14 Grand Challenges represent the most critical problems to be solved in the 21st Century.

School Size and Location

- Size: Our school will have 50 students in its first year. Every year, a new 9th grade class will be added, until our program reaches its full size of 250 students.
- Location: The Cherry Building is planned to be the permanent location. A temporary location has to be established.

Application Process

- Any students that reside in Wake County can apply to attend the Wake NC State University STEM Early College High School.
- Applications will be available for download at http://stemec.wcpss.net/ in November 2010.
- Applications will require basic demographic information, attached report cards, essay statements from the student, and completed teacher recommendation forms.
- The applications will be due to the WCPSS Magnet Programs Office by January 14, 2011.
- In addition to the paper application, applicants will be required to also submit a magnet school application online to be considered.

Staff

- WCPSS secured grant funding to hire a transition counselor to assist in the recruitment of students
- The principal and his/her lead secretary can be hired January 1, 2011
- Once the principal is hired, he/she can begin to interview and select the teaching staff.
- There will be a seven member teaching staff the first and second years
- College Liaison and Counselor funded through the Learn and Earn Early College Innovation Project

Summer of 2011

- Students selected to attend the early college will participate in summer sessions to address academic needs as well as personal development
- NC State offers many of these opportunities currently and has set aside space for our students
- These sessions will be in partnership with curriculum and counseling staff from WCPSS

Wake NC State University STEM Early College High School

Ruth Steidinger, WCPSS

Betsy Brown, NC State University

In the Beginning.....

- August 2008 – At the time,Superintendent Burns, Chancellor Oblinger, and BOE Chair, Rosa Gill signed a letter of intent agreeing to the development of an early college
- A leadership team was established with representation from NC State, Wake County Public Schools, and a coach from NCNSP
- This team established sub-committees based on the components of the RFP. Each sub-committee had appropriate departmental representation from NC State and Wake County Public Schools
    - Curriculum Sub-Committee
    - Organization/Logistics Sub-Committee
    - Student Issues Sub-Committee
- October 30, 2008 – Kick-off Meeting to begin the planning for this school – sub-committees began work on their timeline
- Work of the sub-committees were anchored in the mission of the school

School's Mission

"The mission of the Wake NC State University STEM Early College High School is to provide a highly supportive and academically challenging learning environment for students underserved in a traditional high school setting and underrepresented in the STEM disciplines, including first generation college going students, who will graduate prepared to compete globally in careers related to science, technology, engineering, and mathematics".

Curriculum

- Students will take the courses required for the NC Future Ready Core Course of Study for a high school diploma. These are the same basic requirements as at all NC public high schools. However, all courses will carry the theme of science, technology, engineering, and math throughout the curriculum and be taught in an innovative fashion (project-based learning)
- Students will examine science, technology, engineering, and math topics through the lens of the Grand Challenges for Engineering from the National Academy of Engineering. The 14 Grand Challenges represent the most critical problems to be solved in the 21st Century.

School Size and Location

- Size: Our school will have 50 students in its first year. Every year, a new 9th grade class will be added, until our program reaches its full size of 250 students.
- Location: The Cherry Building is planned to be the permanent location. A temporary location has to be established.

Application Process

- Any students that reside in Wake County can apply to attend the Wake NC State University STEM Early College High School.
- Applications will be available for download at http://stemec.wcpss.net/ in November 2010.
- Applications will require basic demographic information, attached report cards, essay statements from the student, and completed teacher recommendation forms.
- The applications will be due to the WCPSS Magnet Programs Office by January 14, 2011.
- In addition to the paper application, applicants will be required to also submit a magnet school application online to be considered.

Staff

- WCPSS secured grant funding to hire a transition counselor to assist in the recruitment of students
- The principal and his/her lead secretary can be hired January 1, 2011
- Once the principal is hired, he/she can begin to interview and select the teaching staff.
- There will be a seven member teaching staff the first and second years
- College Liaison and Counselor funded through the Learn and Earn Early College Innovation Project

Summer of 2011

- Students selected to attend the early college will participate in summer sessions to address academic needs as well as personal development
- NC State offers many of these opportunities currently and has set aside space for our students
- These sessions will be in partnership with curriculum and counseling staff from WCPSS

Wake NC State University STEM Early College High School

Ruth Steidinger, WCPSS

Betsy Brown, NC State University

In the Beginning.....

- August 2008 – At the time,Superintendent Burns, Chancellor Oblinger, and BOE Chair, Rosa Gill signed a letter of intent agreeing to the development of an early college
- A leadership team was established with representation from NC State, Wake County Public Schools, and a coach from NCNSP
- This team established sub-committees based on the components of the RFP. Each sub-committee had appropriate departmental representation from NC State and Wake County Public Schools
    - Curriculum Sub-Committee
    - Organization/Logistics Sub-Committee
    - Student Issues Sub-Committee
- October 30, 2008 – Kick-off Meeting to begin the planning for this school – sub-committees began work on their timeline
- Work of the sub-committees were anchored in the mission of the school

School's Mission

"The mission of the Wake NC State University STEM Early College High School is to provide a highly supportive and academically challenging learning environment for students underserved in a traditional high school setting and underrepresented in the STEM disciplines, including first generation college going students, who will graduate prepared to compete globally in careers related to science, technology, engineering, and mathematics".

Curriculum

- Students will take the courses required for the NC Future Ready Core Course of Study for a high school diploma. These are the same basic requirements as at all NC public high schools. However, all courses will carry the theme of science, technology, engineering, and math throughout the curriculum and be taught in an innovative fashion (project-based learning)
- Students will examine science, technology, engineering, and math topics through the lens of the Grand Challenges for Engineering from the National Academy of Engineering. The 14 Grand Challenges represent the most critical problems to be solved in the 21st Century.

School Size and Location

- Size: Our school will have 50 students in its first year. Every year, a new 9th grade class will be added, until our program reaches its full size of 250 students.
- Location: The Cherry Building is planned to be the permanent location. A temporary location has to be established.

Application Process

- Any students that reside in Wake County can apply to attend the Wake NC State University STEM Early College High School.
- Applications will be available for download at http://stemec.wcpss.net/ in November 2010.
- Applications will require basic demographic information, attached report cards, essay statements from the student, and completed teacher recommendation forms.
- The applications will be due to the WCPSS Magnet Programs Office by January 14, 2011.
- In addition to the paper application, applicants will be required to also submit a magnet school application online to be considered.

Staff

- WCPSS secured grant funding to hire a transition counselor to assist in the recruitment of students
- The principal and his/her lead secretary can be hired January 1, 2011
- Once the principal is hired, he/she can begin to interview and select the teaching staff.
- There will be a seven member teaching staff the first and second years
- College Liaison and Counselor funded through the Learn and Earn Early College Innovation Project

Summer of 2011

- Students selected to attend the early college will participate in summer sessions to address academic needs as well as personal development
- NC State offers many of these opportunities currently and has set aside space for our students
- These sessions will be in partnership with curriculum and counseling staff from WCPSS

Regional School for Biotechnology and Agriscience

Update
JOBS Commission

September 1, 2010

Planning began for the creation of a prototype STEM school focused on biotechnology and agriculture that would serve rural and low wealth communities in fall 2008. Among the initial group of cooperating organizations are NC State University, the NC State Board of Education, the NC Rural Economic Development Center, NC New Schools Project, the NC Department of Agriculture, Avoca Farms and business and community leaders in northeastern North Carolina.

The school will:

- **Establish a prototype** school in which a focus on biotechnology and agriscience will motivate more students to graduate prepared for college and for a broad range of careers;
- **Enhance economic development** in the region and eventually in other rural North Carolina communities by aligning public and private leadership and resources; and
- **Illustrate an effective school design** that is suited for success in low wealth and rural communities that is worthy of replication.

Leaders at the local and state levels are involved in the development of a regional school focused on biotechnology and agriscience that may be sited in the northeast or in another community.

1) **Commission for Site Selection and Governance**: Acting at the recommendation of the JOBS Commission, the NC General Assembly authorized the establishment of a commission to present recommendations regarding site selection for a prototype biotechnology agriscience school and how a regional school might best be governed. This commission is expected to issue its recommendations in January 2011.

2) **Statewide Advisory Committee**: Recognizing the challenge of effecting change in communities that often lack a history of embracing the urgency for change, a statewide committee was established June 10, 2009 in cooperation with NC State University and the NC Rural Economic Development Center. The committee meets on an ad hoc basis.

3) **Regional Advisory Committee**: Business and civic leaders from northeastern North Carolina formed an advisory committee on June 19, 2009, to provide oversight for the school.

Following is a vision statement intended to illustrate the central components of the proposed model and its intended impact on an emerging network of similarly themed schools in rural and low wealth communities across North Carolina.

Vision for the Northeast Regional School for Biotechnology and Agriscience (NERSBA)

The Northeast Regional School for Biotechnology and Agriscience (NERSBA) is an early college high school joint endeavor of the NC State University College of Agriculture, the NC State Board of Education, six northeastern rural school districts, and the NC New Schools Project, with strong support from the NC Department of Agriculture and the JOBS Commission. The school will become a 7-12 school of up to 500 students open to all students entering seventh grade from six adjacent districts and located on the campus of the Vernon G. James Research and Extension Center (a joint venture of the NC State College of Agriculture and the NC Department of Agriculture), projected for summer 2011.

The intent of the school is to serve as a statewide model and partner in the economic, educational and social transformation of a region that has suffered drastic economic decline, loss of jobs and population, and low academic achievement since the early 1990s. These declines and the relative geographic isolation of the region from leading industries have often produced a sense of hopelessness about the future among students, parents and even educators that impacts motivation to learn in school and thus academic achievement and dropout rates, producing a climate and workforce that makes future economic development even more difficult. NERSBA intends to reawaken hope in that future by fundamentally reinventing the high school experience around the most significant future challenges facing the region and the world in engineering, biotechnology, agriculture, economic development, and related fields, resulting in students whose parents never completed college (or sometimes even high school) graduating high school with up to two years of college credit and going on to successfully complete college degrees. At the same time students and faculty in the school will partner with other schools in the region and state to create innovative learning resources for not only students but also for use by parents and communities in the region.

The school will become an essential resource in the region and the state for developing integrated digital and problem-based curriculum aligned with the skills and content most highly valued by future employers and higher education in biotechnology and agriscience. Since the intent of this non-traditional curriculum is to ensure alignment with future workforce and higher education success, the school will become a statewide leader in developing internationally-benchmarked balanced assessment and accountability practices to ensure that students develop those skills and content which are most closely aligned with success after high school. This evolving assessment and accountability model will require active ongoing partnerships and input from business and higher education partners as well as the NC State Board of Education.

NERSBA's instructional practices will be benchmarked against the 21st Century "soft skills" most highly valued for success in business, higher education and citizenship, such as inquiry, collaboration, communication, continuous systemic improvement, creativity, entrepreneurship, and leadership by influence. Many of these skills are already evident in the Powerful Teaching and Learning strategies benchmarked by the NC New Schools Project. Engineering problem-solving methodology as well as problem-based projects, team teaching, and a cognitive developmental model emphasizing student discourse and Socratic questioning, will be used to help students learn essential concepts within meaningful applications to real and simulated problems. The school will create more active leadership roles for students not only in their own learning, but in improving the learning of their classmates and virtual partners, and creating useful resources for parents and their local communities through creative

projects, marketing, and digital communication. From day one, students will help create resources that will help other students learn. Students and their teachers will utilize a variety of Web 2.0 creative tools to build virtual learning communities and develop customized learning resources with students and teachers in other schools across the region, state and beyond. Since addressing future technical challenges will inevitably involve economic, political, ethical and moral issues, students will study how those issues have impacted the history and development of their own region, and utilize that evolving understanding into learning and communicating how other communities have been shaped by and are responding to those same future challenges. In addition, students will be able to experience the broader opportunities of the world beyond their classroom through face to face and virtual experiences such as extended field trips utilizing the school's extended day and school year flexibility, utilization of a Future Farmers of America club to develop leadership and public presentation skills, and mentorships and internships with the Vernon James Center, NC State, and business partners.

In addition to becoming a center for disseminating future-oriented curriculum and instructional practices, the school will serve the region as a desperately needed training and residency model experience for STEM-focused teacher and administrator recruitment, certification, training and sustainability. As in the future workplace, adult work in the school will be characterized by commitment to teamwork, collaboration, shared leadership, innovation and rigor among teachers, administration, students, parents and partners. The school will commit to creating a new model of shared rather than individual autonomy in professional teaching by making instructional practices public and collaborative through team teaching; instructional "rounds"; continuous improvement processes involving both faculty and students; and action research around issues of effective learning and shared standards of practice. Future and current teachers and administrators will have the opportunity to observe and become inducted into the practices necessary to take students who have often been less than successful in school into becoming highly motivated young people whose confidence in their ability to learn and achieve has been restored by personal relationships with teachers, coaching and mentoring that go far beyond what is usually possible in large high schools. These innovative new roles for teachers and administrators will also be evident in expanded leadership roles for students within and beyond the school, as well as more collaborative rather than hierarchical relationships among students, teachers and administrators. The school will also commit to establishing virtual partnerships to disseminate effective practices and learning resources to fellow STEM* teachers in the region as well as similar STEM schools in the NC New Schools Project network.

Through active partnerships with biotechnology and agriscience-related businesses and higher education, a fundamental re-design of high school curriculum and instruction around real-world challenges and 21st Century skills, and a commitment to benchmarking instructional and leadership practices around the real world of work, The Northeast Regional School for Biotechnology and Agriscience (NERSBA) intends to serve as a beacon of hope and a bridge to the future for students, teachers, parents and communities of northeastern North Carolina.

BILL & MELINDA GATES foundation Battelle The Business of Innovation

NC STEM Community Collaborative Update

Facilitate Grassroots STEM Initiatives, and Connect them to state and national expert partners

09/07/2010

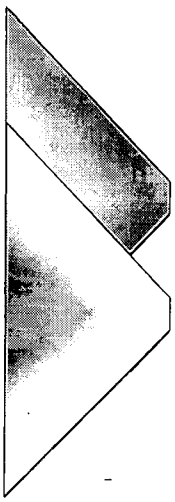
What We do

Identify & Facilitate

Connect & Coordinate

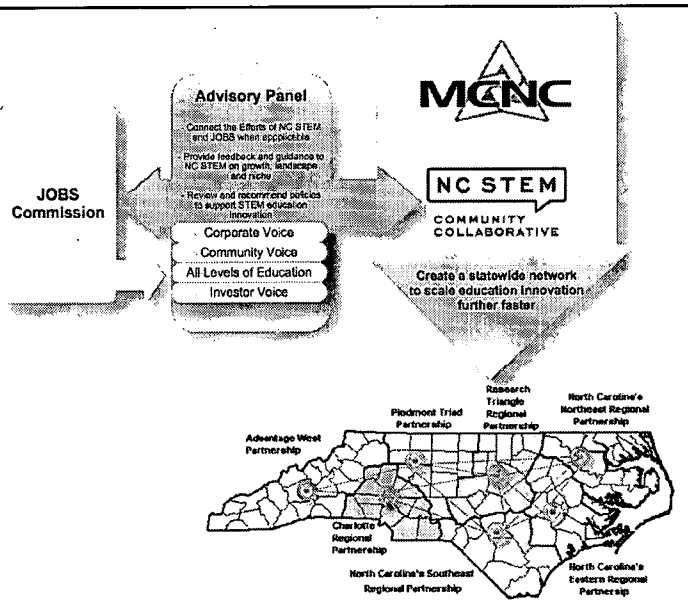
Generate Demand & Advocacy

Amplify Network & Information Sharing



STEM Communities
Coordination and Facilitation of Grassroots STEM Initiatives to advance education and the economy.

NC STEM Network
Connect local, state and national STEM assets, experts and resources to maximize impact at each level.



BILL & MELINDA GATES *foundation*

Battelle
The Business of Innovation

2010 JOBS Report – 3 Recommendations

1. Close the STEM Gap -- Creation of A Statewide STEM Goal

- 2010 SL 41, Unanimous passage

  Primary: Senator Swindell & Rep Glazier, Braxton, and Yongue
  Senate Cosponsors:
  Bob Atwater; Harry Brown; Don Davis; Tony Foriest; Steve Gos s; Fletcher L. Hartsell, Jr.; William R. Purcell; John Snow
  House Cosponsors:
  M. Alexander; Carney; Cotham; Fisher; Harrison; Heagarty; Hu ghes; Jeffus; Johnson; Jones; Luebke; McLawhorn; Parfitt; Tar leton; Weiss; Whilden;

- Education Cabinet leaders meeting to set best approach across K20
- Senator Lee expecting updates at October 2010 meeting of Education Cabinet

BILL & MELINDA GATES *foundation*

Battelle
The Business of Innovation

2010 JOBS Report – 3 Recommendations

2. Increase Investment in STEM Programs – Statewide Public/Private Partnership

No Funding or Legislation Attached to this Recommendation

Future Action section:

The JOBS Commission will continue to explore models and work to form public-private partnerships which encourage connections between business and education ...[and] continue to examine innovative ways to join businesses and schools to insure that quality instructional programs with high academic standards are available to prepare students for the transition to postsecondary education and future careers, and to provide a competitive workforce to support twenty first century economic demands of business and industry.

Advisory Panel Expected to Discuss in September Meeting

Opportunities for Public & Private Coordination

Race to the Top (STEM Areas)
STEM Professional Development for Teachers
Common Core Standards & Assessments (ACRE)
Anchor STEM Schools
Network for Public and Private

Other DPI Efforts with STEM
Math Science Partnerships
CTE
Integrated Math

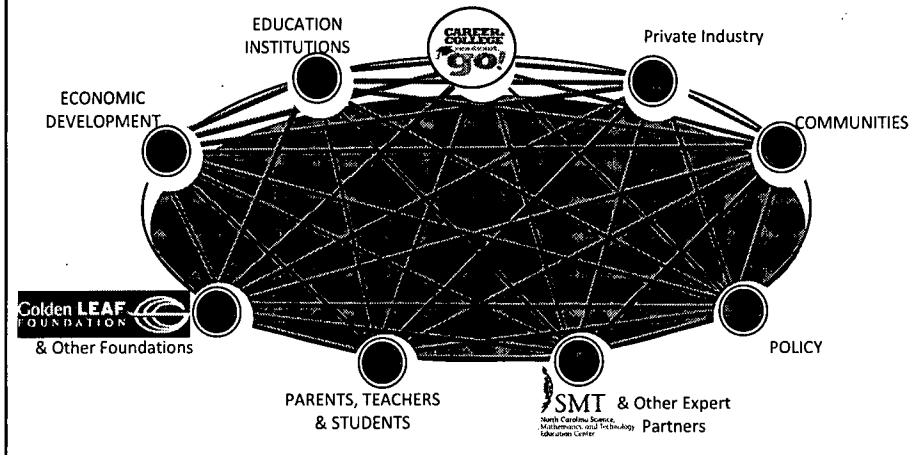
Most Recently Announced Private Foundation Investments

$4m for Grades 4-9
Tier I, II, or Tobacco
Dependent

USED I3 Winner
$7m for K-6 Professional Development
Private Sector Match Included

Does Not Include Most Private Sector, Foundations, Economic Development or local investments.

Opportunities for Public & Private Coordination

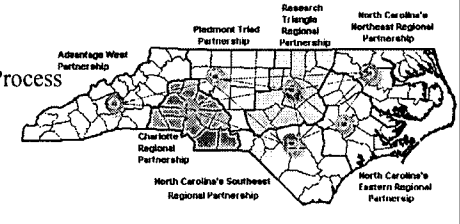


Coordination of resources and experts needed to amplify impact of STEM efforts.

3: Expansion of STEM Communities

JOBS Commission Recommendation:
Extend the Community Visioning & Design Process to each Economic Development Region

No Funding or Legislation Attached



Ready to Launch
Davie County – Business Planning for Innovative Teaching Models
Lenoir County – Business Planning for Regional STEM Hub for experience-based learning
Ft. Bragg Region – Multi-County Network of Technology & Teachers focused on STEM (business planning phase this fall)

Emerging Communities Getting Ready to Go
Advantage West: Watauga-Ashe-Caldwell Counties - leadership forming, initial meetings held
Charlotte Region: Rowan-Cabarrus (Kannapolis) – leadership forming, initial meetings held
RTRP & North East Regions gathering leaders for fall/winter initiation

Thank you!

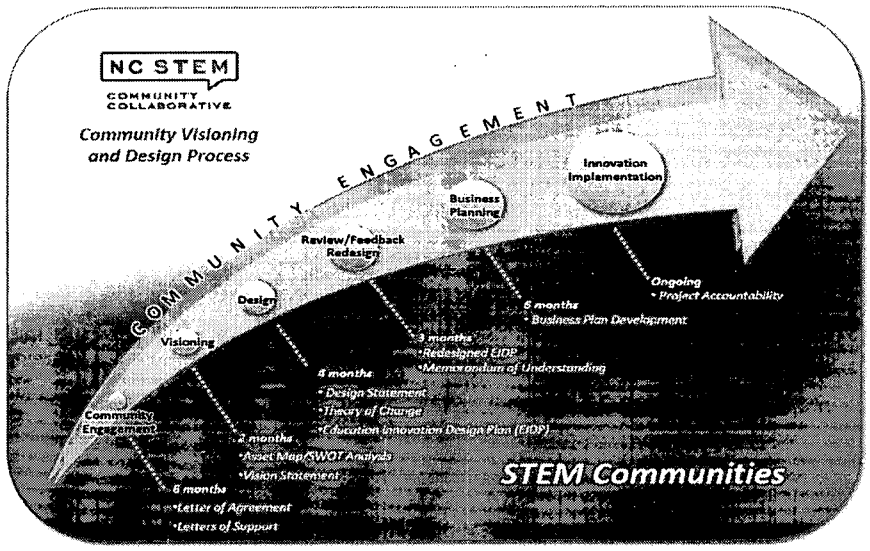
NC STEM Advisory Panel

Next Meeting

Sept 16, 2010

Appendix Attached

Appendix



NC STEM Advisory Panel

JOBS Commission Members:

Pamela Townsend	(Co-chair) Vice President, AECOM, Inc.
Sam Houston	(Co-chair) President & CEO, NC SMT Education Center
Joe Freddoso	President & CEO, MCNC
Robert Beichner	Co-Director for the NC State STEM Innovative, NC State University
Karl Rectanus	Leader, NC STEM Community Collaborative/ MCNC
Caroline McCullen	Director & SAS Education Initiatives, SAS
Sen. Harry Brown	North Carolina General Assembly
Rep. R. Van Braxton	North Carolina General Assembly
Mike Murphy	Chairman of the Board, MCNC

NC STEM Advisors:

Tina Wilson	Corporate Citizenship and Corporate Affairs, IBM
Paul Sale	Global HR Director, Cisco Systems, Inc.
Bobbi Hapgood	Executive Director, NC Network of Grantmakers
J.B. Buxton	Collaborator & Principal, The Education Innovations Group
Larry Colbourne	President, Mebane Charitable Foundation
Mark Sorrells	Senior Vice President, Golden LEAF Foundation
Kimbery Reynolds	Deputy of Chief of Staff, Lieutenants Governor's Office
Dr. Glenn Kleiman	Executive Director, Friday Institute for Educational Innovation
Rich Rosen	SVP Education, Battelle
Steve Barkanic	Senior Program Officer, Bill & Melinda Gates Foundation
Linda Suggs	Consulting, Advocacy & Training, NC ED Services, Inc.
Bill McNeal	Executive Director, NCASA
John Cambier	Sr. Vice President & CFO, NC IDEA

NC STEM Design Principles

Principle 1: Equity: *Make STEM literacy and economic opportunity attainable for ALL NC Students as soon as possible.*

Principle 2: Sustainability; *Drive scalable and sustainable innovations for continuous STEM improvement.*

Principle 3: Community Engagement; *empower communities and their educators in creating new STEM education platforms tied to local needs.*

Principle 4: Innovative Professionals; *Empower and support a culture that nurtures the creation of innovative STEM professionals.*

Principle 5: Collaborative Network: *Incubate and support collaboration and network behavior for STEM excellence.*

JOBS Commission Timeline

PHASE 1

- Held meetings in each of the seven economic development regions
- Identified three career clusters and pilot/anchor schools
- Developed recommendations for consideration by the General Assembly
- Reported to the State Board of Education and the Joint Legislative Education Oversight Committee
- Passed Legislation

PHASE 2

- Work with identified schools to facilitate 2011 opening
- Identify second set of career clusters and locations
- Develop further legislative recommendations to improve early college policies and address unique issues of governance
- Continue to work with STEM collaborative to focus on statewide STEM goals and needs
- Identify and facilitate development of a "soft skills" implementation plan into core curriculums
- Report to 2011 session of the General Assembly

MEMBERS PRESENT: JOBS COMMISSION 9/1/10

Lt. Governor Walter Dalton
Howard Lee
Sen. Tony Foriest
Sen. Harry Brown
Sen,. Fletcher Hartsell
Rep. Van Braxton
Rep. Doug Yongue
Valeria Lee
Mike Murphy
Carolina Watts McCullen
Felicia Gray Watson
Susan Purser
Pamela Townsend
Joe Freddoso
Sam Houston
Pamela Townsend
Felicia Gray Watson
Laura Willoughby

ATTENDANCE

Committee: JOBS

DATES / NAMES	9/1														
Lt. Gov. Walter Dalton	✓														
Howard Lee	✓														
Sen. A. B. Swindell, Vice Chair															
Sen. Tony Foriest	✓														
Sen. Harry Brown	✓														
Robert Beichner															
Valeria Lee	✓														
Mike Murphy	✓														
Felicia Gray Watson	✓														
Rep. Rick Glazier															
Rep. Van Braxton	✓														
Rep. Doug Yongue	✓														
Laura Bingham															
Joseph Crocker															
Grant Godwin															
Caroline Watts McCullen	✓														
Susan Purser	✓														
William Harrison															
Pamela Townsend	✓														
Joe ~~Fred~~ Freddoso	✓														
Sam Houston	✓														
Karl Rectanus															
Sen. Fletcher Hartsell	✓														
Shirley Iorio															
Kara McCraw	✓														
Ted Harrison	✓														
W. Houghton	✓														
~~Mike Murphy~~	✓														

Sam Shackleford Rep Joe Crocker

JOBS

VISITOR REGISTRATION SHEET

9/1/2010

Name of Committee | Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
[illegible]	DPI
R D Walters RAY D. WALTERS	FAYETTEVILLE TECHNICAL COMMUNITY COLLEGE DEAN OF COLLEGE FRASER
Betsy Brown	NC State University
Sarah Murphy	Office of the Lt. Governor
Mitch Kokai	John Locke Foundation
Karla Breitrump	Lt. Gov. Dalton's Office
Allison Violette	CCS
Frank Gill	CCS
Andrew Meehan	Capstrat
Ruth Heckenberg	WLASS

JOBS

VISITOR REGISTRATION SHEET

9/1/2010

Name of Committee

Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
Eric Moore	DPI
Paul LeSieur	DPI
Janice Davis	NCNSP
Mark Ezzell	NC STEM
Mike Ramsey	NC CIU
[illegible]	Ed Consultant
JOHN GOODMAN	NC CHAMBER

JOBS Commission Meeting

Tuesday – October 12, 2010 1-4 pm

FTCC Tony Rand Student Center
2201 Hull Road - Fayetteville, NC

1:00 pm Welcome

1:05 pm **National Efforts in Business/Education Collaboration**
Rich Rosen, Corporate VP for Education Partnerships - Battelle

1:50 pm **JOBS Pilot School Updates**

Wake County / NC State University STEM Early College
Ruth Steidinger, Sr. Director of Secondary Education, High Schools

Cumberland County Language & Global Cultures Early College
Dr. Frank Till, Superintendent – Cumberland Count y Schools

Bertie County Agri-science & Biotechnology Early College
Dr. Dana Diesel Wallace – NC New Schools Project

2:05 pm ***Race to the Top Presentation***
Dr. Bill Harrison – Chair, State Board of Education

2:20 pm ***Pamela Blizzard – Contemporary Science Center – A STEM Incubator School***

2:40 pm ***BREAK***

2:50 pm ***City of Medicine Academy / Duke Medicine Prototype Update***
Elizabeth Schearer, Principal – City of Medicine Academy
Dana Diesel Wallace, VP for School Development – NCNSP

3:05 pm ***Yadkin Valley Regional Career Academy***
Barry Sink, President, Old Lexington Products
Newell Clark, Principal, Standell Properties

3:25 pm **Ft. Bragg Community Collaborative Update**
Lynda Parlett, Dir. of Grants & Sponsored Programs - Robeson Com. College
Earl St. Julien Jones, Costumer Service Specialist – DuPont
Edgar Murphy - Consultant

3:40 pm ***Open Discussion***
ADJOURN

MINUTES

THE JOINING OUR BUSINESSES & SCHOOLS (JOBS) COMMISSION

Tuesday, October 11, 2011 2-5 p.m.

LEGISLATIVE OFFICE BUILDING, ROOM 544

The Joining Our Businesses and Schools (JOBS) Commission met on Tuesday, October 11, 2011 at 2 P.M., Room 544 of the Legislative Office Building. Lieutenant Governor Walter Dalton presided. *(SEE ATTACHMENT: Members and Visitors Attending.)* The Lt. Governor welcomed the members of the Commission, and he welcomed Jean Woolard, Patricia Willoughby and Marshall Stewart and thanked them for their help with the Commission. He thanked Sen. Brown and the absent Rep. Glazier for the work in the recent legislative session carrying through objectives the Commission sought.

On motion of Sen. Lee and second from Dr. Murphy, the minutes for the meetings of January 25, 2011, April 19, 2010 and March 29, 2010 were approved.

Senator Brown brought the Commission an update of the 2011 Legislative Session. He cited the addition of 1100 teachers for grades 1-3, a Performance Bonus Package of $21 million, and Intensifying the Reading Skills Program. Of special interest for the Commission was the Regional Schools bill which has a direct effect on the Agri-Science School in Northeastern North Carolina. He expressed the hope that this bill would break down some of the county line barriers that can stymy such efforts which can join low wealth counties with wealthier counties for mutual benefit. That effort involves 5 counties. The bill allows other counties to join. He said the $200,000 recurring money was appropriated for the two Learn and Earn Early Colleges despite the tight budget.

He expressed hope that the past budget was the "bottom" and that the economy would improve.

He said he appreciated the work of the Commission, saying a lot of people didn't know a lot about the Commission and that members might be under-appreciated.

The Lt. Governor thanked Sen. Brown and Sen. Hartsell for their work. He said the Northeast Regional School could be a model for greater things to come. He reiterated thanks to Jean Woolard and Marshall Stewart for their work. He said the involvement of North Carolina State University and Avoca Farms added additional credibility to the Agri-Science project.

He cited the addition of members of the State Board of Education on the regional economic development boards as another bill the Commission supported and saw pass.

PRESENTATIONS

Caroline McCullen, Commission member and Director of Education Initiatives for SAS, presented the Business Engagement Guide, an outline of ways for businesses to join with schools. *(SEE ATTACHMENT: Business Engagement Guide)* Some of the issues address how business might be able to become involved with experience-based activities involving students. This would also give teachers an idea how to be involved with businesses. The idea of calling this a "plan" was changed so that the document would not be telling either side how they must do something.

She said this was compiled from existing materials and sites. She said many of the business contacts were not aware of the information available from the Department of Public Instruction website, or that the site existed.

Step one, they decided, would be to develop a strong business advisory board. This came from the people they interviewed and met.

Ms. McCullen said that project-based learning experiences would be helpful for furthering the development of the guide.

She asked the opinions of the Commission members on the value of such a guide, what should be included or excluded, what form should such a guide take: website(s), booklet, etc., how to disseminate such a guide, and how to update.

She also questioned the connection, if any to the social media system being developed by the Institute for Emerging Issues. *(See Below)*

Mr. Beichner asked how feedback should be made. Kimberly Reynolds on the Lt. Governor's staff was designated as the recipient.

Dr. Harrison asked how to prevent duplication with any other such efforts, i. e. Students at Work. Ms. McCullen said perhaps the information might fall into that organization's purview. She said the sub-committee who had developed this draft definitely did not want to duplicate any efforts. Dr. Houston said it seemed that as the work of the JOBS Commission continued that there would be the need to keep things in one place. However, he said that the Commission might show a link to the State Board of Education and efforts in place there.

Ms. McCullen closed giving additional thanks to the group that worked on the guide.

Lt. Governor Dalton noted that there is a STEM website being developed and said that a graduate student, Stephanie Wright was working on that site. Ms. Wright was at the meeting.

Diane Cherry, Environments Policy Manager for the Institute for Emerging Issues (IEI) brought the Commission the efforts for a social media connection being developed by the IEI. *(SEE ATTACHMENT: Creativity.)*

Ms. Cherry said the focus of the IEI as a public policy organization is to examine North Carolina's competitiveness. One of the issues that grew out of a session on creativity was to bring together teachers and business leaders in a local geographic setting. There was a need to broaden the number of business leaders who were contacted for participation in various school projects.

She said the concept was to link teachers and businesses for short term needs. The plan is for a pilot project that could be scaled up or down based on a specific need.

Lt. Governor Dalton asked who would be able to update the information and if there were royalties that might be paid. Ms. Cherry said these are part of the negotiations to be made.

UPDATES ON JOBS COMMISSION SUPPORTED SCHOOLS

Hospital and Tourism

Alyssa Barkley, Executive Director of the North Carolina Hospitality Education Foundation, made the presentation for this school which is in the early stages of creation. The Foundation is an arm of the North Carolina Hospitality and Tourism Association. A steering committee has been created to direct the focus of the educational efforts. Those efforts will be centered on Western North Carolina, particularly Asheville-Buncombe County. That area boasts a good education system in the middle of a strong tourism section of the state.

The Foundation directs the Pro Start program, created by the National Restaurant Association to deal with training in hospitality, food service and tourism fields. This intensive job training program requires a 400-hour work experience component.

Avery County Schools and the Asheville-Buncombe County schools are supportive of the efforts to offer the sort of training the Foundation and the Association want to develop. Funding is a large concern for the future of the effort. The goal is to have the program set to go in the fall of 2013.

The Lt. Governor took this opportunity to thank Kimberly Reynolds from his staff for her work in association with the Commission supported schools.

Finance Academy

Kimberly Reynolds spoke next with an update on the 5-year Finance Academy proposal which has drawn interest from five banks in the Charlotte-Mecklenburg area, plus involvement of the Charlotte-Mecklenburg School System and Central Piedmont Community College.

A steering committee will direct the efforts and direction of this initiative.

The National Academy Foundation is also involved. This group's existing academies are 4-year schools, but they are looking to see how the experience across the country can be tapped for the feasibility and adaptability to a 5-year school, such as the Finance Academy.

The Lt. Governor said the North Carolina Bankers Association has endorsed the idea of the finance academy.

The Northeast Regional Ag-Bio School

As he proceeded to this presentation, Lt. Governor Dalton thanked Dr. Marshall Stewart from N. C. State and Dr. Bill Harrison from the State Board of Education for their work on this venture. Dr. Stewart noted the work done by Superintendent of Public Instruction, Dr. June Atkinson. State Board of Education Chairman Bill Harrison thanked Rob Hines from the Department of Public Instruction for his work with the project.

The Lt. Governor said the legislative approval indicated the way a regional school should look; such schools don't have to follow this model, but should learn from it.

Dr. Stewart began the presentation saying that regional schools were now considered "cool". The idea began about 5 years ago in Bertie County for an early college high school and that work is still going on. The JOBS Commission plans

intersected easily with those efforts and the upshot was the model for regional schools. Five school systems: Washington County, Pitt County, Tyrrell County, Beaufort County and Martin County signed on and others are expected to join later. A governing board from these five counties is getting ready to start in the next month or so. That board will hire a principal and the target for the school to start is fall 2012. Dr. Stewart went on to note that the site for the school, the Vernon James Research Station, is a cooperative operation between N. C. State University and the N. C. Department of Agriculture.

Cumberland International Early College High School

The Lt. Governor said he was proud to have attended the opening of this School in Fayetteville. He introduced Allison Violette, Associate Superintendent for Curriculum for the Cumberland County Schools who began the presentation. *(SEE ATTACHMENT: Cumberland County)* She said that about a year ago Cumberland County reported the committees were in place. Now, she said, there is a school in place. She thanked all the various people and organizations that collaborated to create the school.

Ms. Violette introduced the Principal of the school, Ms. Lavette Alston, who added her thanks for the support of the Commission. Ms. Alston said the freshman class consists of 54 students. The students chose the school colors: red and black and the mascot, The Ambassadors. As a language and global studies school, the language choices offered now are: Arabic, Mandarin Chinese and Spanish.

The North Carolina New Schools Project plays a major role in the school. All courses offered are honors level.

Valeria Torres-Colon, one of the students, is a first-generation college student. She brought her personal view of the benefits and goals she sees in the School. She possesses knowledge of English and Spanish, so Arabic is her chosen study language. Her plans are to be an OB/GYN surgeon.

The school is currently located at E. E. Smith High School.

In response to questions from Sen. Lee, Ms. Alston said the grade point average varies within the student body and that since this is a choice school, the parents are involved at the beginning and the school works to continue that involvement.

Ms. Violette said a team reviewed the applications to the school and an essay was required. Academic progress was considered, too. The goal was to have between 50 and 75 students, thus this first class rounded out at 54.

Wake/N. C. State University STEM Early College

Rob Matheson, the Principal for the school told the Commission this school had finished 45 days for the school year as of the previous Friday. (October 7, 2011) *(SEE ATTACHMENT: Wake/N. C. State STEM...)* Matheson said the school sought to reach "the under-served, under-represented, first time college-goers".

There are 55 students in this freshman class. Currently the school is located in the creative services building, which did house the radio-television studios for the N. C. State campus. N. C. State is renovating the Cherry Building at Dorothea Dix, now part of the Centennial Campus; that will be the location in 2013.

STEM Statewide Strategic Plan

Superintendent of Public Instruction, Dr. June Atkinson recognized the members of the Commission for their work with the Plan. *(SEE ATTACHMENT: STEM Plan).* She said the Plan on paper was for grades K-12, but was aligned with grades K-20 with the work of community colleges and universities. The draft has been shared with about 10 different groups for input.

The Lt. Governor suggested that an endorsement of the JOBS Commission for the working draft presented would be in order. Upon motion of Dr. Murphy and second by Ms. Townsend the endorsement was passed unanimously. The Plan would go to the State Board of Education for adoption.

RACE TO THE TOP STEM ANCHOR SCHOOLS AND NETWORK CLUSTERS

Dr. Dana Diesel Wallace, from the New Schools Project made this presentation. *(SEE ATTACHMENT: STEM networks)* She termed this as a quick overview of the work. She said much of the work centered on encountering and identifying problems with an eye to seek solutions; some of which might be successful, or not successful. She said failure can be a part of learning experiences.

The integrated curriculum is focused on how content is used in the work force. Beyond the classroom extends the learning which might not always happen in the class.

She said STEM seeks to teach the idea that content can be used in applied ways: problem solving, collaboration, communication, etc.

She brought up the website: Worldomoters. This brought home the need to address issues of food, safe drinking water, etc. She believes today's students will be part of the problem solvers.

She pointed to the need for coaching to go along with professional development for teachers and the need for content preparation for those teachers.

Another challenge was for the sharing of knowledge and experience among the various STEM schools so that success can be replicated.

In answer to a question, Dr. Wallace said that with the benefit from a world renowned leader in mathematics at DPI, North Carolina's common core math system worked with the national and international standards being promoted.

Open Discussion

With the Commission currently destined to phase out at the end of June, 2010, Lt. Governor Dalton asked the Commission members to offer their thoughts about the next steps and the use of the remaining time. Here are those expressions:

Laura Bingham: Said the Commission has produced quality results in a short time. There is a change from incubation to acceleration. She suggested meeting with editorial boards at newspapers across the state to outline the things that the Commission has brought along not just regionally, but statewide.

1. The school district collaborations
2. Increasing the outcomes for underserved population
3. Core partnerships of schools and businesses
4. Public/Private aspect
5. Money to do these things
6. New initiatives tying to current and future economy of the state. Making the case for connecting the dots across the state.

Sam Houston: Hope that the Commission will be extended. As quasi-government not burdened with some of the restrictions. He used the word "nimble" to describe the Commissions ability to work across governmental and public lines. He said the Commission could move quicker than a lot of other venues, i. e. the State Board of Education.
He wondered who would be the ultimate "owner" of the statewide STEM Strategy, who would implement, and could the Commission be such an entity with "encouraging oversight"?

Sen. Lee: Said the Education Cabinet no longer had a staff and really did not exist. He felt the JOBS Commission could cultivate the STEM Strategy. He agreed the Commission could cut across many lines and that STEM could use that ability. He said STEM Strategy should be in the Commission, otherwise the strategy would "not take on a whole lot of life".

Dr. Purser: Said talk has come about "pockets of students" and she referred to Sen. Lee's comments about the Education Cabinet. She said all this shows the need to involve the classroom teacher. She said right now there is professional development available, but there is no time with the current calendar. She

challenged that if there is a true support for the innovative ideas and strategies, the teachers have to be involved. She said there is great training available, but then the teacher has no time to design the way to implement the concepts. She said the development does not provide a "how to" book. There is content knowledge that requires time to be translated into use in the classroom. She said there is a "they can do it on their own time" concept that runs counter to the needs of teachers' lives and their own families. She said, "I want my teachers to have another life."

Houston: Agreed with Dr. Purser. How capable the teacher may be is the ultimate test. He said professional development dollars have been lost and time is always an issue. If the dollars are to be replaced there must be a measurable outcome. The plan for professional development dollars must support what the state is doing.

Bingham: Said she meant to include the bi-partisanship or non-partisanship that has "undergirded" the work the JOBS Commission has done and that should be part of the local level efforts, too.

Lt. Governor Dalton said the bi-partisanship resonates within the state and outside the state, too.

Lee: Said one of the results of the Commission has been the inclusion of resources outside the school. His plans include seeking involvement of the broad spectrum of the community in schools.
He said, "We can no longer think we can leave all 'this' on the back of our teachers and out of schools".
He noted that the Commission had uncovered talent that could be involved: in industry and in parents. He said the Commission was in the position to involve a broad range of this talent in the education process.

Joe Freddoso: Said Dr. Purser had a great point. At the same time he said education and health care were the two "laggards" to embrace technology-based training. There is a big network, but still people need the time to take advantage. There should be time taken to see how other parts of society (industries, etc.) have used technology to increase productivity and to take those lessons to do a better job of training teachers. One of the Commission's efforts could be to figure out how

to take advantage of what is available. SAS, Cisco, MCNC and others reformat the work force to use the tools that are available, but this requires a "step back" to allow the utilization of the tools offered. He said the School of Science and Math would be a good place to start since the school outsources its curriculum to places that need teachers, but does not do a lot of professional development training. At UNC-Chapel Hill there is Learn NC which is a good resource, but basically is unsupervised.

He said the recently-retired Chancellor at WCU, John Bardo has done research concerning rural and urban community economic success. One of the keys to the variance between such rural/urban successes is the underserved population going into engineering.

He questioned how we can have STEM teachers unprepared in content when their preparation is being done at such places as NCSU, UNC-CH, etc. Thus higher education needs to be looked at too. He said the Commission is the only voice outside the sectors of education that could turn such examination into policy.

McCullen: Spoke of the recent trip to Finland to examine the education system. There is a great difference between the U. S. system and Finland's; relating to teacher training. Teachers must have a master's degree to teach. Four years of a teacher's education is spent on content. The last year is spent in the classroom under guidance of a master teacher where they apply the content knowledge. U. S. teachers can't compete with other countries which spent such time educating the teachers. She said one of the ways to create more time is through professional learning communities. Each school must set aside time—different schools need different times—to allow teachers to work together, to collaborate and work together.

Houston: Said Alyssa Chapman at the UNC-General Administration was a contact for Fast Track: a way to get content major students a license to teach in four years. This is modeled after the Teaching Fellows program.

McCullen: Mentioned the North Carolina Chamber of Commerce recommendations; if the state could agree to one way to teach math and science. She said it is a simple idea, but hard to accomplish and perhaps the JOBS Commission could steer the discussion and implementation of such. It might be

easier with the 'common core standards' which the Lt. Governor asked for an explanation. Ms. McCullen said the 'common core standards' are content standards, but not a directive of how to teach. Math needs to be the same content from state to state.
Dr. Houston said the language arts teaching is an example. One college teaches a would-be teacher one way, but then the teacher goes into a place that wants the subject taught a different way.

Rectanus: Said the N. C. Chamber also heard discussions of the role of an intermediary in education reform and some of the research presented might point up the role of the JOBS Commission as such an intermediary. He also said the connectivity of education of such entities as the community college system to the work force could be examined as a future focus of the Commission.

Ted Hanson
Minutes

VISITOR REGISTRATION SHEET

JOBS Commission — 10-12-2010

Name of Committee — **Date**

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
Dana Diesel Wallace	NCNGP 4600 Marion Drive Raleigh, NC
Allison Violette	Cumberland Co. Schools
Frank Till	Cumberland County Schools
GREG WEST	"
LARRY KEEN	FTCC, 2201 Hull Rd., Fayetteville, 28332
BOB LEWIS	Candidate for Bd of Ed
Newell Clark	Yadkin Valley Regional Career Academy
BARRY SINK	" " " " "
EARL JONES JR	E.I. DuPont Co., FAYETTEVILLE, NC
Lynda Parlett	Robeson Comm. College, Lumberton, NC 5160 Fayetteville Rd 28359
Lisa Hibler	Kenan Fellows Program NC State

VISITOR REGISTRATION SHEET

JOBS Commission 18-12-2010

Name of Committee Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
EDGAR MURPHY	NC STEM COLLABORATIVE, RTP, NC
ERIC GRUNDEN	CONTEMPORARY SCIENCE CENTER
Pamela Blizzard	Contemporary Science Center
Regina Schofield	Battelle - Washington, DC
Marvin Lucas	N.C. Gen. Assembly (House)

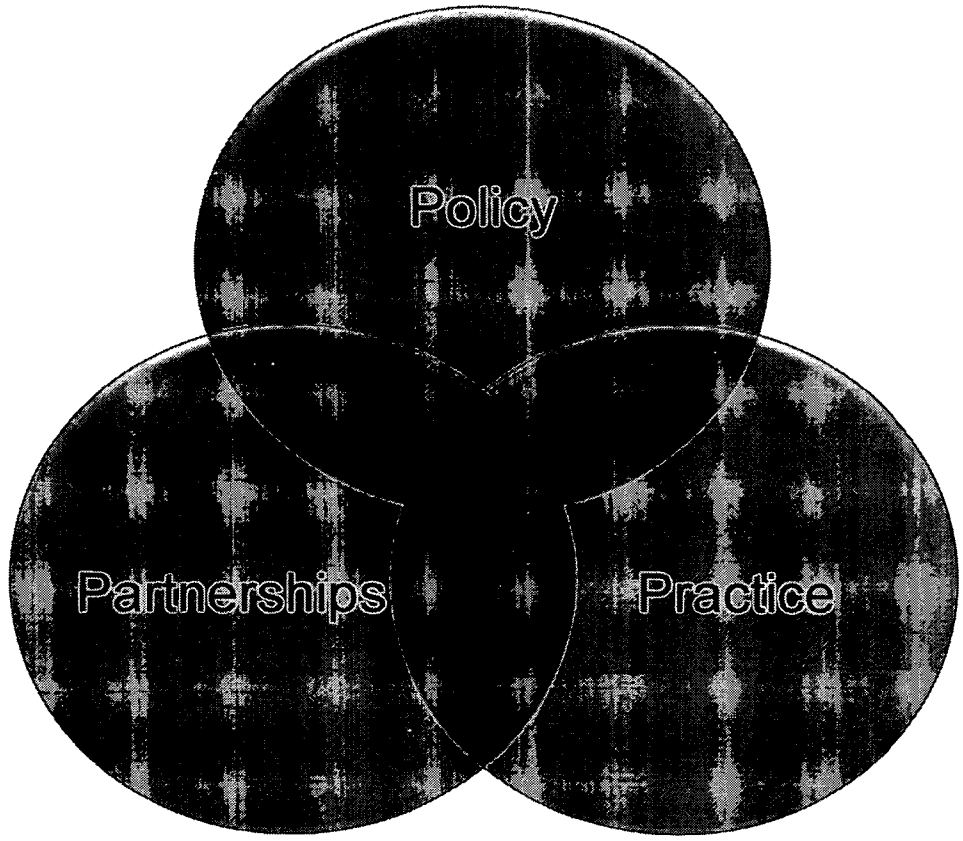
Battelle
The Business of Innovation

National Efforts in Business/Education Collaboration

JOBS Commission Meeting
October 12, 2010
Rich Rosen

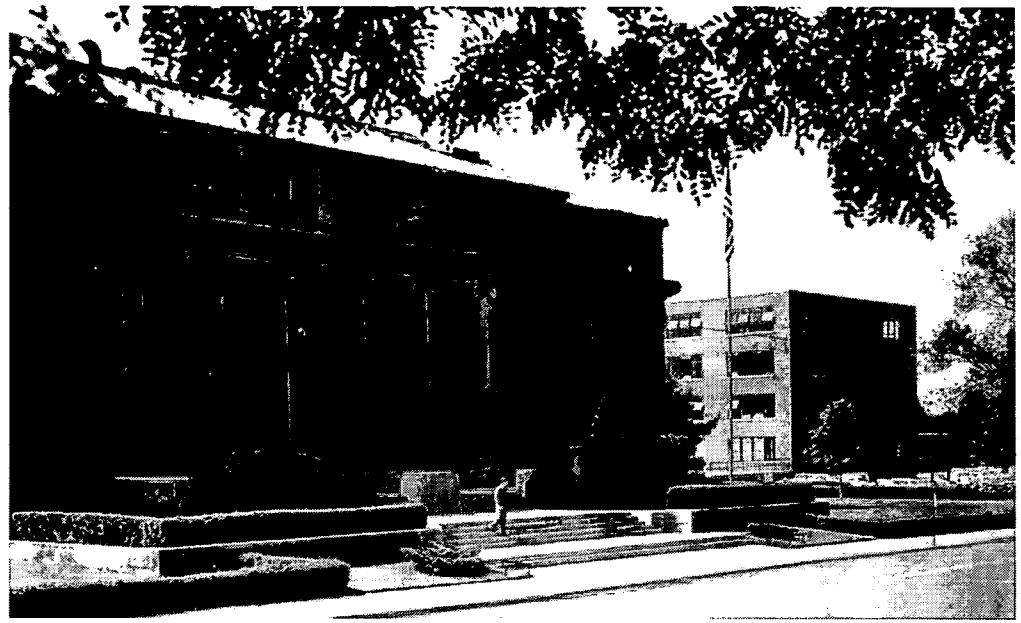
Contact: rosen@battelle.org

Business / Education Collaboration Sweet Spot



- Stimulating the conversation
- How business/education groups …
  - are moving to action together
  - … or not

Our legacy



From the last Will and Testament of Gordon Battelle

ITEM TWENTY-FIRST

"All of the residue of my estate of every kind and character, I give, devise and bequeath to the trustees hereinafter named for foundation of a 'Battelle Memorial Institute,' to be established in such a manner as said trustees may designate in accord with the laws of the State of Ohio, and located in or near the City of Columbus, ***for the purposes of education in connection with and the encouragement of creative and research work and the making of discoveries and inventions"***

IN WITNESS WHEREOF:
I have hereunto set my hand
this 24th day of November, in the
year of our Lord one thousand
nine hundred and twenty

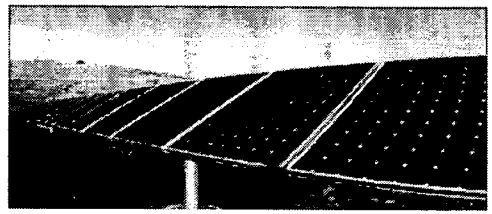
Gordon Battelle

The Businesses of Battelle

Battelle
The Business of Innovation

Battelle is an international science and technology enterprise that explores emerging areas of science, develops and commercializes technology, and manages laboratories for customers. Battelle supports community and education programs to promote an enhanced quality of life for our community neighbors.

ENERGY



HEALTH & LIFE SCIENCES

NATIONAL SECURITY

LABORATORY MANAGEMENT

Pacific Northwest NATIONAL LABORATORY

OAK RIDGE NATIONAL LABORATORY
Managed by UT Battelle for the Department of Energy

National Biodefense Analysis and Countermeasures Center

Brookhaven National Laboratory
U.S. Dept. of Energy

INL Idaho National Laboratory

NREL National Renewable Energy Laboratory
Innovation for Our Energy Future

University of California
LAWRENCE LIVERMORE NATIONAL LABORATORY
Science in the National Interest

EDUCATION PARTNERSHIPS

Battelle for Kids

Ohio STEM Learning Network

ORAU
OAK RIDGE ASSOCIATED UNIVERSITIES

Washington State LASER Leadership and Assistance for Science Education Reform

metro

The Dayton Regional STEM School at Wright State University

Delta High School

cosi

TIES

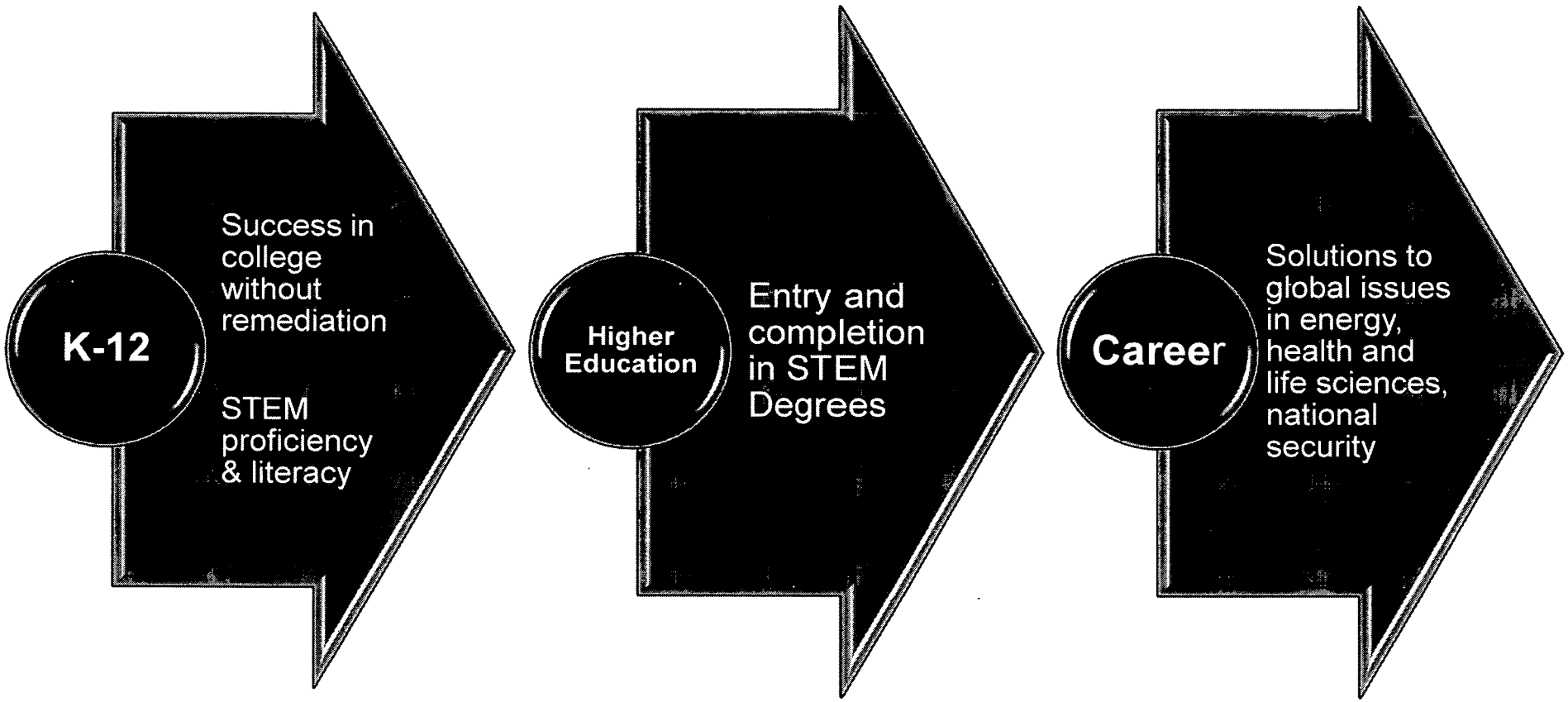
NAGC

MOSTEM

PAST Foundation

Framework informing the Battelle Education Strategy

Battelle
The Business of Innovation



- Deep business engagement with education beyond philanthropy is uncharted territory

- Some of the common issues
  - Not knowing what is of value
  - Policy
  - Employee time
  - Drain on intellectual capacity needed for business priorities
  - Personality driven (CEO's)

- Deep education engagement with business is uncharted territory

- Some of the common issues
  - Oversimplification
  - Will you still be here tomorrow?
  - Misinterpretation of data
  - Culture

- Engagement is often mostly about defining endpoints and qualities needed

- Process innovations are low-hanging fruit
  - Ex: Logistics = assistance in scheduling or fleet management

About the spread and endurance of innovations....

SPREAD

SPEED WITH QUALITY

LEVERAGE

SUSTAINABILITY

About the spread and endurance of innovations....

Spread:

Increase number of students, teachers, schools or LEAs involved. Penetration of school and LEA cultures and change of norms, beliefs, principles and practices. Spread of policy and responsive system innovations bring better results.

Speed with Quality:

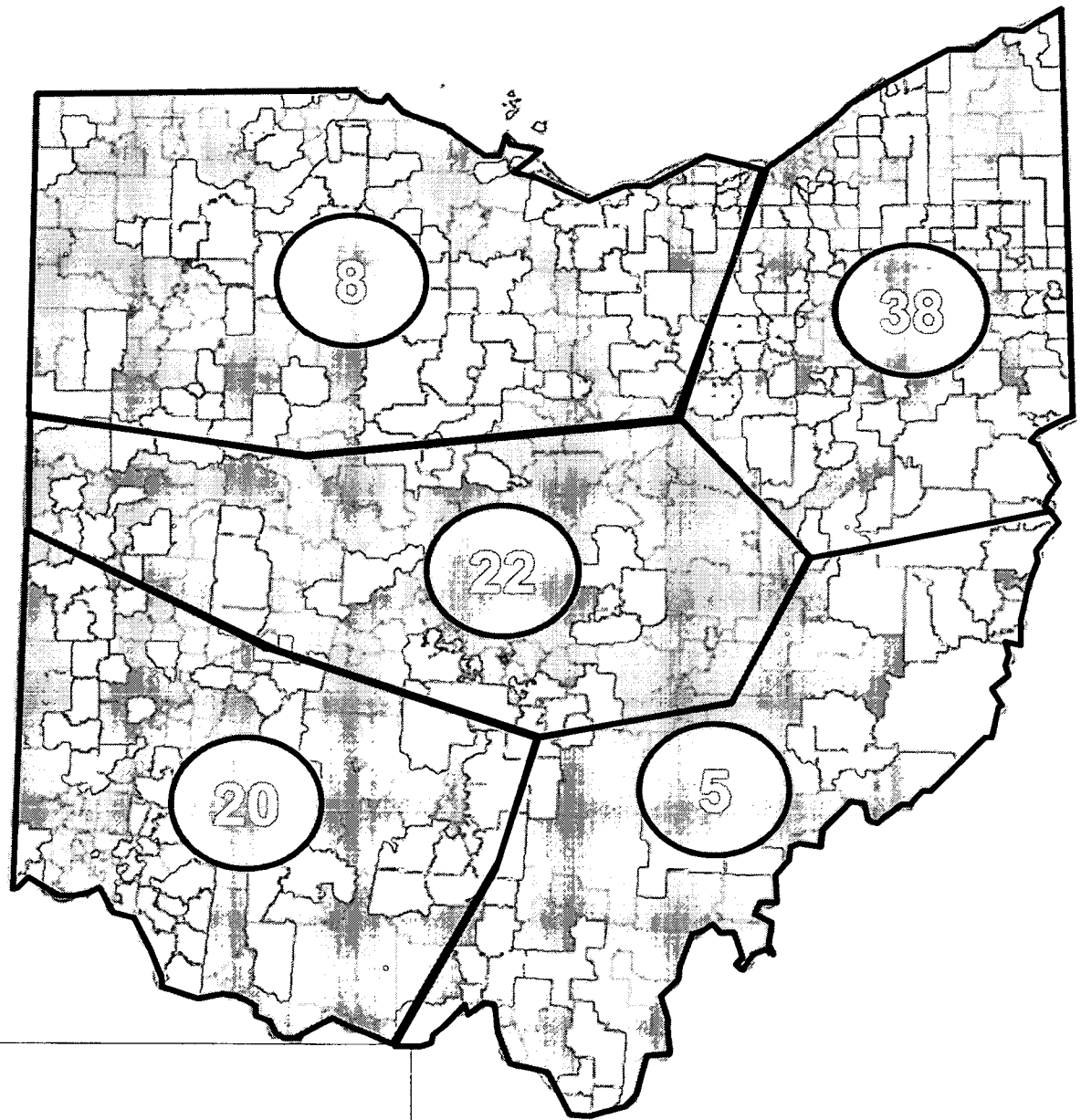
Accelerated and timely access to relevant expertise and useful tools for better results on pressing problems.

Leverage:

Repurposing and/or securing new resources, shared economies of scale, attractive returns on investment, enhancing political, social and intellectual capital.

Sustainability:

National, state and local advocacy across multiple sectors (K-12, Higher Education, Business, Philanthropy) that supports sustainable business models, durable partnerships and resiliency.

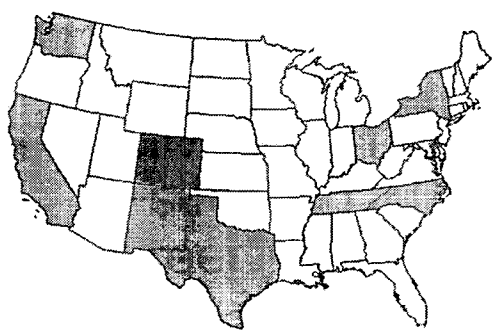


Ohio RttT:

Business Coalition for Education System Improvement

What the STEM Network Does...

- a portfolio of connected assets that share common management methods, protocols for interactions and exploration ...
- operating according to a specific compact agreed to among participants



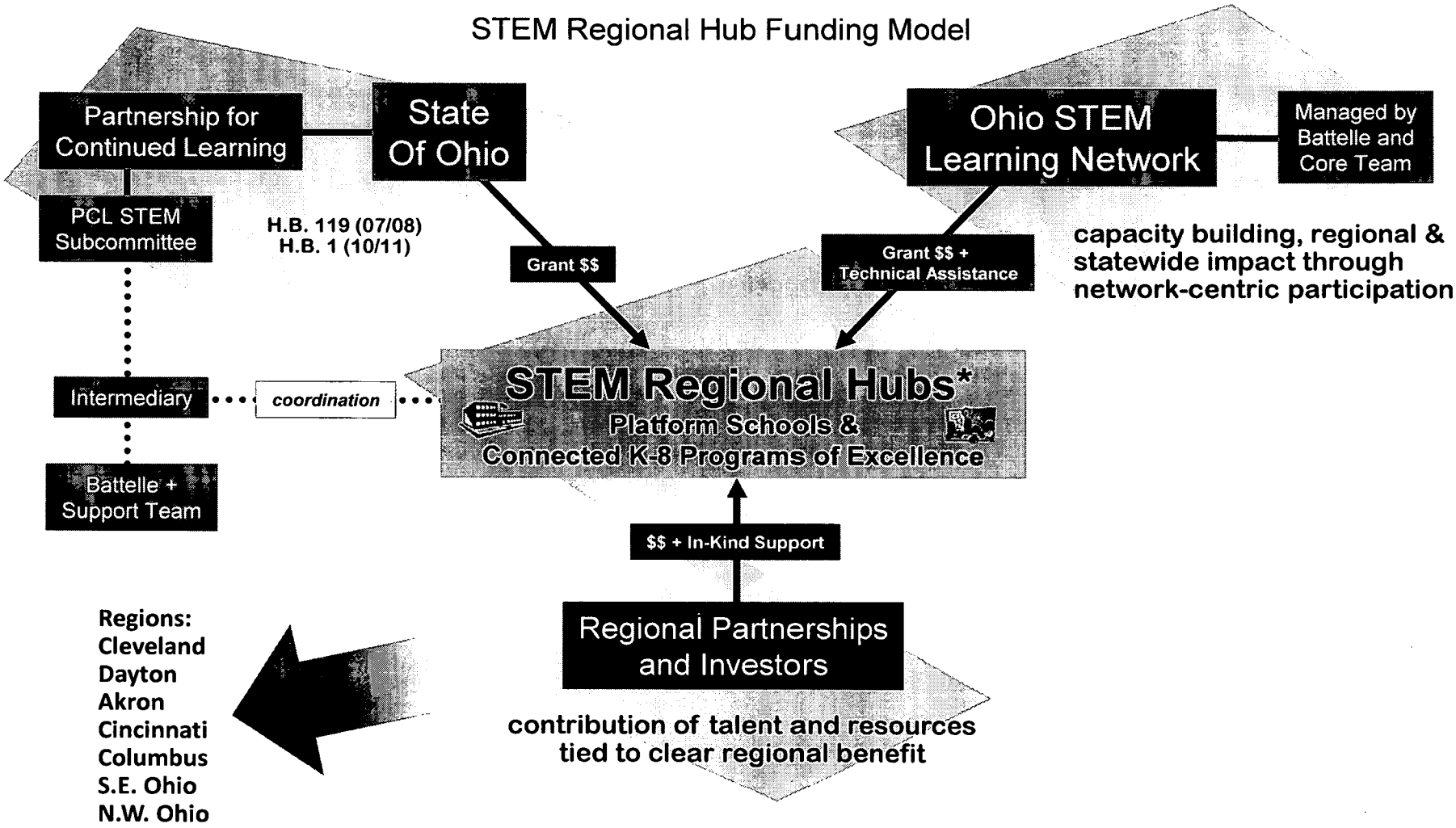
- Work is informed by specific theories tied to systemic improvements in creating highly effective STEM teachers and delivering students ready to succeed in college and career

- The network **<u>increases the adoption rate of practices that work</u>** because it pre-installs the protocols for scale (commitment definition, rationale for non-recurring start-up costs, metrics of performance, rules, shared risk, etc)

- Many businesses revising their philanthropy strategies

- Where employees are located
- Themes (STEM) + uniqueness
- Shared resources

Alignment of State, Private and Local Design Principles and Investments



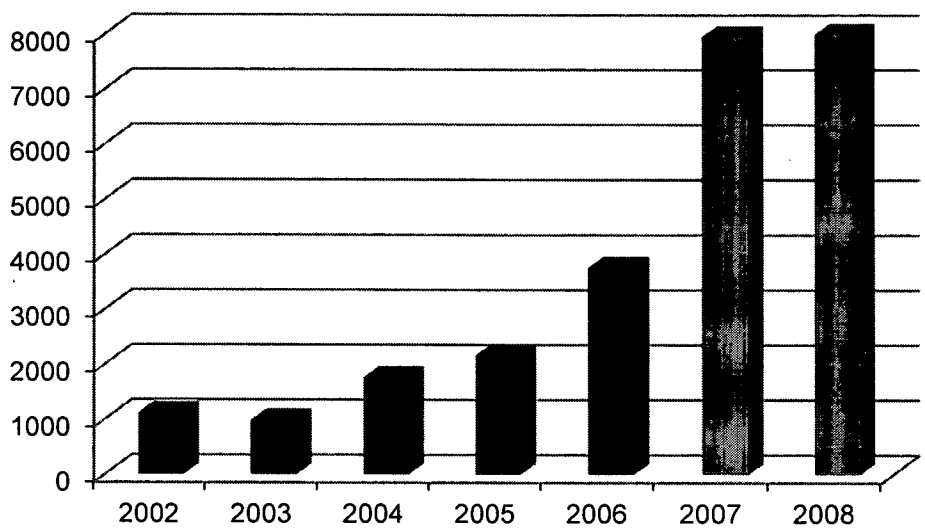
Network Development Tools Apply to Schools

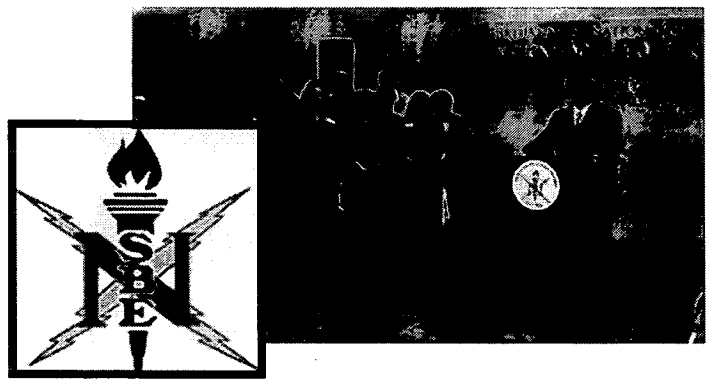
Battelle
The Business of Innovation

Network Development Tools	Application to Schools
K-12, Higher Education and Business Partnership Management Support partnership structure codified in state law MOU protocols interactive system for public /private partnership performance	Provides sustainable school business models/budgets, political coverage, just-in-time expertise, access to informal education, and inter-district collaboration around PD, assessment, curriculum, teacher effectiveness and instructional leadership.
Joint Business and School Policy Advocacy coordination with business roundtables design and distribution of STEM advokits manage collaborative RFP protocols with state Ed departments	Provides schools additional resources to serve as demonstration sites for the roll-out of state initiatives and tools in professional development, curriculum, formative assessment and school redesign.
Intra- and Inter-Organizational Management embedded and in-residence staff work as a school/regional network manager and as part of a state-wide team to Job accountability for reciprocal value exchanges and the capture of knowledge	Use network roles and tools to overcome structural concerns (e.g., access to materials, workload), attitudinal concerns (e.g., principal priorities, district engagement) and educational issues (e.g., information exchange).
Interactive Knowledge Management Systems projectize all network work through Battelle project management protocols and social text software tools	Specific project pathways

- Value of establishing "pre-conditions"
- Lowering the immune response

Change in National Society of Black Engineers Pre-College Initiative Membership





Columbus Ohio **had ~90 NSBE PCI students in 2006; in 2007 the number grew to more than 3,000 and** now has the largest population of NSBE members of any city in the world.

SEEK

Columbus OH
District of Columbia

SEEK Mission: To increase elementary school students' aptitude in math and science and their interest in pursuing STEM (science, technology, engineering, math) career fields, by having them engage in interactive, team-based engineering projects

Engineering Clubs are in every Columbus Public High Schools

350 students are participating in SEEK in the Linden Community

WAKE NC STATE UNIVERSITY

STEM

EARLY COLLEGE HIGH SCHOOL

science, technology, engineering, and math

preparing tomorrow's problem solvers

DISTINCTIVE FEATURES

- NC STATE UNIVERSITY PARTNERSHIP
- 5 YEAR PROGRAM WITH OPPORTUNITY TO EARN HIGH SCHOOL DIPLOMA AND UP TO TWO YEARS OF COLLEGE CREDIT
- SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH INTEGRATED INTO CORE SUBJECTS
- SMALL SCHOOL DESIGN
- COLLEGE COURSES TAUGHT BY UNIVERSITY FACULTY
- EXPANDED OPPORTUNITIES FOR REAL-WORLD EXPERIENCES
- COLLEGE COURSES OFFERED AT NO COST TO STUDENT OR PARENT
- STUDENT COHORT HOLDING SIMILAR INTERESTS AND FOCUSED ON LEARNING

Program Overview

EARLY COLLEGE HIGH SCHOOL OFFERS VALUABLE OPPORTUNITIES

The Wake NC State University STEM Early College High School is a joint project between the Wake County Public School System, NC State University, and the NC New Schools Project. STEM is an acronym that stands for the four content areas that this school will focus on: science, technology, engineering, and mathematics. Exploration of society's greatest STEM challenges will be a common instructional focus that will extend through various courses.

Early College High School students will earn both a high school diploma and up to two years of college credit at NC State University at the conclusion of their five year program.

It is essential that students who come to our program are highly interested in one or more of the content areas of science, technology, engineering, and/or math, and have a strong desire to attend college. This will require students to be dedicated and focused since they will be both high school and college students

preparing tomorrow's problem solvers

CAMPUS FACILITIES

Wake NC State University STEM Early College High School will be located adjacent to Centennial Campus of NC State University. Students will complete high school course work at this site and will continue their college course work on the other portions of the NC State University Campus.

SCHOOL CALENDAR

Wake NC State University STEM Early College High School is aligned with the NC State University calendar. The school year begins during the second week in August and concludes near the Memorial Day holiday.

TRANSPORTATION

Wake NC State STEM ECHS utilizes the WCPSS Express Bus routes available to magnet students. After school activity busses are also available.

CHILD NUTRITION SERVICES

Students are offered WCPSS lunch options each day. Reduced-price lunches are available for students who qualify. Additionally, students may choose to purchase lunch through vendors who serve NC State University when on the university campus.

COLLEGE TUITION, BOOKS, AND FEES

North Carolina Early College students are provided free tuition and books for college classes that are taken during the regular school year. They are not charged student fees.

The Wake NC State University STEM ECHS is a small school by design. Placing a high priority on personalization, this program allows for the development of productive relationships. These relationships create a highly supportive and challenging learning environment.

Students who will be the first in their family to earn a college degree are strongly encouraged to apply.

"North Carolina is a national leader in developing innovative and transformational early colleges. The partnership between NC State and Wake County is an extension of that and I applaud the work they are doing. Science, Technology, Engineering and Math (STEM) disciplines are critical to our state's future and this school will play a vital role in preparing our students to compete and win in the 21st century global economy."

Lt. Governor Walter Dalton

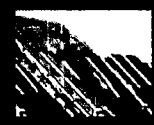
STEM EDUCATION AND GRAND CHALLENGES

The need to enhance STEM education is vital to the prosperity of our nation. Increased global connections and competition mean that it is important for U.S. citizens to remain leaders in STEM research and development.

Innovations in STEM fields will improve the quality of life for our citizens and drive our future economy. They also have implications for the world as a whole. Nothing less the sustainability of our planet rests in the answers to many of the major questions and challenges that remain unsolved today in these fields.

One of the grand challenges that Wake NC State University STEM Early College High School students will be engaged with are listed on the right.

STEM GRAND CHALLENGES



Make Solar Energy Affordable

Energy From Fusion

Carbon Sequestration
Clean Air

Manage Nitrogen Cycle

Access to Clean Water

Restore and Improve
Infrastructure

Advance Health
Information Systems

Create Better Medicines

Understand How
the Brain Works

Prevent Nuclear Terror

Secure Cyberspace

Enhance Virtual Reality

Advance Personalized Learning

Develop the Tools of
Scientific Discovery

STEM Grand Challenges adapted from National Academy of Engineering Grand Challenges

Future Site of Wake NC State University STEM Early College High School

Pending renovations, the Cherry Building, on Barbour Drive, adjacent to NC State University Centennial Campus, is slated to become the permanent home of the STEM ECHS program.

Application Process

Students interested in attending the Wake NC State University STEM ECHS must complete a two-step application process that is coordinated throughout the Wake County Public School System Magnet Office.

Step 1: Students must complete an application that includes

- General student information, including extracurricular activities
- Two essay responses
- Academic records - middle school report cards and North Carolina End-of-Grade test results
- Attendance records
- Three reference forms

A complete application must be submitted to the WCPSS Magnet Office no later than January 14, 2011. This application will be available on the school website http://stemec.wcpss.net November 1, 2010.

Step 2: Students must complete the online magnet application http://www.wcpss.net/magnet anytime during the online application period; February 14-28, 2011.

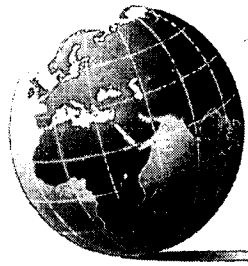
Students will be notified in March regarding their selection.

WAKE NC STATE UNIVERSITY
STEM
EARLY COLLEGE HIGH SCHO
science, technology, engineering, and n

http://stemec.wcpss.net

The Cumberland County ECHS for Languages, Culture & Diplomacy

JOBS Commission



October 12, 2010

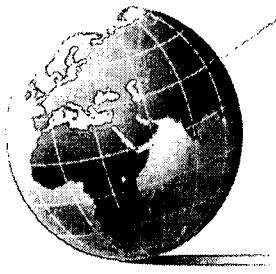
Moving Forward

No Boundaries

THE SCHOOL SYSTEM OF CHOICE
CUMBERLAND COUNTY
SCHOOLS

Providing a world-class education to over 53,000 students is our goal, and we have continued efforts to remain on the cutting edge of offering students educational opportunities to prepare them for a global society.

Dr. Frank Till

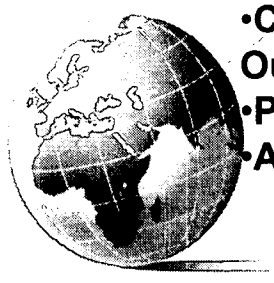


Why Here? Why Now?

- Cumberland County Schools - ready to lead
- SBOE Mission - to produce globally competitive graduates
- Regional transformation from manufacturing to high tech defense
- Leading defense, language, and culture education facility on the east coast is at Fort Bragg

Planning Committees Formed

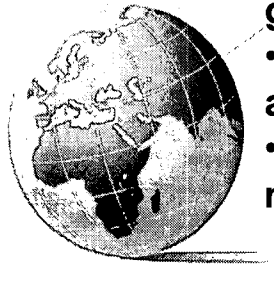
- Steering Committee
- Curriculum/Program Development
- School Organization
- Student Selection & Support
- Community and Legislative Outreach & Advocacy
- Professional Development
- Administrative Issues/Logistics



Global Competencies for a Future-ready Student

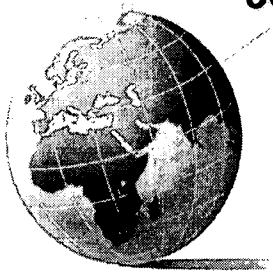
In addition to academically prepared, students must be:

- culturally aware
- aware of world events and global dynamics
- effective communicators across cultures
- collaborative members of multicultural teams



Vision

All students will graduate globally competent, prepared to communicate, collaborate and compete locally, nationally, and internationally.



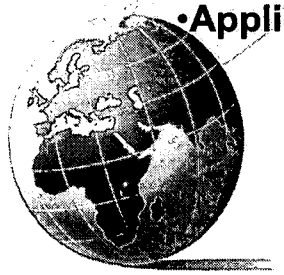
Commitments

This school will graduate all students globally competent, prepared to communicate, collaborate and compete locally, nationally and internationally through its dedication and commitment to:

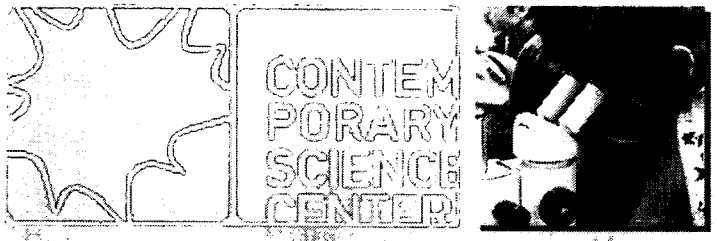
- **Proficiency in a second language of strategic interest**
- **Global & cultural connections**
- **Relevant & authentic project-based instruction that engages students in global issues**
- **College-level courses & experiences**

Moving Forward

- Cumberland County Schools Kick-off meeting
- Planning sub-committees activated
- Study visits planned
- Application process begun



"Students who leave school without some grounding in international education may turn out to be the new disadvantaged."



CONTEMPORARY SCIENCE CENTER

The mission of the CSC is to be a catalyst for transforming science education in NC, using innovative models of teaching and learning to inspire students and teachers statewide to embrace science, technology, engineering & math.

LEADERSHIP TEAM

Staff

Pamela Blizzard, Executive Director
An experienced educational entrepreneur, founding both Contemporary Science Center in 2002, and Raleigh Charter High School in 1999.
MBA, Santa Clara University
BA, Brown University

Alice Lee, Ph.D., Education Director
A strong biology teacher, experienced with diverse populations across income groups and nationalities
Ph.D., Microbiology, North Carolina State University

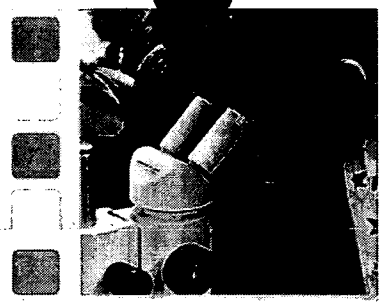
Expert Teaching Fellows - past
- **Tamica Stubbs**, Charlotte-Mecklenburg, Outstanding 9-16 Educator Award in Science, Mathematics, and Technology Education
- **Judy Jones**, East Chapel Hill HS, National Presidential Awardee

Board of Directors

- **Pamela Blizzard**, Contemporary Science Center
- **Rich Cohn,** Ph.D., SRA International
- **Eric Grunden**, Raleigh Charter High School, Science Department Chair, & Co-Founder, CSC
- **Paul Hamilton**, Ph.D., NCSU Masters in Microbiology Program
- **Karen Ondrick**, Lenovo USA
- **Mike McBrierty**, Biogen Idec
- **Jerry McCrain,** Ph.D., PBS&J
- **Ward Peterson,** Ph.D., Inspire Pharmaceuticals
- **Sharlini Sankaran,** Ph.D., NC Science & Technology Board

CONTEMPORARY SCIENCE CENTER

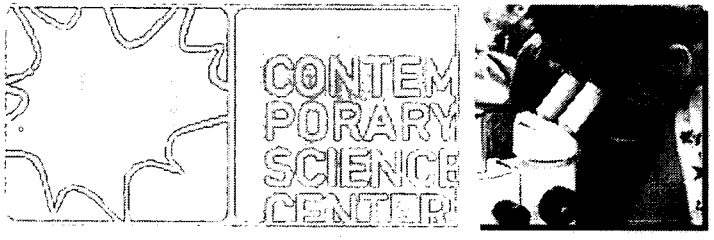
EARLY COLLEGES & FRIENDS AT THE CSC



2007 – 2010

- Wayne School of Engineering
- Isaac Bear Early College
- City of Medicine Academy
- Surry Early College
- Caldwell Early College
- Cleveland Early College
- East Wake School of Integrated Technology
- Warren New Tech High School
- Sampson Early College
- Sandhoke Early College
- Southern School of Engineering

CONTEMPORARY SCIENCE CENTER



CSC VISION:

A STEM INCUBATOR SCHOOL

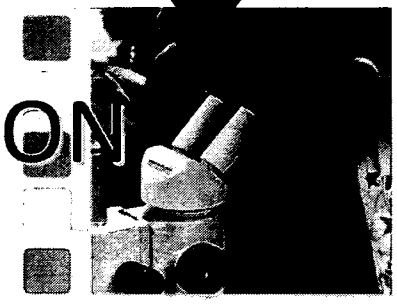
BUSINESS: VALUE PROPOSITION

PIPELINE, SUSTAINABILITY AND IMPACT

- **Research Triangle Park Foundation**
  Land/Building
- **Novozymes**
- **Biogen Idec**
- **Lenovo**
- **Time Warner Cable**
- **Inspire Pharmaceuticals**
- **RTI International**

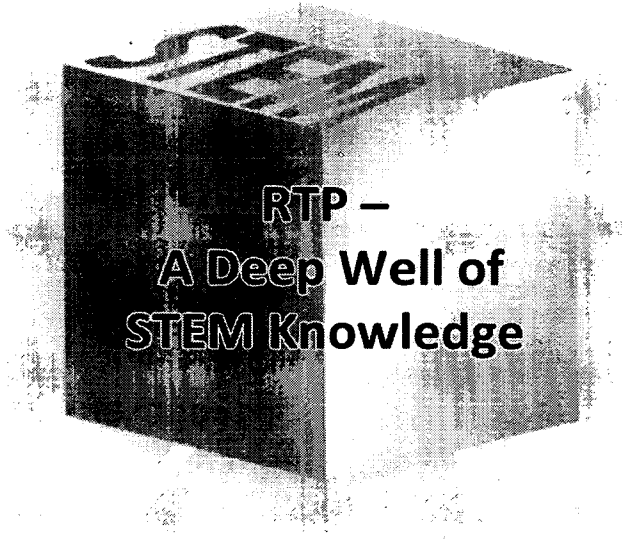
CONTEMPORARY SCIENCE CENTER

COMMUNITIES: VALUE PROPOSITION



- **Surrounding** old-economy neighborhoods and counties
- Emerging regional transit

- **World-class broadband** access to rural districts



- **RTP**
  42,000 FTE workers,
  170+ companies,
  $2.8B annual payroll
- A mixed community - 25% Support staff, 25% Ph.D's

- **Industry hunger** for stronger STEM pipeline, and
- **Statewide** change

- **NC STEM Community Collaborative**
  Strategic Planning

EDUCATIONAL INNOVATION

Rural district partners ▪ Teaming in virtual & experiential models

RTP-based STEM high school which incubates, pilots and SCALES statewide

- **NCSU Department of Math, Science & Technology Education** Research and Evaluation

- **NC Virtual Public School** Delivery Mechanism
- **City Prep, NYC** World-class Virtual Learning Tools

- **Contemporary Science Center** Immersive, experiential learning

- **National Commission on Teaching and America's Future** Learning Teams

CONTEMPORARY SCIENCE CENTER

OUTCOMES

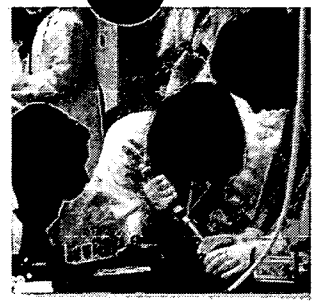
What we will measure:

▪A growing pool of rural district teachers learn, incorporate, adopt and spread these new CSC/RTP tools into their schools, spreading both the techniques and the PBLs into classrooms statewide, yielding:

- Increased retention of teachers
- Increased student engagement & graduation
- Increased student enrollment & achievement in STEM classes
- Student transition to community college STEM programs
- Student 4-year college major choices

▪Resulting in greater numbers of kids pursuing careers in STEM industries, from technician to scientist-level work.

NEXT STEPS



GOAL:

Transform these ideas into a reality for opening in 2012

- Adopt NC STEM Community Visioning & Design Process
- Develop governance for a regional school
- Determine General Statute flexibility areas needed
- Develop long-term public/private funding strategy

CONTEMPORARY SCIENCE CENTER

City of Medicine Academy
Anchoring a State-wide Network of
STEM-Health and Life Sciences Secondary Schools

Rationale: The North Carolina New Schools Project (NCNSP) in collaboration with Durham Public Schools and the Duke University Health System seeks to expand their existing partnership to transform the current City of Medicine Academy for Health and Life Sciences (CMA) into a statewide "anchor" school for a cluster of health-related Science, Technology, Engineering and Math (STEM) schools intentionally designed to support state economic development. To reduce a potentially crippling workforce knowledge gap and to prepare more students – especially those who traditionally have been underrepresented – for both college and careers, North Carolina must make STEM disciplines accessible and relevant by fundamentally changing curriculum and teaching. To this end, NCNSP is working with its partners to enhance the development of a small network of innovative high schools focused on equipping students not only with rigorous STEM content but also with the skills and entrepreneurship needed for health-related higher education, careers, and economic development.

The City of Medicine Academy will move into a new state-of-the-art facility on the campus of Durham Regional Hospital in 2011. CMA will also break new ground in innovative approaches to teaching, curriculum and utilizing technology that will graduate students better prepared for both health-related college degrees and career success. An integrated instructional process based on design and engineering will draw upon new resources that integrate rigorous STEM knowledge and skills with global issues that motivate students to apply their knowledge to meaningful challenges, such as the Grand Challenges for Engineering K-12 Partners Program, and the Duke-supported Engineering World Health and the Global Public Service Academy for Health. CMA will leverage technology to disseminate digital curriculum resources and projects among the cluster schools, and to engage its students and faculty in developing virtual communication and collaboration skills within the school and beyond with students and teachers in other schools as well as mentors and community resources.

STEM education link to economic development: A globally competitive, knowledge-based economy is imperative for North Carolina's high school students – now and for the foreseeable future – and science, technology, engineering and mathematics (STEM) are critical drivers in that economy. More new jobs are projected to be created in the STEM-dependent health care industry than any other sector of the U.S. economy over the next decade. Nearly one in four jobs created over this decade will be in health care[1], 35% of them in hospitals. While most of these new jobs will require STEM- dependent technological skills, only 25% of them will require a four-year college degree or more. The vast majority -75%- will require a two year degree or less.[2]

[1] *Overview of the 2008-11 Projections*, Occupational Outlook Handbook, Bureau of Labor Statistics
[2] *Healthcare Positions Requiring Two Years Or Less*, Nancy Giguere, Star Tribune, Minneapolis-St. Paul, July 28, 2005

Yet the majority of students in North Carolina are not graduating from high school with the knowledge and skills necessary for success in college and careers in general and in STEM and health-related careers specifically.[3] Increasingly, states are realizing that the skills required for both further education and knowledge work careers are more alike than different.[4] The American College Testing (ACT) service estimates that only 17% of high school students are graduating with the interest and prerequisite math skills to begin a STEM college major, and only half of those will complete a STEM degree.[5] Despite robust employment projections in health-related fields, far too many students lack both the interest and the academic background to pursue further education and careers in health care and life sciences.

In response to the economic challenges posed by this transition to a knowledge-based economy, Governor Beverly Perdue launched ***"Career and College-Ready, Set, Go!"***, a statewide reform agenda which sets major goals to increase the number of students taking college credit courses while in high school, graduating from high school and going on to complete a degree. The State Superintendent's Career-Ready Commission created by the governor identified a major obstacle to college and career readiness in its report, *A Crisis of Relevance*: "*Too many students are failing to make connections between what they learn in school and their goals for the future. These students are not engaged in or inspired by what they are learning and have no clear plan for the future.*"[6]

The need for innovative New Schools*: A Crisis of Relevance* further cited the NCNSP-supported new schools as an example of the innovation needed to meet this economic challenge: "*We have squeezed the last drop of educational juice from the traditional high school model. The culture and structure of every high school in the state must change if we are to prepare students for a future in today's economy.*"

Innovation is not an easy or quick undertaking for any organization. The NC New Schools Project seeks to recruit powerful allies from both the public and private sector to champion the degree of innovation necessary to model a different system of education deliberately designed to deliver the results our state economy must have to progress, as well as the educational background students need for success in an uncertain and rapidly changing 21st Century. The City of Medicine Academy proposes to develop these innovations over the next five years through pursuing the following four inter-related initiatives: college readiness, career readiness, innovative uses of technology, and teacher-leader preparation.

1) **Ready for College**: While almost 70 percent of high school graduates in the United States enroll in college within two years of graduating, only about 57 percent of students who enroll in a bachelor's degree program graduate within six years, and fewer than 25 percent of

---

[3] *High School Teaching for the Twenty-First Century: Preparing Students for College*, *Alliance for Excellent Education September 2007 Issue Brief*, quoted in *The Global Achievement Gap*

[4] *Closing the Expectations Gap 2010: Fifth Annual Progress Report on the Alignment of High School Policies with the Demands of College and Careers*, Achieve, Inc., April 2010

[5] *Where Are All the Science Majors?*, David A. Kaplan, in *Fortune*, June 9, 2010

[6] *A Crisis of Relevance: How NC Must Innovate to Graduate All Students Career- and College-Ready*, State Superintendent's Career-Ready Commission, March 2010

students who begin at a community college graduate with an associate's degree within three years. The problem is even worse for low-income students and minorities.[7]

Completing college courses while still in high school promises to increase the likelihood that students will enroll and persevere in college. NCNSP results are similar to continued enrollment among college freshmen:[8] students who complete seven college courses -21 credit hours- while still in high school are more likely to enroll and continue work towards a college degree. High school students taking college courses have the added support of high school faculty in discipline-related high school courses who can provide coaching, monitoring and encouragement while they take their first college classes.

CMA will need an ongoing partnership with both a four-year university and a community college that offer health and life-sciences-related degrees to increase the success of high school students in college classes. These partners will assist the school in identifying a variety of resources for students to take college classes while still in high school, including online courses and college courses delivered at the school site in addition to classes on a college campus. They will also help CMA plan a core sequence of college courses based on what most freshman and sophomores take in health-related college majors, with the goal for all students to complete this common core, adjusting and going beyond as student needs and career goals dictate. To further increase the odds that students will actually complete a two or four-year college degree, CMA will explore the feasibility of becoming a five year early college with the goal that every student graduates with both a high school diploma and either a two-year degree or two years of transferable credit towards a four year college degree.

2) **Career-Ready: utilizing design, engineering and technology to develop future-ready skills:** In response to a dramatic drop in student interest and skills in pursuing STEM degrees, a number of colleges have incorporated global issues into their STEM curriculum, created national competitions for student projects, and redesigned STEM content to make these disciplines more engaging and accessible to students. Similar initiatives have emerged in K-12 education, utilizing a combination of **design, engineering and technology** methodologies to not only motivate student interest, but empower students to assume more adult roles and responsibilities in collaborating with professionals to design, present and actually implement possible solutions to address versions of these issues in local communities and beyond.

The ***Grand Challenges for Engineering***[9] was developed by the National Academy of Engineering to identify "*the grand challenges and opportunities for engineering during the world's next few generations.*" The Grand Challenges cut across engineering disciplines; require collaboration among scientists, mathematicians, educators, policy makers, innovators and corporate executives; and have social, economic, and political implications. The Academy sponsors the Grand Challenges Scholars program to prepare future generations of engineers at the college level, and now offers an array of programs and support for STEM preparation through the K-12 Partners program. ***Engineering World Health*** sponsors

[7] *Once a Leader, U.S. Lags in College Degrees*, Tamar Lewin, NY Times, July 23, 2010
[8] *Innovations in College Readiness*, Thad Novine, Jobs for the Future, October 2009
[9] *Grand Challenges for Engineering*, National Academy of Engineering

collegiate chapters and an annual design competition for college student engineers to partner with experienced professionals and institutional partners, which could potentially include aspiring high school biomedical engineers. ***The Global Public Service Academy for Health*** offers high school juniors and seniors interested in health careers an intensive summer with university students and faculty in health-related disciplines to work in a developing country, with the tangible experience of improving health care conditions in the developing world. The ***Grand Challenges in Global Health***, a grant program sponsored by the Bill and Melinda Gates Foundation, offers health-specific issues which could be incorporated into engaging curriculum projects for high school students.

High school initiatives such as the ***Engineering by Design Program***[10] and ***Project Lead the Way*** are rapidly developing and piloting integrated curricula blending technology, engineering and design, like the collegiate efforts previously mentioned, to motivate students by making STEM education more meaningful. The ***Studio-H*** initiative now being piloted in a NCNSP Early College is an example of using design methodology to engage students in hands-on projects to benefit local communities, while developing rigorous STEM knowledge and college credit in the process. Other national secondary curriculum projects in science, math and social studies, such as *Science Education for Public Understanding Program, Core-Plus Mathematics Project, Facing History and Ourselves,* are designed to build deeper understandings of STEM content through application of knowledge to engaging problems and issues.

Rapidly changing global economic conditions mean that students must be prepared to continuously adapt and learn new career-related content beyond high school. Graduating all students prepared for college and work requires a new way of thinking about the relationship of career preparation to academic preparation for college, or a "third way" that does both simultaneously. This "Third Way" must bridge the academic requirements for success in the new economy through simultaneous preparation for college, careers and a future marked by accelerating technological innovation.[11] Both college preparation and career and technical preparation must develop the skills needed to continuously learn and apply new knowledge, to solve problems when even the problem itself is not clear, much less the process for solution, and to create innovative and sustainable solutions that meet the needs of communities. While CMA and its sister schools must benchmark against the requirements for both college and career success, they must go beyond currently defined entrance and certification programs to equip students with adaptable entrepreneurial skills to learn and thrive in uncertainty and rapid change. This broader perspective on career preparation and certification programs help ensures maximum flexibility and upward mobility for students as they further develop their academic skills and career aspirations. It also inducts students into a caring community and profession, engaging them with university students, mentors and sponsors to experience becoming proactive, entrepreneurial creators of health-related solutions that actually matter to people.

3) **Technology***:* Increasing use of cutting-edge technologies is an essential tool for ongoing communication, collaboration and engagement among faculty, students, and community

[10] *Engineering by Design*, International Technology and Engineering Educators Association
[11] *The Third Way: Education Innovation and Bridging the Divide Between Preparation for College and Career,* North Carolina New Schools Project in collaboration with State Superintendent June Atkinson, April 2010

partners across all the cluster schools. Not only is technology a crucial part of inventing and improving health and life sciences globally, it is also so ingrained into the life of digital-age students that it is a vital tool for engaging them in rigorous learning. A recent US Department of Education study found that online and blended learning (online coursework combined with face to face instruction) produced superior results over traditional college classroom instruction.[12] CMA will initiate a non-traditional course sequence that provides a planned mix of online, blended and face to face courses in both high school and college, supports initial college courses with related high school coursework and faculty mentoring, and incorporates relevant technology to increase daily communication, collaboration and engagement within and beyond the school.

At the same time CMA will become a champion for piloting innovative uses of technology to support student engagement and learning, and for creating a virtual learning community among the cluster schools and their partners. Students and faculty in the school will partner with other schools in the cluster to create innovative learning resources not only for students but also for use by parents and communities. Making these curriculum resources digitally available is comparable to the open source development of software, enabling multiple people to participate in creating and refining a learning product. A digitally-supported curriculum enables faculty in all the cluster schools to participate in designing, implementing, improving and adding resources to one another's work, so that CMA is not the sole source of innovative technology but a leading partner and dissemination resource for the development of digital learning resources.

4) **Teacher and Administrator Professional Development***:* Preparing faculty and administrators to create this different kind of secondary school requires ongoing professional development, and rethinking opportunities to recruit and train future staff. NCNSP already provides systemic training and coaching over multiple years to enable school leaders to implement innovations in teaching and learning, and to develop shared standards of professional practice. The Duke University Health System will assist in curriculum enhancement by lending expertise to inject practical challenges and issues confronting healthcare into classrooms. Duke will also host professional development for educators across the cluster of health and life sciences in cooperation with the NC New Schools Project. Professional development will build upon the "rounds model" of teacher development and an integrated system of school support services provided by NC New Schools Project.

In addition to becoming a center for disseminating future-oriented curriculum and instructional, assessment and professional development practices, the school will provide a desperately needed training and residency model for teacher and administrator recruitment, training and sustainability for this different kind of school. Innovative roles for teachers and administrators will also be evident in expanded leadership roles for students within and beyond the school, as well as more collaborative rather than hierarchical relationships among students, teachers and administrators.

[12] *Evaluation of Evidence-Based Practices in Online Learning*, U.S. Department of Education May 2009

Partnerships, resources and funding needed

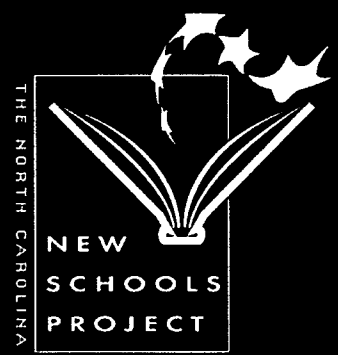
Durham Public Schools has already committed to extending greater flexibility to the new school to allow for maximum innovation. This includes extending the school year and day as funding allows, incorporating one-to-one computing; making strong connections to middle school programs to accelerate the academic development of low performing students; freeing faculty and staff from mandatory district professional development and calendar constraints; and extending the amount of time available for teacher and administrator professional development. Acquisition of college credit for all students prior to graduation will be supported by these innovations.

As important as these district supports are in combination with the ongoing partnership with Duke Health System, the potential of this cluster of health-related academies cannot be achieved without expanding the network of health-related higher education and public/private organizations supporting curriculum development, faculty and students. Additional partners are needed to provide real-world guidance in the development of authentic problems and projects that will engage students in rigorous STEM content. Equally important is ongoing collaboration among faculty, higher education and health organizations to develop assessment and feedback systems to monitor student progress in college and career readiness. Finally, wider support is needed for coaching, mentoring and presentations enabling students to meet and learn more about the variety of people who work in health-related fields, what those career options are, what education they require, and feedback and advice in developing college and career readiness.

CMA and its sister cluster schools have made a strong beginning in developing the very different kind of secondary education that students, their parents and their local and statewide community need for them to be prepared to fully participate in their globally-affected future. But it will take committed partners both locally and beyond to fully develop this dream for what our students and their education can become.

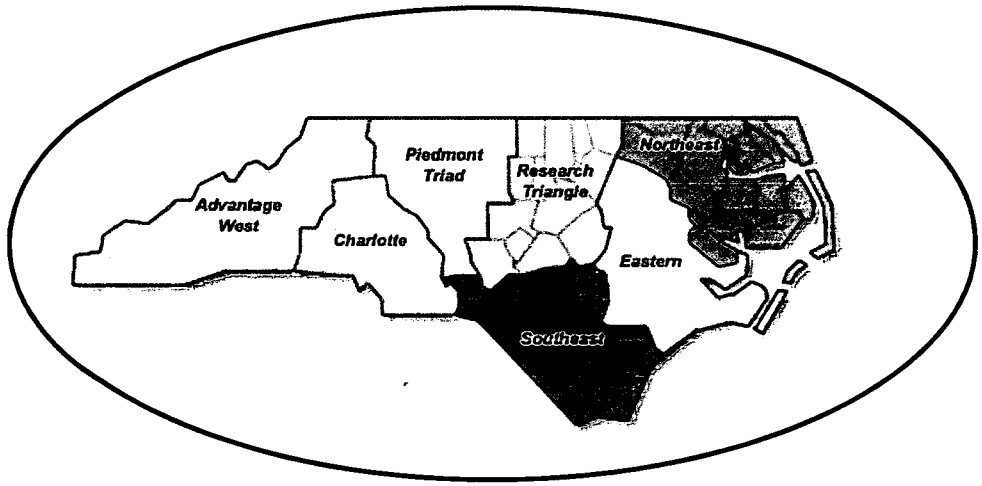
North Carolina New Schools Project

JOBS Commission
October 12, 2010



Theory of Change
Scaling Innovation

School → Demonstrate success with schools across North Carolina →



"Transform a school"

"Demonstrate to all of North Carolina what successful schools look like and increase demand for transformation"

"Transform high school education in North Carolina"

- Government, education and business leaders leverage NCNSP's success and work together to create widespread innovation

Governor Perdue's Race to the Top Proposal
STEM Education

"As the hub of each cluster, the **anchor school** will accelerate the development of a fully articulated and coherent curriculum, instruction, assessment, and professional development model consistent with the NC vision for STEM education. Anchor schools also will provide support for peer schools including peer school reviews, in which teams from scho observe classes, collect data, and provide feedback on teacher-developed questions about student learning and questions about school-wide practices to support continuous improvement. "

Four STEM anchors and clusters supported

- Energy and engineering
- Aerospace
- Health and life sciences
- Biotechnology and agriscience

Prototype STEM Schools

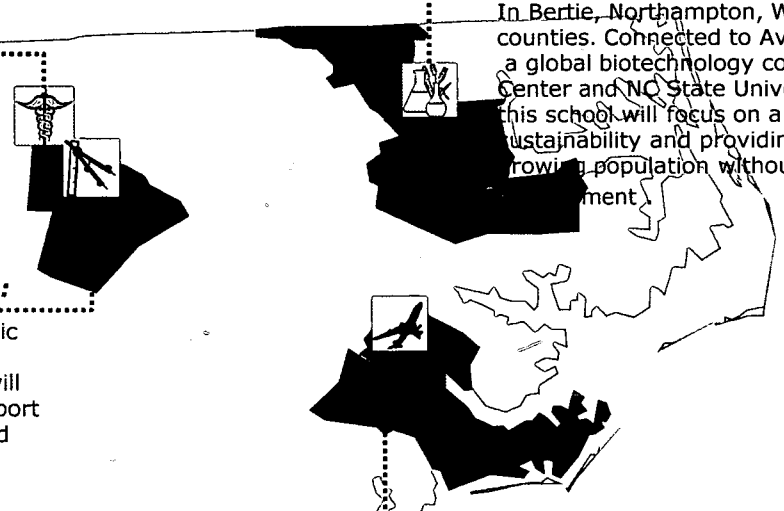
Accelerating Quality and Change

Regional Northeastern Biotechnology Agriscience HS:

In Bertie, Northampton, Washington and surrounding counties. Connected to Avoca Farms, a global biotechnology company, the NC Biotechnology Center and NC State University College of Agriculture, this school will focus on a Grand Challenge related to sustainability and providing food for the world's growing population without degradation to the environment.

City of Medicine Academy:

In Durham County. Duke Medical Systems, GlaxoSmithKline, Blue Cross and Blue Shield of NC and Durham Public Schools are partners in this health and life sciences-focused high school that will be located on the campus of a major medical center.



Wake NC State University STEM Early College:

In Wake County. NC State University, Wake County Public Schools, Progress Energy, Duke Energy, and others are among the partners in the planning phase. This school will demonstrate instructional methodology and student support required for poor and minority students to address Grand Challenges such as making solar energy economical.

Craven Eastern Academy of Science & Technology

In Craven, Carteret, and surrounding counties. In cooperation with Cherry Point Marine Corps Air Station, Craven Community College and NC State University. Engineers employed at the Air Station will guide the development of curriculum.

NCNSP STEM Vision

STEM Schools

- Provide the tools and space for exploration and invention;
- Foster a culture of collaborative inquiry among faculty and students.

STEM Curriculum

- Emphasizes connections within and between the fields of math and science;
- Deeply and meaningfully integrates technology;
- Introduces and engages students in the engineering design process;
- Highlights the role of STEM in the global society and economy.

STEM Teaching

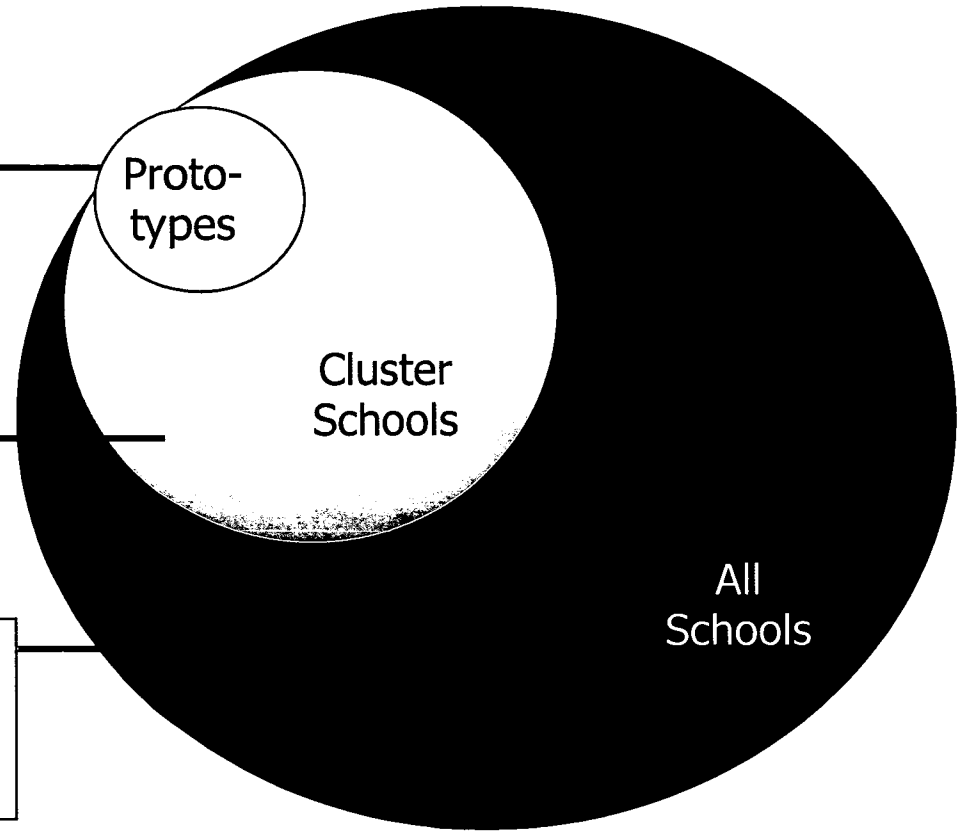
- Engages students in learning through active solving of real problems;
- Regularly engages students in deep discourse, marked by discipline-based justifications;
- Beyond content knowledge
  - Values and cultivates creativity;
  - Develops problem solving, communication and collaboration skills.

STEM School Theory of Change

- STEM-focused programming
- Ties to private sector & IHEs
- Structured residencies
- Professional development

- Emerging schools
- Strong link to prototype
- Peer networks: common Learning Management System & shared teaching resources

- Multiple school designs
- Benefit from established, coherent curriculum, instruction, assessment, and professional development models



STEM School Theory of Change

- City of Medicine Academy

- Howard
- J.F. Webb
- Newton-Conover
- Scotland
- South Granville
- East Wake
- Wake ECHS
- Asheville
- Guilford Central Academy

- Multiple school designs including traditional comprehensive high schools, academies, charter schools.

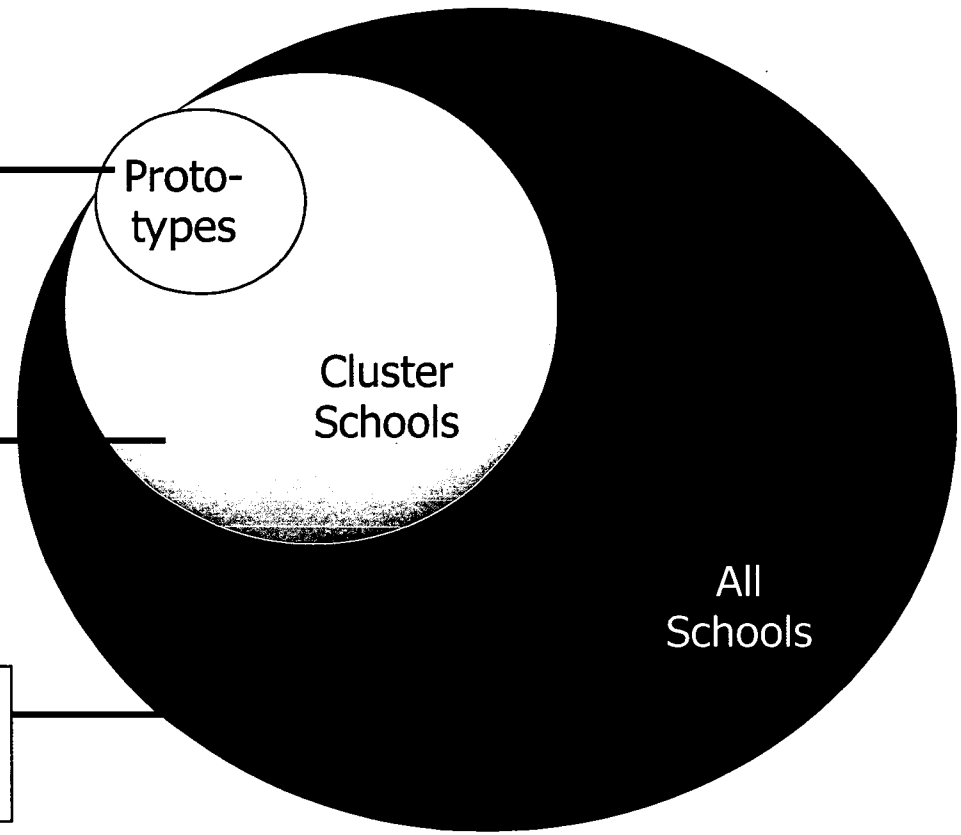
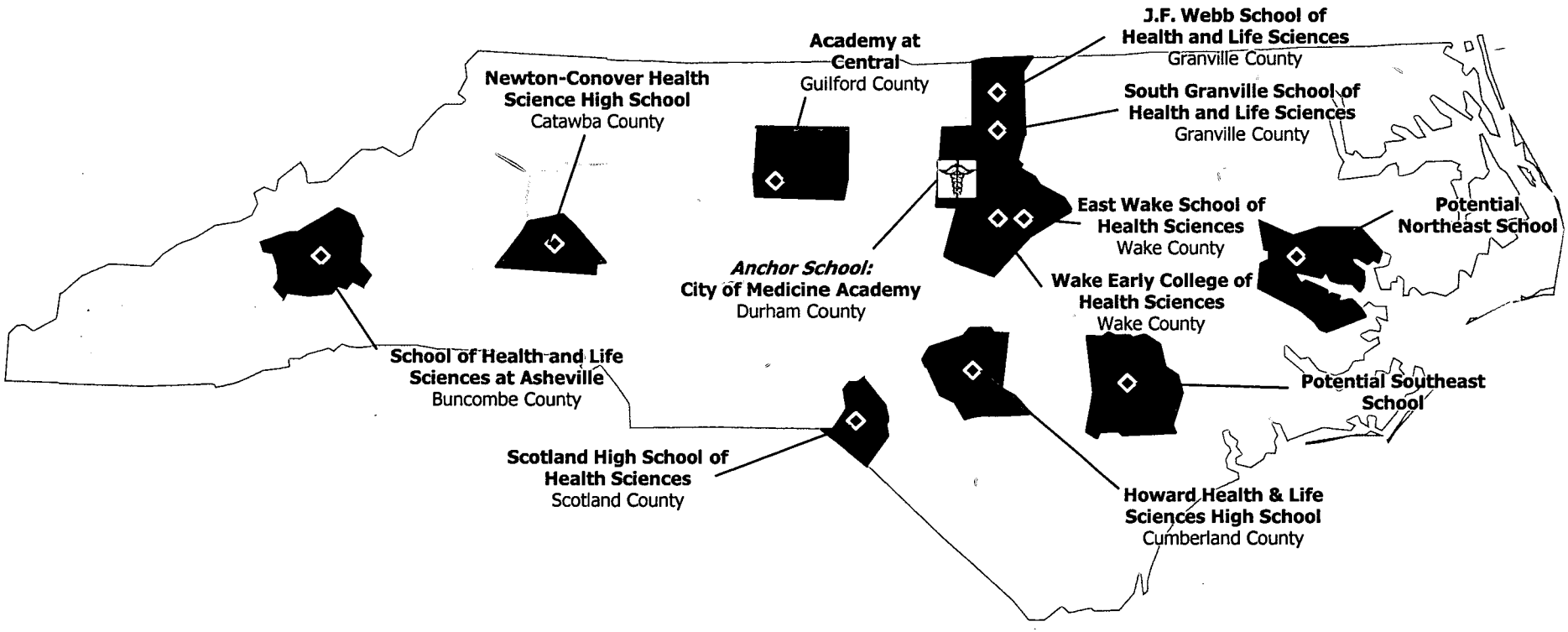
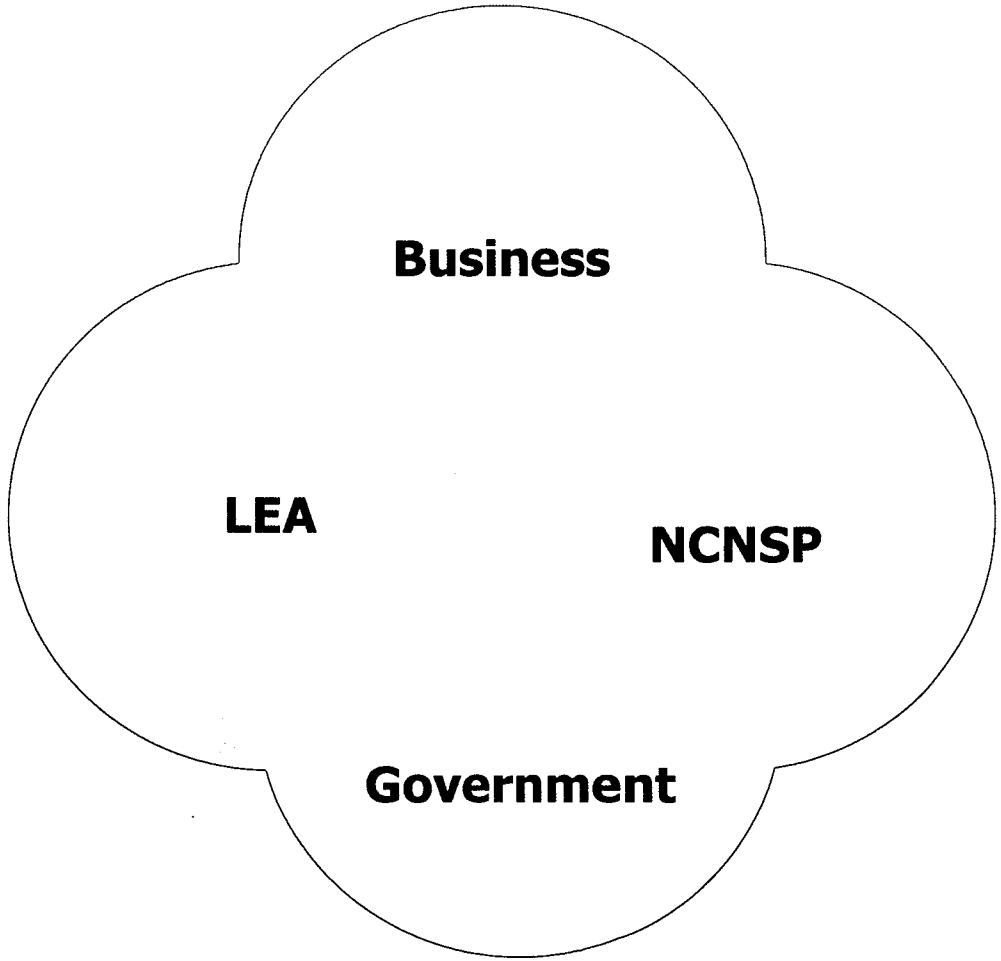


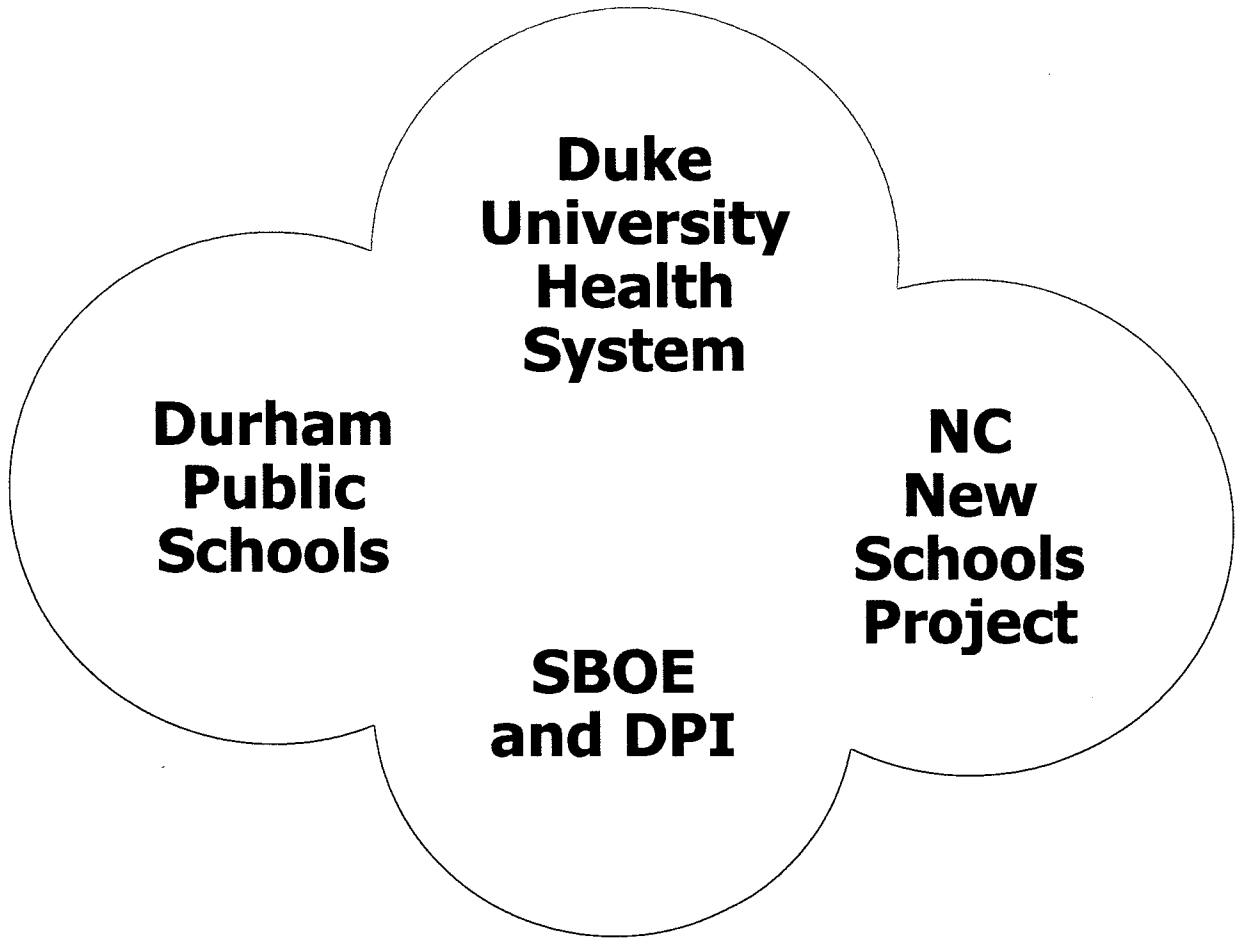
Illustration of a Possible Network of Health and Life Sciences STEM Schools



Partnership for NC STEM Anchors and Affinity Clusters



Partnership for CMA



Impact of Health and Life Sciences Network

- Innovative curricula developed and disseminated
- Alternative assessments in place to assess college and career readiness
- Robust integration of technology for teaching and learning
- Adult learning accelerated through the use of virtual networks and residencies
- Business, public schools, higher education, and government partnering at new levels in novel ways
- Four thousand students served across the state with the promise of graduating 100% college and career ready

Elizabeth Shearer

Principal:

City of Medicine Academy

Durham Public Schools

Contact Information

- **Tony Habit, Ed.D.**
  President
  NC New Schools Project
  4600 Marriott Drive, Suite 510
  Raleigh, NC 27612
  (919) 277-3762
  Thabit@NewSchoolsProject.org

- **Dana Wallace, Ed.D.**
  Vice President for School Development
  NC New Schools Project
  4600 Marriott Drive, Suite 510
  Raleigh, NC 27612
  (919) 277-3780
  Dwallace@NewSchoolsProject.org

NewSchoolsProject.org

What NC STEM Community Collaborative Does

Identify & Facilitate

Connect & Coordinate

Generate Demand & Advocacy

Amplify Network & Information Sharing

STEM Communities
Coordinate and Facilitate Grassroots STEM Initiatives to advance education and the economy

NC STEM Network
Connect local, state and national STEM assets, experts and resources to maximize impact at each level

NC STEM COMMUNITY COLLABORATIVE

Battelle

Fort Bragg/BRAC Region

Our Prototype:
Market Relevant STEM Skills

Our Phase One Innovation:
Linking Authentic Industry and Business Job Descriptions and Work Task Descriptions with Integrated Math Curriculum Development.

NC STEM COMMUNITY COLLABORATIVE

Battelle

Fort Bragg/BRAC Region

ANTICIPATED OUTCOMES:

- Increased Math Skills
- Increased Graduation Rates
- Increased Job Skills
- Increased Economic Development including Job Creation
- Increased Tax Base

NC STEM COMMUNITY COLLABORATIVE

Fort Bragg/BRAC Region

NEXT STEP:
BUSINESS PLANNING

- Four Work Groups
- Business, Industry, Education, Government, Nonprofit, Others
- Experts
- Facilitated by Business and Entrepreneurship Faculty

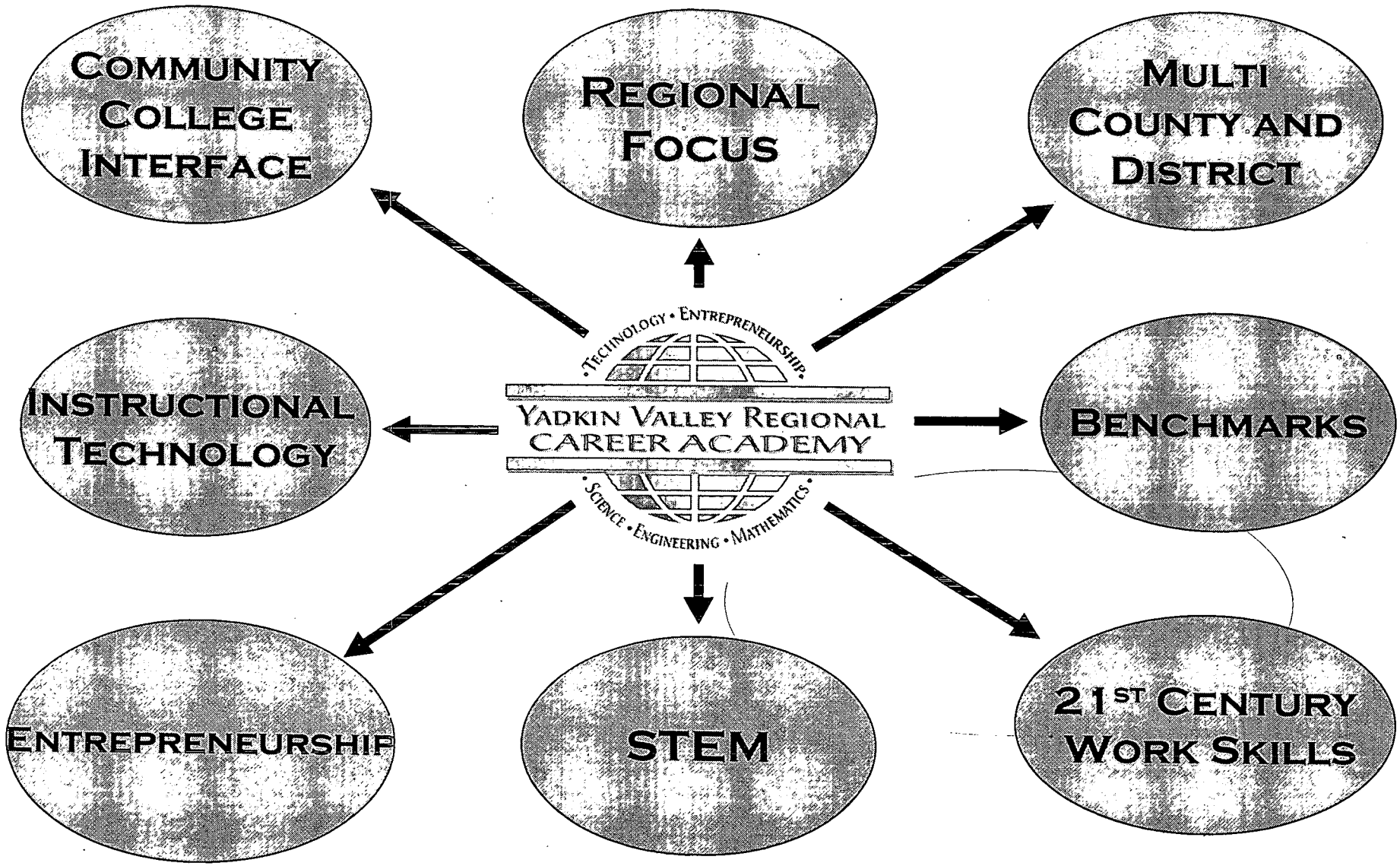
NC STEM COMMUNITY COLLABORATIVE

Battelle

TECHNOLOGY • ENTREPRENEURSHIP

YADKIN VALLEY REGIONAL CAREER ACADEMY

SCIENCE • ENGINEERING • MATHEMATICS


Community College Interface
Regional Focus
Multi County and District
Instructional Technology
Technology • Entrepreneurship
Yadkin Valley Regional Career Academy
Science • Engineering • Mathematics
Benchmarks
Entrepreneurship
STEM
21st Century Work Skills

Update on Recent Accomplishments and Progress

- Draft Curriculum Completed for Initial 4 Clusters
- Initial Marketing Developed – Video, Website, Brochure
- Resolutions of Support from "Host" School Boards
- Continued Visitations to Benchmark Schools
- Community and State Support
- Invitation to submit Proposal for Race To The Top – STEM Anchor School Site

Next Steps

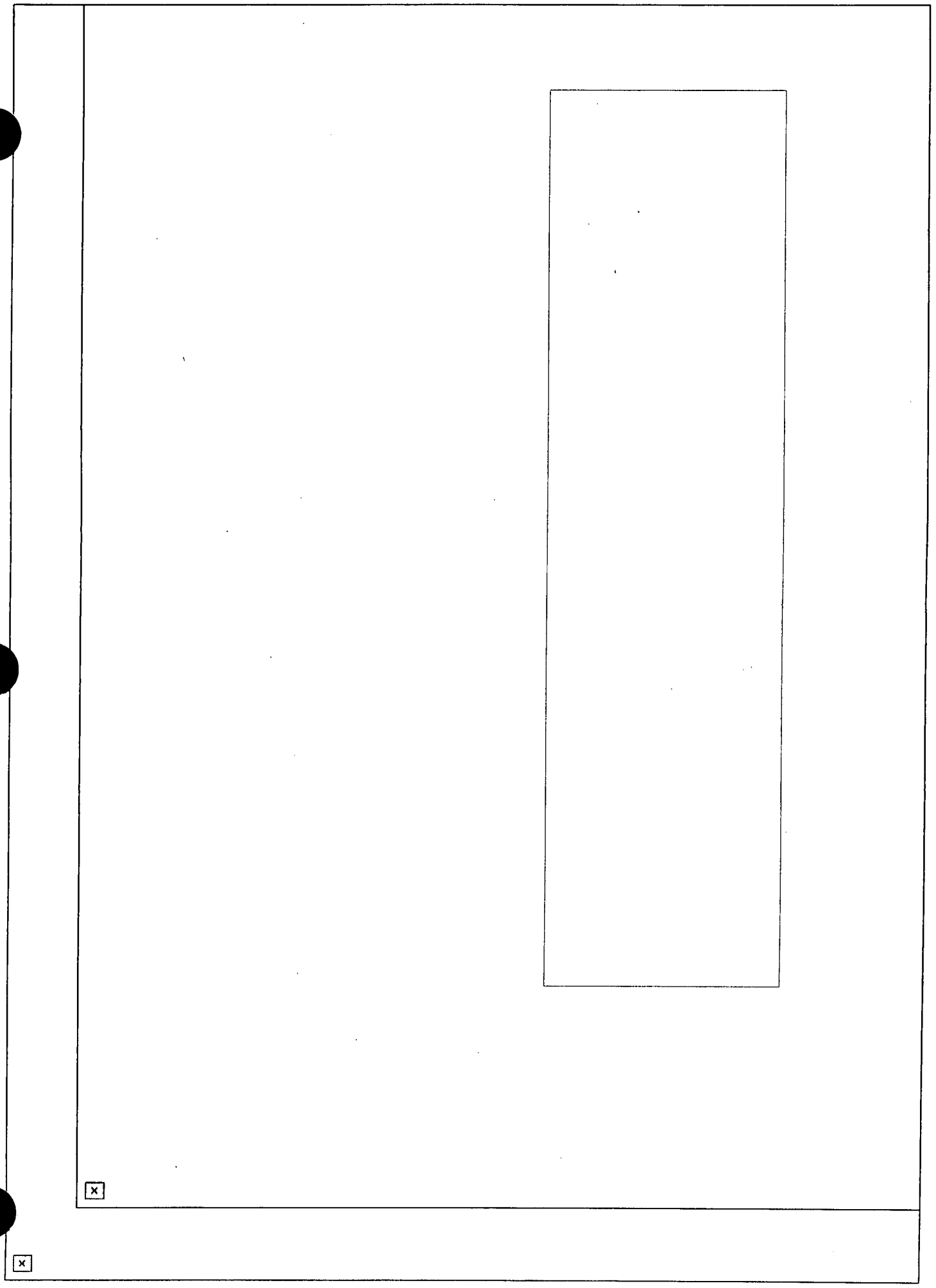
- Phase 2 Planning Session – October 27
- Model Review
- STEM/Lateral Entry Teacher Training
- Apprenticeship Program
- Entrepreneurship Integration
- Technology
- Benchmarking – National/Global
- Middle School Education and Marketing
- Curriculum Refinement

Next Steps

- Post Secondary Integration
- Facilities Planning
- Community Awareness and Support
- Operating and Capital Budgets
- Organizational Development
- Program Director
- Fundraising Strategy
- Implementation Timeline

YVRCA Academy Model

- Specific Labor Market Outcomes
- Entrepreneurial Culture
- Post Secondary/Community College Focus
- Replicable Model



KENAN FELLOWS PROGRAM
FOR CURRICULUM AND LEADERSHIP DEVELOPMENT

Kenan Fellows Program Goals

Goal 1: Identify, develop, and retain teacher leaders in classrooms across North Carolina.

The Kenan Fellows Program seeks outstanding educators via a process that ensures applicants demonstrate key attributes of a teacher leader as defined by the North Carolina Professional Teaching Standards: leadership in the classroom and school, and in advancing teaching, advocating for schools and students, and commitment to high ethical standards. The Kenan Fellows Program nurtures and supports skills that prepare participants to be instructional leaders.

Goal 2: Advance effective teaching that prepares students for success in the 21st century.

Through sustained professional development and in-depth work with professional researchers, Fellows build effective instructional and technological skills and update content knowledge. Collaboration, peer coaching and reflection on practice, and emphasis on the importance of instruction based on inquiry, problem-solving and real life application prepare Fellows to engage and challenge all students and influence student attitudes toward STEM.

Goal 3: Create synergy among teachers, researchers, and industry to ensure STEM education is relevant and that best practices are infused across the spectrum.

The Kenan Fellows Program scaffolds connections between K-12 teachers and mentors in higher education and high-tech industries. These partnerships support an informed community of science learners with the 'focus on significant science' and 'active investigation' called for in the National Science Education Standards. Opportunities to network with policymakers positions Fellows and their Mentors to advocate for high quality STEM education.

Goal 4: Develop innovative curricular tools and resources for teachers and students across North Carolina to enhance learning and teaching.

Fellows design new lessons and workshops for other educators based on their fellowship experiences. A strong focus on the creation of engaging, inquiry-based resources challenges Fellows to work at the highest levels of instructional practice. Their work is peer reviewed and made available to educators across the state and nationwide.

(Fall, 2010)

KENAN FELLOWS PROGRAM
FOR CURRICULUM AND LEADERSHIP DEVELOPMENT

Kenan Fellows Program Goals

Goal 1: Identify, develop, and retain teacher leaders in classrooms across North Carolina.

The Kenan Fellows Program seeks outstanding educators via a process that ensures applicants demonstrate key attributes of a teacher leader as defined by the North Carolina Professional Teaching Standards: leadership in the classroom and school, and in advancing teaching, advocating for schools and students, and commitment to high ethical standards. The Kenan Fellows Program nurtures and supports skills that prepare participants to be instructional leaders.

Goal 2: Advance effective teaching that prepares students for success in the 21st century.

Through sustained professional development and in-depth work with professional researchers, Fellows build effective instructional and technological skills and update content knowledge. Collaboration, peer coaching and reflection on practice, and emphasis on the importance of instruction based on inquiry, problem-solving and real life application prepare Fellows to engage and challenge all students and influence student attitudes toward STEM.

Goal 3: Create synergy among teachers, researchers, and industry to ensure STEM education is relevant and that best practices are infused across the spectrum.

The Kenan Fellows Program scaffolds connections between K-12 teachers and mentors in higher education and high-tech industries. These partnerships support an informed community of science learners with the 'focus on significant science' and 'active investigation' called for in the National Science Education Standards. Opportunities to network with policymakers positions Fellows and their Mentors to advocate for high quality STEM education.

Goal 4: Develop innovative curricular tools and resources for teachers and students across North Carolina to enhance learning and teaching.

Fellows design new lessons and workshops for other educators based on their fellowship experiences. A strong focus on the creation of engaging, inquiry-based resources challenges Fellows to work at the highest levels of instructional practice. Their work is peer reviewed and made available to educators across the state and nationwide.

(Fall, 2010)

KENAN FELLOWS PROGRAM
FOR CURRICULUM AND LEADERSHIP DEVELOPMENT

Kenan Master Teaching Fellowships

Since 2000 the Kenan Fellows Program has offered fellowships for public school teachers in North Carolina to enhance Science, Technology, Engineering and Mathematics (STEM) curriculum and build strong leadership skills. The program provides NC educators an opportunity to collaborate with scientists and innovators to update their understanding of the important changes in these fields, and to put their new expertise to work in the classroom.

A $1.5 million grant from the National Science Foundation will pilot 18 Kenan Master Teaching Fellowships in NC's eleven county BRAC region beginning in 2010. http://www.bracrtf.com. The Kenan Master Teaching Fellows will participate in a five year long program that includes professional development and partnership with research mentors. The program will build a network of highly trained and influential master STEM teachers to help prepare students for 21st century careers and support collaboration that will enhance and align the work of institutions of higher education, local school districts, regional economic/workforce development organizations and industry. Kenan Master Teaching Fellows will contribute to the training of new teachers.

Why?
There is widespread consensus that we must improve our nation's commitment to quality STEM education in the United States. Rapid growth and planning for a durable economy in the Ft. Bragg region includes efforts to prepare students for 21st Century opportunities.

Fellowship Specifics
Qualified teachers will be encouraged to apply for 5-year fellowships. Applicants must have experience in science/technology teaching, a Masters degree in science or education, a long term commitment to their school district, demonstrated leadership, be highly recommended and have an interest in taking part in a rigorous professional program. Kenan Master Teaching Fellows will receive a $10,000/year stipend, a laptop and six graduate credits.

In Year 1 the Fellows will partner with research Mentors and attend Summer Professional Development Institutes aligned with NC Professional Teaching Standards. During Years 2- 5, the Fellows will contribute to regional pre-service teacher education programs and assist with school district efforts to improve STEM instruction.

Who will be involved?

- School system leaders and select teachers
- Research Mentors from local universities, colleges and industries
- Local colleges of education
- Local economic and workforce development professionals
- Local business leaders
- BRAC Regional Task Force

Objectives

- To support our best STEM teachers and keep them in the profession
- To use expert resources in the region to support up-to-date, inquiry based STEM education
- To design effective new curriculum units based on cutting-edge research
- To help schools play a central role in supporting the region's growth

Commitment:

- Oversee a five week externship during summer 2011.
- Coordinate training and research experiences provided by experts with in your company and partners in the industry.
- Collaborate in the development of innovative curricular products that promote workforce skills and STEM interest.

About the Kenan Fellows Program

Through programs like the Kenan Master Teaching Fellowships, the Kenan Fellows Program works in school systems across the state to:

Leverage Partnership Power
The Kenan Fellows Program taps a wealth of professional expertise in North Carolina's university and private sector research facilities. The program enriches teachers' knowledge and promotes innovation and creativity by supporting collaboration between K-12 public school teachers and professionals in rapidly developing areas of science, technology, engineering and math. Fellows engage in partnerships with distinguished scientists and engineers to gain an understanding of the significance of current research and scientific practice for students.

Energize School Curriculum
Each Mentor/Fellow pair works to translate the research experience into relevant lessons for use in classrooms. Interaction with practitioners of state-of-the-art science and professional development in the area of curriculum design helps Kenan Fellows create innovative curricular tools and resources aligned with the North Carolina Standard Course of Study. The 21st Century workplace challenges students to be problem solvers, team players and to think systemically. Engaging lessons designed by Fellows provide rich, new opportunities for inquiry-based study.

Promote Teacher Leadership
The Kenan Fellows Program builds strong leadership skills in outstanding teachers eager to develop their understanding of the real "enterprise" of scientific research and translate their new knowledge into improved teaching and learning in their classrooms. Fellows work to develop strong communication and advocacy skills. They engage regularly in dialog with leaders and policy-makers whose work impacts schools and classrooms. They learn how to maximize the effectiveness of the diverse talents in their school communities. The Kenan Fellows Program seeks to build a network of highly skilled teacher leaders committed to improving the quality of math and science education in classrooms across North Carolina.

KENAN FELLOWS PROGRAM
FOR CURRICULUM AND LEADERSHIP DEVELOPMENT

Impact: Kenan Fellows Program for Curriculum and Leadership Development

An independent evaluator has provided the Kenan Fellows Program with impact data since 2003. These data from the latest evaluation suggest compelling program results including the following:

- 93% of Kenan Fellows are in the education field as leaders in some capacity (e.g., classroom teachers, education consultant with NCDPI or school principal). This percentage is much greater than would be predicted by North Carolina's average attrition rate of 14% annually.
- 100% of Kenan Fellows agree or strongly agree that opportunities to network with other Fellows benefits their teaching and leadership skills.
- 88% of Kenan Fellows reported that this program helped them become instructional leaders in their schools, and helped them expand their leadership roles through interactions with educational leaders and policy makers.
- 84% of Kenan Fellows report that the program has enabled them to build relationships with the broader business, research and policy community.

Kenan Fellows make significant gains in their leadership skills and the extent to which they are involved in leadership activities, as evidenced by pre- and post-test data. The areas of professional development most significantly impacted have been mentoring and coaching fellow teachers, conducting classroom action research, and understanding educational policy issues, which are all key program target areas.

For further information, please go to http://www.KenanFellows.org/ or contact Dr. Valerie Schild at (919) 515-5118 or Valerie_Brown-Schild@ncsu.edu

Developing and Retaining Teacher Leaders in NC

Many Fellows describe increased self-confidence since joining the program. They report that it positively impacted their willingness to remain in the profession and be a leader and advocate. As Kenan Fellow Laura Ruble explains:

> *"After my third year as a teacher, I created a list of "alternate professions" to consider. I stuck it out for another year, but still felt relatively isolated. Opportunities for growth and advancement seemed rare, and I felt that I had reached my maximum potential in the classroom. With entrance into the Kenan Fellows Program, I realized that I did have the power to affect change, to advocate for teacher leadership and to improve the profession for myself and others around me. I received professional development, training, valuable insights and even my National Board Certification. I am confident that teaching is where I belong."*

Advancing the Art of Teaching through Innovative Curriculum Development and Dissemination

Almost all Kenan Fellows report significant improvement in their teaching skills, including the use of classroom technology, presentation skills, content knowledge, and research skills. Fellows have provided very highly rated presentations of their curriculum projects at conferences attended by teachers from more than 50 NC counties, the nation and the world. Kenan Fellows not only improve

their teaching through program participation, they motivate colleagues to improve; in fact, 86% of former Fellows believe their colleagues have experienced benefits from their participation. As 2010 Fellow Lisa Hibler, a high school chemistry teacher, stated:

> *"The Kenan Fellows program provides the opportunity to expand your understanding of your subject matter so that you can provide students with applications of science as well as future careers in science. Other teachers recognize the value of this knowledge and are grateful when you share materials, time and advice."*

Building Relationships to Enhance STEM Education

A key component of the Kenan Fellows Program is to help Fellows develop partnership-building skills. Partnerships with research mentors and other stakeholders in the effort to improve STEM education are essential to the success of the Kenan Fellows Program and strengthen community and business support for education. Fellows believe these partnerships have broadened their interests and are essential to their success as educators in the 21st century. Holly Hanrahan, an award winning Kenan Fellow, notes:

> *"...I've done things through this program that I hadn't dared dream I was capable of, like speaking internationally to 50 or so NASA and ESA scientists who are responsible for landing spacecraft. Since joining Kenan Fellows in 2002, I am proud of what I've accomplished; people come to me with questions, and I've made hundreds of connections with scientists and educators across the nation."*

Conclusion

Ongoing evaluation[1] suggests the Kenan Fellows Program is clearly fulfilling its goals and provides a much-needed benefit to the state of North Carolina in the areas of science and mathematics education. Outstanding educators are given an opportunity to hone their teaching and leadership skills, making them more likely to remain in the classroom. In addition, Kenan Fellows' work with researchers to develop and disseminate cutting-edge curriculum invigorates STEM education in North Carolina. Results on dissemination of Fellows' new lessons for students and the professional support they provide to their colleagues suggest the Kenan Fellows Program is an effective way to enhance STEM education in North Carolina. Plans are in progress to assess program impact on student achievement, student learning and attitudes towards STEM topics and careers.

---

[1]To access the full report, please go to: www.kenanfellows.org

The Kenan Fellows Program is an initiative of the Kenan Institute for Engineering, Technology & Science at North Carolina State University.

(Fall, 2010)

SERVECenter

THE UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

People · Possibilities · Promise

A Better 9th Grade:

Early Results from an Experimental Study of the Early College High School Model

"Having all the people around you who genuinely care and know who you are, and are backing you 100% on your road to success, and graduation eventually. It's really motivating. It's just an experience that I'm sure that if everyone had the opportunity to take and realize, the world would be a different place."

— ECHS Student

Overview

To increase the number of students graduating from high school prepared for college, North Carolina has established the largest number of Early College High Schools (ECHS) in the United States. Early results from a rigorous, independent study of North Carolina's initiative have shown that these schools have substantial positive impacts on student performance. Specific findings include:

- More ECHS students were **on-track for college** than control group students.
- The ECHS model appears to be **closing the performance gap** among student sub-groups.
- Students in the ECHS were **less likely to be suspended** and were **absent fewer days**.
- ECHS students reported **higher levels of academic engagement**.
- ECHS students reported **more positive school experiences** than students in the control group, including **better relationships, higher expectations, more rigorous and relevant instruction, and more academic and social support**.

This brief gives an overview of the model as implemented in North Carolina, the study's design, and ECHS' impacts on grade 9 students.

The Problem

Too many students are not graduating from high school, and even among those who do, many are not prepared for postsecondary education and the world of work. More than 60 percent of employers rate students' basic skills as "fair" or "poor,"[1] and over 40 percent of students enrolled in postsecondary education took remedial coursework.[2] In North Carolina, less than three-fourths (72 percent) of students graduate from high school on time,[3] and only 19 percent graduate from a four-year college within 10 years of entering high school.[4]

Ninth grade is a critical year for students, when student academic performance and student attendance generally decline.[5] A higher number of students are retained in 9th grade than in any other high school year, resulting in a 9th grade bulge. A large percentage of students leave school between the 9th and 10th grade.[6] Students who do not do well in 9th grade are more likely to drop out of school, even if they did well in 8th grade.[7] Finally, what students do and learn in 9th grade is critically important if they are to graduate prepared for college and work.

Researchers have found that students who do not complete Algebra I and English I by the end of grade 9 are not likely to graduate with the coursework needed for college. For example, a study that looked at high school transcripts in California found that, of the students who did not complete Algebra I by the end of grade 9, only an estimated 6 percent completed the courses necessary for college by the end of grade 12.[8] In other words, once students fell off the college prep track (which supplies the coursework needed for college), they were highly unlikely to get back on it. As a result, having access to and successfully completing core grade 9 courses such as Algebra I and English I are key to helping ensure students meet the requirements for college.

The Schools

In response to the above concerns, North Carolina established a public-private partnership to create new and redesigned high schools. Led by the North Carolina New Schools Project and funded by the North Carolina General Assembly with additional support from the Bill & Melinda Gates Foundation, this partnership has supported the North Carolina Early College High School Initiative.[9] Early college high schools are small schools, most often located on college campuses, serving students in grades 9-12 or 9-13.[10] The goal of these schools is to increase the number of students graduating from high school who are prepared for college and work. At the end of their high school experience, students

are expected to graduate with a high school diploma and an associate's degree or two years of transferable college credit. The target populations for these schools are students who are traditionally underrepresented in college, including students who are low-income, are the first in their family to go to college, or are members of a minority group underrepresented in college.

In North Carolina, ECHSs are required to follow a set of five core design principles:

- **Ready for College**—Schools are to establish an environment that supports college readiness for all students. They do this through a required college preparatory curriculum, access to college courses, counseling for college admissions, and other college readiness activities, such as explicit instruction in college behavior and expectations.
- **Powerful Teaching and Learning**—ECHSs are expected to incorporate rigorous and relevant instructional and assessment practices.
- **Personalization**—Schools are to foster strong and positive relationships between students and staff and provide individualized academic and social support to help students achieve in a more challenging academic environment.
- **Professionalism**—Schools are expected to create an environment that empowers teachers and supports professional development and collaboration.
- **Purposeful Design**— As these are schools that serve fewer than 400 students and that are located on college campuses, ECHSs have the flexibility to utilize time and other resources in a way to support the other design principles.

Early college high schools are intended to implement the design principles in a comprehensive manner so that more students stay in school and graduate ready for college.

The Study

Funded through a federal grant from the Institute of Education Sciences, this five-year study is the first to rigorously examine the impact of the early college high school model. The study is a collaborative effort led by SERVE Center at the University of North Carolina at Greensboro, working with the North Carolina New Schools Project, the North Carolina Department of Public Instruction (NCDPI), Duke University, Abt Associates, and RTI International.

Comparing apples to apples

This study is different from most studies in education because it uses an experimental design, often called the "gold standard" for determining the effectiveness of a program because students are randomly assigned to a treatment and control group. Here, when participating schools had more applicants than they had spots, a lottery was used to pick the students. A lottery is often considered the fairest way to allocate scarce resources. One group, the study's treatment group, was randomly selected in the lottery to attend the Early College. The other group, the study's control group, was not selected in the lottery and, thus, went somewhere else, most often to the regular district high school. Students in the two groups, treatment and control, should have the same background characteristics such as incoming achievement, motivation, and demographic characteristics. The only difference between the two groups would then be whether or not students attend ECHSs; this means you are comparing results for two groups that are the same—apples to apples. Any difference in outcomes could be considered to be an impact of ECHS because the students were randomly selected to attend the school.

The study has three main goals:

1. Examine the impact of the ECHS model on student outcomes including: attitudes, attendance, achievement, course-taking, and school leaving/dropout rates.
2. Determine whether the impact varies by student characteristics, such as: race/ethnicity, poverty status, and first generation college status.
3. Determine whether specific program components are associated with better student outcomes.

Methods

In this longitudinal experimental study, participating ECHSs used a lottery to select students from their applicant pool. The study team used data collected by NCDPI on measures such as attendance, test scores, suspensions and expulsions, and dropout status, as well as an original survey to track outcomes for students who were and were not admitted to ECHS.[11] Information on implementation was collected through student and staff surveys and site visits.

Sample: For the results presented in the brief, the analyses were conducted on data collected by NCDPI for 718 9th graders in eight cohorts in six ECHSs and associated control schools. The team also collected original survey data for one cohort of 574 9th graders in 10 sites.[12] The treatment and control students were statistically comparable on the majority of baseline characteristics. A slightly higher percentage of students in the control group were previously retained, and students in the treatment group had slightly higher 8th grade math performance. The final impact analyses account for these differences.

Results

Ninth grade outcomes indicate that ECHSs were meeting their goal of increasing college readiness and establishing a more positive school environment. Specifics on the key findings appear below.

Finding 1: More ECHS students were on-track for college.

The ECHS study found that ECHS students were enrolling in and successfully completing Algebra I at a higher rate compared to control group students. Figure 1 shows that, by the end of 9th grade, 97 percent[13] of ECHS students had taken Algebra I compared to 76 percent of the control group. However, taking courses is only part of the equation—schools must also ensure that students succeed in these courses. Figure 1 also shows that 81 percent of the students in the ECHS successfully completed[14] Algebra I by the end of 9th grade compared to 67 percent of the control group. The data in this figure include any pre-existing differences between the two ECHS and control groups and also include students who took Algebra I in 8th grade.[15] When those differences are taken into account and when we account for the fact that students are clustered together in schools, we find that the difference between ECHS and control students is 11 percentage points in Algebra I course-taking and 6 percentage points in Algebra I success.

Algebra I is only the first in a set of math courses required for college. The set also includes Geometry, Algebra II, and one math course beyond Algebra II. When we look at findings relative to the number of these courses taken, we find that statistically significantly more ECHS students were taking and succeeding in college preparatory mathematics courses. Figure 2 shows that, by the end of 9th grade, virtually all of the ECHS students had taken at least one college preparatory

Figure 1: Algebra 1 Taking and Success

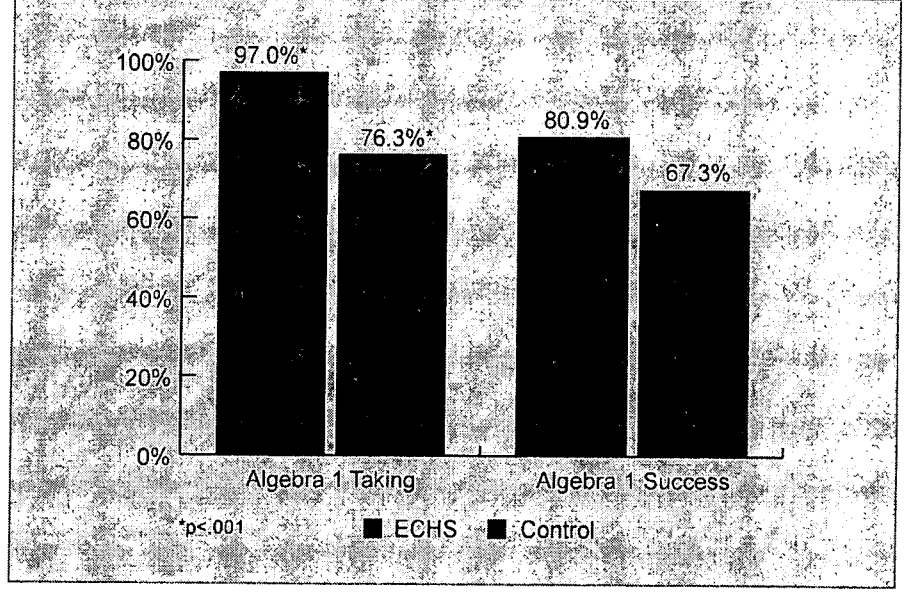
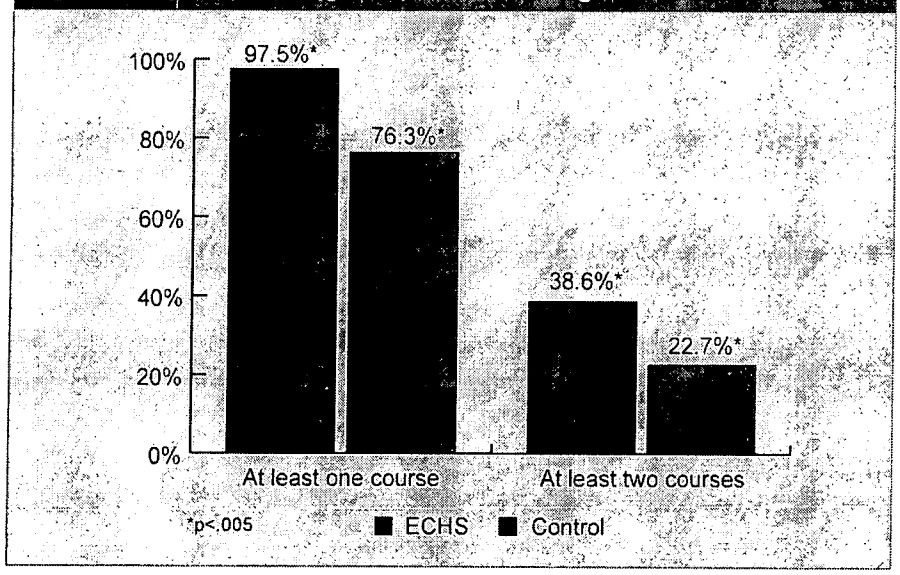


Figure 2: Impact on College Prep Course Taking



mathematics course, compared to around three-quarters of the control group. This finding is particularly compelling because it shows that almost one-quarter of students who applied to the ECHS but were not randomly selected and thus attended a different school did not take the classes they needed to be on track for college by the end of 9th grade.

The other core 9th grade course is English I. We found that the ECHSs had slightly higher course taking and completion rates, although these differences were not statistically significant. By the end of 9th grade, 96 percent of ECHS students had taken English I, and 87 percent had successfully completed it, compared to 93 percent and 83 percent in the control group.

Overall, the ECHS model is having a positive impact on students' preparation and readiness for college, particularly in the area of math. The next finding looks at these impacts for specific target populations.

Finding 2: The ECHS model appears to be closing the performance gap among sub-groups in two 9th grade courses.

The ECHS model is aimed at students who are underrepresented in college: those eligible for free or reduced-price lunch, those who would be the first in their family to attend college, and those who are members of racial and ethnic groups underrepresented in college (African-American, Hispanic, and Native American). Results from the study show that the ECHS model appears to be reducing some gaps that occur between members of target populations and other students. For example, Table 1 shows how the gaps between the percentages of minority and non-minority students successfully completing Algebra I and English I were smaller in the ECHS than in the traditional high school. The ECHS group showed no differences in English I completion rates and only two percentage points separating minority and non-minority students' completion rates in Algebra I. In comparison, the control group had gaps of approximately 14 percentage points between minority and non-minority groups in the control group in Algebra I and 9 percentage points in English I.[16] For these two courses, the ECHSs have essentially no access and success gap for minority students.

Finding 3: Students in the ECHS were less likely to be suspended and were absent fewer days.

The study also looked at the number of students who had been suspended and the number of days of school missed for both ECHS and control students.

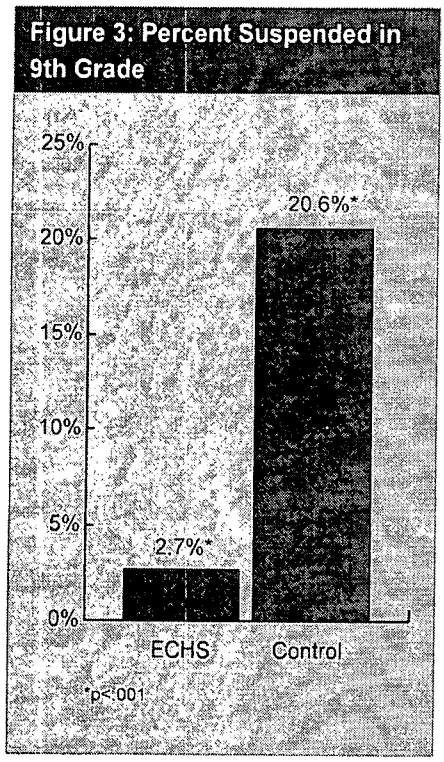
During their 9th grade year, 3 percent of the ECHS students had been suspended at least once compared

Table 1: Gaps in Successful Completion Rates in Algebra I and English I — Minority vs. Non-Minority Students

	Successful Completion of Algebra I			Successful Completion of English I		
	Minority	Non-Minority	Gap	Minority	Non-Minority	Gap
ECHS	79.4%	81.5%	-2.1%	87.4%	87.4%	0%
Control	57.3%	70.9%	-13.6%	76.5%	85.7%	-9.2%

"I like how they play on our strengths and weaknesses because the teachers, they don't focus like, 'Oh, you need to know this for the test.' They're more focused on what you're going to retain and know in the long run. I really like that because I like to learn. I want to know something."

– ECHS Student



to 21 percent of the control group (see Figure 3). When pre-existing differences and clustering are taken into account, the impact was 13 percentage points.

For attendance, both groups had similar numbers of excused absences (2.86 for the ECHS and 2.94 for the control), but ECHS students had significantly fewer unexcused absences. The ECHS students had an average of 3.85 unexcused absences compared to 6.41 in the control group (the adjusted impact was 1.5 days, a difference that was statistically significant at $p<.05$).

Finding 4: ECHS students reported higher levels of academic engagement.

The study also examined the impact of ECHS participation on students' attitudes and behaviors. Results from a survey administered to both treatment and control students showed that 9th grade ECHS students reported being more actively engaged in school-related activities than students in the control group, a statistically significant difference (effect size of .23). ECHS students were more likely to respond that they were likely to do things such as ask questions and contribute to class discussions, work with classmates outside of class, and meet with their instructors to discuss their learning. This finding is particularly important, since high school teachers often struggle to motivate and engage their students. There was a negative impact in the area of self-efficacy in English-Language Arts, with ECHS students reporting statistically significantly lower feelings of self-efficacy (effect size of -.21). There was no difference in mathematics self-efficacy.

Finding 5: ECHS students were more likely to report positive school experiences than students in the control group.

Results from student surveys showed that ECHS students reported more positive school experiences than students in the control group on all dimensions examined, with all differences statistically significant. ECHS students reported that their teachers had much higher expectations for students. Similarly, they indicated a more challenging high school experience and significantly more positive relationships with their teachers. ECHS students also reported participating in a higher level of rigorous and relevant instruction. Finally, more ECHS students reported receiving more types of academic and social-emotional support activities more frequently. Table 2 shows the effect sizes for each of the scales examined. Effect sizes are measures of how big the difference between the two groups is in terms of standard deviation units. The Institute of Education Sciences regards effect sizes of +0.25 or higher as potentially substantively important in education studies. Using this guideline, all of these effect sizes can be viewed as being substantively important in terms of impacts on students' academic experiences.

"Teachers are more willing to stop if one student doesn't understand something and work with that student while still trying to emphasize the point with the other students to help everyone get it. I guess that's the biggest difference I saw from other schools I've been to; that it's a close relationship with the teachers, and you don't have to be afraid to ask questions here."

– ECHS Student

Table 2: Impact of ECHS on Student Experiences

Scale	Effect Size
Academic and Social Support	.95*
High Expectations	.66*
Rigorous Instruction	.52*
Relevant Instruction	.43*
Relationships	.35*
Challenge	.31*

*Significant at p≤.001.

Conclusions

According to 9th grade results from this rigorous, experimental study, North Carolina's Early College High Schools are creating more positive school environments for students resulting in improved attendance, reduced suspensions, and increased numbers of students on-track for college. These schools are also successfully expanding the initial part of the college preparatory pipeline for students of all backgrounds.

As this study continues, more schools and students will be included in the sample. This will allow us to determine if these results hold true across more schools. In addition, the research team will follow the students to look at the impact of the model on students' success in upper grades, as well as the impact on students' dropout rates.

For more information about the study, please contact Julie Edmunds, the study's director, at SERVE Center at the University of North Carolina at Greensboro: 336-574-8727 or jedmunds@serve.org.

This material is based upon work supported by the Institute of Education Sciences under grant number #R305R060022. Any opinions, findings, and conclusions or recommendations expressed in this publication are those of the authors and do not necessarily reflect the views of the Institute of Education Sciences.

Footnotes

1. American Diploma Project (2004). *Ready or not: Creating a high school diploma that counts.* Washington, DC: Achieve, Inc.
2. National Center for Education Statistics (2004). *Condition of education.* Retrieved from http://www.nces.ed.gov/ programs/coe/
3. North Carolina Department of Public Instruction (2009, August 6). *NC high school graduation rate improves.* Retrieved from http://www.ncpublicschools.org/newsroom/news/2009-10/20090806-01
4. National Center for Higher Education Management Systems. (2009). *Student pipeline - transition and completion rates from 9th grade to college.* Retrieved from http://www.higheredinfo.org/dbrowser/index.php?measure=72
5. Isakson, K., & Jarvis, P., (1999). The adjustment of adolescents during the transition into high school: a short-term longitudinal study. *Journal of Youth and Adolescence*, 28(1). 1-26.
6. Haney, W., Madaus, G., Abrams, L., Wheelock, A., Miao, J., & Gruia, I. (2004). *The education pipeline in the United States, 1970-2000.* Center for the Study of Testing, Evaluation, and Educational Policy. Retrieved from http://www.bc.edu/research/nbetpp/statements/nbr3.pdf
7. Allensworth, E. M., & Easton, J. Q. (2005). *The on-track indicator as a predictor of high school graduation.* Chicago: Consortium on Chicago School Research.
8. Finkelstein, N. D., & Fong, A. B. (2008). *Course-taking patterns and preparation for postsecondary education in California's public university systems among minority youth.* (Issues & Answers Report, REL 2008–No. 035). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory West. Retrieved from http://ies.ed.gov/ncee/edlabs.
9. For more information about Early College High Schools in North Carolina, please visit the North Carolina New Schools Project at www.newschoolsproject.org. Please note that there are Early College High Schools in North Carolina that are not a part of this initiative.
10. Some schools include a thirteenth grade in order to give students time to complete all of the required credits.
11. An important note about the sample: this study uses an intent-to-treat approach, which means that any student who was originally assigned to the treatment group remains in that group, even if he or she did not enroll in the ECHS or left it at any point. This means that the study's findings are not affected by attrition from the ECHS. It also means that we are likely underestimating the model's impact because results are included for students who were no longer attending the ECHS.
12. This analysis includes administrative data only through the 2007-08 school year since there is a delay in processing the data. The survey data includes data from 2007-08 and from 2008-09, which allows us to include more sites.
13. The percentages reported in this brief are all unadjusted, which means that they do not take into account any initial, pre-9th grade differences between students in the two groups. In addition, they do not account for the fact that students are clustered in schools. We do take both these situations into account when we are making statements about the overall program impact. For that reason, the reported adjusted differences will vary from the differences between the unadjusted group means.
14. Because the research team does not have access to course grades, successfully completing the course is indicated by students taking and passing the mandated End-of-Course exam. It should be noted that the rates reported here are not traditional pass rates, which reflect only the percentage of students who passed the test out of the ones who took the test. Instead, these figures look at the total number of 9th grade students; doing this allows us to incorporate both access to courses and success in those courses into our measures.
15. All of the math coursetaking findings include students who may have taken Algebra I or other high school courses in middle school. We chose to report these results because it allows us to look at the proportion of the entire population of students who are taking the courses they need to be on-track for college. We get similar results if we look only at the students who had not taken Algebra I prior to 9th grade.
16. These proportions are unadjusted means, and we have not tested these differences for statistical significance.

SERVECenter

Powering educational systems by generating, translating and disseminating the best research, information and knowledge

Address:
5900 Summit Avenue #201
Browns Summit, NC 27214

Phone:
336-315-7400

Toll Free Hotline:
800-755-3277

Fax:
336-315-7457

www.serve.org

Ted Harrison (Senate LA Office)

From: LT. Governor [LT.Gov@nc.gov]
Sent: Thursday, October 07, 2010 3:05 PM
Subject: Article regarding North Carolina's Early College program

Everyone,
Thank you for your service to this state. Recently a study was published by UNC Greensboro highlighting North Carolina's early college program. I wanted to take this opportunity to pass it along to you. This research shows the success of our early college program in engaging and preparing our students for academic success. I hope that this research leads to continued support and expansion for these programs.

Sincerely,
Walter Dalton

Study: Early College Boosts Algebra Success, Cuts Suspensions
By Dan Nonte, University Relations
Contact: (336) 334-4314
Posted 9-29-10
GREENSBORO, N.C. — Ninth graders in North Carolina's Early College High Schools are more likely to be on track for college and much less likely to be suspended than their peers in traditional high schools, according to results from a study conducted by SERVE Center at UNCG.

The study also found that Early College students report higher levels of academic engagement and a more positive school experience, and that Early Colleges appear to shrink the performance gap between minority and non-minority students. Funded through a federal grant, the study used a lottery to assign students to Early Colleges or traditional high schools. The research team tracked and compared the groups using a range of measures.

"It is rare to have the opportunity to use an experimental design in real school settings," said study director Julie Edmunds, PhD. "It is even rarer to see an experimental study produce such positive results."

Key findings from the study include the following:
• In the Early Colleges, 97 percent of ninth graders took Algebra I, and 80.9 percent successfully completed it by the end of the year. Among the control group, 76.3 percent took the class, and 67.3 percent successfully completed it.

• In the Early Colleges, 79.4 percent of African-American, Hispanic and Native American ninth graders successfully completed Algebra I, compared to 57.3 percent of minority students in the control group. The gap between minority and non-minority students in Algebra I was 2.1 percent in the Early Colleges and 13.6 percent in the control group.

• In the Early Colleges, 2.7 percent of students were suspended at least once during ninth grade, compared to 20.6 percent in the control group.

• The groups had similar numbers of excused absences, but Early College students averaged 3.85 unexcused absences, compared to 6.41 for students in the control group.

• Early College students reported higher levels of engagement in school-related activities. Students in the control group reported feeling a higher level of self-efficacy in English-Language Arts.

• Early College students were more likely to report a challenging high school experience, rigorous and relevant instruction, high expectations from their teachers and positive relationships with their teachers. They reported receiving more academic and social-emotional support.

"The beauty of a study like this is that we can say that the results were caused by whether the students attended Early College or not," said Ludy van Broekhuizen, PhD, executive director of SERVE Center. "A rigorous, experimental study like this one allows us to take student selection bias out of the equation."

Early College High Schools are located on college campuses, serve fewer than 400 students, and allow students to graduate in four or five years with a high school diploma and an associate's degree or two years of college credit. They serve students in groups traditionally underrepresented in college: students eligible for free or reduced-price lunch, students who would be the first in their families to attend college, and students who are members of underrepresented racial or ethnic groups.

The analyses completed so far are results from the first cohort of treatment and control students in a larger research project, which includes more Early Colleges and students and will consider dropout rates and students' success in upper grades. The study is funded by a $2.9 million grant from the U.S. Department of Education's Institute of Education Sciences, one of 11 research grants awarded nationally on the topic of middle and high school reform.

The project's research team is led by SERVE Center and includes the North Carolina Department of Public Instruction, the North Carolina New Schools Project, Duke University Center for Child and Family Policy, Abt Associates, RTI International and faculty from UNCG.

UNCG's SERVE Center is an education research and development center. It houses the Regional Educational Laboratory for the Southeast; the National Center for Homeless Education; and numerous other technical assistance, research and evaluation projects.

E-mail correspondence to and from this address may be subject to the North Carolina Public Records Law and may be disclosed to third parties by an authorized state official.

JOBS Commission Meeting

Monday, November 22nd 2-5pm
Room 544 – Legislative Office Building
Raleigh, NC

Welcome

2:00 pm **Early College Second Life Program**
Austin Bunch, Ph.D., Associate Provost - ECU
Sharon Collins, PhD Candidate, ECHS Program Director

Tom Vermillion- Chairman/Lenoir County STEM Collaborative
Steve Hill- Co-Chairman/Lenoir County STEM Collaboration
Rita Spence- Project Coordinator/Lenoir County STEM Collaboration

2:30 pm **Early College Updates**
Wake County / NC State University STEM Early College
Rob Matheson, Principal - Wake / NC State University STEM EC
Ryan Haymore, Transition Counselor

Cumberland County Language & Global Cultures Early College
Dr. Frank Till, Superintendent – Cumberland County Schools

Agri-science & Biotechnology Study Commission
Dr. Marshall Stewart, Commission Chair

2:50 pm **Governance Subcommittee Update**
Grant Godwin, Subcommittee Chair

3:10 pm **Hospitality & Tourism Steering Committee Update**
Paul Stone, Executive Director - NC Hospitality Education Foundation

3:25 pm **Business & Education Connectivity**
Greg Gift, Assistant Director, Career and Technical Education, NC-DPI
Tom Haffner, President, P.T. International Corporation

Tricia Willoughby, Executive Director
North Carolina Business Committee for Education

Committee discussion on increasing role of business

4:15 pm ***STEM Connectivity across North Carolina***
STEM at the Dept. of Public Instruction
Angela Quick, Deputy Chief Academic Officer

Committee discussion on statewide STEM goals
Sam Houston, Co-Chair – NC STEM Collaborative Advisory Committee

MINUTES
The Joint Commission on Joining Our Businesses and Schools (JOBS) Commission
Monday, November 22, 2010
2-5 p.m. Room 544, Legislative Office Building

The Joint Commission on Joining Our Businesses and Schools (JOBS) Commission met November 22, 2010 at 2 p.m. in Room 544 of the Legislative Office Building. Lieutenant Governor Walter Dalton presided. *(SEE Attachment: Guests Attending.)*

PRESENTATIONS

Representatives of the Second Life Early College High School operated by East Carolina University presented the scope of the virtual campus. Austin Bunch, Associate Provost at ECU, told the Commission the virtual campus had been used with the Pitt County Schools for three semesters. He said students found the program an engaging way to early learning. The costs he said were much lower than a traditional early college program since there were no transportation or food costs, for instance. Classes include finance, sociology and web design. Dr. Bunch said the students who were participating were average students who had shown good potential. Eleven of the first eighteen graduates of the early college had been accepted at ECU and had been retained through the sophomore year. Three of the students are Teaching Fellows. In the current semester, there are 6 students in China developing English language skills through the virtual classroom.

Dr. Bunch said additional funding resources would be needed to carry through with the Second Life Early College High School. Lenoir County is gearing up through its STEM program to become part of the ECU initiative.

Tom Vermillion, Chairman of the Lenoir County STEM collaborative, said Lenoir County was seeking to use the ECU Second Life program to help carry out the STEM initiative. In addition, Lenoir County is working with the Massachusetts Institute of Technology in an effort to bring several fabricated laboratories to the county. The Lenoir County STEM program is working toward a partnership with Spirit Aero Systems and Silicon Integrated Systems.

Representing the education side of the Lenoir County STEM Collaborative, Steve Hill said the virtual classroom provides the best way to engage students, businesses and teachers at a lower cost. He said the three-dimensional feature gave a better connection with students than some of the other student-teacher programs such as Blackboard.

In the discussion, Sharon Collins, the Early College High School Program Director at ECU, said the students at the six Pitt County High Schools attend the virtual classes from 8:35 a.m. until 9:55 on Tuesdays through Fridays. Monday is a catch-up day. Students can talk to the teachers and to each other through the system.

Lt. Governor Dalton asked about the funding model. Dr. Bunch said the system so far had been funded by ECU. He said the University was looking to work with local school districts for funding.

Mr. Vermillion explained that the Fab Labs program is for middle schools students as opposed to the high school students in the Second Life Early College. He said Lenoir County's STEM is seeking a grant from the Golden Leaf Foundation for the fabricated laboratories.

Ms. Townsend asked about the projects the students pursued. Ms. Collins said the curriculum was varied to include English, child psychology, introduction to computers and web design. Pitt County requires a senior project and many of the students create a virtual portfolio requirement.

Senator Brown asked how much progress had been made to involve other counties. Dr. Bunch said that was just beginning. Mr. Hill said this was where STEM East played a role. He envisions a network in which students can learn through engineers who do not need to leave their work-place.

Mr. Lee asked if real faces could be laid over the avatar figures. Ms. Collins said this was possible and could give the teachers a real face to present to the students. In addition there is the ability to use video systems.

The Lt. Governor asked how the various components, ECU, Pitt County Schools, and the businesses, worked and how that might change. Dr. Bunch said ECU has a new mission statement that seeks to involve all parts of the communities to make eastern North Carolina better educationally.

Early College Updates

Rob Matheson is the newly hired principal for the Wake County/NC State University STEM Early College. He said this is his 35th year as a researcher, science educator and principal. This is the 3rd "school of choice" that he has started. The initial staff will be seven people. He said the school needs to have innovation, cooperation and a willing attitude from the people involved. Mr. Matheson said there were so many resources available to the school that it is a major task to figure out how to use the many resources. Ryan Haymore, the school's counselor, said that students and parents were excited about the school.

Mr. Murphy asked about applications. Mr. Haymore said there is a paper application that will give students the best chance at the school, but the ultimate enrollment will be filled by a random lottery from those applications. Mr. Matheson said focusing the school on the four Grand Challenges of engineering was an excellent way to start. He said a recent curriculum meeting arrived at the consensus that the initial emphasis would be the sustainable nature of life.

Dr. Frank Till, Superintendent of the Cumberland County Schools, introduced Allison Violette who began the update on the Cumberland International Studies Early College High School. *(SEE ATTACHMENT: Cumberland International Studies)* Ms. Violette said the planning continued with the collaboration between the school system,

Fayetteville State University, the North Carolina New Schools Project, The Center for International Understanding and The Asia Society.

One of the basic precepts of the School is proficiency in a second language of strategic interest. The languages chosen are Mandarin, Arabic and Spanish. Dr. Till said the college partner had changed from Fayetteville Technical Community College to Fayetteville State University. A location has been obtained that is near the campus, and student recruitment is underway. He professed a concern about potential cuts in the state budget which could lead to delaying the start of the first year of the School. At this point the opening is set for August 2011, with a class of ninth graders. Earlier plans for ninth and tenth graders have been changed to match the ambitious curriculum the School will offer.

Mr. Lee asked about the possibility for global partners such as the Confucius Institute. Dr. Till said there is such a potential. The China Institute will be held at FSU in the summer of 2011. Mr. Lee also asked about the military involvement. Dr. Till said that support was there, but that the military could not be a partner in the enterprise; however the U. S. Army had made available their language curriculum for the School. He said the State Department might be able to provide support. Mr. Lee said the idea that this would become a model meant that it must be done very well. Mr. Habit said the people associated with the project had been a pleasure to work with. The Lt. Governor said a recommendation from the Commission was passed in the last General Assembly Session which gives some flexibility in the use of personnel which may save some money for the School.

The Commission has proposed an Agri-Science and Bio-Technology Center in northeastern North Carolina. A study of that proposed site was passed in the last General Assembly Session. Marshal Stewart, Chair of that study, brought the Commission an update. He said the major charges for the study are how this can be done given the multi-county concept and governance issues and where the center should be located. The study group is due to have a report as of January 1. Areas of the state who are interested in having such a site will provide a profile of that interest as of December 17th. The partnership which an area might create is to be included, plus the economic development gains expected. The location should be such that connection could be made with N. C. State University and the NC Research ~~Facility~~Campus. Further, D~~M~~r. Stewart said, the area should be able to bring certain resources to the table. He said the fast track request had not diminished the interest in such centers.

The governance issue must include local constituents, but the sticking point is the money. The question is how the funding should be borne among the various educational and governmental entities. D~~M~~r.~~,~~ Stewart said work had been done to see how the money should flow when low-wealth and high-wealth school systems are involved.

Senator Brown, who had assumed the chair while the Lt. Governor was called away, said the governance issue alone was a major challenge. D~~M~~r. Stewart invited further input from members of the Commission, saying the effort was the right thing to do for children.

Governance Subcommittee Update

Senator Brown welcomed Grant Godwin, Subcommittee Chair, and thanked him for his work on the Subcommittee. *(SEE ATTACHMENT: Report on Alignment of Education Districts and Regional Overlay Map.)* The Subcommittee believes that the Education Districts and the Economic Development Regions can be aligned by amending the statue which designates the Education Districts to conform with the Economic Development Regions. The North Carolina Constitution calls for the eight Education Districts, but the allocation of the counties to comprise those districts is done by statute. The Economic Development Regions evolved over several years of legislative action.

The Subcommittee alignment would require shifting 21 counties from one group to the other, the smallest number that could be moved to achieve the re-alignment. The Subcommittee hopes for little "political resistance" to the proposal.

The report proposes a new dedicated Local/Central Board in the regions to oversee the operation of coordination of economic and educational interests and sets up the mechanism for basic structure of such boards. Consistency for all multi-jurisdictional school operations could be gained by allowing some or all of the centrally appointed members to serve in that capacity. Key school personnel should be hired early by the Board with long-term contracts. Board member terms should be staggered. Any change in the mission or charter of the school would require a super-majority of the Board members.

The multi-jurisdictional schools would report directly to the State Board of Education and would have the flexibility of charter schools. As far as some activities, students from the multi-jurisdictional schools will be treated as guest members whom the Department of Public Instruction accepts. This concept has been used at the Yadkin Valley Career Academy. Test scores would go back to the traditional schools and students can go back to the traditional schools for extra-curricular activities.

Yadkin Valley Career Academy has a mechanism that works with low-wealth and high-wealth schools. Mr. Godwin said any such arrangement must be made so that all sides win and no school is a financial loser. As he pointed out the new schools are a win, but the traditional schools need attention too, otherwise there will be a natural resistance created. The challenge comes if all the schools in a region are poor. The Subcommittee recommends that the State Board of Education appoint a committee of people who are familiar with the financial flow and see if that group can create an equitable funding system. Mr. Godwin reiterated a point made by Marshall Stewart that private sources of funds; i.-e. foundations, etc. could be a source for such things as laboratories, buildings, and equipment.

The Subcommittee recommended a different type of staff development beyond the ~~beyond the~~ mechanics of running a school, such as how to operate a bus system. The recommendation is for staff development that seeks to provide information about how to make a differencet in a student's lifke, and how to make that student grow and reach potential.

The Subcommittee avoided using the term "pilot" schools. Mr. Godwin said pilot schools are considered to be "perfect" and create easy targets for criticism. The new

schools seek operating discretion and should be given achievement guidelines, then the flexibility to work in the local environment and be measured for effectiveness.

The multi-jurisdictional school districts would have a memorandum of understanding with the State School Board as to the operation of the schools.

If a school wishes to withdraw from the agreement, the Subcommittee recommends that early withdrawal be allowed, rather than create a worsening situation.

The Subcommittee made no legislative recommendations, preferring to receive direction from the full JOBS Commission.

The complete report from the Subcommittee should be presented to the Commission at the December 16th meeting. The Lt. Governor noted that the Subcommittee report would be referred to the group chaired by Marshall Stewart which is studying the multi-jurisdictional school approach. Further the Lt. Governor thanked Mr. Godwin and the members of the Subcommittee for the work on governance and also extended thanks to SBE Board Chairman Harrison and Mr. Habit.

Ms. Bingham sought responses from SBE Board Chairman Harrison, and Education Cabinet leader, Howard Lee. Dr. Harrison said the plan seems workable. He said including representatives of the local constituency is necessary. Mr. Lee said this is a trend that is needed, but there must be a way to coordinate career technical education and academics and not ~~isolating~~ isolate them from each other. He believes this trend will allow that joining together.

Senator Foriest expressed his concern about letting people out of contracts when things got rough and how that could lead to a total collapse. Lt. Governor Dalton suggested that such issues be considered at a later time.

In the effort to link the 8 Education Districts and 7 Economic Development Regions, the 2010 General Assembly passed legislation to allow members of the State Board of Education to serve on the Economic Development Boards. The recognition of this Legislation, lead to the second part of the Subcommittee Report. *(SEE ATTACHMENT AGAIN: Regional Map Overlay.)* This shows the potential change of alignment as discussed above. More details will be included in the Subcommittee's report.

Ms. Bingham asked what opinions the Department of Commerce had expressed on the realignment. Mr. Godwin said there doesn't seem to be a problem. The Lt. Governor noted that the Economic Development Boards are separate and apart from the Department of Commerce.

Hospitality and Tourism Steering Committee Update

Paul Stone, Executive Director of the North Caroling Hospitality Foundation, heads this Committee and made the report. He provided the Commission members with a list of the steering committee. *(SEE ATTACHMENT: Early College Hospitality and Tourism Committee.)* Mr. Stone said the decision to aim for western North Carolina was made for various economic interests: tourism attractions already there, unemployment, etc. He said the Western Carolina Univeristy already has a hospitality curriculum, and that Harrah's Cherokee will be a 122 room hotel.

The Pro-Start curriculum has been approved as a standard course of study starting in 2012. The curriculum was developed by the N. C. Hospitality Education Foundation. JOBS Commission member Howard Lee worked with the group in the process.

Mr. Stone said that the hotel and lodging industry makes up 10 per cent of North Carolina's workforce. The Lt. Governor said that WCU Chancellor Bardo was every supportive of the concept. He said the WCU and Asheville-Biltmore Community College was partnering with the effort.

Business and Education Connectivity

Greg Gift, Assistant Director, Career and Technical Education at North Carolina DPI, was joined by Tom Haffner, President of P. T. International, in making the presentation. (P.T. International is a manufacturer of precision power transmission components.) *(SEE ATTACHMENT: CTE Business Network.)* Mr. Gift traced the history of the Network from its beginning in 2000. Local businesses interested in career and technical education decided to branch out to consider issues on a regional and statewide level.

Regional business networks grew up and became larger and larger until it became obvious that a statewide network was needed. The statewide network is a year old. There are about 300 business representatives in the network now.

Tom Haffner added the business side of the presentation. P. T. International operates globally. Based on his 35 years of experience, Mr. Haffner said it was necessary to keep a broad perspective of the things that are happening and will happen. "...this is a global war... (in manufacturing)," he said.

He sits on an advisory board for the Engineering Department at UNC-Charlotte. The board members "pay to play" by investing in one of the myriad projects that are developed from the board's insight and interplay. There are 80 different companies which sponsor one of the project teams. The business representatives act as mentors to the students on the project teams.

Out of this four Technical Career Academies have been created in the Charlotte-Mecklenburg area. There are 18 members of an advisory board for the Academies. While most of the Board members are engineers, there are members from other businesses as well.

These academies are built on the structure established by the National Academy Foundation. The board pursues various fund-raising efforts to pay for such things as field trips for the students.

Prior to introducing the next presentation, the Lt. Governor said that the North Carolina Bankers Association was interested in hearing from the Commission. He said he would be meeting with members of the Association in the near future.

Tricia Willoughby, the Executive Director for the North Carolina Business Committee for Education, said the Committee has been a part of the Governor's Office for over 25 years. The Committee recognized the benefit in early college programs when

they saw increased graduation rates and student involvement. The Committee has held meetings on an early college campus.

The Committee backed the Teacher Working Condition Survey which had an 89% participation rate. The Committee brings together policy leaders, education leaders and business leaders to discuss issues. The Committee provides an electronic resource guide that is available on the Committee website. The Committee holds webinars every other month with the Department of Public Instruction on subjects suggested by members of the Business Committee for Education.

The newest initiative joins First Gentleman Bob Eaves and middle school students. Students will be able to learn what a real work environment is like. The focus is to bring academic subjects into play with what students will want to do in their careers.

In the discussion, Carolina McCullen said SAS will invite high school students from the area to come to SAS and talk with engineers, statisticians, and others about the job possibilities that are available in today's job market. There will be two of these events.

Ms. Willoughby re-stated the time for the North Carolina Business Committee for Education, "Students At Work Week," January 31- February 4th 2011.

In response to questions, Tom Haffner said the rest of the world was thinking globally already and that the U. S. still had a legacy attitude and needed to get beyond that to realize that the market was global. He said all of the easy things had been done that the U. S. needed to design something better, work smarter and learn what the world needs.

Senator Brown, who is an auto dealer, said an auto technician is hard to find. What he has to do is hire someone who can change oil, or do a brake job and then send that employee to Atlanta or Washington, D. C. to go to manufacturer's school to build the years of training. He says workers with training are "just not there."

The Lt. Governor said that businesses were interested in what the Commission is doing and what is being developed. He said the businesses did not know just what would be expected of them. Oftentimes, he said the firms speak first in terms of money, but he said scholarships would be nice, but that involvement was the most important thing. He appointed a subcommittee to develop an outline of what the Commission expects of a business that wishes to become involved with the Commission:

Roger Shackleford
Caroline McCullen
Mike Murphy
Grant Godwin
Pam Townsend, Chair
Senator Harry Brown

The Lt. Governor said he recognized that Senator Brown would have a lot of other issues to address during the 2011 Session which would impact his serving on this subcommittee. The Lt. Governor said he would like to explore the idea of externships for teachers whereby the teachers could earn credits toward certification. Dr. Harrison said this was worth exploring.

Advisor to the Commission ~~member~~ Tony Habit ~~is one of the Commission members who have~~has been involved with the anchor groups and the Race To The Top federal funding. The Lt. Governor said that two of the Race To The Top programs,~~:~~ Agri-Science and STEM, had been recommendations of the JOBS Commission. He said the private sector partners had been working hard, really coming as "students" themselves, doing case studies, looking at schools that really work and visiting various schools. He said the partners need to understand that it was not a case of re-packaging an 80s form of education. The focus is on what is needed to be a viable, educated member of today's workforce. He said the partners felt this was fundamental to their growth.

Mr. Habit said that the partners became engaged in the work as the next stage. Then there could be leverage with the private sector for such things as externships and the like.

There are four working groups in development:

1. Energy—lead by Jeff Corbett of Progress Energy
2. Health and Life Sciences—Bob Greczyn, BCBS
3. Bio-Technology—Norris Tolson: Begins 1st quarter of 2011
4. Aero-Space—will begin 2nd quarter of 2011

The Lt. Governor congratulated Governor Perdue, Superintendent Atkinson, and SBE Chairman Harrison on the success in obtaining funds from the federal Race To The Top program. One of the critiques was that North Carolina needed a comprehensive approach to STEM education. These remarks introduced Dr. June Atkinson, Superintendent of Public Instruction.

Dr. Atkinson said North Carolina was blessed with so many STEM-related initiatives underway. Following a meeting with a group of people involved in STEM, including the STEM Advisory Group, there came the idea of working together to have a comprehensive STEM initiative in the State. She said the proposal would be presented to the State Board of Education so that the work would be institutionalized to the extent that it would last beyond the start-up time. The proposal seeks to bring all the various groups together to prevent duplication, have the right focus, share all the information and bring together everyone with STEM interests.

Angela Quick, Deputy Chief Academic Officer at DPI, presented the Commission with a graphic look at the various separate groups with STEM involvement. And she followed that with the view of how a statewide strategy would help with participation from the Commission's STEM Advisory Group. *(SEE ATTACHMENT: JOBS Commission, November 22, 2010.)* She said this would centralize the STEM goals, allow for results measurement and join with the JOBS Commission.

The proposal sees the central advisory group with four aims:

1. Advice to prevent duplication
2. Coordinate existing work group efforts
3. Advisee STEM initiatives with Race To The Top funds
4. Develop the comprehensive plan

Mr. Habit said he hoped there would a tie-in between secondary and post-secondary education to prevent fragmentation. He said the Education Cabinet should

consider a role in this effort. The Lt. Governor said this was something that should be pursued and that staffing could be worked out.

Statewide Stem Goals

Sam Houston, Co-Chair of the NC STEM Collaborative Advisory Committee, initiated the discussion saying that the discussion had been held in the previous presentation. He said a comprehensive plan will take into consideration all the good things being developed for Kindergarten through College. He said that taking on and "owning" such a plan was a key role for the JOBS Commission. Mr. Houston said the delineation of duties of various groups should be determined and the proposed committee should be able to determine that. He noted that a lot of the potential players that are state-funded will become involved, but he said other players who are not state-funded will want to be a part of the effort, too. He said the committee would be a good way to share the experiences that have lead to best practices for initiatives. He said that the current STEM Advisory Committee could play a part, and the Lt. Governor said that would be the case. Mr. Houston said there should be some method to obtain private funding to overcome the staffing barrier.

The Lt. Governor said there are a lot of good things going on around in the state. Grant Godwin noted that additional costs could be replaced by educating students to become tax paying members of society, reducing prisons costs, etc. Ms. McCullen said this is something has been needed for a long time and that Commission needed to undertake it. She agreed with Mr. Godwin that the agendas and turf battles should be put aside and think of the students.

Minutes were approved for the October 12th meeting. The next meeting will be December 16th.

There was a brief discussion of Commission meetings during the legislative session. The Lt. Governor said there would be a problem since the legislative staff personnel would be concentrated on the General Assembly work.

The meeting adjourned at 4:35 p.m.

Lt. Governor Walter Dalton, Chair, Presiding

Ted Harrison, Clerk

VISITOR REGISTRATION SHEET

JOBS — 11/22/2010

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
Elizabeth Hall	NC GA Intern
Amy Simms	DENR
Eleanor Herndon	NC REAL
Matt Farrell	NC SBA
Anna Marshall Gaines	Capstrat
Rob Matheson	Wake NCSU STEM ECHS
Barbara Kelley	Asia Society
Isaac Lake	NC New Schools Project
Allison Violette	Cumberland Co. Sch.
Angela Quick	NCDPI
Tricia Willoughby	NCBCE

VISITOR REGISTRATION SHEET

Jobs Study Com — 11-22-10

Name of Committee — Date

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
GREG GIFT	NC-DPI
TOM HAFFNER	P.T. INTERNATIONAL CORP. CHARLOTTE NC
Millie Rawand	NCCIH
Pat Harris	Orange County Schools
Dr. Denise Morton	Orange County Schools

VISITOR REGISTRATION SHEET

Name of Committee: Jobs. Study Comm. Date: 11-22-10

VISITORS: PLEASE SIGN IN BELOW AND RETURN TO COMMITTEE CLERK

NAME	FIRM OR AGENCY AND ADDRESS
BRENT LANE	UNC KENAN INSTITUTE
Bradford Sneeden	Governor Office
Mark Ezzell	NC STEM
Rita Spence	Lenoir County STEM Community Coll.
STEVEN HILL	"
Tom Vermillion	STEM East
Elmer Poe	ECU
ERIC LEAZER	NC DPI
Darlene Moss	NC DPI
FRANK TILL	Cumberland County Schools
PAUL STONE	NCRLA

Welcome to the New Media Consortium. *Is your organization interested in membership?* Learn more about us or Join NMC Now!

Second Life Virtual Early Higl School Program at East Caroli University

Posted October 16th, 2009 by collinss in high school online second life virtual

East Carolina University launched a new e-learning pilot for high school students in January 2009. The program offers high school students the opportunity to earn college credits by taking completely virtual and dynamic courses through Second Life. The students have a virtual presence (an avatar) and attend a syn real-time class, different from any other college credit online course f school students.

Components to ensure success include trained school-level facilitators; individual laptops to ensure access at school and home; technical supp ECU and Pitt County Schools; and college instructors with experience i teaching in Second Life.

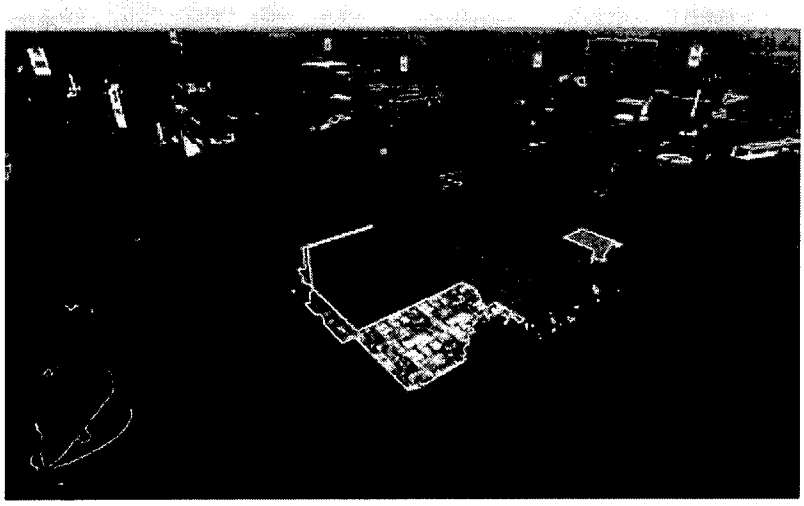
Unlike real life limitations, ECU's virtual campus has no "space crunch" growth can occur quickly without physical constraints. The campus is l the Teen Grid of Second Life, rented from NMC who provides support t Lab. The campus has formal learning spaces such as classrooms and lab and administrative offices, a library and resource center, a studio galle environments that immerse the students in learning.

During the Spring 2009 term, 18 students took 2 courses, Anthropology Introduction to Computers. This gave the students 6 college credit hou or any other UNC university. During the Fall of 2009, the program was expanded to include 35 students and 4 courses. The courses are Anthr Introduction to Computers, Web Site Design and Maintenance, and Engl (including a graduation project component).

The program will be expanded in the coming months to offer additiona opportunities to the students.

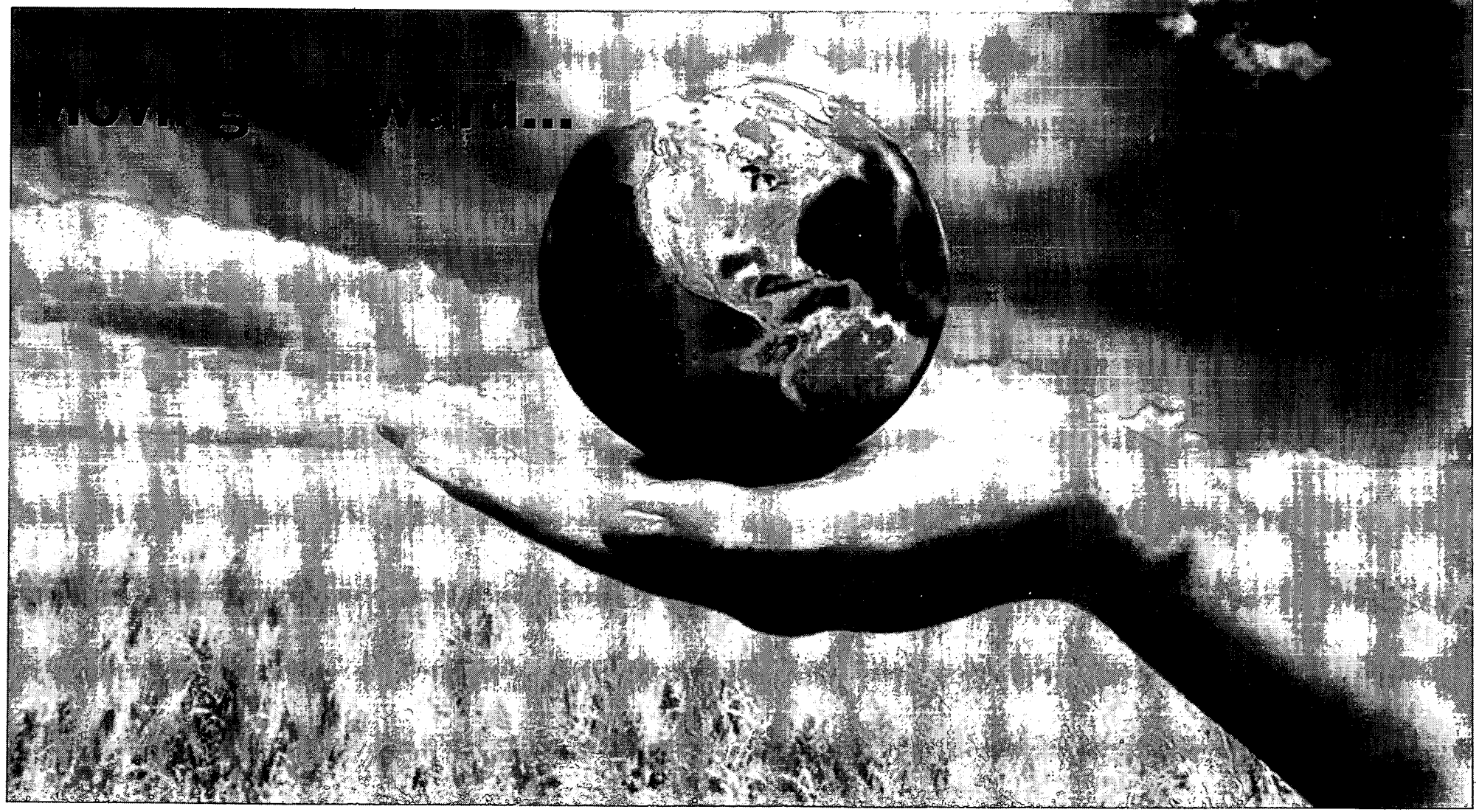
SHARE | Add new comment | 2801 reads

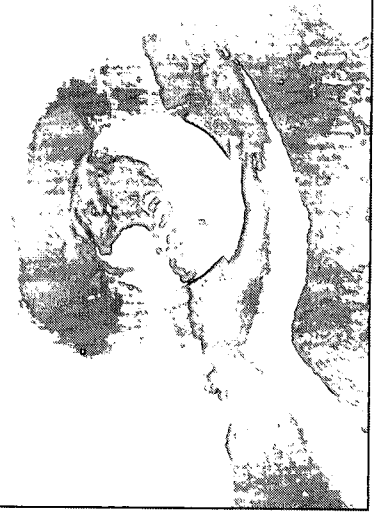
The New Media Consortium (NMC) is a community of hundreds of leading universities, colleges, museums, and research centers. The NMC stimulates and furthers the exploration and use of new media and technologies for learning and creative expression. All content Creative Commons. (more...)
how to join NMC | membership benefits | faq



Cumberland International Studies

Early College High School



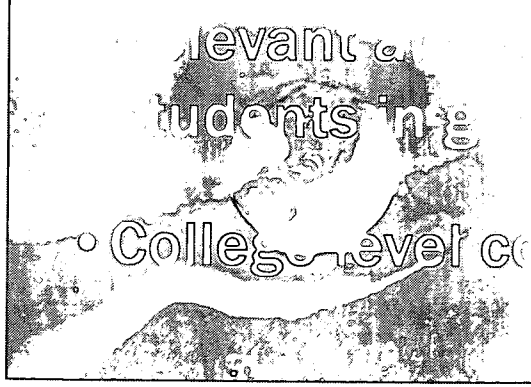


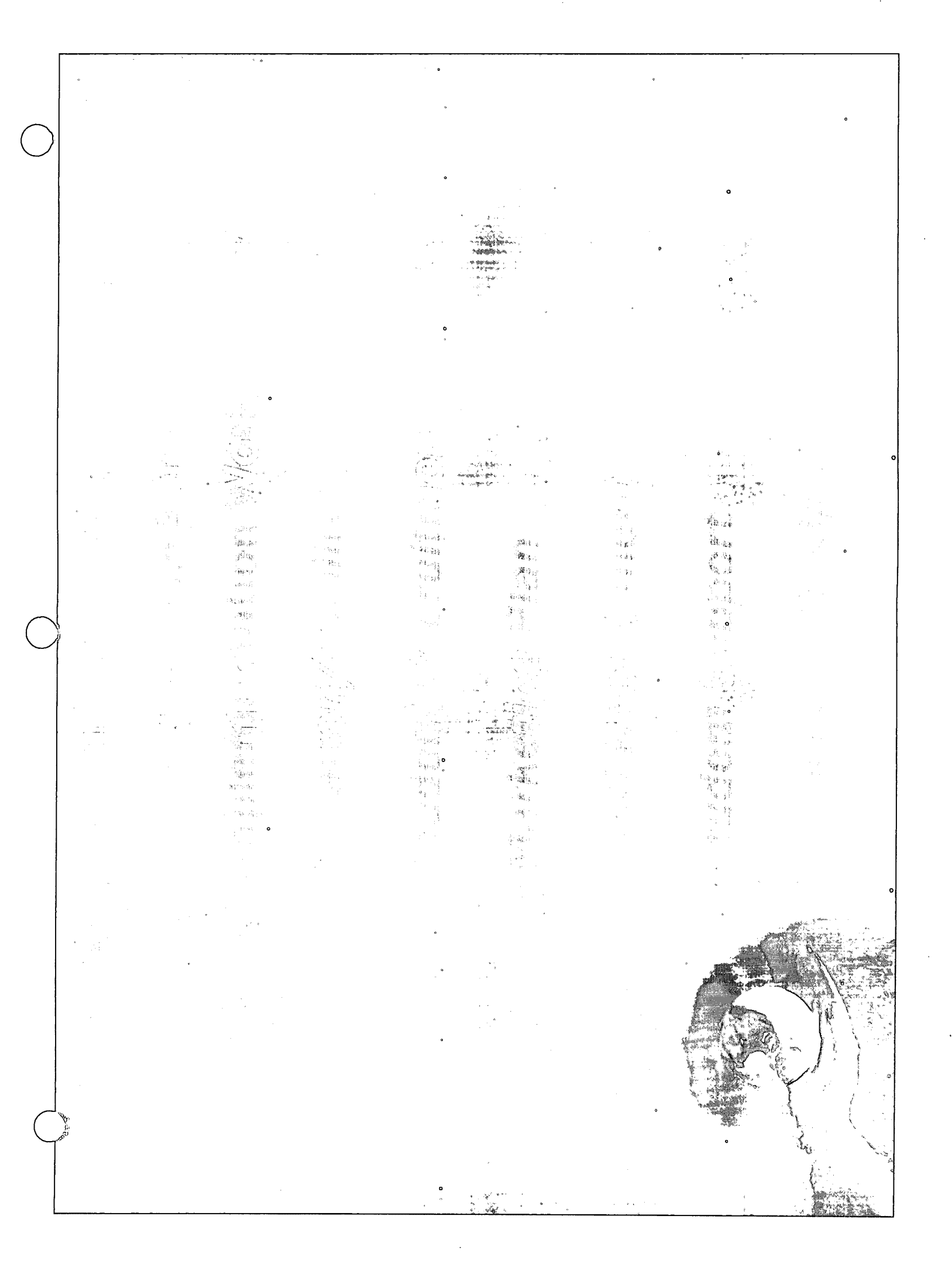
Mission

[illegible] and competitive [illegible] globally and [illegible] Diplomacy through dedication to [illegible]

[illegible] of [illegible] interests

[illegible] project-based [illegible] engages



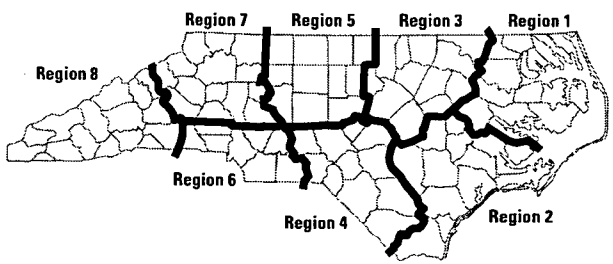


Regional Overlay Map

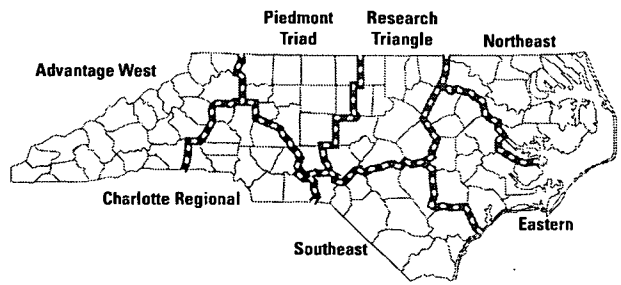
8 State Board of Education Regions
7 Economic Development Regions
24 Workforce Development Boards

KEY
Education Regions
Economic Regions
Workforce Development Boards
ALL COLORED COUNTIES

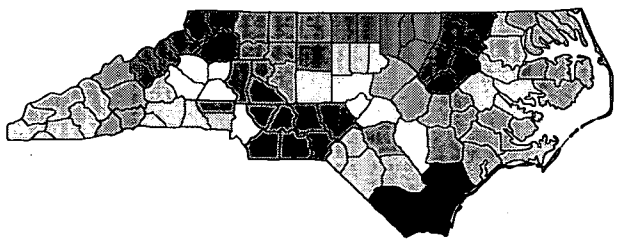
8 STATE BOARD OF EDUCATION REGIONS



7 ECONOMIC DEVELOPMENT REGIONS



24 WORKFORCE DEVELOPMENT BOARDS



Report on Alignment of Education Regions

with Economic Development Regions

Governance Committee

November 22, 2010

Governance Committee: Grant Godwin, Chair; Senator Harry Brown, Caroline McCullen, Susan Purser, Karl Rectanus

Recommendation:

Align Education Regions with Economic Development Regions through the realignment of twenty-one counties through the amendment of G.S. 115c-65, Subchapter III, Article 7.

Premise:

North Carolina has eight Education Regions and seven Economic Development Regions. Naturally, the counties within these regions are not aligned. In consideration of the objective to better coordinate economic development and education initiatives, it would be beneficial if the respective regions could be aligned. The Governance Committee was tasked by the Lieutenant Governor to assess and report to the JOBS Commission.

Background:

The state Constitution stipulated that the State Board of Education establish eight Education Regions and that eight of the eleven appointed board members be from those respective regions. However, the definition of those regions and the allocation of counties were not established by the Constitution, but by statute (G.S. 115c-65, Subchapter III, Article 7).

The seven Economic Development Regions are all recognized on equal basis as if they were established at the same time and manner, but there was actually five separate processes that occurred in approximately the same time period. Three of the regions, Advantage West, Northeast and Southeast, and their respective counties, were designated and established by statute in the 1993 budget bill. The Eastern Region was established by separate provision in the same act and counties were designated, but the counties were given the option to join the region alliance or not (they all elected to do so). The remaining three, Charlotte, Triad and Triangle were not established or supported by statute, but were established in approximately the same timeframe, but by alliances of chambers or other entities. The history has not been

tracked, but it is speculated that the last three noted were probably established first and were the inspiration for the other four to be established by statute. Since that time, the seven regions have functioned as driving forces for coordinating economic development activity within their regions.

Alignment Proposal:

The Governance Committee has analyzed the counties and regions with respect to the easiest manner for alignment of the Education Regions with the Economic Development Regions. The committee has determined alignment is possible through amendment of the statute under which the counties of the Education Regions were designated. The number of Education Regions would remain at eight, thus a Constitution Amendment would be avoided, but the regions would be aligned so that two of the Education Regions (7 and 8) fall within one of the Economic Development Regions (Advantage West). With Advantage West being the largest region with twenty-three counties (whereas the other six have eleven to sixteen), it can be rationalized that it is appropriate for there to be two Education Regions with the continuance of their respective appointees. Overall, it would be necessary to shift twenty-one counties, which we believe to be the smallest number that can be shifted in order to achieve alignment. Of the 21 counties that shift Education Regions, two Education regions (2 and 4) come out 'even' in that they each gain and lose four counties; region 1 gains one county; region 5 gains two counties; region 6 gains four counties; and, region 3 loses two counties. Therefore, it is hoped any 'political resistance' would not be significant in that most are even are higher.

The attached regional overlay map from the following website reflects the eight Education Regions and the seven Economic Development Regions (available map also reflects the twenty-four workforce development boards which they and the REISA's can be another question for alignment).
(www.ncpublicschools.org/docs/statesuperintendent/office/commissions/meetings/20090612/regional-map.pdf). The attached table reflects all the counties and their respective, current and realigned, economic development and education region status.

North Carolina Economic Development and Education Regions

Education Regions Re-aligned to fit Economic Development Regions

Effect on Education Regions of Proposed Re-Alignment

Reflected in Following Table

Education Region	# Current Counties	Counties Dropped	Counties Added	Post Align Counties	Diff
8	14			14	0
7	14	5		9	-5
6	8		4	12	4
5	10	1	3	12	2
4	11	4	4	11	0
3	15	6	4	13	-2
2	13	4	4	13	0
1	15	1	2	16	1
	100	21	21	100	0

Counties by Economic Development Region and Education Region

Note: Economic Development Regions are reflected by color. Counties that are proposed for re-alignment from their current Education Region are reflected in ***bold italics***. If approved, these twenty-one counties proposed for re-alignment would be re-designated by statute to new Education Region.

County	Econ Dev Region	Education Region
Cherokee	Adv West	8
Clay	Adv West	8
Graham	Adv West	8

Haywood	Adv West	8
Jackson	Adv West	8
Macon	Adv West	8
Swain	Adv West	8
Buncombe	Adv West	8
Henderson	Adv West	8
Madison	Adv West	8
Transylvania	Adv West	8
McDowell	Adv West	8
Polk	Adv West	8
Rutherford	Adv West	8
Avery	Adv West	7
Mitchell	Adv West	7
Yancey	Adv West	7
Alleghany	Adv West	7
Ashe	Adv West	7
Watauga	Adv West	7
Wilkes	Adv West	7
Burke	Adv West	7
Caldwell	Adv West	7
Cleveland	Charlotte	6
Mecklenburg	Charlotte	6
Anson	Charlotte	6
Cabarrus	Charlotte	6
Lincoln	Charlotte	6
Stanly	Charlotte	6

Union	Charlotte	6
Gaston	Charlotte	6
Alexander	***Charlotte***	***7***
Catawba	***Charlotte***	***7***
Iredell	***Charlotte***	***7***
Rowan	***Charlotte***	***7***
Carteret	Eastern	2
Craven	Eastern	2
Duplin	Eastern	2
Greene	Eastern	2
Jones	Eastern	2
Lenoir	Eastern	2
Onslow	Eastern	2
Pamlico	Eastern	2
Wayne	Eastern	2
Pitt	***Eastern***	***1***
Edgecombe	***Eastern***	***3***
Nash	***Eastern***	***3***
Wilson	***Eastern***	***3***
Beaufort	Northeast	1
Bertie	Northeast	1
Hertford	Northeast	1
Martin	Northeast	1
Camden	Northeast	1
Chowan	Northeast	1

Currituck	Northeast	1
Dare	Northeast	1
Gates	Northeast	1
Hyde	Northeast	1
Pasquotank	Northeast	1
Perquimans	Northeast	1
Tyrrell	Northeast	1
Washington	Northeast	1
Halifax	***Northeast***	***3***
Northampton	***Northeast***	***3***
Forsyth	Piedmont	5
Rockingham	Piedmont	5
Stokes	Piedmont	5
Surry	Piedmont	5
Yadkin	Piedmont	5
Guilford	Piedmont	5
Davidson	Piedmont	5
Alamance	Piedmont	5
Caswell	Piedmont	5
Randolph	***Piedmont***	***3***
Montgomery	***Piedmont***	***4***
Davie	***Piedmont***	***7***
Orange	Research Tri	3
Durham	Research Tri	3

Franklin	Research Tri	3
Granville	Research Tri	3
Person	Research Tri	3
Vance	Research Tri	3
Warren	Research Tri	3
Johnston	Research Tri	3
Wake	Research Tri	3
Moore	***Research Tri***	***4***
Harnett	***Research Tri***	***4***
Lee	***Research Tri***	***4***
Chatham	***Research Tri***	***5***
Richmond	Southeast	4
Bladen	Southeast	4
Hoke	Southeast	4
Robeson	Southeast	4
Scotland	Southeast	4
Cumberland	Southeast	4
Columbus	Southeast	4
Sampson	***Southeast***	***2***
Brunswick	***Southeast***	***2***

New Hanover	*Southeast*	*2*
Pender	*Southeast*	*2*

Request for Information

from organizations interested in hosting a

Regional School of Agriscience and Biotechnology

During the 2009 legislative session, the North Carolina General Assembly established the Agriscience and Biotechnology Regional School Planning Commission ("the Commission"), charging it with developing and planning a regional school of agriscience and biotechnology to open in the 2011-2012 school year. Specifically, the Commission must recommend to the NC General Assembly by January 1, 2011 a governance structure and funding model options as well as recommendations regarding several additional operational details. (Please see enabling legislation, Attachment A.)

This Request for Information (RFI) is intended to gauge regional interest and support for participating in a multi-district school model and to provide information that will help the Commission identify and rank potential sites for such a school. Parties interested in providing a site for and operating a regional (multi-district) school of agriscience and biotechnology in their region should expect final governance and funding mechanisms, as well as final site selection (region), to be defined by the General Assembly, and that the regional school will have to operate within those pre-defined parameters. Interested parties should recognize that the Commission's recommendations are only recommendations and are not binding on the General Assembly. The final governance structure and funding model may not match the Commission's recommendations (Please see the DRAFT governance and funding recommendations attached to this RFI, Attachment B).

During its initial meeting, the Commission identified a series of guiding principles around which the school should be developed and which the Commission believes are critical to success for a regional school. These guiding principles, listed below, reflect Commission thinking about the appropriate culture and purpose of a regional school designed to provide rigorous academic instruction and to contribute positively to the communities and the economy of the region it serves.

Guiding principles for regional schools should embrace and include:

- Governance representative of school systems in the partnership
- Serving students and region where there is the most need
- Community engagement
- Stakeholder Input
- Transparency
- Open Communication
- Delivery on expectations/promises
- Building on local assets and the local economy
- Strong partnerships with institutions of higher education
- Strong involvement with regional business partners

In the interest of serving these guiding principles, the Commission invites interested organizations to partner in developing a high-level plan for hosting the first North Carolina Regional School, focused on agriscience and biotechnology. The Commission will use the information provided to recommend a site and partnership for this initial school, which the Commission hopes will serve as a model for additional schools around the state in the future.

Partnerships interested in opening/hosting the school should provide the following information:

A. Identify the members of the partnership/consortium and provide clear evidence of commitment by the partners. Partnerships should include school districts and may also include other institutions of higher education, businesses, and/or non-profit organizations.
B. Describe the regional economy, citing the biotech/agricultural assets in your region. Describe the economic priority of agriscience and biotechnology per the priorities of the JOBS Commission report/findings.
C. Provide or estimate the level of student interest in agriscience and biotechnology, and how the partnership expects placement of the regional school in its region to impact student achievement, graduation rates, and under-represented populations (first-generation college students, minorities, and females). If the partnership has supporting data, please indicate the data source(s).
D. Describe your connectivity to the agriculture and biotechnology resources of the North Carolina Research Campus and North Carolina State University.
E. The partnership should identify proposed physical facilities for the regional school.

Information received from each partnership will be reviewed and ranked by the Commission prior to completion of its recommendations to the General Assembly. Primary ranking criteria reflect several Commission guiding principles and include local needs, availability of production assets to support the school, and alignment with regionally-defined economic development priorities. Alignment with other Commission-defined guiding principles will be considered as secondary criteria.

- **Responses to this RFI are due to the Commission by 12 PM (noon) December 17, 2010. Responses submitted after this date and time will not be reviewed.**
- **Responses are required for each item (A through E) above. Limit total response length to no more than 5 pages (double-spaced, 12 point font, 1-inch margins).**
- **Responses MUST be signed by both board of education chairpersons <u>and</u> superintendents of all participating districts. Reponses without all required signatures will not be reviewed.**
- Letters of support/commitment from partners and community stakeholders may be included as an appendix and do not count against the 5-page limit, however such letters should **NOT** be used to provide the responses to the required items above.
- Responses may be sent electronically via email to Rob Hines, NCDPI Director of LEA Projects, at rhines@dpi.state.nc.us. Please include "Biotech RFI Response" in the subject line and attach your response.

Please direct questions to Rob Hines at 919.807.3244 or via email at the address noted above.

Proposed high-level governance and funding structure for the North Carolina School of Agriscience and Biotechnology*

Governance

The General Assembly should establish a Board of Directors for the school. The Commission will recommend board members be appointed as follows:

- One sitting member from the Board of each participating school district, appointed for a term of four years.
- Three members representing the business community in the Economic Development Region, appointed by the regional Economic Development Commission. At least one of these representatives must be from the county in which the school is located. Initial appointments for a term of two years with subsequent appointments for a term of four years.
- One member elected by the membership of a Parent Advisory Council. The local board of education in each participating district shall nominate two parents with children attending the regional school to sit on the Parent Advisory Council. Initial appointments for a term of two years with subsequent appointments for a term of four years, or until the parent's child graduates from the school, whichever comes first.
- The sitting superintendent of the school district in which the school is located.
- One sitting superintendent selected by the superintendents of the other participating districts.
- The Dean of the North Carolina State University College of Agriculture, or his/her designee.
- The President of the Community College found within the geographic footprint of the regional school; if multiple Community Colleges are within this geographic footprint, the Presidents jointly should select a representative from among their number.

- The Board should meet at least four times a year.
- The Board should determine its own rules of procedure and be permitted to delegate to such committees it may create as it deems appropriate.
- The Board should be empowered to appoint and set the salary of a Principal who exercises those duties and powers delegated by the Board.
- The Board should be empowered to establish or adopt the standard course of study for the School.
- The Board should be required to design its programs to at least meet the student performance standards adopted by the State Board of Education and any additional student performance standards commensurate with providing a rigorous course of study for students bound for an institution of higher education.
- The Board should conduct student assessments required by the State Board of Education.
- The Board should provide the opportunity to earn or obtain credit towards degrees from a community college or a constituent institution of The University of North Carolina.
- The Board should adopt an innovative school calendar that exceeds 180 days and enables students to take advantage of internships, projects, or other hands-on learning experiences related to agriculture and biotechnology.

Funding

Several potential funding option recommendations are under consideration, including:

- Full state funding that would at least partially preserve LEA ADM funds.
- A combination of state and private funding that would at least partially preserve LEA ADM funds.

* Please note: This information is in DRAFT form and is subject to change. The General Assembly may or may not choose to implement Commission recommendations.

- A cost-sharing arrangement that would re-direct part of LEA ADM funding to the regional school and remaining funding needs would be met using other state and/or private sources.

* Please note: This information is in DRAFT form and is subject to change. The General Assembly may or may not choose to implement Commission recommendations.

PART XXIX. AGRISCIENCE AND BIOTECHNOLOGY REGIONAL SCHOOL PLANNING COMMISSION (S.B. 1199)

SECTION 29.1. There is established the Agriscience and Biotechnology Regional School Planning Commission. The purpose of the Commission shall be to develop and plan a regional school of agriscience and biotechnology to open in the 2011-2012 school year. The Commission shall be located administratively in the Department of Public Instruction but shall exercise its powers and duties independently of the Department of Public Instruction. The Department of Public Instruction shall provide for the administrative costs of the Commission and shall provide staff to the Commission.

SECTION 29.2. The Commission shall consist of up to nine members appointed by the chair of the State Board of Education. Appointments shall be made no later than September 1, 2010.

SECTION 29.3. The Agriscience and Biotechnology Regional School Planning Commission shall develop a plan for a regional school of agriscience and biotechnology to open in the 2011-2012 school year and shall ensure that the model is replicable, sustainable, and scaleable. In the development of its plan, the Commission shall:

(1) Consider the regional school's governance, funding for operational and capital needs, personnel, admissions and assignment of students, transportation, school food services, and other issues the Commission deems relevant.
(2) Solicit proposals from interested regions seeking to host the school and identify a location for the regional school.
(3) Identify potential business partners for the regional school.
(4) Consult with North Carolina State University and the NC Research Campus and establish connections between those institutions and the regional school.

SECTION 29.4. The Agriscience and Biotechnology Regional School Planning Commission shall report on its recommended plan to the State Board of Education, the Joint Legislative Joining Our Businesses and Schools (JOBS) Study Commission, and the Joint Legislative Education Oversight Committee by January 1, 2011.

HOSPITALITY
EDUCATION
FOUNDATION
Creating Opportunities. Changing Lives.

JOBS COMMISION

Early College Hospitality & Tourism Steering Committee

DPI - Rebecca Payne, Director C&T Education
Local Career and Technical Director - TBD
Mathematics consultant – TBD
Western Carolina - Dr. Louis Buck, Dean, College of Business
Advantage West – Scott Hamilton, President
Harrah's Cherokee – TBD
Kimberly Reynolds – JOBS Commission
Alyssa Barkley – NC HEF
Susan Seay – NC ProStart Coordinator
Paul Stone – NCRLA, President

6036 Six Forks Road • Raleigh • North Carolina • 27609-3899
Phone: (800) 582-8750 • Fax: (919) 844-0190 • www.ncrla.biz

CTE Business Network
Businesses Connecting with Education: A Win-Win Situation

Creating Partnerships through Meaningful Collaboration

- **Business Symposium October 2000**
  - Workforce Development in the New Millennium: North Carolina's Economic Edge
- **Regional Symposia May 2003 (6)**
  - An Advocate for Change: What Educators and Business have to Say about Career-Technical Education
- **Symposia developed recommendations and suggestions**

Symposia Suggestions

- The most consistent and frequently mentioned suggestion was to re-invent the CTE image.
- Offer honor or advanced credit for CTE courses
- Include the creation of a full-time state level CTE Director position
- Capitalize on Huskins/Dual Enrollment efforts
- Continue Articulation Efforts
- Create and maintain business-education advocacy groups that address CTE issues.
- Develop follow-up surveys for stakeholders

Business Network: Creating Partnerships through Meaningful Collaboration

- Develop a business-education advocacy group that addresses Career and Technical Education issues on a regular basis

- Establish a permanent liaison between business and education that provides for structured continuous communications at multiple levels for Career and Technical Education

North Carolina Association of Career and Technical Education Administrators' Business Network

Search this site

"Creating Partnerships through Meaningful Collaboration"

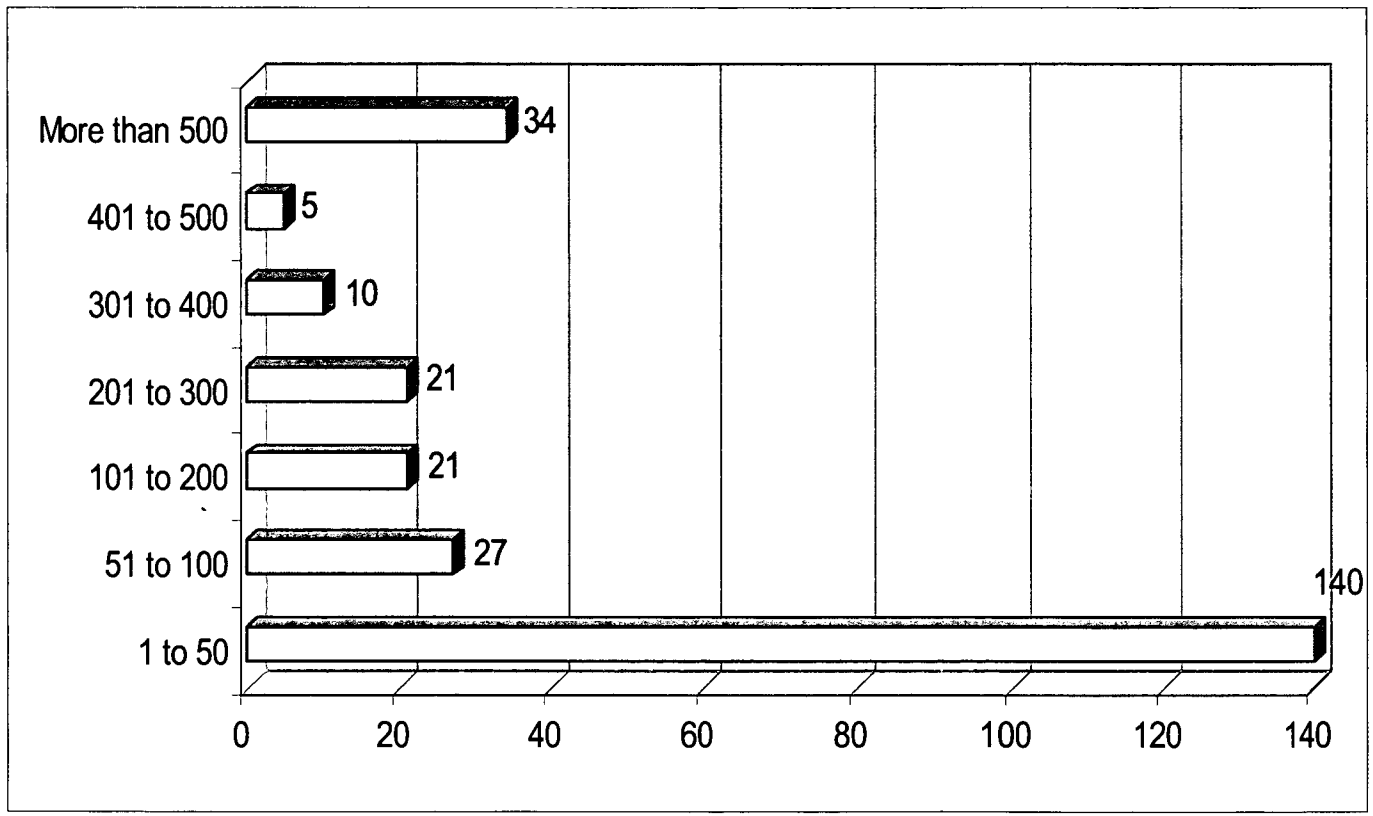
The North Carolina Association of Career and Technical Education Administrators have established a statewide network of North Carolina business and industry representatives in support of Career and Technical Education. The association desires to strengthen the connection between education and the workplace helping us meet our Career and Technical Education Mission of empowering all students to be successful citizens, workers and leaders in a global economy.

The purpose of the North Carolina Career and Technical Education Business Network is to:

- Create and maintain a business-education advocacy group that addresses Career and Technical Education issues on a regular basis, and;

- Establish a permanent liaison between business and education that provides for structured continuous communications at multiple levels for Career and Technical Education

To provide input, receive periodic pertinent information pertaining to CTE and receive future invitations to participate in activities such as

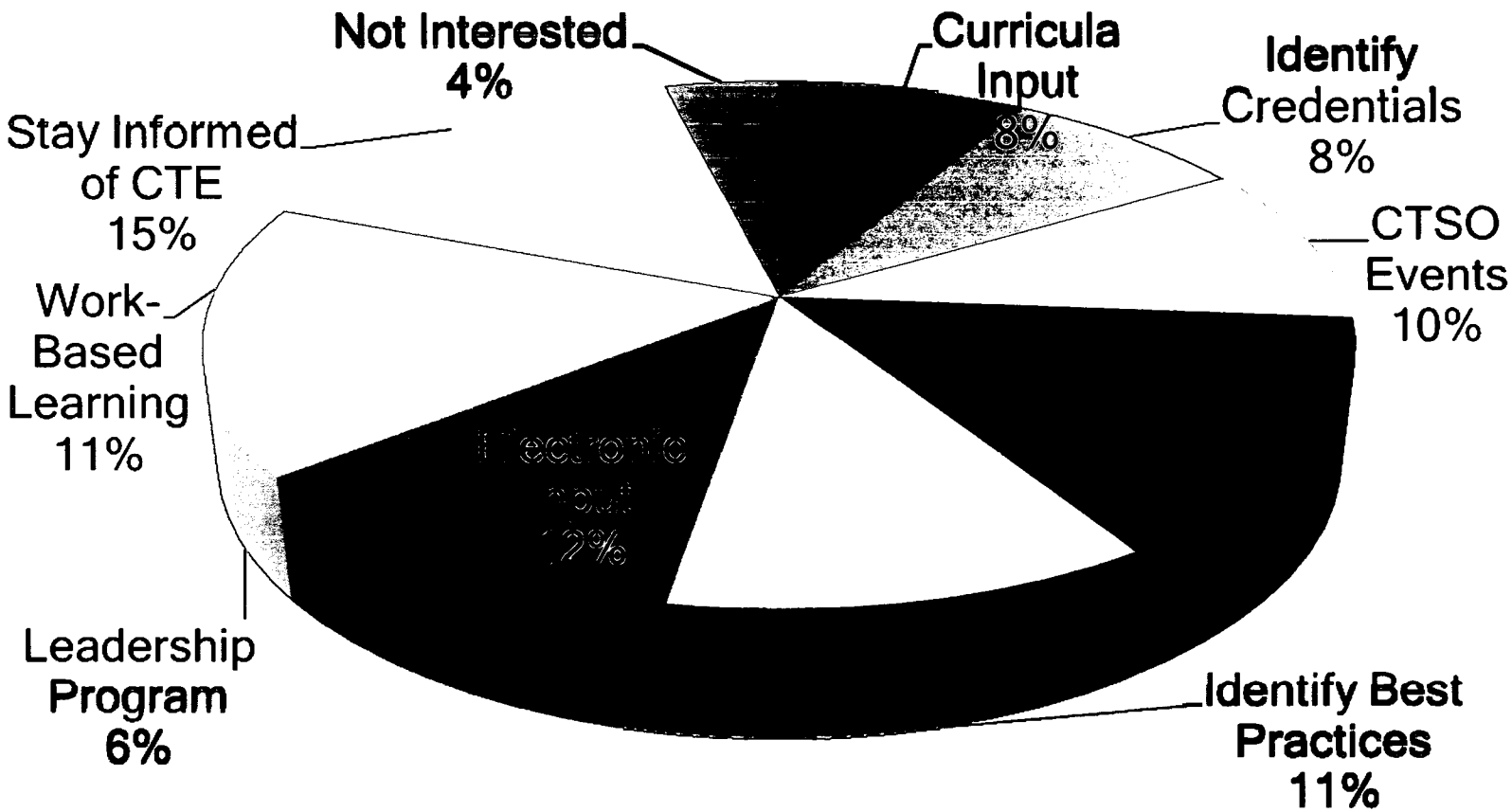


Represented:

- •258 Business/Industry
- •Every Region
- •Every Career Cluster
- •65 Counties

- 73% represented business/industry with 1-200 employees
- 12% represented business/industry with more than 201-400 employees
- 15% represented business/industry with 401 or more employees

Business Network Participation Interest

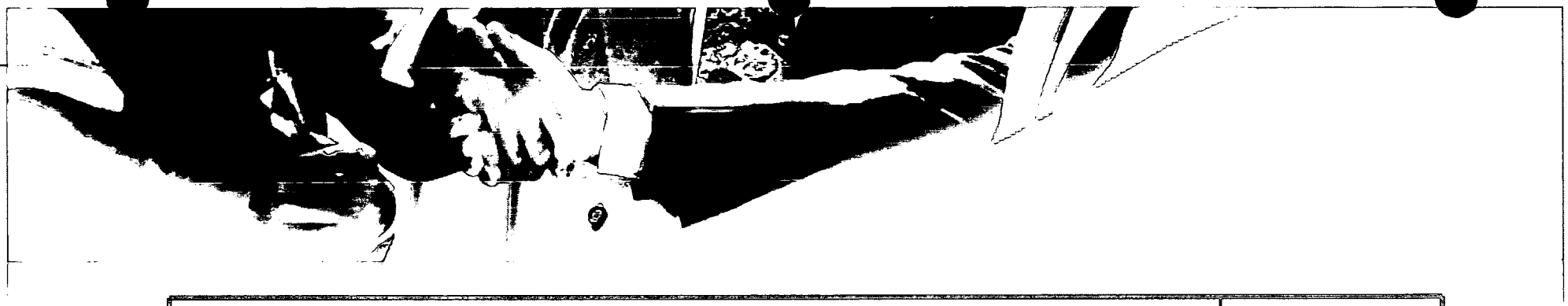


English Language (spoken)	69%
Reading Comprehension (in English)	79%
Writing in English (grammar, spelling, etc.)	66%
Mathematics	61%
Science	11%
Government/Economics	6%
Humanities/Arts	1%
Foreign Languages	3%
History/Geography	1%
Other, please specify	9%

Please select the top three basic knowledge skills that you believe are important for new employees.

English Language (spoken)	41%
Reading Comprehension (in English)	52%
Writing in English (grammar, spelling, etc.)	49%
Mathematics	54%
Science	31%
Government/Economics	17%
Humanities/Arts	5%
Foreign Languages	31%
History/Geography	2%
Other, please specify	18%

Please select the top three basic knowledge skills that may become more important in the next five to ten years for new employees.



Adaptability/Flexibility	26%
Dedication/Hard-Working/Work Ethic/Tenacity	55%
Dependability/Reliability/Responsibility	63%
Honesty/Integrity/Morality	61%
Loyalty	2%
Positive Attitude/Motivation/Energy	31%
Professionalism	15%
Self Motivated/Ability to Work with Little Supervision	22%
Willingness to Learn	25%
Other, please specify	3%

Please select the top three personal qualities that you believe new employees should possess.

Adaptability/Flexibility	56%
Dedication/Hard-Working/Work Ethic/Tenacity	30%
Dependability/Reliability/Responsibility	37%
Honesty/Integrity/Morality	40%
Loyalty	5%
Positive Attitude/Motivation/Energy	27%
Professionalism	24%
Self Motivated/Ability to Work with Little Supervision	42%
Willingness to Learn	36%
Other, please specify	2%

Please select the top three personal qualities that may become more important in the next five to ten years that you believe new employees should possess.

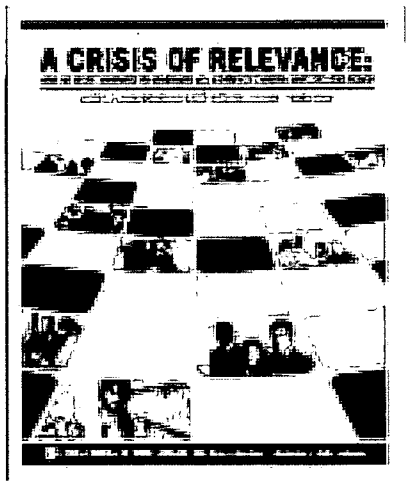
Critical Thinking/Problem Solving	81%
Oral Communications	54%
Written Communications	34%
Teamwork/Collaboration	55%
Diversity	8%
Information Technology Application	29%
Leadership	10%
Creativity/Innovation	22%
Social Responsibility	7%
Other, please specify	1%

Please select the top three applied skills that you believe new employees should possess.

Critical Thinking/Problem Solving	65%
Oral Communications	32%
Written Communications	24%
Teamwork/Collaboration	45%
Diversity	23%
Information Technology Application	43%
Leadership	21%
Creativity/Innovation	31%
Social Responsibility	16%
Other, please specify	1%

Please select the top three applied skills that may become more important in the next five to ten years that you believe new employees should possess.

Crisis of Relevance Survey



- 703 Stakeholders provided input including Business Network
- Provided Results to CTE Administrators and Business Network
- Provided Crisis of Relevance panel discussion at Fall Conference

Business in Schools - A University Structure

(UNC Charlotte School of Engineering)

- Industry Advisory Board
- Business Development Coordinator
- Social Hours for Professors & Industry
- Industry Sponsorships, Student Resumes, Industry Panels
- Sr. Project - Students + Business Partners + Prof. Mentors
- Bi-monthly Project Reviews - Rubrics & Progress Meetings
- Industry Presentations & Trade Show Finale
- Awards by Deans, Professors, Industry

Business in Schools - A High School Structure

Academy of Engineering Program/CTE Curriculum

- Advisory Board Purpose - Relevancy & Focus
- AoE Advisory Board at HHS
  - Engineers, Business Leaders, UNCC & CPCC Engineering Staff, HHS School Academy Staff
- Advisory Board Committees - NAF Structure
  - Internship, Public Relations/Advocacy Committee, Fundraising , Student Recruitment & Curriculum

Business in Schools - A High School Structure

AoE Advisory Board Functions

- Marketing/Recruitment Material Development
- Fundraiser flyers, ASK preparation, Program FAQ's
- Board Strength Matrix for Curriculum Teachers
- "What Engineers Do" Program for Students & Teachers
- Arrange Business Contacts, Field Trips, Class Room involvement
- Curriculum Reviews & Relevancy
- Mentor Students, Teachers, Support Guidance Counselors
- Identify Internship Opportunities
- Develop Board Sustainability

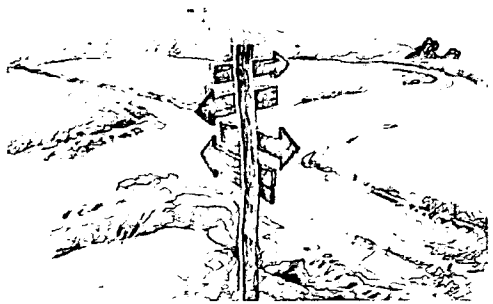
Business in Schools - A Regional Structure

AoE Regional Board

- Executive Board & CTE Directors - Actions
  - Regional Meetings of Board Chairs, CTE Directors, Program Directors
  - Cross Pollinate Program Initiatives, Coordinate Direction
  - Regional Level Chamber Involvement
  - Connect Local Business Leaders
  - Although this is the current structure for the AoE Programs, it can include any curriculum.

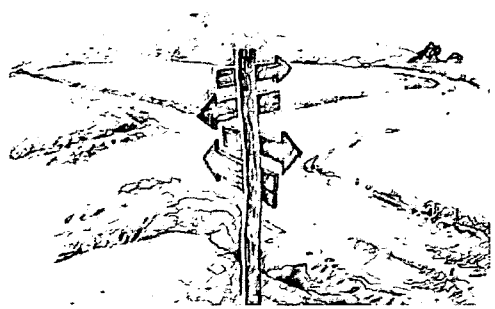
Assist local CTE administrators to:

- Connect with business/industry and economic developers
- Provide industry cluster information determining local labor market alignment to career cluster
- Establish communication links with local economic developers and local CTE administrators



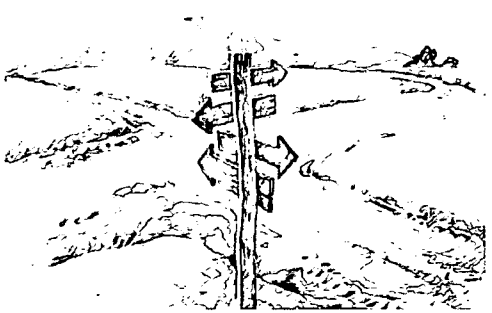
Assist CTE regional coordinators working directly with local administrators and service groups to:

- Facilitate regional collaboration with stakeholders
- Promote the 'power of regionalism'
- Provide industry cluster presentations to regional groups
- Promote CTE programs/best practices in regional partnership communiqués and websites
- Continue to provide partnership framework and guidance to local administrators for business partnership development



Assist state CTE staff to:

- Align industry clusters to career clusters providing frameworks of collaboration
- Develop a statewide system of regional collaboration establishing a network of stakeholders
- Develop business & industry champions/advocates for each of the 16 career clusters
- Provide direction with strategic planning focused on the competitive positioning of CTE in North Carolina



Value added by Network

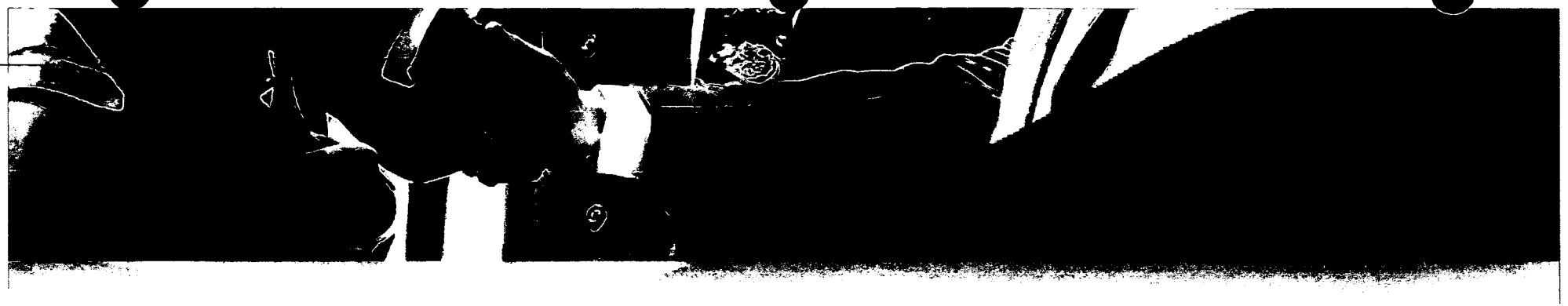
- Increase Graduation Rate
- Reduce Dropout Rate
- Create Relevant Curriculum
- Response to student certification and credentials
- Increase post-secondary technical credits earned by students
- Provide mentorship and better informed students

Our Challenge-

How do we align Career and Technical Education, Career Ready Commission and JOBS effort to better prepare our students for the 21st Century?

Graduation Rate of Concentrators

	2007	2008
CTE concentrators in four-year graduation Cohort	81.7%	86.5%
All NC students in four-year graduation cohort	69.5%	70.3%



Students Earning Postsecondary Technical Credit

Credit earned in 2007-2008	10,074
Credit earned in 2001-2002	759

https://sites.google.com/site/ctebusedpartnership/

North Carolina Association of Career and Technical Education Administrators' Business Network

CTE Business Network
Businesses Connecting with Education: A Win-Win Situation

Recommended Action: Increase the emphasis on the value of Career and Technical Student Organization (CTSO) involvement in developing academic, technical and leadership skills by increasing the number of students participating in CTSOs. ***(NC CTE Strategic Plan)***

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	85 12.10%	13 13.80%	16 13.80%	0 0.00%	3 23.10%	44 12.00%	9 8.60%
2 Medium Priority	261 37.10%	28 29.80%	57 49.10%	2 25.00%	6 46.20%	133 36.20%	35 33.30%
3 High Priority	357 50.80%	53 56.40%	43 37.10%	6 75.00%	4 30.80%	190 51.80%	61 58.10%

Recommended Action: Validate the career-ready status of every high school graduate by increasing the measures being developed as part of the Department of Public Instruction Accountability Curriculum Reform (ACRE) work, the National Career Readiness Certificate, other industry recognized use of instruments that measure skills employers value and the student's capacity to succeed beyond high school (examples of such assessments include accountability certifications and/or community college placement tests).

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	84 11.90%	12 12.80%	18 15.50%	1 12.50%	2 15.40%	43 11.70%	8 7.30%
2 Medium Priority	298 42.40%	36 38.30%	49 42.20%	0 0.00%	4 30.80%	165 45.00%	44 41.90%
3 High Priority	321 45.70%	46 48.90%	49 42.20%	7 87.50%	7 53.80%	159 43.30%	53 50.50%

Recommended Action: Create and support a unified statewide effort to improve science, technology, computer science, engineering and math education and strengthen efforts to provide all students quality instruction in these subjects throughout their K-12 education.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	36	3	2	0	0	20	11
	5.10%	3.20%	1.70%	0.00%	0.00%	5.40%	10.00%
2 Medium Priority	184	25	20	0	0	118	21
	26.20%	26.60%	17.20%	0.00%	0.00%	32.20%	20.00%
3 High Priority	483	66	94	8	13	229	73
	68.70%	70.20%	81.00%	100.00%	100.00%	62.40%	69.50%

Recommended Action: Implement best practices of innovation in high school re-design, provide replication incentives and adopt the Southern Regional Education Board's (SREB) "10 Key Principles for New State School Accountability" to guide all high school reform efforts.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	108	12	19	1	1	57	18
	15.40%	12.80%	16.40%	12.50%	7.70%	15.50%	17.10%
2 Medium Priority	321	43	46	3	9	174	46
	45.70%	45.70%	39.70%	37.50%	69.20%	47.40%	43.80%
3 High Priority	274	39	51	4	3	136	41
	39.00%	41.50%	44.00%	50.00%	23.10%	37.10%	39.00%

Recommended Action: Require all schools with graduation rates under 75 percent for two out of three years to undergo a redesign based on one of the identified best practices.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	146 20.80%	16 17.00%	13 11.20%	3 37.50%	2 15.40%	96 26.20%	16 15.20%
2 Medium Priority	291 41.40%	38 40.40%	44 37.90%	0 0.00%	8 61.50%	150 40.90%	51 48.60%
3 High Priority	266 37.80%	40 42.60%	59 50.90%	5 62.50%	3 23.10%	121 33.00%	38 36.20%

POLICY GOAL 4: Expand the assistance available to high school students to enable them to make both wise academic and career choices and achieve their goals for the future.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	32 4.60%	7 7.40%	7 6.00%	0 0.00%	0 0.00%	15 4.10%	3 2.70%
2 Medium Priority	170 24.20%	20 21.30%	33 28.40%	1 12.50%	2 15.40%	96 26.20%	18 17.10%
3 High Priority	501 71.30%	67 71.30%	76 65.50%	7 87.50%	11 84.60%	256 69.80%	84 80.00%

Recommended Action: Support the modification of existing North Carolina State Board of Education policy to assign every high school student a career coach or graduation coach mentor and require students to work with this mentor to develop a career plan to help them connect their academic studies to professional goals for the future.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	137 19.50%	20 21.30%	23 19.80%	1 12.50%	2 15.40%	71 19.30%	20 19.00%
2 Medium Priority	221 31.40%	29 30.90%	27 23.30%	2 25.00%	7 53.80%	129 35.10%	27 25.70%
3 High Priority	345 49.10%	45 47.90%	66 56.90%	5 62.50%	4 30.80%	167 45.50%	58 55.20%

Recommended Action: Make every high school teacher and school counselor knowledgeable about career planning resources and the 16 National Career Clusters (with emphasis on those career clusters that offer the most job market demand in North Carolina) so these educators can offer students accurate and effective career development assistance.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	63 9.00%	7 7.40%	9 7.80%	0 0.00%	1 7.70%	41 11.20%	5 4.50%
2 Medium Priority	186 26.50%	25 26.60%	27 23.30%	0 0.00%	4 30.80%	111 30.20%	19 18.10%
3 High Priority	454 64.60%	62 66.00%	80 69.00%	8 100.00%	8 61.50%	215 58.60%	81 77.10%

Recommended Action: Develop a framework for how the N.C. Chamber and the N.C. Business Committee for Education and other organizations can influence teacher training and professional development at the state, district and school levels to increase business experience and knowledge among educators.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	102 14.50%	13 13.80%	11 9.50%	0 0.00%	2 15.40%	64 17.40%	12 10.90%
2 Medium Priority	307 43.70%	46 48.90%	50 43.10%	2 25.00%	6 46.20%	160 43.60%	43 41.00%
3 High Priority	294 41.80%	35 37.20%	55 47.40%	6 75.00%	5 38.50%	143 39.00%	50 47.60%

POLICY GOAL 5: Connect business leaders with educators in a unified effort to help students understand the relevance of their education to their future goals and prepare them with the knowledge, talent and skills valued and needed in today's workplace.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	28 4.00%	5 5.30%	3 2.60%	0 0.00%	2 15.40%	14 3.80%	4 3.60%
2 Medium Priority	194 27.60%	28 29.80%	20 17.20%	1 12.50%	3 23.10%	112 30.50%	30 28.60%
3 High Priority	481 68.40%	61 64.90%	93 80.20%	7 87.50%	8 61.50%	241 65.70%	71 67.60%

Recommended Action: Create business/industry advisory councils or roundtables at the school and/or district levels to bring together principals, superintendents, local boards of education and members of each area's business community.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	73 10.40%	9 9.60%	7 6.00%	0 0.00%	3 23.10%	40 10.90%	14 12.70%
2 Medium Priority	267 38.00%	39 41.50%	37 31.90%	2 25.00%	5 38.50%	151 41.10%	33 31.40%
3 High Priority	363 51.60%	46 48.90%	72 62.10%	6 75.00%	5 38.50%	176 48.00%	58 55.20%

Recommended Action: Create and grow business/education advocacy groups that are aligned to the seven economic development regions to address educational issues on a regional level.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	96 13.70%	13 13.80%	11 9.50%	1 12.50%	2 15.40%	57 15.50%	12 11.40%
2 Medium Priority	320 45.50%	40 42.60%	53 45.70%	3 37.50%	5 38.50%	164 44.70%	55 52.40%
3 High Priority	287 40.80%	41 43.60%	52 44.80%	4 50.00%	6 46.20%	146 39.80%	38 36.20%

Recommended Action: Use Lieutenant Governor Walter Dalton's JOBS Commission to engage key business leaders in addressing education issues at the regional and state level.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	124 17.60%	13 13.80%	24 20.70%	0 0.00%	3 23.10%	69 18.80%	15 14.30%
2 Medium Priority	328 46.70%	41 43.60%	47 40.50%	4 50.00%	5 38.50%	180 49.00%	51 48.60%
3 High Priority	251 35.70%	40 42.60%	45 38.80%	4 50.00%	5 38.50%	118 32.20%	39 37.10%

Recommended Action: Support the implementation of the NC Dept. of Public Instruction's longitudinal student record data system to identify and track students through every level of education and into the labor market and share this data with education and business leaders as well as economic developers.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	129 18.30%	11 11.70%	25 21.60%	1 12.50%	2 15.40%	80 21.80%	10 9.10%
2 Medium Priority	295 42.00%	39 41.50%	41 35.30%	4 50.00%	5 38.50%	156 42.50%	50 47.60%
3 High Priority	279 39.70%	44 46.80%	50 43.10%	3 37.50%	6 46.20%	131 35.70%	45 42.90%

Policy Goal 6: Build on existing governance structures to bring state, regional and local leaders in education, workforce and economic development together to support and grow North Carolina's economy.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	70 10.00%	8 8.50%	12 10.30%	0 0.00%	2 15.40%	40 10.90%	8 7.30%
2 Medium Priority	283 40.30%	35 37.20%	46 39.70%	2 25.00%	8 61.50%	150 40.90%	42 40.00%
3 High Priority	350 49.80%	51 54.30%	58 50.00%	6 75.00%	3 23.10%	177 48.20%	55 52.40%

Recommended Action: Align State Board of Education and the Dept. of Public Instruction initiatives with the state's seven economic development regions and encourage regular communication among the Dept. of Public Instruction leaders and representatives from each region.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	84 11.90%	5 5.30%	15 12.90%	0 0.00%	3 23.10%	47 12.80%	14 12.70%
2 Medium Priority	296 42.10%	37 39.40%	45 38.80%	3 37.50%	6 46.20%	166 45.20%	39 37.10%
3 High Priority	323 45.90%	52 55.30%	56 48.30%	5 62.50%	4 30.80%	154 42.00%	52 49.50%

Recommended Action: Expand the Education Cabinet to include the Secretary of Commerce and the Lieutenant Governor.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	204 29.00%	20 21.30%	35 30.20%	4 50.00%	4 30.80%	113 30.80%	28 26.70%
2 Medium Priority	277 39.40%	40 42.50%	47 40.50%	3 37.50%	4 30.80%	145 39.50%	38 36.20%
3 High Priority	222 31.60%	34 36.20%	34 29.30%	1 12.50%	5 38.50%	109 29.70%	39 37.10%

Recommended Action: Adopt the 16 National Career Clusters and corresponding skills sets as an organizing tool for the N.C. Dept. of Commerce to use as it updates and implements its economic development vision plans.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	88 12.50%	11 11.70%	15 12.90%	0 0.00%	2 15.40%	51 13.90%	9 8.20%
2 Medium Priority	300 42.70%	34 36.20%	57 49.10%	5 62.50%	4 30.80%	161 43.90%	39 37.10%
3 High Priority	315 44.80%	49 52.10%	44 37.90%	3 37.50%	7 53.80%	155 42.20%	57 54.30%

A Crisis of Relevance: How NC Must Innovate to Graduate All Students Career- and College-Ready

October 1, 2010

POLICY GOAL 1: Make Career and Technical Education (CTE) a valuable part of all students' overall high school experience and use it to help them prepare for postsecondary education and/or training and career success.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	29	6	8	0	0	8	7
	4.10%	6.40%	6.90%	0.00%	0.00%	2.20%	6.40%
2 Medium Priority	105	11	19	1	2	57	15
	14.90%	11.70%	16.40%	12.50%	15.40%	15.50%	14.30%
3 High Priority	569	77	89	7	11	302	83
	80.90%	81.90%	76.70%	87.50%	84.60%	82.30%	79.00%

Recommended Action: Put the necessary analysis and decision-making processes in place to ensure the optimum alignment of programs/courses offered with current and future labor market needs and student career/postsecondary education interests. (*NC CTE Strategic Plan*)

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	23	2	6	0	0	11	4
	3.30%	2.10%	5.20%	0.00%	0.00%	3.00%	3.60%
2 Medium Priority	182	25	31	1	2	100	23
	25.90%	26.60%	26.70%	12.50%	15.40%	27.20%	21.90%
3 High Priority	498	67	79	7	11	256	78
	70.80%	71.30%	68.10%	87.50%	84.60%	69.80%	74.30%

Recommended Action: Improve the marketing of CTE to students, parents, educators and members of the business community with a focus on quality, high expectations, innovation, dignity of all occupations and lifelong learning. *(NC CTE Strategic Plan)*

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	33 4.70%	7 7.40%	13 11.20%	0 0.00%	0 0.00%	10 2.70%	3 2.70%
2 Medium Priority	145 20.60%	20 21.30%	29 25.00%	0 0.00%	3 23.10%	72 19.60%	21 19.10%
3 High Priority	525 74.70%	67 71.30%	74 63.80%	8 100.00%	10 76.90%	285 77.70%	81 77.10%

Recommended Action: Support a state policy to require students to take a four-credit concentration in CTE, arts, JROTC (Junior Reserve Officer Training Corps) or a student-customized concentration along with their core academics to fulfill state graduation requirements.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	103 14.70%	14 14.90%	28 24.10%	0 0.00%	3 23.10%	41 11.20%	17 15.50%
2 Medium Priority	211 30.00%	19 20.20%	34 29.30%	3 37.50%	5 38.50%	118 32.20%	32 30.50%
3 High Priority	389 55.30%	61 64.90%	54 46.60%	5 62.50%	5 38.50%	208 56.70%	56 53.30%

POLICY GOAL 2: Drive innovation and creativity in the state's high schools by developing students' interest, behavior and skills in entrepreneurialism to accelerate their career interests.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	83 11.80%	13 13.80%	13 11.20%	0 0.00%	2 15.40%	41 11.20%	14 13.30%
2 Medium Priority	297 42.20%	44 46.80%	48 41.40%	1 12.50%	5 38.50%	152 41.40%	47 44.70%
3 High Priority	323 45.90%	37 39.40%	55 47.40%	7 87.50%	6 46.20%	174 47.40%	44 41.90%

Recommended Action: Increase course offerings and the number of high school students taking entrepreneurship and other business development courses based on the needs of the community.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	91 12.90%	13 13.80%	20 17.20%	0 0.00%	2 15.40%	41 11.20%	15 14.30%
2 Medium Priority	298 42.40%	45 47.90%	49 42.20%	0 0.00%	7 53.80%	147 40.10%	50 47.60%
3 High Priority	314 44.70%	36 38.30%	47 40.50%	8 100.00%	4 30.80%	179 48.80%	40 38.10%

Recommended Action: Embed entrepreneurial thinking and skills development into instructional practices across all curricula.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	86 12.20%	7 7.40%	14 12.10%	0 0.00%	2 15.40%	44 12.00%	19 18.10%
2 Medium Priority	259 36.80%	37 39.40%	40 34.50%	1 12.50%	6 46.20%	140 38.10%	35 33.30%
3 High Priority	358 50.90%	50 53.20%	62 53.40%	7 87.50%	5 38.50%	183 49.90%	51 48.60%

Recommended Action: Promote the Small Business Centers and other entrepreneurial programs and resources offered at the local community colleges, public and private universities and community organizations so more students can take advantage of these valuable resources.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	103 14.70%	14 14.90%	18 15.50%	0 0.00%	2 15.40%	50 13.60%	19 18.10%
2 Medium Priority	280 39.80%	43 45.70%	41 35.30%	2 25.00%	5 38.50%	147 40.10%	42 40.00%
3 High Priority	320 45.50%	37 39.40%	57 49.10%	6 75.00%	6 46.20%	170 46.30%	44 41.90%

POLICY GOAL 3: Transform the culture of education in North Carolina so every school produces lifelong learners that are both academically-skilled and career-ready.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	25 3.60%	5 5.30%	4 3.40%	0 0.00%	0 0.00%	11 3.00%	5 4.50%
2 Medium Priority	96 13.70%	10 10.60%	19 16.40%	0 0.00%	2 15.40%	54 14.70%	11 10.50%
3 High Priority	582 82.80%	79 84.10%	93 80.20%	8 100.00%	11 84.60%	302 82.30%	89 85.00%

Recommended Action: Increase the amount of time students spend learning by changing how, when and where students receive instruction using a combination of successful strategies such as allotting time for distance learning, blended virtual and face-to-face learning and increased learning via fieldtrips and work experience such as internships and job shadowing.

	Total*	Select the position you represent:					
		Education Administrator	Business/Industry Representative	Government Official	Post-Secondary Education	Teacher	Other, please specify
	703	94	116	8	13	367	105
1 Low Priority	47 6.70%	7 7.40%	8 6.90%	0 0.00%	0 0.00%	26 7.10%	6 5.50%
2 Medium Priority	206 29.30%	33 35.10%	36 31.00%	0 0.00%	2 15.40%	112 30.50%	23 21.90%
3 High Priority	450 64.00%	54 57.50%	72 62.10%	8 100.00%	11 84.60%	229 62.40%	76 72.40%

Public Schools of North Carolina

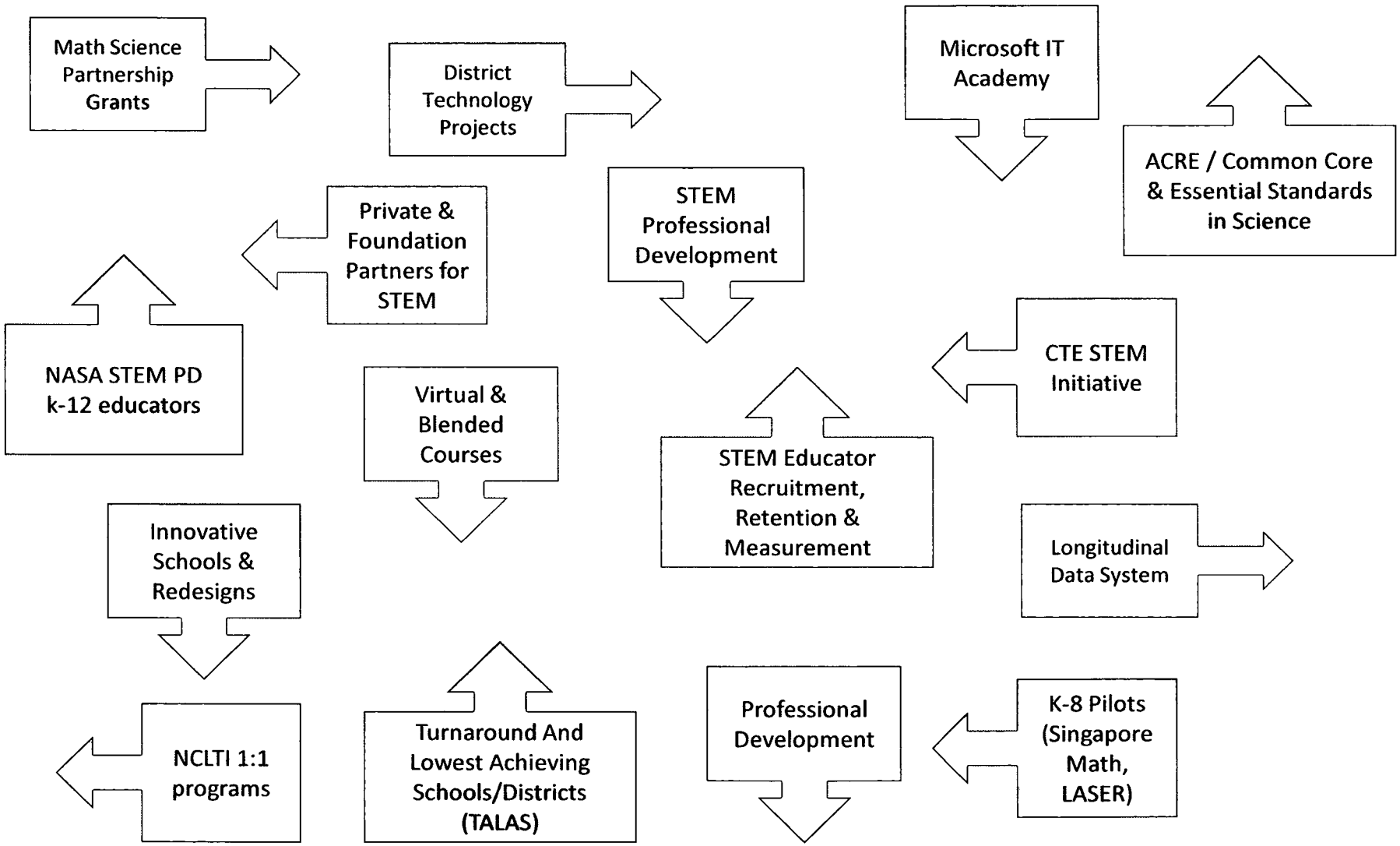
State Board of Education | Department of Public Instruction

JOBS Commission

November 22, 2010

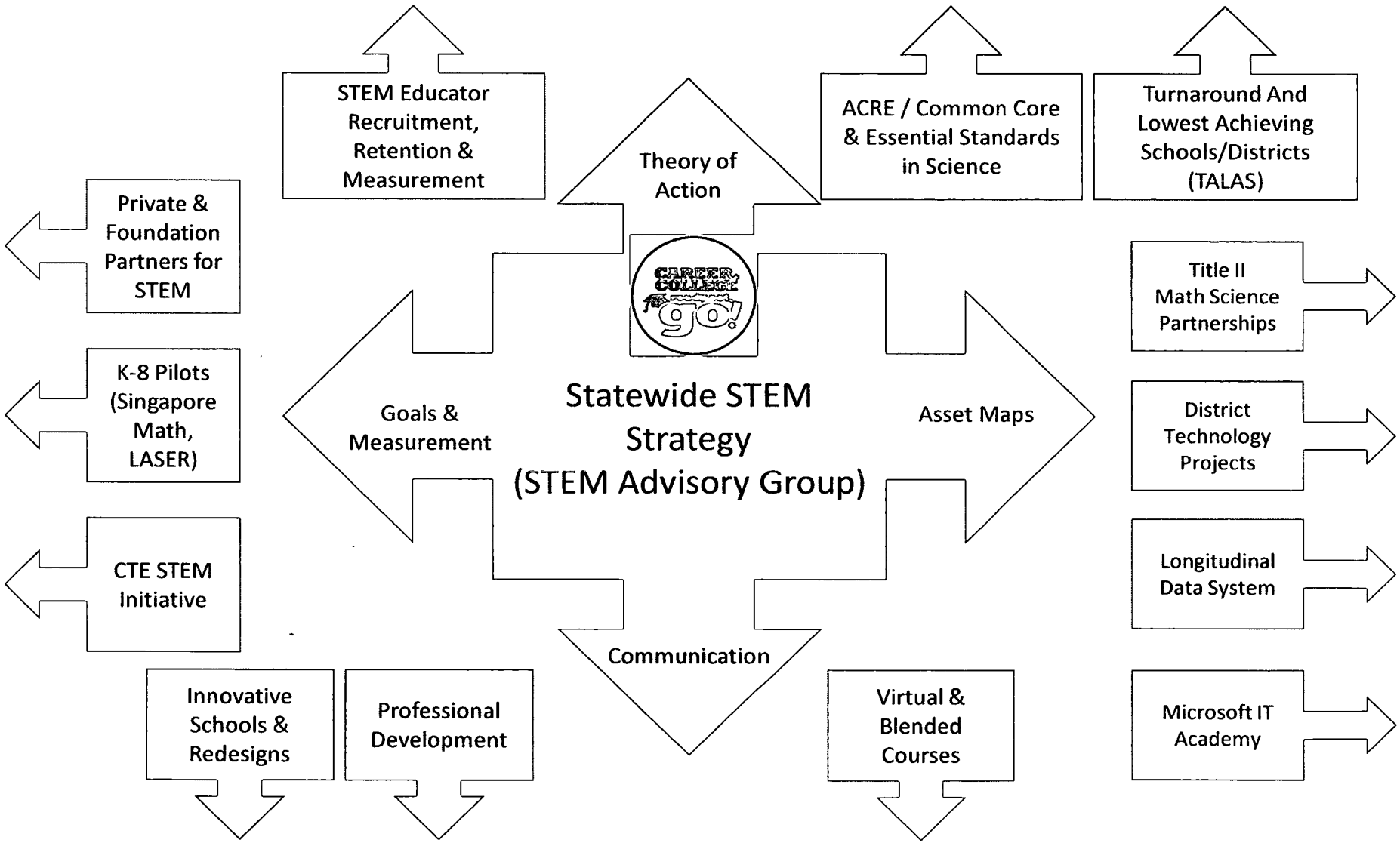
Angela Hinson Quick, Deputy Chief Academic Officer
Academic Services and Instructional Support

STEM Across RttT Pillars, Agencies and Sectors

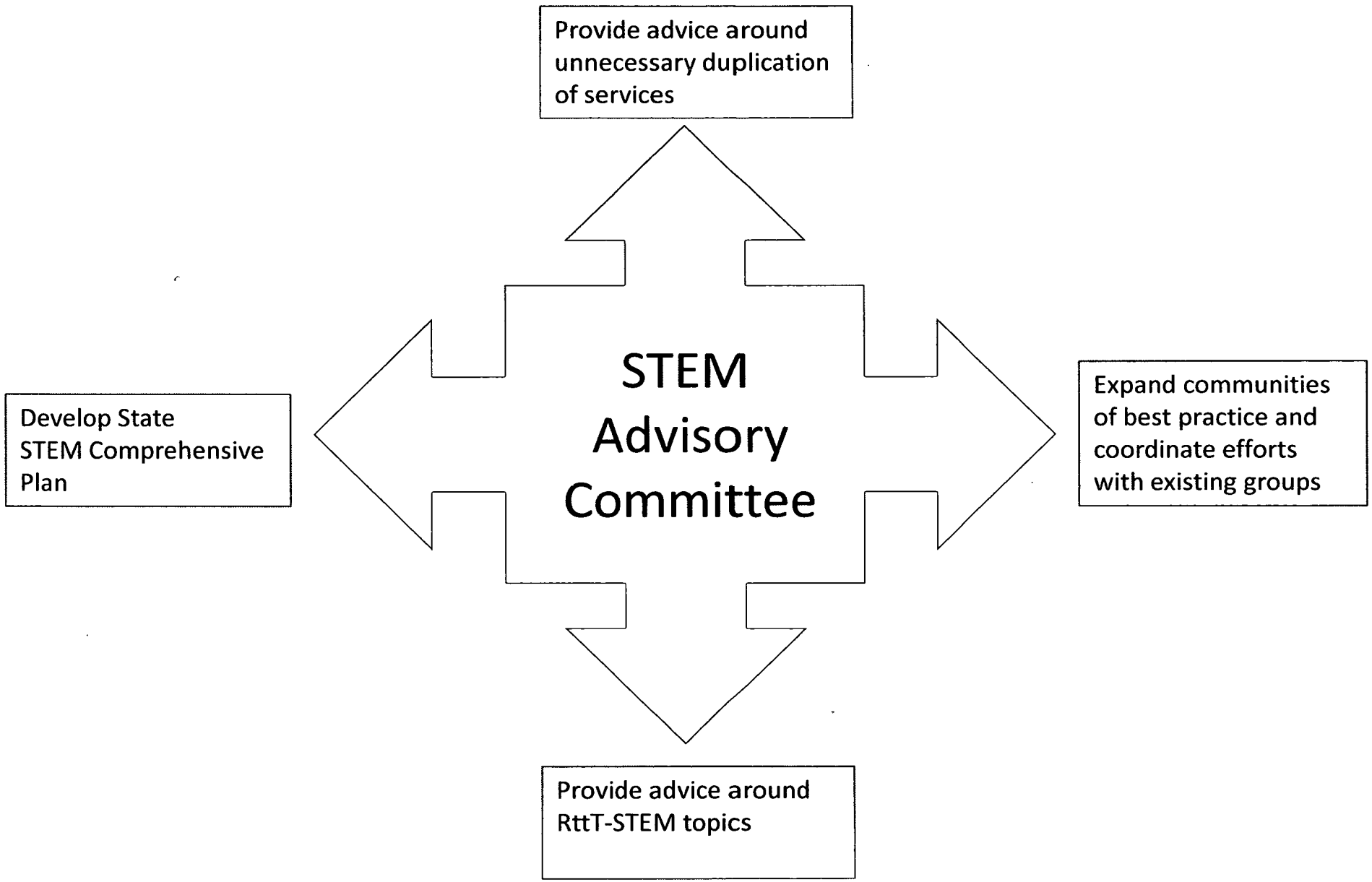


Opportunities for Efficiencies

Efficiency, Partnership & Coordination Needed



Plans Underway



North Carolina Association of Career and Technical Education Administrators' Business Network

Search this site

"Creating Partnerships through Meaningful Collaboration"

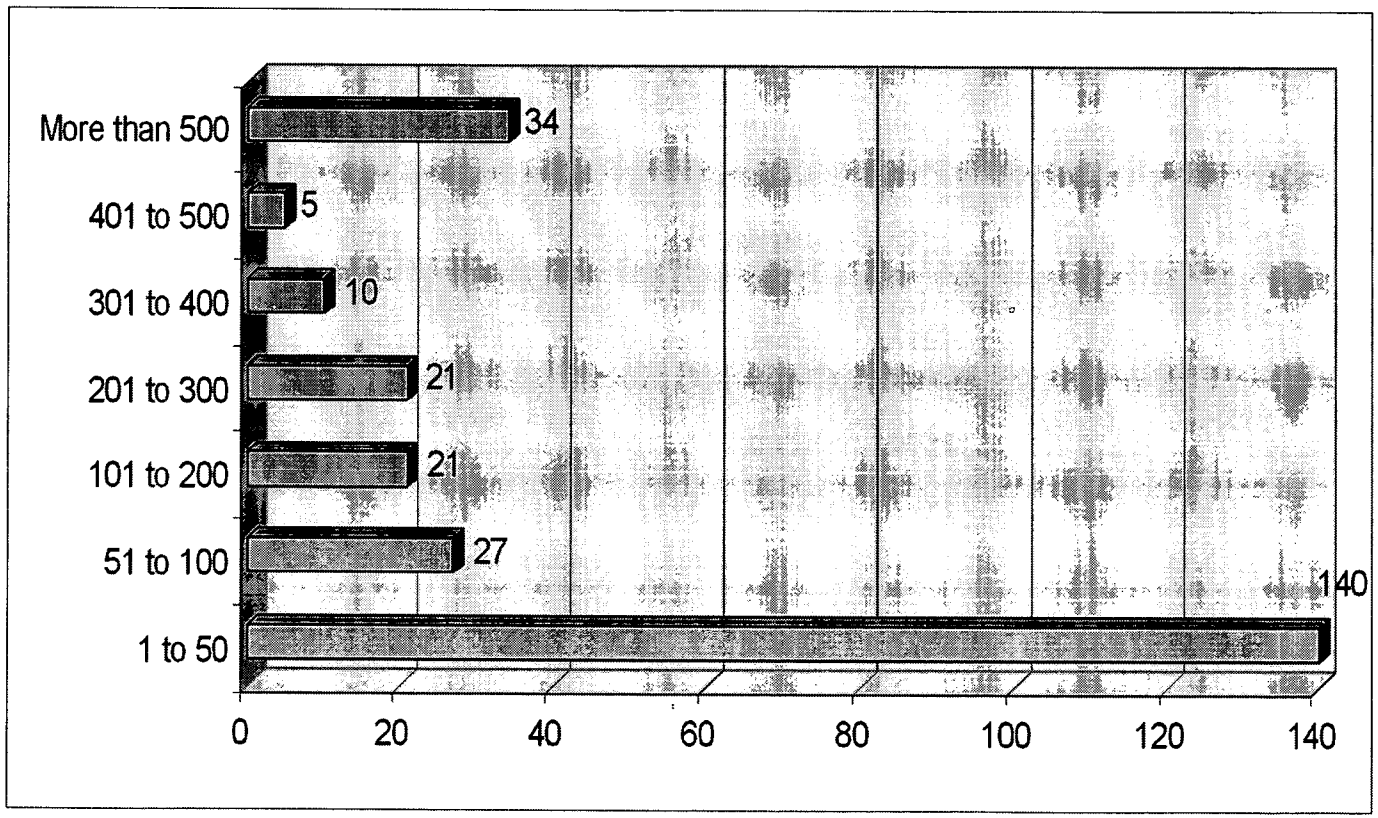
The North Carolina Association of Career and Technical Education Administrators have established a statewide network of North Carolina business and industry representatives in support of Career and Technical Education. The association desires to strengthen the connection between education and the workplace helping us meet our Career and Technical Education Mission of empowering all students to be successful citizens, workers and leaders in a global economy.

The purpose of the North Carolina Career and Technical Education Business Network is to:

- Create and maintain a business-education advocacy group that addresses Career and Technical Education issues on a regular basis, and;

- Establish a permanent liaison between business and education that provides for structured continuous communications at multiple levels for Career and Technical Education

To provide input, receive periodic pertinent information pertaining to CTE and receive future invitations to participate in activities such as

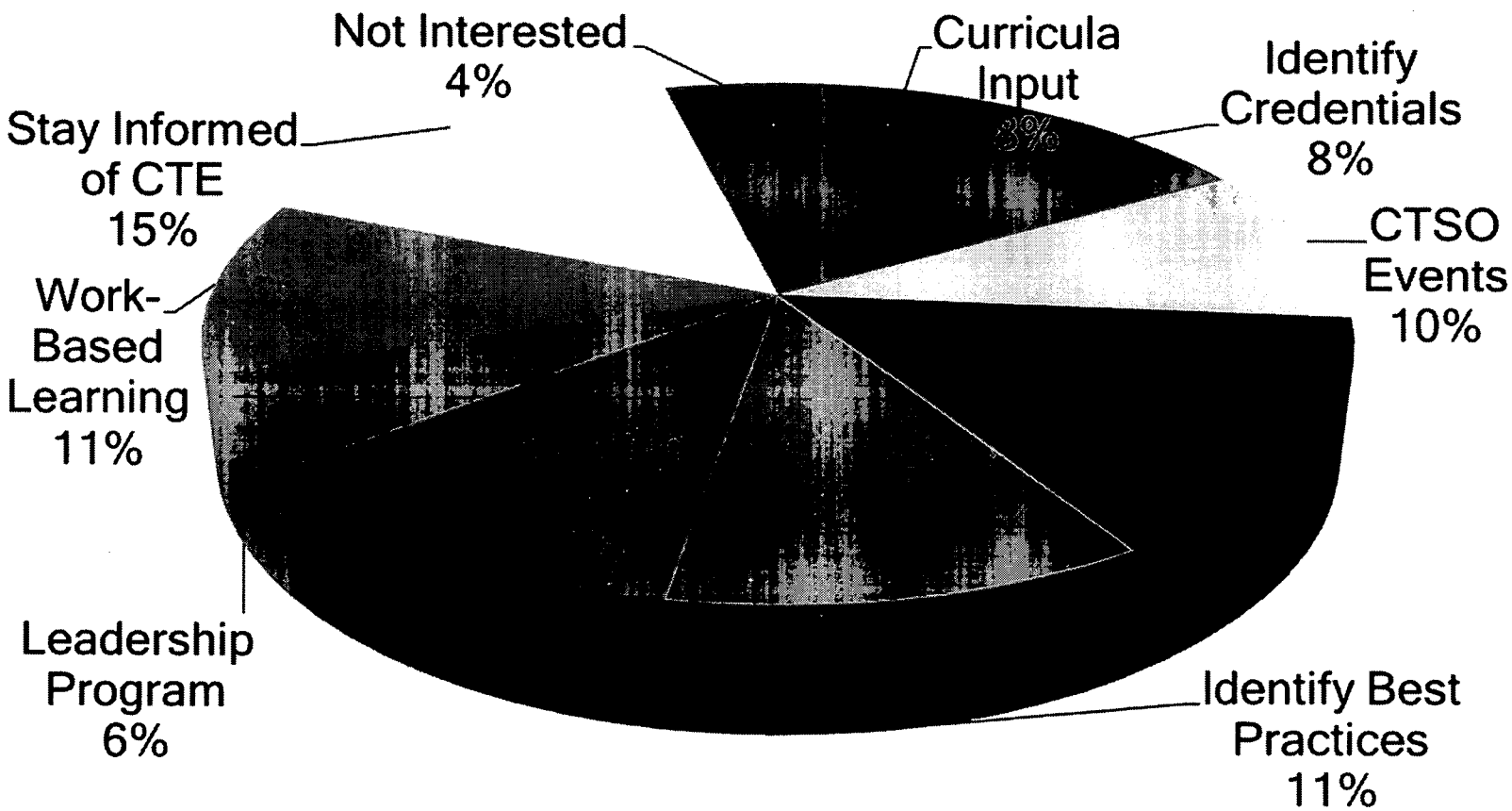


Represented:

- 258 Business/Industry
- Every Region
- Every Career Cluster
- 65 Counties

- 73% represented business/industry with 1-200 employees
- 12% represented business/industry with more than 201-400 employees
- 15% represented business/industry with 401 or more employees

Business Network Participation Interest



Symposia Suggestions

- The most consistent and frequently mentioned suggestion was to re-invent the CTE image.
- Offer honor or advanced credit for CTE courses
- Include the creation of a full-time state level CTE Director position
- Capitalize on Huskins/Dual Enrollment efforts
- Continue Articulation Efforts
- Create and maintain business-education advocacy groups that address CTE issues.
- Develop follow-up surveys for stakeholders

Business Network: Creating Partnerships through Meaningful Collaboration

- Develop a business-education advocacy group that addresses Career and Technical Education issues on a regular basis

- Establish a permanent liaison between business and education that provides for structured continuous communications at multiple levels for Career and Technical Education

CTE Business Network

Businesses Connecting with Education: A Win-Win Situation

Creating Partnerships through Meaningful Collaboration

- Business Symposium October 2000
  - Workforce Development in the New Millennium: North Carolina's Economic Edge
- Regional Symposia May 2003 (6)
  - An Advocate for Change: What Educators and Business have to Say about Career-Technical Education
- Symposia developed recommendations and suggestions

Symposia Suggestions

- The most consistent and frequently mentioned suggestion was to re-invent the CTE image.
- Offer honor or advanced credit for CTE courses
- Include the creation of a full-time state level CTE Director position
- Capitalize on Huskins/Dual Enrollment efforts
- Continue Articulation Efforts
- Create and maintain business-education advocacy groups that address CTE issues.
- Develop follow-up surveys for stakeholders

Business Network: Creating Partnerships through Meaningful Collaboration

- Develop a business-education advocacy group that addresses Career and Technical Education issues on a regular basis

- Establish a permanent liaison between business and education that provides for structured continuous communications at multiple levels for Career and Technical Education

North Carolina Association of Career and Technical Education Administrators' Business Network

Search this site

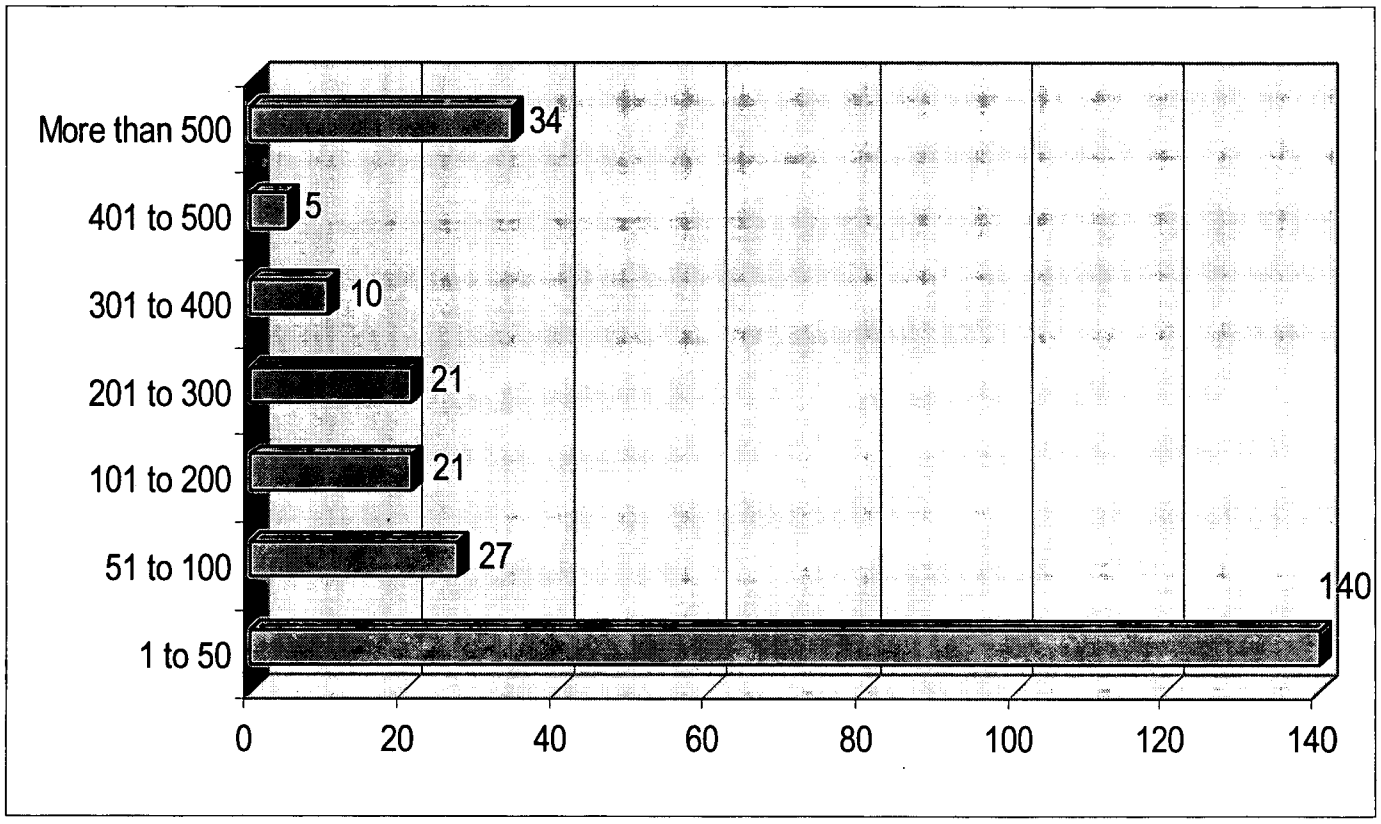
"Creating Partnerships through Meaningful Collaboration"

The North Carolina Association of Career and Technical Education Administrators have established a statewide network of North Carolina business and industry representatives in support of Career and Technical Education. The association desires to strengthen the connection between education and the workplace helping us meet our Career and Technical Education Mission of empowering all students to be successful citizens, workers and leaders in a global economy.

The purpose of the North Carolina Career and Technical Education Business Network is to:

- Create and maintain a business-education advocacy group that addresses Career and Technical Education issues on a regular basis, and;
- Establish a permanent liaison between business and education that provides for structured continuous communications at multiple levels for Career and Technical Education

To provide input, receive periodic pertinent information pertaining to CTE and receive future invitations to participate in activities such as

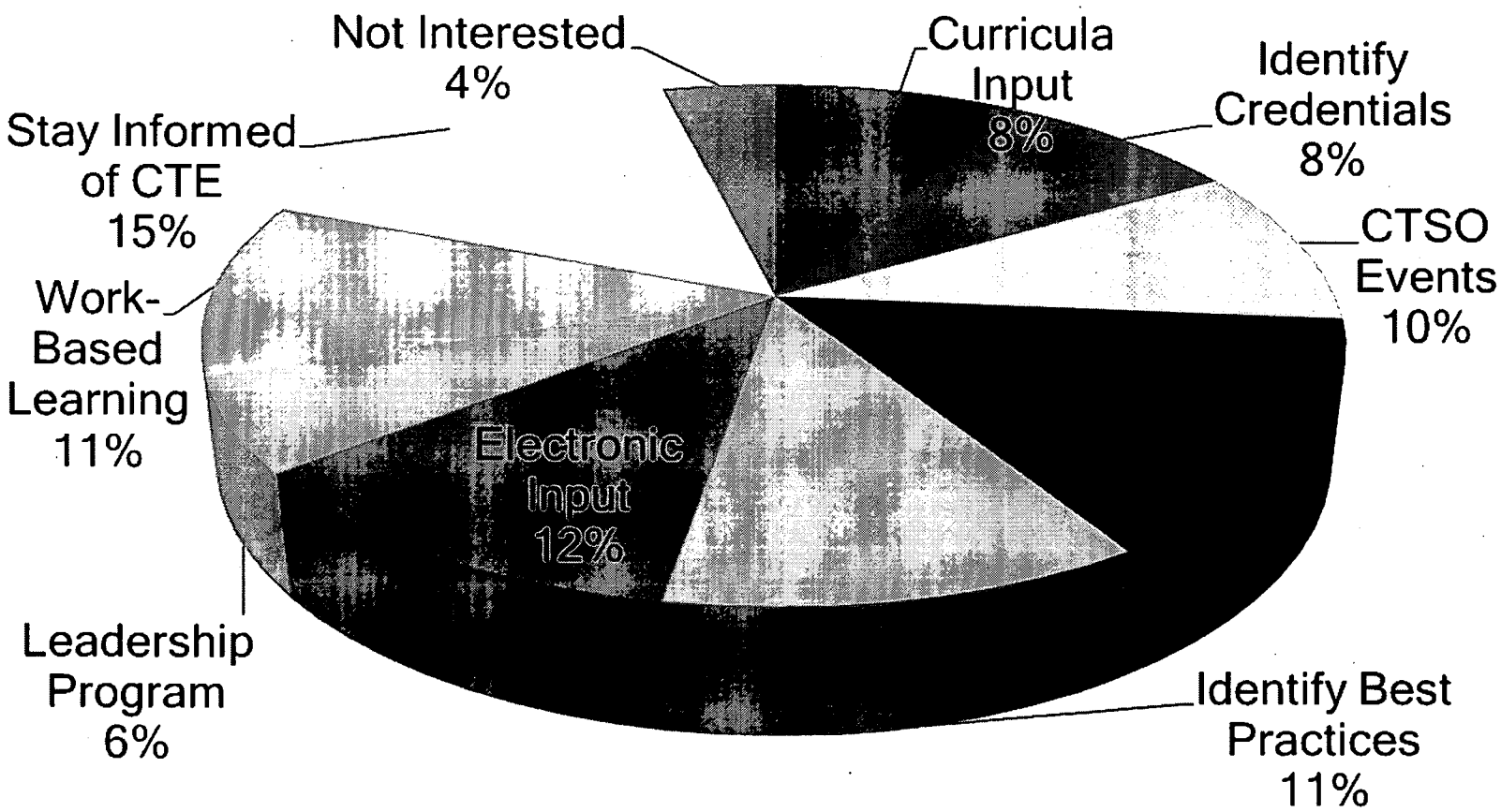


Represented:

- 258 Business/Industry
- Every Region
- Every Career Cluster
- 65 Counties

- 73% represented business/industry with 1-200 employees
- 12% represented business/industry with more than 201-400 employees
- 15% represented business/industry with 401 or more employees

Business Network Participation Interest



English Language (spoken)	69%
Reading Comprehension (in English)	79%
Writing in English (grammar, spelling, etc.)	66%
Mathematics	61%
Science	11%
Government/Economics	6%
Humanities/Arts	1%
Foreign Languages	3%
History/Geography	1%
Other, please specify	9%

Please select the top three basic knowledge skills that you believe are important for new employees.

English Language (spoken)	41%
Reading Comprehension (in English)	52%
Writing in English (grammar, spelling, etc.)	49%
Mathematics	54%
Science	31%
Government/Economics	17%
Humanities/Arts	5%
Foreign Languages	31%
History/Geography	2%
Other, please specify	18%

Please select the top three basic knowledge skills that may become more important in the next five to ten years for new employees.

Adaptability/Flexibility	26%
Dedication/Hard-Working/Work Ethic/Tenacity	55%
Dependability/Reliability/Responsibility	63%
Honesty/Integrity/Morality	61%
Loyalty	2%
Positive Attitude/Motivation/Energy	31%
Professionalism	15%
Self Motivated/Ability to Work with Little Supervision	22%
Willingness to Learn	25%
Other, please specify	3%

Please select the top three personal qualities that you believe new employees should possess.

Adaptability/Flexibility	56%
Dedication/Hard-Working/Work Ethic/Tenacity	30%
Dependability/Reliability/Responsibility	37%
Honesty/Integrity/Morality	40%
Loyalty	5%
Positive Attitude/Motivation/Energy	27%
Professionalism	24%
Self Motivated/Ability to Work with Little Supervision	42%
Willingness to Learn	36%
Other, please specify	2%

Please select the top three personal qualities that may become more important in the next five to ten years that you believe new employees should possess.

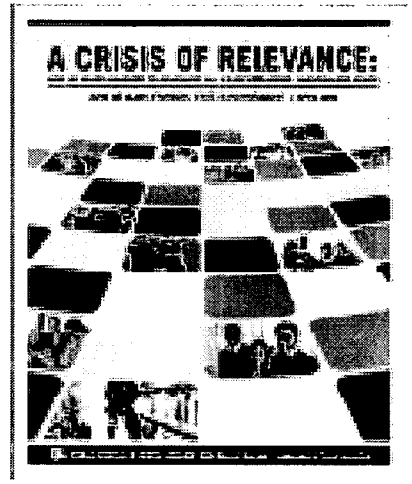
Critical Thinking/Problem Solving	81%
Oral Communications	54%
Written Communications	34%
Teamwork/Collaboration	55%
Diversity	8%
Information Technology Application	29%
Leadership	10%
Creativity/Innovation	22%
Social Responsibility	7%
Other, please specify	1%

Please select the top three applied skills that you believe new employees should possess.

Critical Thinking/Problem Solving	65%
Oral Communications	32%
Written Communications	24%
Teamwork/Collaboration	45%
Diversity	23%
Information Technology Application	43%
Leadership	21%
Creativity/Innovation	31%
Social Responsibility	16%
Other, please specify	1%

Please select the top three applied skills that may become more important in the next five to ten years that you believe new employees should possess.

Crisis of Relevance Survey



- 703 Stakeholders provided input including Business Network
- Provided Results to CTE Administrators and Business Network
- Provided Crisis of Relevance panel discussion at Fall Conference

Business in Schools - A University Structure

(UNC Charlotte School of Engineering)

- Industry Advisory Board
- Business Development Coordinator
- Social Hours for Professors & Industry
- Industry Sponsorships, Student Resumes, Industry Panels
- Sr. Project - Students + Business Partners + Prof. Mentors
- Bi-monthly Project Reviews - Rubrics & Progress Meetings
- Industry Presentations & Trade Show Finale
- Awards by Deans, Professors, Industry

Business in Schools - A High School Structure

Academy of Engineering Program/CTE Curriculum

- Advisory Board Purpose - Relevancy & Focus
- AoE Advisory Board at HHS
  - Engineers, Business Leaders, UNCC & CPCC Engineering Staff, HHS School Academy Staff
- Advisory Board Committees - NAF Structure
  - Internship, Public Relations/Advocacy Committee, Fundraising , Student Recruitment & Curriculum

Business in Schools - A High School Structure

AoE Advisory Board Functions

- Marketing/Recruitment Material Development
- Fundraiser flyers, ASK preparation, Program FAQ's
- Board Strength Matrix for Curriculum Teachers
- "What Engineers Do" Program for Students & Teachers
- Arrange Business Contacts, Field Trips, Class Room involvement
- Curriculum Reviews & Relevancy
- Mentor Students, Teachers, Support Guidance Counselors
- Identify Internship Opportunities
- Develop Board Sustainability

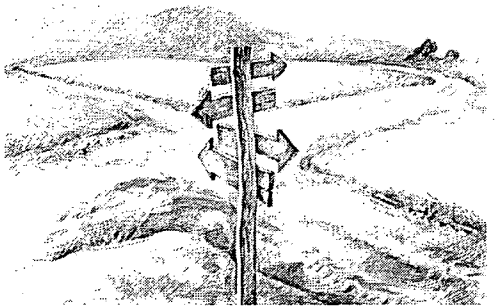
Business in Schools - A Regional Structure

AoE Regional Board

- Executive Board & CTE Directors - Actions
  - Regional Meetings of Board Chairs, CTE Directors, Program Directors
  - Cross Pollinate Program Initiatives, Coordinate Direction
  - Regional Level Chamber Involvement
  - Connect Local Business Leaders
  - Although this is the current structure for the AoE Programs, it can include any curriculum.

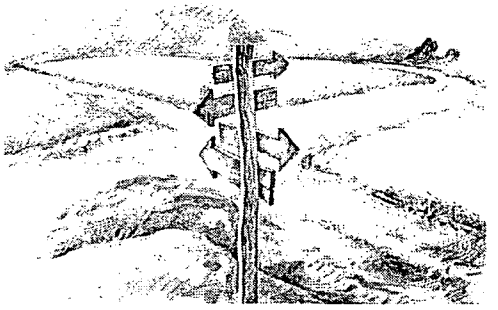
Assist local CTE administrators to:

- Connect with business/industry and economic developers
- Provide industry cluster information determining local labor market alignment to career cluster
- Establish communication links with local economic developers and local CTE administrators



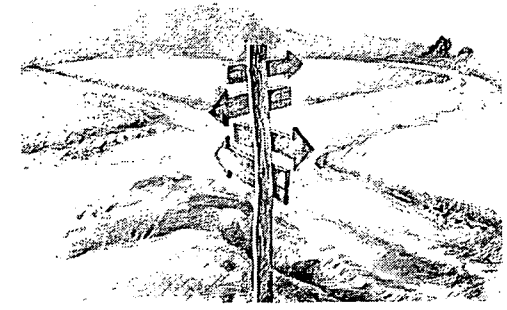
Assist CTE regional coordinators working directly with local administrators and service groups to:

- Facilitate regional collaboration with stakeholders
- Promote the 'power of regionalism'
- Provide industry cluster presentations to regional groups
- Promote CTE programs/best practices in regional partnership communiqués and websites
- Continue to provide partnership framework and guidance to local administrators for business partnership development



Assist state CTE staff to:

- Align industry clusters to career clusters providing frameworks of collaboration
- Develop a statewide system of regional collaboration establishing a network of stakeholders
- Develop business & industry champions/advocates for each of the 16 career clusters
- Provide direction with strategic planning focused on the competitive positioning of CTE in North Carolina



Value added by Network

- Increase Graduation Rate
- Reduce Dropout Rate
- Create Relevant Curriculum
- Response to student certification and credentials
- Increase post-secondary technical credits earned by students
- Provide mentorship and better informed students

Our Challenge-

How do we align Career and Technical Education, Career Ready Commission and JOBS effort to better prepare our students for the 21st Century?

Graduation Rate of Concentrators

	2007	2008
CTE concentrators in four-year graduation Cohort	81.7%	86.5%
All NC students in four-year graduation cohort	69.5%	70.3%

Students Earning Postsecondary Technical Credit

Credit earned in 2007-2008	10,074
Credit earned in 2001-2002	759

https://sites.google.com/site/ctebusedpartnership/

North Carolina Association of Career and Technical Education Administrators' Business Network

CTE Business Network

Businesses Connecting with Education: A Win-Win Situation

MINUTES
The Joint Commission on Joining Our Businesses and Schools (JOBS) Commission
Monday, November 22, 2010
2-5 p.m. Room 544, Legislative Office Building

The Joint Commission on Joining Our Businesses and Schools (JOBS) Commission met November 22, 2010 at 2 p.m. in Room 544 of the Legislative Office Building. Lieutenant Governor Walter Dalton presided. *(SEE Attachment: Guests Attending.)*

PRESENTATIONS

Representatives of the Second Life Early College High School operated by East Caroling University presented the scope of the virtual campus. Austin Bunch, Associate Provost at ECU told the Commission the virtual campus had been used with the Pitt County Schools for three semesters. He said students found the program an engaging way to early learning. The costs he said were much lower than a traditional early college program since there were no transportation or food costs, for instance. Classes include finance, sociology and web design. Dr. Bunch said the students who were participating were average students who had shown good potential. Eleven of the first eighteen graduates of the early college had been accepted at ECU and had been retained through the sophomore year. Three of the students are Teaching Fellows. In the current semester, there are 6 students in China developing English language skills through the virtual classroom.

Dr. Bunch said additional funding resources would be needed to carry through with the Second Life Early College High School. Lenoir County is gearing up through its STEM program to become part of the ECU initiative.

Tom Vermillion, Chairman of the Lenoir County STEM collaborative, said Lenoir County was seeking to use the ECU Second Life program to help carry out the STEM initiative. In addition, Lenoir County is working with the Massachusetts Institute of Technology in an effort to bring several fabricated laboratories to the county. The Lenoir County STEM program is working toward a partnership with Spirit Aero Systems and Silicon Integrated Systems.

Representing the education side of the Lenoir County STEM Collaborative, Steve Hill said the virtual classroom provides the best way to engage students, businesses and teachers at a lower cost. He said the three-dimensional feature gave a better connection with students than some of the other student-teacher programs such as BlackBoard.

In the discussion, Sharon Collins, the Early College High School Program Director at ECU said the students at the six Pitt County High Schools attend the virtual classes from 8:35 a.m. until 9:55 on Tuesdays through Fridays. Monday is a catch-up day. Students can talk to the teachers and to each other through the system.

Lt. Governor Dalton asked about the funding model. Dr. Bunch said the system so far had been funded by ECU. He said the University was looking to work with local school districts for funding.

Mr. Vermillion explained that the Fab Labs program is for middle schools students as opposed to the high school students in the Second Life Early College. He said Lenoir County's STEM is seeking a grant from the Golden Leaf Foundation for the fabricated laboratories.

Ms. Townsend asked about the projects the students pursued. Ms. Collins said the curriculum was varied to include English, child psychology, introduction to computers and web design. Pitt County requires a senior project and many of the students create a virtual portfolio requirement.

Senator Brown asked how much progress had been made to involve other counties. Dr. Bunch said that was just beginning. Mr. Hill said this was where STEM East played a role. He envisions a network in which students can learn through engineers who do not need to leave their work place.

Mr. Lee asked if real faces could be laid over the avatar figures. Ms. Collins said this was possible and could give the teachers a real face to present to the students. In addition there is the ability to use video systems.

The Lt. Governor asked how the various components: ECU, Pitt County Schools and the businesses worked and how that might change. Dr. Bunch said ECU has a new mission statement that seeks to involve all parts of the communities to make eastern North Carolina better educationally.

Early College Updates

Rob Matheson is the newly hired principal for the Wake County/NC State University STEM Early College. He said this is his 35th year as a researcher, science educator and principal. This is the 3rd "school of choice" that he has started. The initial staff will be seven people. He said the school needs to have innovation, cooperation and a willing attitude from the people involved. Mr. Matheson said there were so many resources available to the school that it is a major task to figure out how to use the many resources. Ryan Haymore, the school's Counselor, said that students and parents were excited about the school.

Mr. Murphy asked about applications. Mr. Haymore said there is a paper application that will give students the best chance at the school, but the ultimate enrollment will be filled by a random lottery from those applications. Mr. Matheson said focusing the school on the four Grand Challenges of engineering was an excellent way to start. He said a recent curriculum meeting arrived at the consensus that the initial emphasis would be the sustainable nature of life.

Dr. Frank Till, Superintendent of the Cumberland County Schools, introduced Allison Violette who began the update on the Cumberland International Studies Early College High School. *(SEE ATTACHMENT: Cumberland International Studies)* Ms. Violette said the planning continued with the collaboration between the school system,

Fayetteville State University, the North Carolina New Schools Project, The Center for International Understanding and The Asia Society.

One of the basic precepts of the School is proficiency in a second language of strategic interest. The languages chosen are Mandarin, Arabic and Spanish. Dr. Till said the college partner had changed from Fayetteville Technical Community College to Fayetteville State University. A location has been obtained that is near the campus, and student recruitment is underway. He professed a concern about potential cuts in the state budget which could lead to delaying the start of the first year of the School. At this point the opening is set for August 2011, with a class of ninth graders. Earlier plans for ninth and tenth graders have been changed to match the ambitious curriculum the School will offer.

Mr. Lee asked about the possibility for global partners such as the Confucius Institute. Dr. Till said there is such a potential. The China Institute will be held at FSU in the summer of 2011. Mr. Lee also asked about the military involvement. Dr. Till said that support was there, but that the military could not be a partner in the enterprise; however the U. S. Army had made available their language curriculum for the School. He said the State Department might be able to provide support. Mr. Lee said the idea that this would become a model meant that it must be done very well. Mr. Habit said the people associated with the project had been a pleasure to work with. The Lt. Governor said a recommendation from the Commission was passed in the last General Assembly Session which gives some flexibility in the use of personnel which may save some money for the School.

The Commission has proposed an Agri-Science and Bio-Technology Center in northeastern North Carolina. A study of that proposed site was passed in the last General Assembly Session. Marshal Stewart, Chair of that study brought the Commission an update. He said the major charges for the study are how this can be done given the multi-county concept and governance issues and where the center should be located. The study group is due to have a report as of January 1. Areas of the state who are interested in having such a site will provide a profile of that interest as of December 17th. The partnership which an area might create is to be included, plus the economic development gains expected. The location should be such that connection could be made with N. C. State University and the Research Facility. Further, Mr. Stewart said, the area should be able to bring certain resources to the table. He said the fast track request had not diminished the interest in such centers.

The governance issue must include local constituents, but the sticking point is the money. The question is how the funding should be borne among the various educational and governmental entities. Mr., Stewart said work had been done to see how the money should flow when low-wealth and high-wealth school systems are involved.

Senator Brown, who had assumed the chair while the Lt. Governor was called away, said the governance issue alone was a major challenge. Mr. Stewart invited further input from members of the Commission, saying the effort was the right thing to do for children.

Governance Subcommittee Update

Senator Brown welcomed Grant Godwin, Subcommittee Chair and thanked him for his work on the Subcommittee. *(SEE ATTACHMENT: Report on Alignment of Education Districts and Regional Overlay Map.)* The Subcommittee believes that the Education Districts and the Economic Development Regions can be aligned by amending the statue which designates the Education Districts to conform with the Economic Development Regions. The North Carolina Constitution calls for the eight Education Districts, but the allocation of the counties to comprise those districts is done by statute. The Economic Development Regions evolved over several years of legislative action.

The Subcommittee alignment would require shifting 21 counties from one group to the other, the smallest number that could be moved to achieve the re-alignment. The Subcommittee hopes for little "political resistance" to the proposal.

The report proposes a new dedicated Local/Central Board in the regions to oversee the operation of coordination of economic and educational interests and sets up the mechanism for basic structure of such boards. Consistency for all multi-jurisdictional school operations could be gained by allowing some or all of the centrally appointed members to serve in that capacity. Key school personnel should be hired early by the Board with long-term contracts. Board member terms should be staggered. Any change in the mission or charter of the school would require a super-majority of the Board members.

The multi-jurisdictional schools would report directly to the State Board of Education and would have the flexibility of charter schools. As far as some activities, students from the multi-jurisdictional schools will be treated as guest members whom the Department of Public Instruction accepts. This concept has been used at the Yadkin Valley Career Academy. Test scores would go back to the traditional schools and students can go back to the traditional schools for extra-curricular activities.

Yadkin Valley Career Academy has a mechanism that works with low-wealth and high-wealth schools. Mr. Godwin said any such arrangement must be made so that all sides win and no school is a financial loser. As he pointed out the new schools are a win, but the traditional schools need attention too, otherwise there will be a natural resistance created. The challenge comes if all the schools in a region are poor. The Subcommittee recommends that the State Board of Education appoint a committee of people who are familiar with the financial flow and see if that group can create an equitable funding system. Mr. Godwin reiterated a point made by Marshal Stewart that private sources of funds; i. e. foundations etc. could be a source for such things as laboratories, buildings, equipment.

The Subcommittee recommended a different type of staff development beyond the beyond the mechanics of running a school, such as how to operate a bus system. The recommendation is for staff development that seeks to provide information about how to make a different in a student's like, how to make that student grow and reach potential.

The Subcommittee avoided using the term "pilot" schools. Mr. Godwin said pilot schools are considered to be "perfect" and create easy targets for criticism. The new schools seek operating discretion and should be given achievement guidelines, then the flexibility to work in the local environment and be measured for effectiveness.

The multi-jurisdictional school districts would have a memorandum of understanding with the State School Board as to the operation of the schools.

If a school wishes to withdraw from the agreement, the Subcommittee recommends that early withdrawal be allowed, rather than create a worsening situation.

The Subcommittee made no legislative recommendations preferring to receive direction from the full JOBS Commission.

The complete report from the Subcommittee should be presented to the Commission at the December 16th meeting. The Lt. Governor noted that the Subcommittee report would be referred to the group chaired by Marshall Stewart which is studying the multi-jurisdictional school approach. Further the Lt. Governor thanked Mr. Godwin and the members of the Subcommittee for the work on governance and also extended thanks to SBE Board Chairman Harrison and Mr. Habit.

Ms. Bingham sought responses from SBE Board Chairman Harrison, and Education Cabinet leader, Howard Lee. Dr. Harrison said the plan seems workable. He said including representatives of the local constituency is necessary. Mr. Lee said this is trend that is needed, but there must be a way to coordinate career technical education and academics and not isolating them from each other. He believes this trend will allow that joining together.

Senator Foriest expressed his concern about letting people out of contracts when things got rough and how that could lead to a total collapse. Lt. Governor Dalton suggested that such issues be considered at a later time.

In the effort to link the 8 Education Districts and 7 Economic Development Regions, the 2010 General Assembly passed legislation to allow members of the State Board of Education to serve on the Economic Development Boards. The recognition of this Legislation, lead to the second part of the Subcommittee Report. *(SEE ATTACHMENT AGAIN: Regional Map Overlay.)* This shows the potential change of alignment as discussed above. More details will be included in the Subcommittee's report.

Ms. Bingham asked what opinions the Department of Commerce had expressed on the realignment. Mr. Godwin said there doesn't seem to be a problem. The Lt. Governor noted that the Economic Development Boards are separate and apart from the Department of Commerce.

Hospitality and Tourism Steering Committee Update

Paul Stone, Executive Director of the North Caroling Hospitality Foundation, heads this Committee and made the report. He provided the Commission members with a list of the steering committee. *(SEE ATTACHMENT: Early College Hospitality and Tourism Committee.)* Mr. Stone said the decision to aim for western North Carolina was made for various economic interests: tourism attractions already there, unemployment etc. He said the Western Carolina Univeristy already has a hospitality curriculum, and that Harrah's Cherokee will be a 122 room hotel.

The Pro-Start curriculum has been approved as a standard course of study starting in 2012. The curriculum was developed by the N. C. Hospitality Education Foundation. JOBS Commission member Howard Lee worked with the group in the process.

Mr. Stone said that the hotel and lodging industry makes up 10 per cent of North Carolina's workforce. The Lt. Governor said that WCU Chancellor Bardo was every supportive of the concept. He said the WCU and Asheville-Biltmore Community College was partnering with the effort.

Business and Education Connectivity

Greg Gift, Assistant Director, Career and Technical Education at North Carolina DPI was joined by Tom Haffner, President of P. T. International in making the presentation. (P.T. International is a manufacturer of precision power transmission components.) *(SEE ATTACHMENT: CTE Business Network.)* Mr. Gift traced the history of the Network from its beginning in 2000. Local businesses interested in career and technical education decided to branch out to consider issues on a regional and statewide level.

Regional business networks grew up and became larger and larger until it became obvious that a statewide network was needed. The statewide network is a year old. There are about 300 business representatives in the network now.

Tom Haffner added the business side of the presentation. P. T. International operates globally. Based on his 35 years of experience, Mr. Haffner said it was necessary to keep a broad perspective of the things that are happening and will happen. "...this is a global war... (in manufacturing)", he said.

He sits on an advisory board for the Engineering Department at UNC-Charlotte. The board members "pay to play" by investing in one of the myriad projects that are developed from the board's insight and interplay. There are 80 different companies which sponsor one of the project teams. The business representatives act as mentors to the students on the project teams.

Out of this four Technical Career Academies have been created in the Charlotte-Mecklenburg area. There are 18 members of an advisory board for the Academies. While most of the Board members are engineers, there are members from other businesses as well.

These academies are built on the structure established by the National Academy Foundation. The board pursues various fund-raising efforts to pay for such things as field trips for the students.

Prior to introducing the next presentation, the Lt. Governor said that the North Carolina Bankers Association was interested in hearing from the Commission. He said he would be meeting with members of the Association in the near future.

Tricia Willoughby, the Executive Director for the North Carolina Business Committee for Education, said the Committee has been a part of the Governor's Office for over 25 years. The Committee recognized the benefit in early college programs when they saw increased graduation rates and student involvement. The Committee has held meetings on an early college campus,

The Committee backed the Teacher Working Condition Survey which had an 89% participation rate. The Committee brings together policy leaders, education leaders and

business leaders to discuss issues. The Committee provides an electronic resource guide that is available on the Committee website. The Committee holds webinars every other month with the Department of Public Instruction on subjects suggested by members of the Business Committee for Education.

The newest initiative joins First Gentleman Bob Eaves and middle school students. Students will be able to learn what real work environment is like. The focus is to bring academic subjects into play with what students will want to do in their careers.

In the discussion, Carolina McCullen said SAS will invite high school students from the area to come to SAS and talk with engineers, statisticians and others about the job possibilities that are available in today's job market. There will be two of these events.

Ms. Willoughby re-stated the time for the North Carolina Business Committee for Education, "Students At Work Week", January 31- February 4th 2011.

In response to questions, Tom Haffner said the rest of the world was thinking globally already and that the U. S. still had a legacy attitude and needed to get beyond that to realize that the market was global. He said all of the easy things had been done that the U. S. needed to design something better, work smarter and learn what the world needs.

Senator Brown, who is an auto dealer, said an auto technician is hard to find. What he has to do is hire someone who can change oil, or do a brake job and then send that employee to Atlanta or Washington, D. C. to go to manufacturer's school to build the years of training. He says workers with training are "just not there".

The Lt. Governor said that businesses were interested in what the Commission is doing and what is being developed. He said the businesses did not know just what would be expected of them. Oftentimes, he said the firms speak first in term of money, but he said scholarships would be nice, but that involvement was the most important thing. He appointed a subcommittee to develop an outline of what the Commission expects of a business that wishes to become involved with the Commission:

Roger Shackleford
Caroline McCullen
Mike Murphy
Grant Godwin
Pam Townsend, Chair
Senator Harry Brown

The Lt. Governor said he recognized that Senator Brown would have a lot of other issues to address during the 2011 Session which would impact his serving on this subcommittee. The Lt. Governor said he would like to explore the idea of externships for teachers whereby the teachers could earn credits toward certification. Dr. Harrison said this was worth exploring.

Commission member Tony Habit is one of the Commission members who have been involved with the anchor groups and the Race To The Top federal funding. The Lt. Governor said that two of the Race To The Top programs: Agri- Science and STEM had been recommendations of the JOBS Commission. He said the private sector partners had been working hard, really coming as "students" themselves, doing case studies, looking at

schools that really work and visiting various schools. He said the partners need to understand that it was not a case of re-packaging a 80s form of education. The focus is on what is needed to be a viable, educated member of today's workforce. He said the partners felt this was fundamental to their growth.

Mr. Habit said that the partners became engaged in the work as the next stage. Then there could be leverage with the private sector for such things as externships and the like.

There are four working groups in development:

1. Energy—lead by Jeff Corbett of Progress Energy
2. Health and Life Sciences—Bob Greczyn, BCBS
3. Bio-Technology—Norris Tolson: Begins 1st quarter of 2011
4. Aero-Space—will begin 2nd quarter of 2011

The Lt. Governor congratulated Governor Perdue, Superintendent Atkinson and SBE Chairman Harrison on the success in obtaining funds from the federal Race To The Top program. One of the critiques was that North Carolina needed a comprehensive approach to STEM education. These remarks introduced Dr. June Atkinson, Superintendent of Public Instruction.

Dr. Atkinson said North Carolina was blessed with so many STEM-related initiatives underway. Following a meeting with a group of people involved in STEM, including the STEM Advisory Group, there came the idea of working together to have a comprehensive STEM initiative in the State. She said the proposal would be presented to the State Board of Education so that the work would be institutionalized to the extent that it would last beyond the start-up time. The proposal seeks to bring all the various groups together to prevent duplication, have the right focus, share all the information and bring together everyone with STEM interests.

Angela Quick, Deputy Chief Academic Officer at DPI, presented the Commission with a graphic look at the various separate groups with STEM involvement. And she followed that with the view of how a statewide strategy would help with participation from the Commission's STEM Advisory Group. *(SEE ATTACHMENT: JOBS Commission, November 22, 2010.)* She said this would centralize the STEM goals, allow for results measurement and join with the JOBS Commission.

The proposal sees the central advisory group with four aims:

1. Advice to prevent duplication
2. Coordinate existing work group efforts
3. Advice STEM initiatives with Race To The Top funds
4. Develop the comprehensive plan

Mr. Habit said he hoped there would a tie-in between secondary and post-secondary education to prevent fragmentation. He said the Education Cabinet should consider a role in this effort. The Lt. Governor said this was something that should be pursued and that staffing could be worked out.

Statewide Stem Goals

Sam Houston, Co-Chair of the NC STEM Collaborative Advisory Committee initiated the discussion saying that the discussion had been held in the previous presentation. He said a comprehensive plan will take into consideration all the good things being developed for Kindergarten through College. He said that taking on and "owning" such a plan was a key role for the JOBS Commission. Mr. Houston said the delineation of duties of various groups should be determined and the proposed committee should be able to determine that. He noted that a lot of the potential players that are state-funded will become involved, but he said other players who are not state-funded will want to be a part of the effort, too. He said the committee would be a good way to share the experiences that have lead to best practices for initiatives. He said that the current STEM Advisory Committee could play a part, and the Lt. Governor said that would be the case. Mr. Houston said there should be some method to obtain private funding to overcome the staffing barrier.

The Lt. Governor said there are a lot of good things on around in the state. Grant Godwin noted that additional costs could be replaced by educating students to become tax paying members of society, reducing prisons costs, etc. Ms. McCullen said this is something has been needed for a long time and that Commission needed to undertake it. She agreed with Mr. Godwin that the agendas and turf battles should be put aside and think of the students.

Minutes were approved for the October 12th meeting. The next meeting will be December 16th.

There was a brief discussion of Commission meetings during the legislative session. The Lt. Governor said there would be a problem since the legislative staff personnel would be concentrated on the General Assembly work.

The meeting adjourned at 4:35 p.m.

Lt. Governor Walter Dalton, Chair, Presiding

Ted Harrison, Clerk

Establishing a Regional School of Agriscience and Biotechnology: Solving Key Problems to Enable Success

A Report
of the
North Carolina Agriscience and Biotechnology
Regional School Planning Commission

Submitted to:
the North Carolina JOBS Study Commission,
the Joint Legislative Education Oversight Committee, and
the State Board of Education

January 1, 2011