The North Carolina Academic Standards Review Commission

Report of Findings and Recommendations

December 31, 2015

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Academic Standards Review Commission
Department of Administration

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TO THE MEMBERS OF THE NORTH CAROLINA STATE BOARD OF EDUCATION:

Attached for your consideration is the report to the 2016 Session of the 2015 General Assembly. This report was prepared by the Academic Standards Review Commission, pursuant to Senate Bill 812, Session Law 2014-78.

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Co-Chair

Mr. Andre Peek
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PART I. EXECUTIVE SUMMARY

Under the authority of the North Carolina General Assembly, the Academic Standards Review Commission (ASRC) hereby presents its findings and recommendations pursuant to a review of the North Carolina Standard Course of Study for English Language Arts (ELA) and mathematics. In 2010, the State Board of Education (SBE) adopted the Common Core State Standards (CCSS) as the model by which school districts and schools are currently required to plan, implement, and monitor K-12 instruction. This report contains an overview of the review process, summarized findings, subject-area recommendations, and an expanded discussion of ELA and mathematics findings. In-depth reports and supporting data are located in the appendix section of the report.

Since September 2014, the ASRC has engaged in a review process guided by criteria outlined in Section 2. (c) of Senate Bill 812, which include the following:

(1) Conduct a comprehensive review of all English Language Arts and mathematics standards that were adopted by the State Board of Education under G.S. 115C-12(9c) and propose modifications to ensure that those standards meet all of the following criteria:

a. increase students' level of academic achievement;

b. meet and reflect North Carolina's priorities;

c. are age-level and developmentally appropriate;

d. are understandable to parents and teachers; and

e. are among the highest standards in the nation.

(2) Recommend changes and modifications to these academic standards to the State Board of Education, as soon as practicable upon convening and at any time prior to termination.

(3) Recommend to the State Board of Education assessments aligned to proposed changes and modifications that would also reduce the number of high-stakes assessments administered to public schools.

(4) Consider the impact on educators, including the need for professional development, when making any of the recommendations required in this section.

In summary, knowing the effects of standards implementation and the implications for teachers, students, and parents is the purpose of this standards review study.

Review Methodology

Mainly coordinated by two subcommittees (ELA and Mathematics), the Commission completed its mission in several phases. Both subcommittees examined the literature on educational standards; reviewed the standards of selected states; collaborated with expert panelists; designed several survey tools; facilitated four regional meetings with classroom teachers; analyzed multiple data sources; and composed preliminary and final reports. In order to establish a review framework, the Commission considered four factors: 1) clarity and focus; 2) implications for instruction; 3) age-appropriate practices; and 4) implementation and sustainability.

ELA and Math Surveys

Early in the process, the ELA Subcommittee released a survey to which 1,736 North Carolina teachers completed Likert-scaled and open-ended items. In addition to the ASRC survey findings, the North Carolina Department of Public Instruction (NCDPI) shared the results of a survey in which approximately 100,000 ELAs participated. The Mathematics Subcommittee

conducted surveys during the spring of 2015 and received 554 responses from K-8 math teachers.

Examining the Standards of other States and Countries

The ELA Subcommittee reviewed the standards adopted by Virginia, Texas, and California prior to the CCSS adoption in most states. Using the established review criteria, the ELA Subcommittee identified several strengths in these states' standards that are missing in the CCSS model. In addition to Virginia and Texas, the Mathematics Subcommittee also reviewed the math standards endorsed by Massachusetts (pre-CCSS), Nebraska, Minnesota, Singapore, and Finland. In reviewing the CCSS adopted by North Carolina, both subcommittees utilized feedback from released surveys and the testimonies of teachers who attended regional meetings.

In the fall of 2015, the ASRC hosted four regional meetings in which approximately 100 classroom teachers offered their insights on a range of instructional topics covering ELA and mathematics. The Commission conducted meetings in Richmond, Moore, and New Hanover counties. A regional meeting was also held at the University of North Carolina Pembroke. In summary, well over 2,000 teachers answered the Commission's call for feedback regarding the implementation of the CCSS in their districts and classrooms. Audio streaming and other technologies made it possible to involve participants located in remote sites around the state.

Expert Commentary

Experts in the fields of educational standards and childhood learning appeared before the Commission. Dr. Sandra Stotsky, Professor of Education Reform at the University of Arkansas,

drew attention to the absence of specific content in the CCSS/ELA standards. Dr. James Milgram, Professor Emeritus of Mathematics at Stanford University, addressed the necessary role of content specialists in developing standards for mathematics. Ms. Carole Ardizzone, Education Chair of the Board of Brookstone School in Charlotte, offered important insights regarding developmental-appropriate practice.

Reviewing the Research

The Commission studied the literature on educational standards in order to establish a common understanding of high-quality standards. The seminal work of Bloom (1977) on the levels of thinking and learning objectives and Miller's (2005) description of standards categories helped the Commission identify the traits of quality standards. Miller noted that standards should contain minimal task expectations, well-defined attainment levels, and consistent terminology. In short, the research points to a few traits of high-quality education standards, including the following: 1) terminology consistency; 2) minimal task expectations; and 3) well-defined levels of attainment.

Alignment with National Committees and Associations

The ELA Subcommittee reviewed reports and white papers published by the National Association for the Education of Young Children (NAEYC), the leading voice of professionals in the field of early childhood. In addition to other sources of data, the work of the National Mathematics Advisory Panel (NMAP) informed the findings of the Mathematics Subcommittee. Composed of 17 highly credentialed experts and five ex-officio members, the advisory panel's

contributions to high school teaching and learning, as well as K-8 benchmarks, are essential for world-competitive mathematics instruction.

Review Limitations

The small collection of examples in this report is intended to explain specific points and/or assertions regarding particular standards. Gathering additional information should precede any steps that call for significant changes in the North Carolina Standard Course of Study, ELA and mathematics.

Summary of ELA Findings

The findings from survey analyses and regional meetings with ELA educators are the following:

1. The subcommittee identified key traits of clarity and focus in other states' standards, namely Virginia (current adoption) and California (pre-CCSS). The strengths include guiding principles, theories of learning, and teaching scenarios grounded in research-based practices. These features help to create a cohesive framework. The CCSS do not contain similar features.
2. Numerous standards are task-intense, meaning that multiple learning expectations appear in the statements. Although said to be rigorous, standards of this kind often complicate teachers' efforts to bring standards, instruction, and testing into alignment. Furthermore, the inclusion of multiple learning expectations seems arbitrary, since it is difficult to discern an intentional sequence of tasks.
3. The ELA standards are poorly distributed across grade levels.

4. Banded standards raise questions as to which of the two grade levels is the year of greater instructional focus.
5. This review process lends credence to widespread concerns about developmental-appropriate practice and the CCSS.
6. Numerous survey responses highlight the frustrations of parents who want to help their students succeed, yet have no textbooks to clarify their own confusion and questions. In addition, parents are concerned about the absence of comprehensive writing instruction, including print and cursive.
7. Efforts to implement the CCSS have resulted in a poorly sustained ELA curriculum. A clear example is demonstrated in the lack of time available for systematic K-12 writing instruction.
8. English Language Arts teachers are primarily responsible for the informational text standards. Several teachers suggested that all teachers, regardless of content, share the responsibility for teaching informational text.
9. The desire of many high school teachers is that ELA standards return to a strong emphasis on rich, historical literature.
10. In general, teachers are pleased with the standards that require students to provide text-based evidence. Additionally, teachers are supportive of the ELA Writing standards. Nevertheless, nearly 80 percent (78.8 percent) of those who responded to the NC ELA Survey agree that revisions are needed and that teachers should play a role in the process. Based on feedback from approximately 100 teachers who participated in the four regional meetings, they would likely concur with a revision plan that amplifies the voices of teachers.

Summary of Mathematics Findings

The findings from survey analyses and regional meetings with math educators are the following:

1. North Carolina's K-8 mathematics standards are unclear and include numerous typos, errors, and mathematical mistakes.
2. The North Carolina K-8 mathematics standards specify that teachers frequently use models. However, as evidenced by numerous published examples and parent complaints, some teachers make computations with models into monstrously complex exercises that parents and students cannot understand. In addition, these teachers require students to master these computations in contradiction to the NCDPI policy of letting students use any method they know.
3. The lack of textbooks in grades K-8 is a serious problem. In the ASRC survey of K-8 teachers, 60.4 percent noted that insufficient textbooks and related instructional materials hamper instruction and student performance.
4. Teachers do not understand the purpose of math standards that repeat across grades 9-12. The high school mathematics standards suffer due to repeated standards.
5. The high school mathematics standards lack "real world" problems, which is in contrast with the stress put on them in K-8.
6. Gaps are present in the high school mathematics standards. For example, students are asked to plot trigonometric functions and logarithms in Math I. However, trigonometric functions are not completely defined until Math III. Due to these gaps, LEAs often specify what teachers do and do not teach. As a result, differences arise, and it becomes unclear whether or not there is a consistent set of state standards.

7. Geometry, the treatment of radicals, and factoring are slighted in the North Carolina high school mathematics standards. Logic, deductive reasoning, formal proof, and indirect proof have been eliminated except for a few simple exercises in triangle congruence, and little emphasis is given to basic typical multiplication and factoring patterns. Omitting these topics creates a gap in learning that students need for higher-level courses and college-level mathematics.
8. Probability and set theory are poorly done in the North Carolina high school mathematics standards. The standards do not address counting principles, and there is a paucity of information about compound events. The subcommittee found numerous other problems with the math standards. A complete discussion of each one is located in the Math Work Group Final Report located in the appendix section.
9. The Minnesota K-8 math standards are exemplary and are free of the defects found in the North Carolina standards.
10. National Mathematics Advisory Panel: The major topics of school algebra (to be completed by grade 11) are as follows:

Symbols and Expression

Polynomial expressions

Rational expressions

Arithmetic and finite geometric series

Linear Equations

Real numbers as points on the number line

Linear equations and their graphs

Solving problems with linear equations

Linear inequalities and their graphs

Graphing and solving systems of simultaneous linear equations

Quadratic Equations

Factors and factoring of quadratic polynomials with integer coefficients

Completing the square in quadratic expressions

Quadratic formula and factoring of general quadratic polynomials

Using the quadratic formula to solve equations

Functions

Linear functions

Quadratic functions: word problems involving quadratic functions

Graphs of quadratic functions and completing the square

Polynomial functions (including graphs of basic functions)

Rational exponents, radical expressions, and exponential functions

Logarithmic functions

Trigonometric functions

Fitting simple mathematical models to data

Algebra of Polynomials

Roots and factorization of polynomials

Complex numbers and operations

Fundamental theorem of algebra

Binomial coefficients (Pascal's Triangle)

Mathematical induction and the binomial theorem

Combinatorics and Finite Probability

Combinations and permutations, as applications of the binomial theorem and Pascal's Triangle.

There are no comments about what should be in high school geometry.

PART II. DISCUSSION OF FINDINGS

English Language Arts and Mathematics

Introduction

For the past three decades, the standards movement in education has driven most national, state, and district-level policy decisions related to curriculum, instruction, and student assessment. Currently hailed as a tool for equalizing educational opportunities, an educational standard has one basic function: to describe what a student is expected to know and demonstrate during a specified period of time.

Mueller (2014) categorizes standards on the basis of function and assessment efficiency, noting that content/subject-area standards are considered premium during the K-12 years and are efficient for standardized testing. In addition to content standards, a second category is known as process standards, or the standards that call for demonstrable proficiency in writing, listening, speaking, performing, reciting, and other performance areas. Dispositional standards, the third category, describe the behaviors that educators and parents consider important as students mature intellectually, emotionally, socially, and ethically. Dispositional standards include the behavior norms and beliefs that shape students' values and decision-making orientations (Miller, 2005). The seminal research by Benjamin Bloom (1977) on domains of thinking, teaching, and learning is a precursor of the current enthusiasm for educational standards.

Ideally, the school mission statement serves as the foundation on which curricular goals, standards, and learning objectives are developed. These components come together and form what is commonly known as a framework, or the structure that renders alignment and cohesion

among and between the parts. Regardless of the category—content, process, or dispositional—the developers of education standards should adhere to a few important practices when describing the tasks students are expected to master. These practices include the following: 1) ensuring terminology consistency; 2) eliminating embedded tasks/expectations; and 3) defining a minimum mastery level.

Additionally, well-worded standards are traceable to the grade-level/content goals and verifiable in teacher observations, lesson plans, and assessments and tests. School districts that strive to improve teachers' understanding of educational standards will go far in building the self-confidence needed to meet the daunting challenge of implementation.

This report reviews North Carolina's current K-12 ELA and mathematics standards and offers findings and recommendations to improve these standards based on research, surveys, and focus groups. If adopted, the recommendations would clarify for teachers and parents the grade level topics (content) and the knowledge and skills to be mastered by students. The recommendations would also allow teachers flexibility and discretion in their choice of teaching methods.

English Language Arts Discussion

The following findings are presented in four categories: 1) clarity and focus; 2) implications for instruction; 3) age-appropriate practices; and 4) implementation and sustainability.

Clarity and Focus

In her testimony, Dr. Sandra Stotsky described standards as "clear statements that don't require interpreting or unpacking." She continued her testimony by stating that North Carolina's ELA standards essentially lack rich content, especially in the area of historical literary knowledge literature. Dr. Stotsky offered pertinent examples of content standards as presented in the 2004 Massachusetts ELA Standards, the version implemented prior to the adoption of the CCSS in 2011 (Academic Standards Review Commission, 2015).

Because Massachusetts has always enjoyed a reputation of having outstanding standards, the ELA Subcommittee chose to examine the 2004 framework, the standards in use prior to the CCSS adoption. A noteworthy feature in the document is a section titled "Ten Guiding Principles," which sets forth ten pillars of instruction. This information sets the stage for theory-to-practice instruction.

A useful instructional feature that once appeared in the Massachusetts standards is a typology of grade-level reading selections arranged in one of two categories: 1) Our Common Literary and Cultural Heritage; and 2) Contemporary American Literature. Additionally, the document contains practical resources ranging from pedagogical theories of ELA content to handy lists of teaching strategies. Exact wording removes any doubt about the instructional focus. In the following examples, one can readily see the difference in the precision with which the standards are expressed in the 2004 standards framework versus the 2011 example.

2004

MA.5.6 C.21.4: Improve word choice by using dictionaries.

MA.5.6 C. 21.5: Use knowledge of correct mechanics (end marks, commas for series, capitalization), usage (subject and verb agreement in a simple sentence).

2011

CC.5. W.5: With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or typing a new approach.

If the 2004 framework were in use today, a teacher in Massachusetts would have the benefit of handy resources containing grade-level scenarios that illustrate how to teach the standards.

The format in which the California State Standards (2008) are presented immediately draws in the reader. Beginning with a section titled "Content Standards and Instructional Practices," the document provides the theoretical foundation followed by purpose-setting goals and task descriptions. The vocabulary standards contain a high level of detail, giving an approximate number of words students are expected to acquire at each grade level. While teachers and parents might appreciate having this level of detail, the Fordham Institute (2010) cautions against number setting, since tracking student attainment, as a variable of formal instruction, would require extraordinary effort on the part of the schools. In other words, a student's operational vocabulary stems from many factors, many of which are beyond the scope of schools and teachers.

The sub-parts of the standard are plainly presented. For example, sixth grade students are expected to compose a variety of writing samples containing 500-700 words. In grade 7, students are introduced to literature-response writing, summary development, and persuasive writing. Academic and research writing are introduced in grades 9-12, as students study the informational/functional writing mode. The straightforward writing adds to the quality of the standards, as evidenced in the next standard.

1.2 Create multiple-paragraph compositions.

a. Provide an introductory paragraph.

b. Establish a central idea with a topic sentence near the beginning of the first paragraph.

c. Include supporting paragraphs with simple facts, details, and explanations.

d. Conclude with a paragraph that summarizes the points.

e. Use correct indention.

Using the 2008 California ELA Standards, a teacher today would know the indicators/signposts of effective readers and writers and benefit from guiding principles and theories of learning. The framework has all the features of an "on the spot" helpful resource for teachers.

The Virginia Standards of Learning (SOL) is the framework for organizing the K-12 curricula for public schools in the Commonwealth of Virginia. For each grade level, the document provides an overview of essential goals followed by the standards and detailed indicators. Students learn the conventions of grammar and mechanics through the writing content. The guidelines are focused and explicit. A web portal makes it possible for teachers and parents to

examine and download scored writing samples and to explore other resources that support the K-12 writing standards.

The reading standards are clearly delineated, thus helping teachers develop well-aligned lessons and activities. Teachers are informed of the essential goal expectations, according to grade level, not grade bands, as in the CCSS framework for grades 9-10 and 11-12. Similar to the California standards, Virginia standards are written such that a teacher could use the framework for daily planning. Below is a grade 3 reading standard.

Grade Three Standards of Learning (SOL)

3.6 The student will continue to read and demonstrate comprehension of nonfiction texts.

a. Identify the author's purpose.

b. Preview and use text features.

c. Ask and answer questions about what is read.

d. Draw conclusions based on text.

e. Summarize major points found in nonfiction texts.

f. Identify the main idea.

g. Identify supporting details.

h. Compare and contrast the characteristics of biographies and autobiographies.

Beginning in kindergarten, students receive direct instruction in writing. In grades 5 and 8, the state administers a writing assessment. At the high-school level, students take an end-of-course writing test. Detailed guidance for preparing students in writing is presented in helpful

assessment blueprints. Reviewing these blueprints leads to one conclusion: educators in Virginia are serious about systematic writing instruction.

The Texas Essential Knowledge and Skills (TEKS) for English Language Arts appear in the Texas Education Code, Chapter 110. The administrative code specifies that schools shall instruct five strands of content: 1) reading; 2) writing; 3) research; 4) listening and speaking; and 5) oral and written conventions. Below is an excerpt taken from the Texas Education Code §110.18. English Language Arts and Reading (grade 6).

(b) Knowledge and skills

(1) Students are expected to adjust fluency when reading aloud grade-level text.

(2) Students understand new vocabulary and use it when reading and writing.

(3) Students are expected to determine the meaning of grade-level academic English words derived from Latin, Greek, or other linguistic roots and affixes.

(4) Students use context to determine or clarify the meaning of unfamiliar or multiple meaning words.

The ELA standards present a clear progression from grade to grade. Similarly, the research standards present challenging learning expectations as students advance through the grades.

The North Carolina State Board of Education adopted the CCSS in 2010. Since adoption, school districts have experienced varying degrees of success implementing the standards. The ELA survey respondents who endorse the CCSS cite rigor in textual analysis and drawing inferences as important strengths. Teachers also value the instructional focus on explicit vocabulary study,

which they agree is beneficial to disadvantaged students whose reading experiences are limited to the school day.

Several teachers who attended the Sandhills meetings stated, "Good standards are very clear cut and leave little room for interpretation." The following CCSS reading standards provided by the Sandhills teachers are consistent with the general understanding of focus and clarity.

RL.1.6: Identify who is telling the story at various points in a text.

RL.2.4: Describe how words and phrases (e.g., regular beats, alliteration, rhymes, repeated lines) supply rhythm and meaning in a story, poem, or song.

RL.4.2: Determine the theme of a story, drama, or poem from details in the text; summarize the text.

On the other hand, teachers cited several examples of problematic standards caused by imprecise learning expectations. The next two examples represent this criticism.

RI.5.4: Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.

RI.6.7: Integrate information presented in different media or formats (e.g., visually, quantitatively), as well as in words, to develop a coherent understanding of a topic or issue.

Widely known among North Carolina teachers as an "unpacking" document, this resource is intended to deepen teachers' understanding of the written standards. While producing this resource is laudable, NCDPI should routinely evaluate the information, giving close attention to

precise, concrete instructions. Ideally, the "unpacking" documents should be a teacher's most reliable resource for interpreting the standards. In some instances, however, the "unpacking" documents contain ambiguous information.

Inconsistent use of terms detracts from the quality of the CCSS. An example is the random interplay between the following terms: main idea, central idea, and theme. These three terms are frequently found in the Reading Literature standards. In addition, the use of inexact adjectives such as "short and sustained" instruction begs for clarification.

During the October regional meetings, the participants provided numerous examples of problem standards, which include the following sample. Reading standards RL.1.6 and RL.4.2 are reasonably clear; however, the use of "domain specific" in RI.5.4 is imprecise.

RL.1.6: Identify who is telling the story at various points in a text.

RL.4.2: Determine the theme of a story, drama, or poem from details in the text; summarize the text.

RI.5.4: Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.

Implications for Instruction

Implementing new standards requires teachers to invest infinite hours adjusting to many unknowns. The best depiction of the process is represented in classroom teachers doing heroic work as they pivot in new directions. Examples of these and other instructional challenges are present in the survey data compiled by the ELA Subcommittee. For example, tackling what

seems to be an excessive number of standards is a widely shared concern of teachers. As a way to shed light on the number of standards per grade level, one teacher created and submitted the following table. It must be noted that no embedded standards are included in the table, meaning the "real" number could easily triple the instructional demands on teachers.

Table 1: Common Core Standards by Grade Level

Grade Levels	Literature	Informational Text	Foundational Skills	Writing	Speaking/ Listening	Language	Total
Kindergarten	10	10	17	7	8	21	73
Grade 1	10	10	19	7	9	27	82
Grade 2	10	10	11	7	9	25	72
Grade 3	10	10	9	21	10	31	91
Grade 4	9	10	6	25	10	26	86
Grade 5	9	10	6	25	10	24	84
Grade 6	9	10		28	10	22	79
Grade 7	9	10		28	10	19	76
Grade 8	9	10		28	10	21	78
Grades 9-10	9	10		28	10	18	75
Grades 11-12	9	10		28	10	17	74

The consequences of "too little time; too many standards" is raised by Schmoker (2011) in his recommendation to reduce the number of standards by one half, a suggestion that would align the CCSS menu of standards with practices adopted by high-achieving countries. Schmoker further stated that excessive standards result in teachers assigning endless worksheets, classroom resources marketed by large education publishing companies.

Excessive standards coupled with testing mandates restrict opportunities for students to read complete literary works, or to compose full essays and extended reports. The writing of choice is

little more than constructed responses. To support this point, several teachers in the Sandhills region noted their satisfaction with the CCSS writing standards, yet they also indicated having little time in the school day to provide systematic writing instruction. Essentially, daily instruction is proportional to the tested curricula, as teachers prudently budget their time with testing in mind. An important variable in teacher accountability is what North Carolina educators know as Standard 6: a mathematical calculation that results in a teacher's annual growth status. The net effect of rigorous teacher evaluation policies could further restrict instruction to the tested standards only.

Recurring in the survey findings are comments about learning gaps that are probably caused by "scope and sequence" weaknesses. Most assuredly, poor attempts to apply scope and sequence procedures across grade-level standards will complicate every aspect of instruction and set the stage for continuous lags in student progress. Another prevailing frustration pertains to textbook shortages in every subject area. The following example provided by a teacher captures the essence of the problem.

> Standard RL.9-10 requires students to determine how the author draws and transforms source material in a specific work (e.g., how Shakespeare treats a theme or topic from Ovid or the Bible or how a later author draws on a play by Shakespeare). Our students have such limited knowledge of history and literature that they cannot recognize allusions without serious scaffolding. Furthermore, as there are no instructional materials to teach this skill, it becomes time consuming to seek out the resources to prepare the lessons.

Another regional participant questioned whether teachers are expected to remediate each and every learning gap in the knowledge and skills of high school students. In general, high school teachers do not understand who is accountable for instruction when standards are coupled, as in grades 9-10 and 11-12.

Age-appropriate Practices

The National Association for the Education of Young Children (NAEYC) defines developmentally appropriate practice (DAP) as an approach to teaching that gleans from the research on human growth and development. The intent of DAP is to optimize young children's natural gateways to learning and consolidating new information and skills. The process of determining the age appropriateness of standards is sometimes referred to as age validation. Similar to the validation of content standards, age validation should include panels of childhood education professionals. The essential question standards writers must ask is whether the learning expectations conform to what experts know about child development at a particular age (NAEYC, 2015).

In her presentation to the Commission, Dr. Megan Koschnick, a child development expert, described the approach taken by the CCSS developers as "top-down" and reliant upon an idealized "college and career ready" student as the template for developing the standards (Academic Standards Review Commission, 2015). On the surface, this approach might seem logical, but in reality, "back-mapping" from grade 12 to kindergarten distorts timeless research on the natural stages of developing, adapting, and learning.

Referencing the work of Jean Piaget, the renowned pioneer of stage development theory, Dr. Koschnick cited a kindergarten literacy standard to explain the difference between concrete vs. abstract reasoning. This particular standard, which expects young students to understand "shades of meaning," goes far beyond the literal worlds of five-year-old students. As a brief explanation, terms such as believe, know, and wonder have approximate meanings. In fact, replacing "shades of meaning" with the familiar term, synonym, might validate the age-appropriateness of this standard. In short, language simplification could go a long way in resolving much of the angst generated by the CCSS. Wordiness does not equal rigor. As one Sandhills teacher stated, "Rigor is what the teacher requires. It has nothing to do with the standards."

Teachers who participated in the Sandhills regional meetings submitted two categories of standards: 1) examples of developmentally appropriate standards; and 2) those that are questionable.

Appropriate

K.MD.B.3: Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

RL.7.6.: Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.

Questionable

RI.2.2: Identify the main topic of a multi-paragraph text, as well as the focus of specific paragraphs within the text.

RL.1.2: Retell stories, including key details, and demonstrate understanding of their central message or lesson.

RL.3.4: Determine the meanings of words and phrases as they are used in text; distinguish literal from non-literal language.

Deriving "everyday" wisdom from fables and folktales could prove to be problematic for nine-year-old students (typically grade 3), yet certain standards in the Reading Literature strand make this a requirement. As one teacher explains, "Recounting a fable or folktale poses no problem for my students, but determining a lesson or moral is always something that we struggle with. It's an abstract process that many of my students are unprepared for."

Another teacher stated that in RL3.4 "students are not developmentally ready to understand the difference between literal and non-literal. Students do not understand the meaning of vague idioms because they do not use them in conversation." Furthermore, teachers must keep in mind that figurative language plays a stylistic role in verbal and written expression, with meanings often wedded to American culture; therefore, English Language learners will require extra attention when ELA standards have cultural-limiting implications.

The NAEYC is persistent in its scrutiny of the standards movement and urges education policy makers to evaluate content on the basis of learning expectations that align with child learning and development. If standards experts ignore the voices of childhood educators, the NAEYC recommends the professional field to hold standards developers accountable for improper validation procedures.

Implementation and Sustainability

The success or failure of a new idea, regardless of scale, depends on the individuals who hold the reigns of implementation. The quality of the effort is best assessed from the perspectives of the direct users: classroom teachers, curriculum specialists, and to some extent, parents. Teachers and school leaders must have an appreciable degree of self-efficacy, knowing how to access and utilize new resources and mitigate implementation barriers. In the case of the CCSS implementation, two structural realities (time for instruction and aligned resources) prevail in discussions among teachers.

Ideally, the implementation of new standards should never place non-tested subjects "on hold" in order to reallocate time to the "tested" content. For example, comprehensive writing instruction, a non-tested content area, is often ignored in order to address tested curricula. The mindset of "what is tested is taught" looms largely over teachers in this climate of hyper-accountability and testing. The following quote goes to the heart of the implementation-sustainability conundrum.

> I miss the times when we helped our students gain a love for writing. Students learned how to "hook" their readers. They developed their own voice and learned the process of brainstorming. This emphasis on testing has taken huge chunks of time away from thorough teaching.

Albeit understandable, finding ways to cut instructional corners undermines curriculum sustainability and robs students of a balanced instructional program. The following example is an anecdotal instance shared by a teacher.

> While the Common Core does contain strong writing standards, the number of standards and the emphasis on testing standards allow limited time to develop writers. I believe it would be a good idea to drop some of the reading standards so that an intense focus on writing is possible.

Teachers who attended the Sandhills meetings shared examples of parent complaints about "untaught" subjects, especially writing instruction for the college-bound students. Several explained that parents do not understand the difference between writing/composition and handwriting. The basic message is that parents want their children to learn cursive writing; however, very little time is afforded to handwriting lessons.

Given the emphasis on informational text, several teachers described how the ELA curriculum is losing the resonance of literature study and critical analysis. One teacher put it this way, "A bus schedule is not Byron." Clearly, many teachers worry that informational reading is redefining the purpose of the English Language Arts curriculum. One teacher stated, "I would like to see ELA have its own content again."

In order to implement and sustain standards-based curricula in North Carolina, school leaders must fully understand the negative, cascading effects of students without textbooks. The problem is substantiated in anecdotal accounts of teachers spending hours searching for teaching resources or "getting by" with old textbooks issued decades ago to students.

When asked to share the most common concerns of parents regarding the Common Core Standards, teachers in the Sandhills resolutely named "lack of textbooks" as that complaint. It is as basic as parents needing a textbook to help their children with homework. In that K-12 is pivoted toward digital textbooks in 2017, one teacher raised a compelling point against this direction. Sensitive to poverty in many school districts, the teacher stated, "Digital textbooks divide students into winners and losers, with the poor kids always losing." In general, teachers expressed balanced viewpoints on instructional technology, realizing that its primary purpose is to enhance student achievement. The teachers doubt that the digital movement will solve the current textbook problem in the state.

Mathematics Discussion

The following areas represent the major concerns identified by the Mathematics Subcommittee:

1. Substantial editing is needed (e.g., wordiness, math errors, typos).
2. The standards are unclear to parents.
3. The skills and content are not age-appropriate.
4. Teachers have little flexibility in selecting teaching methods.
5. The standards are too elaborate and complicated.
6. Models are over-emphasized at the expense of standard algorithms.
7. Efficient conversion to instruction is questionable.

Specifically, the Mathematics Subcommittee noted the following problems in grades K-8: 1) poorly constructed standards statements; 2) overuse of models; and 3) shortage of instructional

materials and textbooks. Regarding the high school standards, two findings are clear: 1) repeated standards; and 2) gaps in the coverage of requisite skills.

Grades K-8

Poorly Constructed Standards Statements

In its review, the Mathematics Subcommittee identified numerous typos, errors, and mathematical mistakes in the North Carolina standards. In addition, some standards were identified as being poorly done, including the teaching of fractions. The Mathematics Subcommittee noted that standards relating to probability and statistics are strikingly poor. Specific information and examples regarding the clarity issues in the North Carolina mathematics standards are found in the Math Work Group Final Report, which is the appendix section.

Overuse of Models

The North Carolina standards specify that teachers frequently use models. Models can be used to illustrate math or to do mathematical calculations, and they are good for motivating standard algorithms and short-cut mental calculations. Models are generally intrinsically slower than the standard algorithms and arithmetic rules of calculation. Some are or can be made into complicated obscure processes, which even Ph.D. mathematicians have a hard time reverse engineering (Ratner, 2014).

As evidenced by numerous published examples and parent complaints, some teachers make computations with models into monstrously complex exercises that parents and children cannot

understand. In addition, these teachers require students to master these computations in contradiction to the NCDPI policy of letting students use any method they know. Some teachers have told the ASRC that "they know best" and parents, by implication, should just be quiet. This belief does not contribute to good cooperation between parents and educators.

The Mathematics Subcommittee concurred that models, when used judiciously, can be considered a good instructional technique. However, the subcommittee recommends that teachers be able to choose which instructional techniques work best for them.

Shortage of Instructional Materials and Textbooks

The lack of textbooks was a serious problem noted in teacher focus groups, surveys, and parent testimony. In the ASRC survey of K-8 teachers, 60.4 percent complained about the lack of texts and instructional materials. This deficiency has forced teachers to search for lesson plan material on the Internet, which can be time consuming, and often teachers do not have the resources to share the materials they find. Some LEAs have made lesson plans for their teachers, but these can vary across the state. This finding defeats the promise that all North Carolina students have equal opportunity to receive a quality education.

Focus groups brought to light that the lack of textbooks, the new teaching techniques that parents do not understand, and the unavailability of the Internet in some students' homes make it difficult or impossible for parents to help their children with their homework. The models are unknown to parents, and many teachers will not accept the methods used and understood by parents who teach them to their children.

The Minnesota K-8 math standards are the only math standards in the country that meet the NMAP benchmarks, which make them globally competitive. Minnesota's standards are clear and succinct without the many complex or verbose standards found in North Carolina's standards. They also do not contain undefined or confusing terms in contrast to the North Carolina standards. Minnesota's standards are fine grained and deal with one issue at a time, as opposed to many NC standards that try to cover too many topics in one standard. The Minnesota standards allow teacher flexibility. Minnesota also encourages the use of models in a judicious way and allows teachers to choose the models they use in the classroom. Minnesota's students perform at or near the top in the National Assessment of Educational Progress (NAEP) tests.

Grades 9-12

In general, the high school mathematics standards suffer due to repeated standards and gaps in the coverage of requisite skills.

Repeated Standards

The first defect in the North Carolina mathematics standards is the word-for-word repetition of standards in different grades. In Math I and II, there are eight repeated categories of standards that contain 23 common standards; in Math I and III, there are eight repeated categories that contain 24 common standards; and in Math II and III, there are 10 repeated categories that contain 29 common standards. The common standards are identical, except for about three to five that have different subsections. A table of these standards appears in the appendix section.

This repetition of standards creates confusion for parents and teachers about the specific content in each course and about the level of difficulty from course to course. Without guidance, teachers struggle to find material at the appropriate level, and parents do not know what their children are being taught.

A second defect in the high school standards is the lack of "real world" problems, which is in contrast with the stress put on them in K-8.

Gaps in the Coverage of Requisite Skills

Many gaps exist in the sequence of mathematics standards, and these gaps create obstacles for successful instruction. Topics are often left for the teacher to complete. For example, students are asked to plot trigonometric functions and logarithms in Math I. However, trigonometric functions are not completely defined until Math III. Neither logarithms nor their properties are discussed in Math I, II, or III. The properties of logarithms depend on the rules of exponents, which are not taught in high school mathematics. As a result, some teachers feel obligated to spend time on the laws of exponents, logarithms, and trigonometric functions so that plotting is not mere calculator button pushing. As a result, they will have trouble completing all of the standards. Other teachers will try to cover all or most of the standards and put up with the button pushing. Due to these gaps, LEAs often specify what teachers do and do not teach. As a result, differences arise, and it becomes unclear whether or not there is a consistent set of state standards.

In addition, geometry, the treatment of radicals, and factoring are slighted in the North Carolina standards. Logic, deductive reasoning, formal proof, and indirect proof have been eliminated except for a few simple exercises in triangle congruence, and little emphasis is given to basic, typical multiplication and factoring patterns. Omitting these topics creates a gap in learning that students need for higher-level courses and college-level mathematics. Of equal importance are the many applications of deductive and indirect reasoning that adults apply daily. With the national emphasis on critical thinking, it is difficult to discern why the CCSS omitted logic and formal proof in geometry.

The obsession with modeling continues as students are taught to multiply polynomials and to factor by drawing boxes. One college instructor reported trigonometry students stopping to draw boxes in order to multiply two binomials and to factor a simple polynomial. Factoring basic polynomials should not require the time needed to construct a box. While models can certainly enhance a high school student's understanding, the learning should not stop with the model; otherwise, students will not be prepared for college level work.

Finally, probability and set theory are poorly done. Counting principles are missing, and there is a paucity of information about compound events. A teacher would have to spend extra class time to make these concepts clear. However, without the extra class time to make these concepts clear, the standards become shallow memorization exercises.

PART III. ENGLISH LANGUAGE ARTS AND MATHEMATICS RECOMMENDATIONS

The recommendations that follow are based on findings resulting from review procedures outlined in the Executive Summary of this report. Deliberation and discussion pursuant to these recommendations are documented in minutes and recorded proceedings of ASRC meetings.

1. Revise the current standards for English Language Arts and Mathematics (K-12), giving deliberate attention to the following criteria:
    - established theories of childhood learning and development;
    - content-specific learning tasks;
    - attention to scope and sequence;
    - precisely-worded statements containing a minimum number of learning tasks;
    - grade-level standards;
    - age-appropriate rigor; and
    - defined levels of student mastery.
2. Provide a variety of professional development opportunities to help school districts strengthen curriculum development policies and practices. Assistance to districts should include the following:
    - designing standards-based lessons and assessments;
    - developing "classroom ready" supporting documents;
    - balancing instructional time in order to ensure systematic instruction of all subjects; and
    - achieving strong alignment of standards, instruction, and testing.
3. Establish a definition of high-quality North Carolina education standards. Having a uniform definition will unify state and LEA efforts around the selection of classroom

resources; developing state and local pacing guides; designing tests and assessments; and planning professional development goals. Furthermore, the definition will serve as the gold standard for all policy decisions pertaining to standards-based education in North Carolina public schools. At a minimum, the definition should address the following:

- childhood learning and development;
- scope and sequence (grade and content);
- age-appropriate rigor and challenge; and
- focus and clarity.

4. Contingent upon State Board of Education adoption of the recommendations, NCDPI should align future tests and assessments to the revised standards. Given that most standardized testing is currently aligned to the CCSS, it is recommended that the State Board of Education and NCDPI use resources within the state to develop North Carolina tests for the purpose of measuring student proficiency.

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APPENDIX A
COMMISSION CHARGE – SENATE BILL 812

GENERAL ASSEMBLY OF NORTH CAROLINA SESSION 2013 SESSION LAW 2014-78
SENATE BILL 812

S812-v-3

AN ACT TO EXERCISE NORTH CAROLINA'S CONSTITUTIONAL AUTHORITY OVER ALL ACADEMIC STANDARDS; TO REPLACE COMMON CORE; AND TO ENSURE THAT STANDARDS ARE ROBUST AND APPROPRIATE AND ENABLE STUDENTS TO SUCCEED ACADEMICALLY AND PROFESSIONALLY.

Whereas, the North Carolina Constitution, Article IX, Section 5, directs the State Board of Education to supervise and administer a free public school system and make all needed rules and regulations in relation thereto, subject to laws enacted by the General Assembly; and
Whereas, the North Carolina General Statutes direct the State Board of Education to adopt and modify academic standards for the public schools; and
Whereas, the North Carolina General Statutes also grant local boards of education broad discretion and authority with respect to specific curricular decisions and academic programs, as long as they align with the standards adopted by the State Board of Education; and
Whereas, North Carolina desires its academic standards to be among the highest in the nation; and
Whereas, the adoption and implementation of demanding, robust academic standards is essential for providing high-quality education to our students and for fostering a competitive economy for the future of our State; and
Whereas, North Carolina's standards must be age-level and developmentally appropriate; Now, therefore, The General Assembly of North Carolina enacts:
SECTION 1.(a) The State Board of Education shall:
(1) Continue to exercise its authority under the North Carolina Constitution and G.S. 115C-12(9c) to adopt academic standards for the public schools.
(2) Conduct a comprehensive review of all English Language Arts and Mathematics standards adopted under G.S. 115C-12(9c) and propose modifications to ensure that those standards meet all of the following criteria:
a. Increase students' level of academic achievement.
b. Meet and reflect North Carolina's priorities.
c. Are age-level and developmentally appropriate.
d. Are understandable to parents and teachers.
e. Are among the highest standards in the nation.
(3) Not enter into any agreement, understanding, or contract that would cede control of the Standard Course of Study and related assessments. This requirement does not prohibit the use of national or international curricula, such as the Advanced Placement or International Baccalaureate programs.
(4) Involve and survey a representative sample of parents, teachers, and the public to help determine academic content standards that meet and reflect North Carolina's priorities and the usefulness of the content standards.
(5) Prior to making changes to the standards, consult with the Academic Standards Review Commission, which is established in Section 2 of this act.

SECTION 1.(b) Academic standards adopted by the State Board of Education under G.S. 115C-12(9c) shall continue to be named and referred to as the "North Carolina Page 2 Session Law 2014-78 Senate Bill 812-Ratified Standard Course of Study," reflecting emphasis on North Carolina's needs and priorities. The State Board of Education shall maintain and reinforce the independence of the North Carolina Standard Course of Study and related student assessments, rejecting usurpation and intrusion from federally mandated national or standardized controls.

SECTION 2.(a) There is established the Academic Standards Review Commission. The Commission shall be located administratively in the Department of Administration but shall exercise all its prescribed powers independently of the Department of Administration.
SECTION 2.(b) The Commission shall be composed of 11 members as follows:
(1) Four members appointed by the President Pro Tempore of the Senate. The President Pro Tempore shall consider, but is not limited to, appointing representatives from the following groups in these appointments: parents of students enrolled in the public schools; Mathematics and English Language Arts teachers; Mathematics and English Language Arts curriculum experts; school leadership to include principals and superintendents; members of the business community; and members of the postsecondary education community who are qualified to assure the alignment of standards to career and college readiness.
(2) Four members appointed by the Speaker of the House of Representatives. The Speaker of the House of Representatives shall consider, but is not limited to, appointing representatives from the following groups in these appointments: parents of students enrolled in the public schools; Mathematics and English Language Arts teachers; Mathematics and English Language Arts curriculum experts; school leadership to include principals and superintendents; members of the business community; and members of the postsecondary education community who are qualified to assure the alignment of standards to career and college readiness.
(3) Two members of the State Board of Education as follows: (i) the Chair or the Chair's designee and (ii) a member appointed by the Chair, representing the State Board's Task Force on Summative Assessment.
(4) One member appointed by the Governor.
No individual serving in a statewide elected office or as a member of the General Assembly shall be appointed to the Commission. The Commission shall meet on the call of the Chair of the State Board of Education no later than September 1, 2014. The cochairs of the Commission shall be elected during the first meeting from among the members of the Commission by the members of the Commission.
SECTION 2.(c) The Commission shall:
(1) Conduct a comprehensive review of all English Language Arts and Mathematics standards that were adopted by the State Board of Education under G.S. 115C-12(9c) and propose modifications to ensure that those standards meet all of the following criteria:
a. Increase students' level of academic achievement.
b. Meet and reflect North Carolina's priorities.
c. Are age-level and developmentally appropriate.
d. Are understandable to parents and teachers.
e. Are among the highest standards in the nation.
(2) As soon as practicable upon convening, and at any time prior to termination, recommend changes and modifications to these academic standards to the State Board of Education.
(3) Recommend to the State Board of Education assessments aligned to proposed changes and modifications that would also reduce the number of high-stakes assessments administered to public schools.
(4) Consider the impact on educators, including the need for professional development, when making any of the recommendations required in this section.
The Commission shall assemble content experts to assist it in evaluating the rigor of academic standards. The Commission shall also involve interested stakeholders in this process and otherwise ensure that the process is transparent.

SECTION 2.(d) The Commission shall meet upon the call of the co-chairs. A quorum of the Commission shall be nine members. Any vacancy on the Commission shall be filled by the appointing authority. The Commission shall hold its first meeting no later than September 1, 2014.
SECTION 2.(e) To the extent that funds are available, the Commission may contract for professional, clerical, and consultant services. Professional and clerical staff positions for the Commission may be filled by persons whose services are loaned to the Commission to fulfill the work of the Commission.
SECTION 2.(f) The Department of Administration shall provide meeting rooms, telephones, office space, equipment, and supplies to the Commission and shall be reimbursed from the Commission's budget, to the extent that funds are available.
SECTION 2.(g) To the extent that funds are available, the Commission members shall receive per diem, subsistence, and travel allowances in accordance with G.S. 138-5, 138-6, or 120-3.1, as appropriate.
SECTION 2.(h) Upon the request of the Commission, all State departments and agencies and local governments and their subdivisions shall furnish the Commission with any information in their possession or available to them.
SECTION 2.(i) The Commission shall make a final report of its findings and recommendations to the State Board of Education, the Joint Legislative Education Oversight Committee, and the 2016 Session of the 2015 General Assembly. The Commission shall terminate on December 31, 2015, or upon the filing of its final report, whichever occurs first.
SECTION 3.(a) G.S. 115C-174.11(c)(3) is repealed.
SECTION 3.(b) The State Board of Education shall continue to develop and update the North Carolina Standard Course of Study in accordance with G.S. 115C-12(9c), including a review of standards in other states and of national assessments aligned with those standards, and shall implement the assessments the State Board deems most aligned to assess student achievement on the North Carolina Standard Course of Study, in accordance with Section 9.2(b) of S.L. 2013-360 and Section 5 of this act.
SECTION 4. G.S. 115C-12(39) reads as rewritten:
"(39) Power to Accredit Schools. – Upon the request of a local board of education, the State Board of Education shall evaluate schools in local school administrative units to determine whether the education provided by those schools meets acceptable levels of quality. The State Board shall adopt rigorous and appropriate academic standards for accreditation after consideration of (i) the standards of regional and national accrediting agencies, (ii) the Common Core Standards adopted by the National Governors Association Center for Best Practices and the Council of Chief State School Officers, the academic standards adopted in accordance with subdivision (9c) of this section, and (iii) other information it deems appropriate.
The local school administrative unit shall compensate the State Board for the actual costs of the accreditation process."
SECTION 5. The State Board of Education shall report to the Joint Legislative Education Oversight Committee by July 15, 2015, on the acquisition and implementation of a new assessment instrument or instruments to assess student achievement on the academic standards adopted pursuant to G.S. 115C-12(9c). The State Board shall not acquire or implement the assessment instrument or instruments without the enactment of legislation by the General Assembly authorizing the purchase. The assessment instrument or instruments shall be nationally normed, aligned with the North Carolina Standard Course of Study, and field-tested. Examples of appropriate assessment models would include, but not be limited to, the Iowa Test of Basic Skills (ITBS), the Scholastic Aptitude Test (SAT), ACT Aspire, and the National Assessment of Educational Progress (NAEP).
SECTION 6. Local boards of education shall continue to provide for the efficient teaching of the course content required by the Standard Course of Study as provided under G.S. 115C-47(12). The current Standard Course of Study remains in effect until official notice is provided to all public school teachers, administrators, and parents or guardians of students enrolled in the public schools of any changes made in the Standard Course of Study by the State Board of Education.

SECTION 7. This act becomes effective July 1, 2014.
In the General Assembly read three times and ratified this the 16th day of July, 2014.
s/ Philip E. Berger
President Pro Tempore of the Senate
s/ Thom Tillis
Speaker of the House of Representatives
s/ Pat McCrory
Governor
Approved 12:07 p.m. this 22nd day of July, 2014

APPENDIX B
SUMMARY OF COMMISSION PROCEEDINGS

Education Specialists: During the course of the Commission's monthly board meetings, education experts were invited to present their findings and analysis on the impact of NC Common Core Standards within their field of work or study.

1. Dr. Rebecca Blessing, Communications Director and KCAS Product Manager of the Kentucky Department of Education presented the "Kentucky Challenge" to the Commission. Dr. Blessing discussed Kentucky's approach to revising standards. Like North Carolina, Kentucky reviews their standards every four to five years. Kentucky implemented the CCSS in 2011-2012, and has undertaken an open survey for stakeholders to provide feedback on the standards. Dr. Blessing estimated that the cost of developing and implementing new standards would be $35 million dollars, and suggested that they would recommend changes to the Kentucky State Board

of Education in the fall of this year. For access to the "Kentucky Challenge," click on the following link:
http://www.doa.nc.gov/asrc/documents/02162015/KentuckyCoreAcademicChallenge.pdf

2. Dr. Sandra Stotsky, Professor of Education Reform at the University of Arkansas, presented to the Commission on her experience as a part of the Common Core State Standards validation committee. Dr. Stotsky expressed her dissatisfaction with the Common Core development and validation process, noting that she found both its writers and validators under-qualified for the task. Stotsky also described several flaws she saw in the standards, most importantly the lack of content defined in the standards. For access to Stotsky's credentials and presentation, click on the following link:
http://www.doa.nc.gov/asrc/documents/03162015/NorthCarolinatestimony2015.pdf

3. Dr. James Milgram, Professor Emeritus of Mathematics at Stanford University, presented to the Commission on his experience as a part of the Common Core State Standard validation committee. Dr. Milgram noted his research on the United States' underperformance in mathematics compared to our international peers. He argued that, in order to provide a competitive education, the group writing North Carolina's math standard should have strong representation of serious research
Mathematicians. Milgram pointed to the lack of standards-writing experience among the writers of the Common Core State Standards, and presented several problems he saw as a result of this lack of experience. For access to Milgram's presentation, click on the following link:
http://www.doa.nc.gov/asrc/documents/03162015/ErrorsInCCMathStandardsMilgram-Wurman.pdf

4. Dr. Kevin Perks, District Services Program Associates for Learning Innovations at WestEd presented about standards implementation. Dr. Perks spoke to a few primary topics, including the role of standards, how educators use standards, the support teachers need, and the impact new standards have on schools and districts. Perks argued that standards are the foundation on which education is established, that they are not curriculum, but the basis for curriculum. He noted that he has seen a continuum of implementation in schools he has worked with, highlighting that teachers have to discuss and process standards in groups in order to ensure strong implementation. Perks underlined the need for support for teacher collaboration to ensure appropriate digestion, sorting, and application of the standards. For access to Perk's presentation, click on the following link:
http://www.doa.nc.gov/asrc/documents/03162015/ImplementingHighStandards_K_Perks.pdf

5. Mr. Jerry Egolf, representing the North Carolina Education Coalition and whose work has invested in scrutinizing the ELA and Math Common Core, addressed the Commission with their presentation entitled "Excellence in Academics: North Carolina Plan."
Mr. Egolf stated that the Coalition's five-year plan was led by a goal to ultimately replace Common Core with a set of standards that emphasizes critical thinking. For access to Mr.

Egolf's credentials (as well as his colleagues Linda Harper and Kathy Young's) and presentation, click on the following links:
http://www.doa.nc.gov/asrc/documents/06152015/Briefing20150615-ASRC.pdf
http://www.doa.nc.gov/asrc/documents/06152015/EgolfbioASRC20150615.pdf
http://www.doa.nc.gov/asrc/documents/06152015/HarperresumeASRC20150615.pdf
http://www.doa.nc.gov/asrc/documents/06152015/YoungbioASRC20150615.pdf

6. Kip Blakely, Vice-President of Industry and Government Relations at the NC Chamber of Commerce, addressed the Commission and talked about his company's experiences while working with students through Aviation community and colleges. He noted that the students that they were initially meeting were "not getting the skills at the colleges and high school which, led his company to the middle schools for the skills" that they sought. Mr. Blake talked at length about getting business involved in training students through programs and internships "to equip students with various skills." He did not submit any written material to support his oral presentation but, for access to his bio, click on the following link:
http://www.doa.nc.gov/asrc/documents/07202015/KipBlakelybio.pdf

7. Dr. Hope Williams, President of the NC Independent Colleges and Universities, addressed the Commission and stressed that professional development is tapped every time the state changes standards, and that teachers "fear another wholesale change in standards, and request a 5-year test study." Dr. Williams also pointed out that, teachers need to have the freedom to adjust curriculum based on existing standards, and that "teachers request consistency, rigorous state standards, and reasonable testing." For access to her credentials and presentation, click on the following links:
http://www.doa.nc.gov/asrc/documents/07202015/DrWilliamspresentationmaterials.pdf
http://www.doa.nc.gov/asrc/documents/07202015/AHopeWilliamsBio.pdf

8. Dr. Rebecca Garland, Deputy State Superintendent of the Department of Public Instruction, addressed the Commission, and a focal point of her discussion was on how the "traditional school calendar appears to produce higher student achievement," and that student achievement appears to be "slightly lower with blocked school calendars," based on recent NAEP reports. To access Dr. Garland's bio and presentation materials, click on the following links:

http://www.doa.nc.gov/asrc/documents/07202015/RebeccaGarlandShortBio.pdf
http://www.doa.nc.gov/asrc/documents/07202015/DrGarlandTalkingpointsJULY.pdf
https://nces.ed.gov/nationsreportcard/pubs/studies/2015046.aspx

9. Ms. Carole Ardizzone, co-founder and current Education Chair of the Board of Brookstone School, a faith-based K-8 School of Excellence for at-risk children in Charlotte, North Carolina, presented a study of her work to the Commission. Ms. Ardizzone cited how neurologically-based learning is a relevant subject in discussing the developmentally appropriate standards for young students---while citing specific standards (CCSS) in the First Grade as examples of developmentally inappropriate standards for that grade level.

Her talking points included the importance of understanding the brain to know how to teach students, how teaching to mastery is imperative, how the use of Bloom's Taxonomy and Piaget's Theory are necessary tools, and how technological devices interfere with the brain's development from birth to 8 years. To access Ms. Ardizzone's credentials and an outline of her presentation and bibliography, click on the following links:
http://www.doa.nc.gov/asrc/documents/08172015/CaroleArdizzoneBio.pdf
http://www.doa.nc.gov/asrc/documents/08172015/TheCriticalNecessityofDevelopmentallyAppropriateStandards.pdf

10. Principal Carrie Tulbert, NC Principal of the Year, 2014-2015, and Principal Dale Cole, 2013 Wells Fargo NC Principal of the Year both presented their views to the Commission simultaneously, using combined presentation materials which can be accessed through the following link:
http://www.doa.nc.gov/asrc/documents/09212015/CommonCoreStandardsPresentation.pdf

    Their talking points evolved around how the Common Core state standards themselves "were not the issue," and that "implementation needs time"; that the Common Core could have been better communicated and implemented; that teachers be allowed access to proper professional training and development; that standards need to be written in a language that everyone understands, including the difference between standards and curriculum. Their individual bios may be accessed through the following links:
    http://www.doa.nc.gov/asrc/documents/09212015/PrincipalMsTulbertBIO.pdf
    http://www.doa.nc.gov/asrc/documents/09212015/PrincipalMrColeBIO.pdf

11. Dr. Tammy Howard, Director of Accountability Services at the Department of Public Instruction, addressed questions posed by members of the Commission on standardized testing scores. The Commission had requested for data on previous years' test scores prior to the board meeting, and Dr. Howard and her colleague, Dr. Curtis discussed the data from the NAEP to the ASRC. To access her power point slides and relevant data, click on the following links:

    http://www.doa.nc.gov/asrc/documents/11132015/AcademicStandardsReviewCommissionEOG-EOGDataRequest10232015.pdf

    http://www.doa.nc.gov/asrc/documents/11132015/AcademicStandardsCommission111315.pdf

APPENDIX C
ELA REPORT ON PRELIMINARY FINDINGS

To access an electronic copy of the ELA Report on Preliminary Findings, click on the following link: http://www.doa.nc.gov/asrc/documents/08172015/ELAReviewNRecommendations.pdf

APPENDIX D
MATHEMATICS REPORT OF PRELIMINARY FINDINGS

To access an electronic copy of the Math Report on Preliminary Findings, click on the following link:
http://www.doa.nc.gov/asrc/documents/08172015/InterimReport2MathWorkGroup.pdf

APPENDIX E-1
TEACHER SURVEY RESPONSES

Summary Highlights of the K-8 Mathematics Survey Responses

1. **As of Sept. 16, 2015, the K-8 Math survey had 554 respondents** to 18 questions designed by the Academic Standards Review Commission.

2. Out of the 554 respondents,

   A. 40.5% or 224 taught K-3
   B. 33.3% or 184 taught grades 6-8
   C. 20.4% or 113 taught grades 4-5
   D. 4% or 22 were Math Curriculum/Instructional Facilitators
   E. 1.8% or 10 taught grades 9-12 (even if this is a K-8 survey)

3. Survey respondents indicated their years of teaching experience as follows:

   A. 34.5% or 195 had 15 or more years of experience
   B. 14.2% or 78 had 1 to 3 years of experience
   C. 13.6% or 75 had 12 to 15 years of experience
   D. Another 13.6% or 75 had 7 to 9 years of experience
   E. 12.5% or 69 had 4 to 6 years of experience
   F. 10.7% or 59 had 10 to 12 years of experience

4. Survey respondents rated themselves as to their having appropriate support to teach the Math standards for their grade levels:

   A. 57.2% or 315, "agree"
   B. 19.2% or 106 "strongly agree"
   C. 13.6% or 75, "disagree"
   D. 5.4% or 30 had, "no opinion"
   E. 2.9% or 16, "strongly disagree"
   F. 1.6% or 9, stated "Other"

5. Out of the 554 survey respondents, **289 educators or 52.6% strongly agreed that the NC Math standards do not limit their autonomy/flexibility as a teacher**. On the other hand, 17.1% or 94 respondents disagreed. Another 90 respondents or 16.4%, strongly agree. 10.7% had no opinion, and 3.1% 0r 17 respondents strongly disagree.

6. **In reference to the question of whether the majority of students who had entered their class this (past) year needed remediation, 34.9% or 192 survey respondents say they "agree."** Another 166 teachers or 30.2% "strongly agree." 24.7% or 136 teachers "disagree", 40 respondents or 7.3% had no opinion, and 2.9% or 16 teachers "strongly disagree."

7. **In reference to the question of whether the Math standards adequately address the teaching of standards algorithms skill, 48.6% or 267 teachers "agree."** However, 24.8% or 136 teachers "disagree". Furthermore, 17.1% or 94 teachers had "no opinion," another 6% or 33 teachers "strongly agree", and 3.5% or 19 "strongly disagree."

8. **When asked whether it is easy to understand and interpret the Math standards, 49.3% or 271 teachers "agree."** On the other hand, 29.8% or 164 "disagree." Forty-three teachers or 7.8% strongly agree; 41 respondents or 7.5% had "no opinion," and 31 teachers or 5.6% "strongly disagree."

9. **Survey respondents rated their ability to easily translate the Math standards into instruction as follows: 53.6% or 296 teachers "agree."** However, 24.1% or 133 teachers "disagree."

   Another 58 teachers or 10.5% said that, they "strongly agree", another 55 teachers or 10% had "no opinion", and 10 teachers or 1.8% expressed that they "strongly disagree."

10. Survey respondents rated the given list of potential concerns that they have with the present Math standards. **Their number 1 concern was that, "Multiple tasks that may be imbedded in one standard," (58.7%).** Other concerns were rated as the following:

Developmental appropriateness for grade level	56.5%
Lack of clarity with the way some standards are written	46.3%
Sequence/Progression of standards	34.1%
None of these are concerns for me	8.6%
Missing topics that should be taught at this level	4.9%
Specified new methods as opposed to standard algorithms	2.6%

11. **Survey respondents rated the given list of situations that may have impacted their ability to implement the present NC Math standards with fidelity. The "students arriving to class with learning gaps since standards were applied to all grade levels in the same year (i.e. not**

phased in)" was the number 1 situation (64.2%), and closely followed by the situation of "lack of textbooks/instructional materials aligned with standards" (60.4%).

Other situations identified by respondents were as follows: Amount of class time/days in school to cover all standards adequately (39.8%); (24.2%), and Adequate time for professional development (22.9%); 8.5% said "none of these situations apply to me," another 8% checked the option "Other".
4.9% of respondents referenced the "Inability to alter schedule to meet needs of students," 2.5% cited the "lack of opportunity to be creative in teaching and inspiring students," and another 2.2% of respondents cited the "lack of flexibility to use my own teaching methods and judgement."

12. Survey respondents identified, from a given list, which items would help them to implement the NC Math standards with fidelity. Their response was, **"the need for textbooks" (56.2%), "professional development" (47%), and "technology" (38.4%).** Other responses were, "Personnel" (28.1%), "Other" (19.9%), "Changes in standards," (5.4%), and "More flexibility" (3.9%).

13. Survey respondents identified specific standards that they are required to teach but would like to see dropped or, substantially revised for their respective grade levels. ***Some*** of their responses were the following:

6.G.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

3.G.1

8.ee.6

Statistics

5.MD.2

2.nbt.7 subtracting three digit numbers.

6th grade math is at grade level. The problem is students not learning basic skills like multiplying.

Don't have materials with me to say

8.EE.C.7 Solving pairs of simultaneous linear equations

K.OA.1.

I wouldn't want to see any standards dropped. I would like to have less testing/re-testing to allow for more learning time.

6.G.4

Represent and interpret data. CCSS.MATH.CONTENT.1.MD.C.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

With the 5th grade standards I find them grade level appropriate. In my years of teaching these standards, in my opinion, are aligned properly. It seems that the standards somehow tie in together. With the NCSCOS, the objectives were so broad and you didn't know how deep to teach the content. With CCSS you know exactly what to teach. But it is important that you know HOW to teach the standards, I would be disappointed see a change in the 5th standards.

I do not want any of the standards to be changed or sequenced differently.

They are all fine.

Non-standard measurements

4.NBT.6

I would like to see the mean average deviation dropped from the 6th grade statistics curriculum.

4.NBT.1

Subtraction with regrouping for second grade. I do not have the standard and am on vacation so not searching right now! The students have a very difficult time with this task/ standard and we were not to use the standard algorithm making it more difficult for parents to understand.

All of the standards for fractions need to be looked at and revised. There are so many that it is difficult to get to all of them as well as to make sure the students have understood and can perform them well. I feel like they are introduced but the students never have enough time to master them since there are so many other standards we must get to. Fourth grade has 7 different strands for this topic whereas third grade and fifth grade only have 3-4. We also have to teach using many different denominators whereas they come with only the basic denominators from third grade. It is very overwhelming for teachers, students, and parents to master this.

8.SP.4 (Two Way Tables) 8.EE.3 and 8.EE.4 (Operations with Scientific Notation)

5.GA.2

In the 6th grade I would like to see the emphasis on memorizing different geometric formulas reduced or dropped, especially for the surface area of 3D shapes. It would be great if the students could be allowed a formula sheet. Also, I a form an assessment that measures student growth. A student may become proficient in computing with fractions, but that growth will never be recognized because the skill is embedded within a two step algebra problem. Our a student may have learned how to solve a two-step algebra problem, but the learning gain is not seen because of the problem is explained within a 3 sentence word problem.

7.G (ALL)

8.ns

2.HCSobj Solve problems to determine a duration of time. Represent time as a horizontal sequence. Use a timeline to determine duration. Move forward and backward along timeline in multiples of hours, half hours, and quarter hours.

6.EE.3 Apply the properties of operations to generate equivalent expressions.

K.OA.A.3 Decompose numbers less than or equal to 10 into pairs in more than one way, e.g, by using objects or drawings, and record each decomposition by a drawing or equation (e.g.,5=2+3 and 5=4+1)

I think they are all important in kindergarten

50A2

6.rp.3

I am new to the grade level I will be entering. My county did provide some training this summer that was helpful.

Anything dealing with slope, example 8.F.B.4.

fractions in 5th grade- multiplying and dividing

3.MD.8 Solve real world and mathematical problems involving perimeters

Cross sections of 3d figures Constant of proportionality

1.G.1??

8.G.7 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real world and mathematical problems in two and three dimensions.

3.MD.7 Relate area to the operations of multiplication and addition. d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. 3.MD.1 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram

6.RP.1

5.NBT.7 Specifically multiplication and division of decimal numbers using models or drawings. This standard is developmentally inappropriate for fifth grade.

6.SP.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

Parts of Geometry, for instance the transformation part. This need to be introduced to Geometry students in Math 2. Historical graphs: It which need to be covered after students understands the relationship between slope and rate of change

8.EE.8B Solve systems of two linear equations in two variables algebraically, and estimate solutions by graphing the equations. Solve simple cases by inspection. For example, $3x + 2y = 5$ and $3x + 2y = 6$ have no solution because $3x + 2y$ cannot simultaneously be 5 and 6.

3.OA.5

4.NF.2

The most difficult standard for my fifth graders to grasp is identifying the correct operation for word problems involving fractions

K. NBT.A1 This is a difficult for kindergarten students to grasp. The past few years I have noticed students getting extremely frustrated and unable to understand tens and ones.

6.G.5c

7.G.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids. 7.SP.7 Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy. Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events. For example, if a student is selected at random from a class, find the probability that Jane will be selected and the probability that a girl will be selected. Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process. For example, find the approximate probability that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?

3.OA.9

5.G.B.3 Hierarchy of polygons

Please stop reinventing the wheel. Leave them alone and let us teach. Us your efforts and make a state wide curriculum that is available for all teachers to use. Look at New York on Georgia of examples.

None, although 5.G.4 is very confusing for fifth graders.

1.G.3

3.MD.A. 2. Measuring liquid volumes and masses.

14. Survey respondents were asked to elaborate on why they found particular standards to be problematic. ***Some*** of their responses were the following:

the metric part is not appropriate

The students do not understand the word problems because they are too difficult.

Two way tables are not used often and do not flow well in to Math I skills. Operations with scientific notation are very different to teach when students don't yet understand the exponential rules. This may be better used with in the Math I curriculum.

Both of these focus on the distributive property of multiplication. I do not feel thirds graders are developmentally ready to do this when it is not broken down into the power of 10. Finding the area of irregular shapes is very difficult for this age group and they often times do not make the connection between this and the distributive property.

With this standard, problems can be written in a tricky manner, confusing the students.

Unsure

This standard is misleading. It makes it seem that it is the only standard that deals with multistep word problems because it is the only one that explicitly says this. However, when the statewide assessments are presented to our learners ALL standards are framed as multistep word problems.

Why needed? Why 3 names for slope (unit rate, constant proportionality, slope)

In my experience, students are not developmentally ready to solve systems of linear equations algebraically in the eighth grade.

It is not developmentally appropriate for first grade.

Not developmentally appropriate.

This standard is easy to teach, however, I fee students come to sixth grade ill-prepared for mastering this skill. They need far more work in understanding the other operations with fractions before working with division of fractions.

Above students' understanding - need more of an integer and Algebra background!

Unclear and not developmentally appropriate

This standard is embedded with graphing slopes.

It only addresses part of the metric system.

It is unfathomable to me why a 6th grade student needs to be able to perform this task, and even those who can perform are only doing the algorithms and do not truly understand its application in real world scenarios. This is more appropriate for a high school or college statistics class.

Obvious.

Children really struggle with conversions in measurement. I think they need to have a strong background knowledge of standard and metric measurement before they can master multi-step problems. It is very difficult for them to express measurement from larger units to smaller units when they have not mastered the basics of measurement.

The only problem I have with the standard is the box plots. I like to connect our math content with real world applications and the box plot is the only part of the standard I feel has no relevance.

I would like more clarity on things like solve "real world" problems ; "explain why" ; "compare" ; "interpret". The verbs are not as concrete as I would like them. They leave room for a lot of interpretation.

There is a huge gap of knowledge here. Money, for example is addressed in grade 2, but only in terms of how it is counted, not how it is written in decimal form. Grade 3 does not address money at all. Grade 4 addresses decimals, but not money. There is an "assumption" that teachers will use money to teach decimals. There is also a tremendous amount of vocabulary & memorization required for this standard. It involves standard and metric measurement of distance/length, mass/weight, capacity and volume. Then, there is time. There are conversions. It is just too much embedded in one standard.

Students already have the hard task of composing and decomposing numbers adding and subtracting numbers within ten. Kindergarten students all come in different developmental stages. Seeing the + - = signs are new to kindergarten students have so much that is expected of them numbers 11-19 is even a struggle for them to remember.

Age-appropriateness of the level of understanding is too difficult for 1st grade

In order to teach the standard as written, students must estimate where the placement of the decimal should be placed after much exploration with models. The models become incredibly messy, are very small, and are difficult to make sense of without a tremendous amount of practice. There are too many standards and adequate time cannot be given to develop the necessary understandings.

The metric system is not real life to a 4th grader. I don't mind the common core. I am extremely concerned with the age appropriateness of the questions. Students in my area struggle on the EOG because there are too many hidden steps. We need to assess the basic knowledge and not try and trick these small children. More time and practice solidifying basic algorithmns is needed at the K-5 level.

Students at this age have difficulty comparing the different values of place values.

There aren't enough resources available to help students visualize cross sections. There are entirely too many SP standards and 7.SP.7 is very confusing.

Third grade is not ready for division

I have no problem with the way this standard is written. In the past, we have taught the standard exactly as it is written. For testing with DPI tasks, students are now required to also know that 706 could be 70 tens and 6 ones or 706 ones. This is very tricky for second graders and many students are not developmentally ready for that yet.

Area- It is too abstract, even higher students struggle with it. It does not seem developmentally appropriate

Time- the standard is not clear as to elapsed time within/over an hours. It has been a topic of great discussion with several district teachers as to what it really expected.

the use of informal language to describe and compare shapes is subjective. It should be clear about the informal words that a kindergartner will use. The words corners, vertices, sides, etc are actually formal words to describe and compare shapes.

My students really struggled to conceptualize what a number line is and how to move along it. They got really confused with how to make jumps and how to skip along the line and what kind of math was occurring as they moved one way or the other. I would like for this standard to be reviewed and possibly revised, but not dropped altogether.

The students cannot connect the 3 dimension to a 2 dimensional net and find missing lengths.

Difficult for 2nd graders to verbalize or write in the form of an explanation. Explain through drawings would work.

Students struggle to visualize parts of numbers being multiplied and divided and why the products become smaller and the quotients become larger - it is a reverse thinking for them after multiplying and dividing large whole numbers. This standard is not developmentally appropriate in my opinion.

Students have a hard time deciphering between the wording of various word problems to decide if addition or subtraction would be the best strategy for solving it. Some of those word problems call for subtraction through unknown addend problems. These can be tricky or confusing for students.

Kindergarten children have a hard time understanding this math concept, I don't feel it is developmentally appropriate

Many of our second grade students are not developmentally ready to understand/comprehend all that is being asked of them in the completion of many of the word problems they are required to answer. They can be very abstract.

There are too many skills in this standard. I feel like multiplicity should be 1 grade level and dividing should be another. Students find it hard to grasp the many different steps how to differentiated between multiplying and diving when solving problems and understanding of this concept.

More instructional time should be spent on other Geometry standards.

Too high level for middle school students. Too many embedded skills within that they do not have mastered.

This standard takes a long time to teach first graders when we are already cramped for time so that we can fit it all in. I think it is more developmentally appropriate for second grade.

Line plots are very abstract to students and not a skill that is used in daily life. It is difficult for them to interpret what the question is asking despite studying question stems. Questions that involve finding the total length by adding up ALL the values represented by the X's are not developmentally appropriate for 4th graders.

The standard includes metric measurements which students do not use regularly. In addition, the students have little to no experience with the idea of mass or volume, which involves significant teaching in order to master. It does not seem age appropriate.

3.MD.2 - students are practicing reading recipes and reading instructions on how to make items. All of these use standard measurements. So in literacy I am having to explain math concepts not in the standard so students can have a sense of what reading a recipe is. 3.MD.4 covers 2 major concepts in one standard. Ask students to

master 1 of the skills first. Reading a broken ruler or reading a line plot. It's too complex for them all at once. Lastly rectilinears are taught before distributive property (why???) how about students master regular shapes first.

My students have the capability of learning this standard and completing associated tasks, but the standard itself is insufficient in terms of teaching. It should be broadened to include the specific systems of measurement to be taught -- i.e., the customary system of measurement for length, capacity, and weight; the metric system of measurement for length, capacity, and mass.

Foundational skills need to be mastered first.

I find this problematic because there is too much too teach and still have time for students to develop the level of thinking required to grasp each topic at a deeper level.

They don't have the wherewithal to understand part of ....

It's not real-world useful, so it takes time from other important standards. It is very difficult for students to apply their knowledge of adding/subtracting fractions as well.

There is no real world application for 6th graders to use this type if data analysis at this level. Understanding box plots, mean, median, mode and range is enough.

Many students not ready developmentally to take on this task Parents try to show students the way they learned/ standard algorithm We are not teaching the standard algorithm yet!

Students have trouble with the visual spatialization of this goal

This standard asks students to learn the distributive property of multiplication in the same year that they are learning the basic properties of multiplication. For advanced students, this is a challenging tasks, but for students who are still struggling to master the basics of multiplication

students are not developmentally ready to understand these nor exponents by my grade level

Students struggle to understand how to set up and solve proportions. The basic ratio in a word problem is the first time they are introduced to the concept and going deeper in that area would be great.

There is too much to cover in this objective and too many gaps to address prior to teaching this objective.

In fourth grade it is difficult to teach multiple ways to multiply and divide to students who do not have a strong foundation. By the time we cover three methods for each it tends to get a bit confusing for some of the kids working at a lower level and even some of the average kids.

Students typically have very few real world experiences to prepare them for these standards. There is a huge jump from multiplying and dividing whole numbers, and even decimals,to fractions.

Students do not seem to understand basic math facts and place value to go from basic math facts to two digit to three digit.

Students in first grade still need to use number lines, base ten blocks, or 100 boards to find ten more &10 less.

Most students just don't understand slope, even with the 90 degree triangle, even with real world examples. I'm very visual, so it makes sense to me. They could, for the most part, tell me if it was positive, negative, undefined, or zero. But, finding what it was seemed to be the most difficult thing ever. Even after we came back to review it toward the end of the year.

Many of the written problems are confusing for the developmental ability of the students.

Students have no prior knowledge of the distributive property or expressions when they enter sixth grade. As math teachers, we are burdened with the task of introducing both concepts and master the applications of both concepts at a level that is not developmentally appropriate for the average sixth grader.

This is unrealistic in the real-world. Students would not need to perform calculations involving scientific notation without the use of technology. Students should understand how to read, write and convert scientific notation. But the knowledge to perform operations by hand is irrelevant in today's society.

15. Survey respondents were asked to identify the standards that they were required to teach, and felt was critically important to their students. ***Some*** of their responses were the following:

3.OA.3 Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.1

The number system 6.NS.1 6.NS.2 6.NS.3 6.NS.4 6.NS.5 6.NS.6

All standards

Work with time and money. CCSS.MATH.CONTENT.2.MD.C.7 Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m. CCSS.MATH.CONTENT.2.MD.C.8 Solve word problems involving dollar bills, quarters, dimes, nickels, and pennies, using $ and ¢ symbols appropriately. Example: If you have 2 dimes and 3 pennies, how many cents do you have?

8.F.5. Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.

K.CC.4 Understanding the relationship between numbers and quantities: connecting counting to cardinality.

4.NBT.4 Fluently add and subtract multi-digit whole numbers

I liked them all... just too many of them.

I do like 7th grade doing rate of change to lead into the slope for 8th grade. I teach all three grade levels in accelerated classes as well as Math 1. I do integrate all three standards in my classes.

All of Numbers and base ten operations

2.NBT.1 Understand that the three digits of a threedigit number represent amounts of hundreds, tens, and ones; e.g., 706 equals 7 hundreds, 0 tens, and 6 ones. Understand the following as special cases: a. 100 can be thought of as a bundle of ten tens – called a "hundred." b. The numbers 100, 200, 300, 400, 500, 600, 700, 800, 900 refer to one, two, three, four, five, six, seven, eight, or nine hundreds (and 0 tens and 0 ones).

5.NBT.B.5,6,7

number sense

I believe they all are important

Don't have standards with me but most surely fractions and geometry

6. NS. 5

1.OA.A - Represent and solve problems involving addition and subtraction.

8.EE.8 Analyze and solve pairs of simultaneous linear equations.

7.NS (ALL) and 7.EE (ALL)

2.NBT.1

3.OA.8

8.EE.7

all i think they are well written and developmentally appropriate

Addition, Subtraction, Multiplication, Division and Multi-step word problems!!!

1.OA.3 Apply properties of operations to add and subtract within 20

1.NBT.2 and 1.NBT.3

8.EE.7

5NBTA.1 Understanding the Place Value system.

6.ns.1

4.OA.A3

3.0A.7

5.NBT.B.5

2.MD.8 and 2.NBT.7

4.NBT.5 Multiply a whole number of up to four digits by one- digit whole number; multiply two, two-digit numbers. Use strategies based on place value and the properties of operations. Illustrate and explain the calculation.

8.EE.7 Solve linear equations in one variable

I think all the 6th grade standards are important; what I need is a resource for my students to practice what they have learned. I cobble together practice work and it is not helpful to the students or to me.

K.cc.4 counting and cardinality

3.OA.7 Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

K.CC.B.4 Understand the relationship between numbers and quantities; connect counting to cardinality.

16. Survey respondents were asked to elaborate on why they thought it was important for their students to master a particular standard. ***Some*** of their responses were the following:

multiplication is the most important piece in fourth grade as it is the base for area, conversions, and fractions.

It involves problem solving with addition, subtraction, multiplication, and division which are lifelong skills.

Unsure

Students will deal with fractions in the real world FOREVER! They seem to have a hard time grasping fractions (add, subtract, multiply and divide). I seem to have to spend a LOT of time reviewing fractions.

A...Students must have a strong number sense of numbers to 120 before moving on; they must be able to determine the number of ones and tens and be able to Make a Ten when adding 2 digit numbers B...Students understand addition and subtraction better when presented with the commutative property; learning number families...this helps with finding unknowns; they see *Patterns emerge

These standards cover fractions and decimals, which are the critical learning areas in fifth grade.

Ratios, rates and proportional reasoning are real-life math skills that most individuals can benefit from knowing.

Most everything depends on an understanding of positive and negative numbers. I tried several tricks, but the majority of my students struggled with grasping the operations using positive and negative numbers.

They need the understanding and the strategies for each operation.

Because place value is the foundation for students being able to move on to other mathematics skills: comparing numbers, adding and subtracting multiple digits, skip counting, and more. If students haven't mastered what the value of each digit in a number is, it makes their learning exponentially more difficult.

most everything required for the 7th grade curriculum centers around these two standards

Students need to be able to do all computation of fractions and decimals and understand where these are used in real-life.

I believe this is the basis of all math.

Understanding equivalent fractions is crucial to understanding fractions as a whole. This skill is needed to add and subtract fraction, compare fractions, and reason through word problems.

Though all standards are critical, I feel this standard is the most important to master because if a student does not master this one standard they are set up for failure with every other standard on statewide testing. Though

none of the other standards mention multistep word problems, students will see the content of those standards as multistep word problems.

I feel that this skill is so important because it builds the foundation that most mathematical learning is built on.

These two skills will be most used in students' lives, especially in the real world.

This are life skills they need to make it in the real world!

It's important that students understand the concept of multiplication (i.e. it is repeated addition). Using drawings is key to helping students solve problems associated with this standard.

The ability to understand that two equations can have the same solution and how to manipulate the equations is the foundation of higher math.

Problem solving skills

Place value is very hard to understand and students need to understand it, in order to learn a lot of other standards.

This standard is written fairly well and is critical to solidifying their linear thinking. It also addresses proportional reasoning in a very clear manner.

This standard is important for my students to master because I teach EC students who are on multiple grade levels and who are on multiple learning levels. for them this is really the foundation for all the other standards. If they do not successfully obtain this standard, it will be hard to grasp the other concepts that need to be learned. We have to really consider the EC student and their needs in each of these standards.

If the students can master this standard, then they will understand how fractions are formed and that is the basis for a lot of other fraction curriculum.

many questions on the EOG

The deeper the foundation students have for base ten, the deeper their understanding of how all of our math works.

It is helpful for students to see numbers represented several ways.

It is a life skill.

This is a good foundational standard.

I feel if students have a clear understanding of ratios and proportions then they can solve almost any math problem needed.

Place value is a skill that must be mastered in order to be successful in future mathematics. It is a skill that needs to be mastered each year.

17. Survey respondents were asked if there was a standard or skill that was dropped in the transition to CCSS that they feel should be reinstated, and how the standard or skill would be beneficial to students. ***Some*** of their responses were the following:

*Calendar Math; can't believe this was dropped; so much of what we do such as place value; addition and subtraction can be integrated in calendar math; first graders still need this important skill. *Odd/Even numbers...this can certainly be integrated within calendar skills *Patterns; while this may or may not use algorithms, (depending on the kind of pattern) it builds reasoning and may spark some creativity

Drop volume and keep area, even with circles.

I am not sure where elapsed time fits into the curriculum, however I have noticed that most of my students can't read an analog clock.

In my 6thde classes, I continue to do area and circumference of a circle as I teach multiplying decimals. This works well. I also think 7th grade can move into slope a little more than just rate of change. I also think that 8th grade should go back to all calculator active since in today's world everyone has calculators on their phones.

Not aware of any that need reinstating.

Slides, transitons, and translations as well as rotational symmetry. However small this may seem students still need to be exposed to this vocabulary.

I have only taught CCSS.

In first grade the 4 standards cover all the necessary skills to be successful in second grade. My students are stronger mathematical thinkers now.

Money should be taught in 3rd grade.

patterns

3.MD.1- I do not think the skill was missed or dropped, however, about 50% of my students came into third grade not knowing how to tell time at all. It is once again hard to catch them up and complete elapsed time to the nearest minute with the time constraint of the pacing guide. Just a standard I feel should be mentioned to 1st and 2nd grade teachers to focus a little more on.

prime factorization is no longer specifically mentioned in our current standards. This is something that really helps students in higher grades with factoring. Introducing it with 6ns.4 would be easy to incorporate.

No, I think the standards are great the way that they are written.

none.

I was not teaching in North Carolina before the transition.

I moved to this grade level after the transition, so I am unsure.

general geometry vocabulary. I know that students are suppose to cover this material in elementary school, so it is a skill to be maintained, but they don't always come to me with the required knowledge.

I think that two digit by one digit division and multiplication should be brought back to 3rd grade as far as developing an understanding and several algorithms that students could use. I think this would help 4th tremendously since everything is problem solving and multi-step.

No - make sure to keep probability out of 6th grade!!! Way above students' understanding!!

Changing a fraction to a decimal and a percentage. We must teach this to help with other standards but the students are not tested on it. This is frustrating to students. I feel that they should be tested to the skills leading up to others as well. It is not fair to kids who can not work a multi step problem because of learning disorder. They can do the basic.

Unsure as I began teaching 5th grade math when CCSS began.

No.

Reading and understanding data in a variety of charts and graphs.

Simplifying and operating with radicals is not its own standard so it sometimes is lost between 8th grade, Math 1 and Math 2.

Finding area and circumference of circles. This age group loves pizza. What shape is it? We could then present relative real world situations.

Teachers need tremendous support in understanding how to teach the standards. Far too many students are reaching upper elementary grades unable to transition from drawings to use of numbers to make sense of their thinking.

Identify coins

The use of fractions/decimals/percents. The understanding of percents is a basic real-world skill (growth, rates, money, etc) that permeates industry as well as personal. The understanding of percents is more essential than the understanding of negative exponents.

N/A As a first year teacher, I am accustomed only to Common Core.

Please stop reinventing the wheel. Leave them alone and let us teach. Us your efforts and make a state wide curriculum that is available for all teachers to use. Look at New York on Georgia of examples.

Money needs to be reinforced in more grades than just 2nd. Why is metric measurement taught before standard? Especially since we are not asking students tondo anything more than estimate mass and volume in 3rd grade.

I am not aware, as I transitioned to middle school the same year we transitioned to CCSS.

Not sure about 2nd - 5th grade. I haven't had exposure to all K-5 grades long enough to really know what was dropped. In lower grades I feel calendar time is important and beneficial to students. It helps develop number sense in a repetitive manner. It sets the foundation for skills addressed or strengthened in later grades such as odd/even, counting, number patterns and general understanding of a time (year, month, day, hours...)

Patterns and money

I feel there needs to be a standard for money. Recognizing money, counting money, and the value of money.

I felt it unnecessary to remove all probability standards from sixth grade. Some of my most favorite topics to teacher were things like permutations and combinations. While challenging for students, they allowed for a great deal of inquiry-based learning, problem-solving, and higher level thinking skills. I feel the students thrived having this challenge.

Money

Geometry involving circles and cones because they fit in with the current 7th geometry standards and would provide a transition to 8th grade standards

Measurement conversion across systems

This really applies to high school math -- While I am glad that kids are getting more statistics in high school math, I am disappointed that this is happening at the expense of traditional Geometry. There is VERY LITTLE traditional Geometry in the high school curriculum anymore! All that's there is analytic Geometry, such as calculating slope and distance on the coordinate grid to see if a quadrilateral on the coordinate grid is a rectangle. That's not enough.

NO!!! 7th grade seemed to lose very little and gain a whole lot. I would like to see Circumference and some of the Probability material moved back to 6th grade.

Nope.

I would add back to the curriculum the use of matrices. This was a better use of data in comparison to the two way tables.

Not applicable - the transition was before I began teaching.

They dropped concepts of calendar time from kindergarten...we still teach it to some degree since our students need those concepts to function in the real world.

Groupings of 2's, 5's, and 10's to count collections (1.02) ◦ Fair Shares (1.04) I saw a huge gap in my students who needed remediation in these areas. The struggled in counting by 2's and fair shares until I remediated them. They need to have quick strategies for counting groups of numbers quickly. They could not keep the sequence going on 2's.

I am unaware of standards dropped during the transition.

Do not know....first year teaching this grade level

I'm not sure on this one. I started teaching with CCS in middle school this year. I have an elementary education background. I just noticed that my students were lacking some very important foundational skills.

Volume of pyramids was dropped, but cones remain at the 8th grade Math level. I feel these two concepts should (still) be taught together. It is a natural progression to go from area to volume of prisms/cylinders into volume pyramids/cones.

I firmly believe that money should be retained once after they are introduced. Students learn in it in the earlier grades and then it rarely appears in third grade at all. I worry about students not being able to grasp money skills.

18. Survey respondents were asked if they would like to see the Academic Standards Review Commission recommend teacher-suggested changes to the Math standards to the NC legislature.

42.7% or 228 respondents strongly agreed
39.0% or 208 respondents agreed
11.6% or 62 respondents had no opinion
2.6% or 14 respondents answered "Other"
2.4% or 13 respondents disagree
1.7% or 9 respondents strongly disagree
10% (35 respondents) had "no opinion"; 2.4% (8 respondents) indicated "Other", 2.1% (7 respondents) chose to "disagree", and 1.5% (5 respondents) said they "strongly disagree."

APPENDIX E-2
TEACHER SURVEY RESPONSES

Summary Highlights of the High school Mathematics Survey Responses from Teachers, Principals, and Superintendents

14. **As of September 16, 2015**, the Math survey for High school Teachers and Principals had 773 respondents to eight questions designed by the Academic Standards Review Commission.

15. Out of the **773 respondents, 672 were high school Math teachers or 89.6% of total respondents.** (Other respondents were 60 Principals, and 18 Superintendents.)

16. Out of the **773 respondents**, 517 people or **69% have expressed a preference that High school Mathematics be sequenced in the traditional manner of "Algebra I, Algebra II, and Geometry"** while 191 respondents or 25.5% prefer to continue the integrated sequence of "Math I, Math II, Math III" of the Common Core. (5.5% or 41 respondents indicated "Other" on the survey.)

17. The respondents cited the following **top reasons** as they weighed in on returning to the (A) traditional sequence or, maintaining the (B) integrated sequence of the Common Core for Math classes in high school:

376 or **50.3%** The traditional math sequence is better for students.
367 or **49.1%** Sufficient resources do not exist to support Math I, II, and III.
314 or **42%** Achievement results will be better with traditional math sequence.
230 or **30.7%** Sufficient resources exist to support the traditional sequence of Algebra I, II, and Geometry
176 or **23.5%** Professional Development/Training has been poorly implemented.
142 or **19%** The integrated Math sequence is better for students.
112 or **15%** Professional Development/Training is needed.
98 or **13.1%** Other
82 or **11%** Achievement results will be better with the integrated Math sequence.
52 or **7%** Sufficient resources exist to support Math I, II, and III.
34 or **4.5%** Professional Development/Training has been well implemented.
21 or **2.8%** Professional Development/Training is fully in place.
16 or **2.1%** Sufficient resources do not exist to support the traditional sequence of Algebra I, II and Geometry

18. In the event that a transition back to the traditional model were to occur for HS Math classes, **311 respondents or 41.6% said it would take one academic year to transition**; 181 respondents or 24.2% said it would take two academic years to accomplish such; 163 respondents or 21.8% said it would take three academic years, and 92 respondents or 12.3% stated "Other."

19. While many survey respondents commented that they do not foresee any problems in the event of a transition back to the traditional Math sequence, **other respondents identified the following problems that may potentially occur** as a result of a transition back to the traditional Math sequence:

A. Lack of resources. Under the traditional sequence, textbooks are in short supply that teachers cannot provide a personal copy to each student. Even electronic forms of textbooks require licenses which cost LEAs thousands of dollar per year. With the integrated sequence, students are able to procure their own personal copies of course material in both paper and electronic formats, free of charge. Students could even use an electronic version of the integrated sequence material on a tablet or similar device for an entire year without ever having to use one sheet of paper The State needs to include money for new textbooks and ready by the time school opens.

B. Lack of assurance that teachers will be properly trained and have sufficient time to be familiarized with the textbook and resources

C. Difficulty in teaching two curriculums within the department for 2-3 years it takes to make sure that each student finishes the program that they started.

D. Gaps in student learning. Some students who are currently in Math 2 or 3 do not have the skills for pre-Calculus/AFM as students completing the traditional model.

E. Smaller schools would have a more difficult time to offer courses from both sequences which is likely to happen if schools returned to the traditional model while allowing other students to complete what they started with the integrated sequence. For example, HS students currently on the Math II and III sequence need to be able to finish that sequence prior to graduation.

F. Teachers will have to teach more topics to fill in the gaps.

G. Teacher burn-out. Teachers have invested in countless unpaid hours to gather and learn the new standards, especially since the lack of textbooks remained a common concern. To return to the traditional sequence is going to frustrate teachers and students alike.

H. Confusion will lead to great Math teachers to leave the field.

I. Overlap of students' schedules and/or transcripts, and that classes may not satisfy graduation requirements or college acceptance.

20. On the other hand, **survey respondents also identified probable solutions** to assist in ensuring graduation requirements for high school students in the event that a transition back to the traditional Math sequence were to occur:

A. Students that have started the integrated sequence/Common Core should graduate with the same series of classes. Freshmen should begin with the traditional Math sequence.

B. Both sequences should be used during the transition year.

C. Schools will need to run both traditional and integrated pathways for a year or two in order to get current students through the integrated path.

D. Begin initial transition at the middle school level.

E. Implement the changes based on student classification. Incoming 9th graders would have a different standard than 10, 11, and 12th graders.

F. Phase out Math I, Math II, and Math III over a 2 to 3-year period.

G. The transition should be a grandfather type---which means that graduation requirements may be different for three to four years in a row but, it will make the transition easier for students and teachers.

H. Stagger the transition to allow less students with gaps. The first year, change the Math I back to Algebra 1, the second year—offer Algebra 1 and Geometry, and the third year, offer Algebra 1, Geometry, and Algebra 2.

I. Transition courses to fill in the gaps.

J. Design "skinny" courses (45 minutes/day) to gain credit in areas, and design specific courses to fill gaps until the transition is complete.

K. Tutoring and extra class for those who are behind. Offer courses in the summer or, use virtual schools for students that can handle it. Online opportunities and creative scheduling to address any gaps.

L. Teachers would need to review, as needed, or practice in depth as those gaps appear, and fill in missing pieces as best as they can to ensure that students have necessary parts for college and workforce readiness.

M. Create a detailed curriculum that overlaps areas of change to make sure all topics and sections of Math are taught. Have students take a placement test.

N. Use the 4th level Math courses to cover any gaps or, to address the issue earlier---use foundation of Math-type courses.

O. Allow Math credits for remedial Math courses and Math-related electives as another pathway option.

P. Make sure that all students have the foundation of Algebra and Geometry.

Q. Do away with testing for the next three years, and that would take the pressure off both the students and teachers. The tests seem to be out of sync with the curriculum anyway, as evidenced by the scaling of the scores.

R. Sequencing should be in line with what the colleges and universities are looking for in high school transcripts for entering freshmen, not what has been made up in the state. Identify what the colleges are seeking, and use that to help define our graduation requirements.

21. When survey respondents were asked to identify the adequate number of years that they think should be allowed to transpire with regard to formal, summative assessments such as the End-of-Course Tests (or, North Carolina Final Exams) in order to close achievement gaps, and in the event of a transition to the traditional Math sequence, they responded in the following manner:

One Year –	126 (17.2%)
Two Years -	257 (35.1%)
Three Years -	290 (39.6%)
Other -	59 (8.1%)

22. Survey respondents also provided their insights and additional information that they believe should be considered regarding the sequencing of high school Math courses in North Carolina schools. **Their most frequently cited comments were of the following themes and messages:**

A. "Please stop changing the curriculum and get us resources."

B. "The solution is not to change it back to the traditional Math sequence. The students have not been doing Math I, II, and III long enough for us to throw in the towel."

C. "The main failure of the revised sequence is that there are way too many topics to adequately cover in 90 days. On a traditional school calendar, the 1,2,3 sequence would have worked better. Most PD has been worthless."

D. "Not enough time to cover the material required under the integrated sequence, and much less in an in depth manner. We are teaching in 18 weeks what we used to teach in about 30."

E. "The common core sequence is great in theory but it has not been implemented well, and the Math comes across as more random to the students when we cover so many topics in a single class, instead of focusing on mastery."

F. "The focus has been on working problems, not proper sequencing, and pacing which was a major flaw in the implementation."

G. "The integrated Math sequence is too 'jumpy and disjointed' for students. There is an urgency to move through all of the materials, and so the students have been exposed to each topic that may be on the exam. On the other hand, students have a better opportunity to master the materials when each course is taught separately in a semester."

H. "The curriculum of the integrated sequence was written using complex verbiage, making it difficult to interpret."

I. "Please do not switch back. We haven't had time to see if it really works, and the students will completely lose out on statistics in the traditional pathway."

J. "The NCFE's are way too short to adequately evaluate all course standards. The current test results are really a measure of which standards the teacher guessed right as far as emphasis as opposed to comprehensive course evaluation. Basically, the results from the Math NCFE's cannot really be taken seriously as a result."

K. "I feel as if I'm preparing my students for test and not for the next Math course."

L. "Students transferring in from other states are having difficulty transitioning into the Math 1, 2, and 3 sequence. That is a huge problem since we have a military base in our county. These students are having to take an extra Math class to be able to cover all of the objectives without a having a gap in their knowledge."

M. "The integrated Math sequence is best for students as we are progressing into a technology-based learning society. The traditional Math sequence should also be offered for students who are rooted in the 'arts'. Schools should offer both tracks."

N. "There needs to be a realization that not every child is going to college, and we need alternatives to Math 2 and Math 3/Geometry and Algebra 2."

O. "To switch back now to the traditional sequence will greatly hurt the State's credibility, and any trust that the teachers have."

P. "Professional development should be offered so that teachers understand that even though we are moving back to the traditional sequence that they should still be utilizing the instructional strategies from Common Core. Students should be working together and collaborating. They should be seeing higher level problems and word problems, not just a problem that asks them to solve for a specific variable."

Q. "Teachers have spent a lot of time developing activities, lessons, professional development for Math 1, 2, and 3. We have not had enough time to see this curriculum work."

R. "There has been significant work done on creating a 4th Math course to deal with the overlap in Math 3 and Discree/AFM. We need more options for a fourth Math in this interim period for students who struggle with the Common Core curriculum. We also need a fourth Math that includes a significant amount of financial literacy and Math as this is the biggest life skill that our students lack."

S. "Wake County has done a very poor job of interpreting the integrated Math standards and appropriately distributing those standards throughout Math 1, 2, and 3. Because of this, there

are key concepts that many students have not been taught that are absolutely necessary for higher-level Math such as pre-Calculus and beyond. The traditional sequence offers a solid set of known and agreeable standards that properly prepare students for higher level Math courses that produce college-ready students."

T. "Math 1, 2, and 3 are courses that seemed to have been developed as we were teaching them. They should have been tested and a specific curriculum established before launch. There are huge gaps in this sequence. The students are not coming out of Math 3 knowing what they should know as they did with the traditional sequence."

U. "The integrated courses are less rigorous than the previous traditional sequencing. Students are not expected to know why things are what they are but just how to do problems. This is mostly because the standards do not align correctly. For example, there are standards expected to be covered in Math 2 that require prerequisite knowledge to fully understand but, the prerequisite standards are not taught until Math 3."

V. "As an experienced teacher, I found especially the lower level student achieved more on the Algebra 1, 2, and Geometry sequence."

W. "Geometry is not getting enough attention in the integrated system."

X. "It makes no sense to separate Geometry and Algebra. They should be integrated as many geometry problems require strong algebra skills to solve. Both subjects should be taught/learned and developed together."

Y. "Common core/Integrated Math is not working in the real classroom. We are not teaching the geometry content that needed by the students. There has been a greater emphasis on algebra and not so much on geometry." "The integrated Math does not have sufficient coverage of geometry for students to do well on SAT and ACT."

Z. "There needs to be Math-standardized testing at the state level to hold students and teachers 'accountable' despite the fact that creativity in the classroom, and more non-traditional approaches to learning are better suited for student learning and interest in the Math topics are presented. I believe any state testing beyond the mandatory Math 1 is a waste of money, and is not good for students, teachers, or culture of the school."

APPENDIX E-3

To access the ELA Matrix, click on the following link:
http://www.doa.nc.gov/asrc/documents/08172015/MatrixforReviewingStateStandards.pdf

APPENDIX E-4
TEACHER SURVEY RESPONSES

Collation of Open-Ended Responses from the ELA Survey through July 2015

This file may be accessed through the following link:
http://www.doa.nc.gov/asrc/documents/08172015/CollationofOpenEndedResponsesfromJulyELASurvey.pdf

APPENDIX F-1
REGIONAL FOCUS GROUP RESPONSES

Discussion of Questionnaire Responses
Academic Standards Review Commission
Teacher Focus Groups
Sandhills SBE District
October 2015
By Dr. Olivia Oxendine

During October 2015, the Academic Standards Review Commission hosted three meetings in the Sandhills State Board of Education District. The Sandhills Region Education Consortium (SREC) partnered with the ASRC in the planning the series of meetings. In order to ensure rich discussion among the teachers, the SREC staff assigned the ten school districts to one of three cluster sites: 1) UNC Pembroke (Pembroke, NC), 2) Richmond County Schools Central Office (Hamlet, NC) and 3) Moore County Schools Central Office (Carthage, NC).

Eighty-seven (87) educators (primarily classroom teachers) participated in two-hour meetings during which time they voiced their perspectives of the standards and offered recommendations in open discussions facilitated by group reporters. Approximately 70 teachers submitted written responses to a questionnaire. Audio streaming, conference calling, and WebX technology made it possible for the public to participate remotely. This report captures the salient findings in the questionnaire feedback.

An analysis of the questionnaires has yielded categories of findings that align with the criteria used by the ELA subcommittee in the initial review of standards adopted by Virginia, Texas, and California prior to 2009. The categories are 1) Clarity and Focus, 2) Implementation and Sustainability, and 3) Implications for Instruction. The letter and number series that appear above each standard represent the content area, grade level, and standard number.

Clarity and Focus
Two items in the questionnaire ask the teachers to offer standards that demonstrate clear wording, as well as examples that lack clarity and focus. A clear standard targets one learning expectation and the essential skills that students must develop and master. A poorly worded standard masks the learning expectation with distracting phrases. The following standards contain problems with clarity and focus, according to questionnaire responses.

W.3.4

With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in standards 1-3 above.)

W.3.5

With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of language standards 1-3 up to and including grade 3 here.)

RI.5.4

Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a *grade 5 topic or subject area.*

RI. 6.7

Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

RI.8.1

Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.

RI. 9-10.3

Analyze how the author unfolds an analysis or series of ideas or events, including the order in which the points are made, how they are introduced and developed, and the connections that are drawn between them.

One teacher commented, "Good standards are very clear cut and leave little room for variance of interpretation." As a way to highlight standards that qualify as clear and focused, the teachers cited the following examples.

RL. 1.6

Identify who is telling the story at various points in a text.

RL.2.4

Describe how words and phrases (e.g., regular beats, alliteration, rhymes, repeated lines) supply rhythm and meaning in a story, poem, or song.

RL. 4.2

Determine a theme of a story, drama, or poem from details in the text; summarize the text.

RI.9-10.9

Analyze seminal U.S. documents of historical and literary significance (e.g., Washington's Farewell Address, the Gettysburg Address, Roosevelt's Four Freedoms speech, King's "Letter from Birmingham Jail"), including how they address related themes and concepts.

RL.11-12.6

Analyze a case in which grasping a point of view requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).

In the area of mathematics, the following standards frequently appear in the questionnaires as poorly focused.

4.OA.A.2

Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.

5.MD.5.2

Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally.

7.EE.B.3

Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

HSF. BF.A.1.B

Combine standard function types using arithmetic operations. For example, build a function that models the temperature of a cooling body by adding a constant function to a decaying exponential, and relate these functions to the model.

Parental Concerns

The questionnaire probed the teachers' insights pertaining to the CCSS and parent engagement. Specifically, they commented on three concerns frequently expressed by parents as they attempt help their children meet the challenges presented in the standards. In reviewing the teachers' responses, three themes seem clear: 1) sufficient home and school resources, namely textbooks, 2) inability to help their children with school assignments, and 3) a preference toward traditional practices. Below is a sample of teacher responses.

"Many parents can't afford the internet."
"When I explain the standards, the parents don't understand the wording."
"Parents don't understand the titles of math courses."
"Parents want to see more writing instruction, especially for college-bound students."
"Parents like algorithm approaches."
"Cursive writing is important to my parents."
"Parents can't help their children without textbooks."
"They do not understand how to multiply and divide using the new strategies."
"Parents are concerned that comprehension is not being taught."

Implications for Instruction

The adoption of educational standards requires significant adaptation by teachers as they develop their knowledge of and confidence in new standards; assemble and experiment with new resources; design and implement new lesson plans; revise informal assessments; and rethink instructional time. In addition to organizing for instruction, teachers must pay attention to scope and sequence, ensuring that standards are developmentally appropriate and provide opportunities for knowledge application and transfer. Resolving any weaknesses in the distribution (scope) and sequencing of standards require the involvement of knowledgeable teachers and curriculum specialists.

With respect to scope and sequence, which helps to ensure developmentally appropriate instruction, both ELA and mathematics teachers provided examples of standards that are within and beyond the scope of their students' comprehension levels. Below is a sample of the their responses:

Within the Developmental Scope

K.MD.B.3

Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.[1]

3.NF.A.3A

Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.

4.OA.A.1

Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.

6.SP.A.1

Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. *For example, "How old am I?" is not a statistical question, but "How old are the students in my school?" is a statistical question because one anticipates variability in students' ages.*

HSA.CED.A.1

Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions.

RL.7.6.

Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.

Questionable Standards Regarding Developmental Scope

1.OA.B.3.

Apply properties of operations as strategies to add and subtract.[2]Examples: If 8 + 3 = 11 is known, then 3 + 8 = 11 is also known (commutative property of addition) To add 2 + 6 + 4, the second two numbers can be added to make a ten, so 2 + 6 + 4 = 2 + 10 = 12 (associative property of addition).
NOTE: One teacher commented that first graders are not developmentally ready for the standards that fall under Operations and Algebraic Thinking.
2.MD.B.6
Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, ... and represent whole-number sums and differences within 100 on a number line diagram.
RI.2.2
Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.

RL.3.3
Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text, using language that pertains to time, sequence, and cause/effect.
RL.3.9
Compare and contrast the themes, settings, and plots of stories written by the same author about the same or similar characters (e.g., in books from a series).

W.3.8
Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.

CCSS Implementation and Sustainability
Although the questionnaire did not ask teachers to comment on the quality of district and statewide CCSS implementation, they did select several statements (five of eleven) regarding time for instruction with which they "mostly agree." This analysis reveals that teachers (both ELA and mathematics) spend considerable time interpreting and simplifying the standards. Additionally, they invest significant time searching for aligned instructional resources, namely textbooks. Emphasizing the scarcity of textbooks in her school district, one teacher stated, "I'm using old Algebra I textbooks to teach Math I. This is all we have." As noted in the audio comments, one lead teacher of mathematics called for an end to high school integrated mathematics.

Fewer than ten teachers appear satisfied with the amount of time in their master schedules to cover CCSS lessons and activities. The responses clearly suggest that daily lesson planning is problematic because complex standards require segmented instruction over several days. According to the item that asks about managing instructional time, very few teachers (fewer than five) regard themselves as "strong" managers of instructional planning time. In a similar vein, a majority selected "mostly agree" to the item, "I feel rushed to cover the standards."

In the analysis of the writing standards, a majority of teachers agree that planning lessons is not difficult because the standards are focused and clear. The respondents also concur that students would benefit from skill-based writing instruction on a scheduled basis.
Unfortunately, formal writing is part of the ELA curriculum to which little time (if any) is allocated to support comprehensive instruction, assessment, and teacher feedback.

As a way to sustain classroom implementation of the standards, the ELA and math teachers often utilize resources provided by NCDPI, and largely depend on their district-developed pacing guides to focus their instruction. Although no questionnaire item examined that transition to digital resources, one teacher commented, "Digital subscriptions are more expensive than textbooks . . . they [digital subscriptions] must be renewed each year, whereas textbooks last for several years." This perspective is complemented by numerous comments that speak to the growing problem of digitally disadvantaged students and families.

Additional Analyses

To the item focusing on rigorous standards, the teachers seem to agree that rigor is a matter of instructional practice, as opposed to verbiage in the standards. Given their responses, the principals of their schools have high expectations for rigorous teaching, and they strive to organize the school day to accommodate in-depth instruction, including applied learning and enrichment. The following comments broadly reflect the teachers' perspectives on the topic of rigor.

"Standards can be as rigorous as the teacher desires. It doesn't matter, if expectations are low."
"Content reading leads to rigor."
"Building on the standards from year to year is the way to ensure rigor."
"Hold students to a high level of rigor."
"Insist that students think critically."
"In-depth study of topics ensures rigor."
"We need better examples of rigor."
"Rigor is in the hands of the teachers."
"Academic vocabulary in the standards."
"Continuous reflection is part of rigor."

Achieving a balance between informational and literary moods of reading does not register in the data as a concern. It appears that teachers have the flexibility to choose light of achievement data and the reading interests of their students.

Summary

Since bloated standards impede understanding, revising the standards for word economy is among the teachers' recommendations. Taking steps to improve scope and sequence will begin to correct the imbalance of standards across the grade levels and resolve questions pertaining to age-appropriate concepts contained within the standards.

These data more than suggests that old or new textbooks are rarely found in schools and classrooms. In effect, failing to provide these resources handicaps parents' efforts to engage in their children's academic success. Additionally, the unfamiliar teaching approaches render most parents helpless when it comes to offering basic support at home. With certainty, allocating time in the master schedule for formal writing instruction is deemed important among the teachers. While no teacher recommended the wholesale elimination of the CCSS for ELA, several would like to see a reduction in the number

standards, the removal of overlapping standards, and state-developed pacing guides to help new teachers.

APPENDIX F-2
REGIONAL FOCUS GROUP RESPONSES

Summary Feedback from the ELA and Mathematics Teachers Focus Group October 1, 2015, Hanover County, Wilmington (4:00-6:00pm)

Following the teacher focus groups via audio-streaming, the following issues were raised and discussed among volunteer teacher participants and attending members of the Academic Standards Review Commission:

1. The sequencing of Integrated Math in the current Common Core standards continues to be identified as a major issue that needs to be addressed for the problems that it creates in the classroom learning experience of students, especially for high school Math. Teachers described the sequencing to be "out of order" and illogically "thrown together" in such a way that the courses "do not flow" to allow the building of a strong foundation from which students may be equipped to handle the next course.

2. Attending Math teachers stated that, "there is no flow from Math 1 to Math 2." (Other teachers have described this as "choppy") Further, they said, "between Math 1, 2, and 3…there is too much [being] combined into one classroom…the standards tend to be repetitive…We are overwhelming our kids by putting everything together."

3. A Second Grade Math teacher also noted from her classroom observations and experiences that it was "a real struggle because, there are so many concepts that have to be introduced at once with the (current) Math standards."

4. Courses are sequenced in the current Integrated Math in such a manner that lacks coherence, creating gaps in information or even "overlaps" according to the attending Math teacher. The problem appears to be particularly exacerbating with high school Math, based on the reactions of the attending teachers at this focus group.

5. While teachers seem to agree that "some of the Common Core standards can be used, and some standards can be clarified," they strongly recommend that the current sequencing of Integrated Math needs to be addressed.

6. In the discussion of block scheduling versus a year-long schedule to address this sequencing issue, attending Math teachers expressed that, a year-long schedule would be best for students in Math 1 to allow them sufficient time to master the skills that they need. Likewise, for Math 2 or Geometry.

7. The attending teacher also offered that, students in higher-level Math courses, on the other hand, tend to have the maturity to take a semester break and return to pick up another Math course.

8. High school Math teachers at this focus group expressed the confidence that students' parents will likely support the proposition for a "year-long Math" but insists, as well, that the standards need to be made age-appropriate. A high school Math teacher applauded the ASRC's Interim Math Report, and cited 3 things mentioned in the report: the amount of material that has to be taught, the age-appropriateness, and the resources needed to teach the standards. In response to the question of clarity, he echoed many other teachers' take which was that, some standards are very clear and some other standards are not.

9. The high school Math teacher went on to share the anecdote seemingly spoken by teachers across the state that, it is very hard on teachers to have to tell parents, who want to help their kids, to google references because there are no textbooks for these standards. In fact, there is no curriculum for Integrated Math. Another teacher who teaches Statistics mentioned that, "we are not even getting statistically valid scores because how we assess is invalid."

10. The high school Math teacher acknowledged that while integrated Math is great in theory, the amount of material in the Common Core would require a lot more time for the average and below-average student. He said, "With the Common Core, honors-level students can succeed in a block calendar but not the rest of the students."

11. Towards the latter end of this focus group, a K-5 Math teacher stated that clarification must be made during discussions to distinguish the difference between the standards themselves, curriculum, and strategy. This reminder is necessary in the discussion of how the Common Core was rolled out while identifying the problems that resulted from such, and what the recommendations are to change or affect the impact that the roll-out has already caused on students' learning (or lack of). No matter what the approach, the K-5 teacher's comments further implied that educators share the common goal to build coherence among grade levels.

12. Feedback from ELA Teachers at this focus group included a discussion on the Common Core standards' age-appropriateness. A teacher cited the example of how ELA high school standards included "college-level" material that his students did not have the maturity to fully comprehend and was therefore inappropriate material for high school ELA.

13. Discussion on the ELA standards also evolved around the shift from reading traditional literature to informational texts with the Common Core. Attending ELA teachers recommended a focus on traditional literature/the classics and making it "more relevant" (or palatable) to the students, and then to bring in the informational texts whether in the form of current events or other resource.

14. It came recommended during this focus group that ELA high school Common Core standards need to allow students to focus on novels. Another recommendation was to focus on grammar for both middle school and high school ELA.

15. An ELA teacher who handles the honors class and regular senior high school class expressed appreciation for the Common Core for the flexibility and rigor that it affords her instruction. The real problem, she said, was on assessment. She went on to say that, with students' reading of excerpts (informational texts), there presented a challenge of how to make an assessment when the students are not required to read the full text.

16. Another high school ELA teacher volunteered that, people need to recognize the difference between teachers who are reading specialists and English majors. "These assessments," he said, "are more of a reading thing. It's not supposed to be about preparing students for a reading test." Further, he recommended that, "more professional development is needed for English teachers to focus on reading instruction to help students prepare for these assessments because, these assessments are for reading specialists."

17. In terms of professional development, ELA teachers mentioned that, while there were resources given out, it generally took a long time to utilize/apply these resources. One teacher offered that collaborating and observing with other teachers was an effective way to utilize the given resources while saying that, "It is one thing to be taught as a teacher, and another thing to actually teach it." Earlier in the meeting, a Math teacher also mentioned that more resources had been put in the Unpacking documents to help teachers but, he claims, "It is still not as good as it once was. It is still unclear in some places."

APPENDIX F-3
REGIONAL FOCUS GROUP RESPONSES

Summary Feedback from the ELA and Mathematics Teachers Focus Group October 6, 2015, UNC-Pembroke, Sandhills region (3:00-5:00pm)

Following the teacher focus groups via audio-streaming, the following issues were raised and discussed among volunteer teacher participants and attending members of the Academic Standards Review Commission:

1. Teachers representing Bladen county cited (ELA) standards,
   RL 2.1 and RL 5.3 to be clear standards,
   RL 3.7 to be unclear in terms of what the expectations were for the students
   RL 2.3 to be developmentally appropriate
   RL 5.6 to be developmentally inappropriate, not age-appropriate for their students

2. Teachers from Bladen County mentioned that they teach the standards in "chunks" and "assess them in chunks as well."

3. Teachers from Bladen County spend a considerable amount of time trying to interpret and simplify the standards while looking for online resources. In the process, teachers feel rushed to cover all the standards and find them to be "too complex" as they plan for daily instruction. They refer, frequently and daily, to the Unpacking documents which they also find to be very helpful.

4. They also pointed out the necessity to build on students' prior knowledge in response to Guide Question #7 on how do teachers resolve 'scope and sequence problems'.

5. Teachers representing Robeson county mentioned that the ELA standards, "for the most part, are developmentally appropriate," and that "implementation is the problem" and not the standards themselves. These were High school teachers and a 5th Grade Teacher.

6. They acknowledged that the ELA standards were "task-heavy" but also agreed that "High school is task-heavy anyway" while commenting further that work in the real world as adults can be task-heavy as well. These teachers stated that the "standards are clearly communicated" and "meant to be covered in a simultaneous fashion."

7. These teachers from Robeson County pointed out that the ELA standards were on a level that is appropriate for the teachers whose job is to make understandable to their students---explaining further that, ELA standards cannot be taught in a vacuum. Teachers need to internalize the standards to be able to translate such to lesson plans.

8. These teachers from Robeson County also acknowledged that the ELA standards appear to be daunting---without the opportunity, time and effort to sit-down with other professionals to closely study these standards and discuss amongst themselves. They emphasized the need for teachers to have the opportunity for collaboration. At this point of the discussion, ASRC Co-Chairperson Andre Peek added the feedback that he received from another teacher focus group held recently in Hanover County that the Common Core, as a result, had prompted "more collaborative discussions among teachers."

9. Dr. Olivia Oxendine asked the teachers about the writing aspect in the curriculum. The Robeson county teacher's bottom line response was a lengthy round-about general conclusion that could be summarized in Olivia's paraphrase that, writing is in dire need of instruction, and the idea of returning to a writing assessment in North Carolina is worth considering.

10. Other feedback and recommendations raised during the session also stressed on the need for writing to be in the curriculum, to start students early on literacy and informational texts, and to invest in a lot of professional training and "strategizing" utilizing the Unpacking documents.

11. One of the speakers mentioned the need to focus on the question, "What is it that kids need to know?" and the importance of "vetting resources" as teachers have spent an "enormous amount of time looking for resources. The speaker recommended access to "a solid resource" that teachers may tap into.

12. A Social Studies Teacher volunteered to comment that, "Literacy needs to be implemented across the board." Prior to this comment, teachers cited that while the standards for Grades 1 through 5 were deemed to be developmentally inappropriate, this was not the issue for high school standards.

13. On high school Math standards, the Robeson county teachers acknowledged the following problems that they faced: "Very, very technical standards" that causes readers to "get lost in the complexity." The teachers also cited that, the word "simple" is used a lot in the standards but that "there are different levels of simple," which causes confusion.

14. On high school Math standards, the Robeson county teachers described "a lot of gaps and overlapping...too complicated to understand with the language used in the standards." With so many gaps in the Math standards, students are not prepared or ready. For instance, Geometry is "weak in the standards but is huge in the Testing." The Robeson teachers also noted that the Math standards resulted in "a lot of time crunching" and with the way the standards are written, there is no foundation for the students to "build on."

15. Teachers cited a common feedback from frustrated parents that there weren't any textbooks available to help their children understand the topics.

16. Teachers volunteered to using "a lot of online resources" but at the same time, admitted to not having the means to make multiple copies to share even good references.

17. Teachers noted that a need for remedial classes in Math due to the gaps in the standards.

18. A frequently raised debate on whether to return to traditional Math vs. Integrated Math was mentioned by teachers who suggested a "return to traditional Math using the Common Core standards" in an attempt "to close a lot of the gaps." They reiterated that, "kids don't have the (Math) foundation to derive and apply a formula…there are just so many gaps in the standards." They said that, the "structure is not strong enough for the deriving type processes in the Common Core standards."

19. They also reiterated that this becomes "discouraging (even) for parents who want to help their kids with the Common Core standards." The Math high school teachers describe integrated Math as being "too choppy."

20. A teacher raised the question, "Why does the high school honors class have a whole year of Algebra while the rest of the students get half a year of Algebra?" This was a comment made in reference to the observation or implication that, with the existing integrated Math sequence, the standards are "too choppy" and does not have the structure that the students need to build a foundation from.

21. Another teacher-speaker volunteered that, the "standards in Math are fine but the problem is that they are written for college level, and that's okay for the teachers but…" that the teachers still have the challenge to translate the standards for the students.

22. At this point in the discussion, a quick reference was made for the need for "fewer multiple choices in testing."

23. Another teacher-speaker added that, "there is so little time to cover the standards, and you lose so many days to testing, to pull-out days...(etcetera)."

APPENDIX F-4
REGIONAL FOCUS GROUP RESPONSES

Summary Feedback from ELA and Math Teacher Focus Group October 8, 2015, Richmond County, Sandhills region (3:00-5:00pm)

Following the teacher focus groups via audio-streaming, the following issues were raised and discussed among volunteer teacher participants and attending members of the Academic Standards Review Commission:

1. ELA Teachers agree that the standards are vertically-aligned.

2. In response to task-intensive standards or standards with multiple tasks, teachers said that they "unpack the standards, and develop smaller learning targets that focus on each task at a time, and then spiral to make connections, and pull it all back together to make connections, as the standards were originally written." They also "focus on vocabulary within the standards in smaller chunks, using anchor charts and graphic organizers."

3. Teachers say that they feel they have the time to cover the standards but "not enough time to master the standards."

4. Teachers complain of a lack of available resources. They say that, "No textbooks are a key issue, and the lack of money for this in the budget." Teachers spend a lot of time searching for resources—"time," they say, "that could have been spent on differentiating their classrooms or looking further into individual students' needs."

5. ELA Elementary Teachers cited which standards were very clearly written, concise and focused, and which standards were open to multiple interpretations. (Please refer to Dr. Olivia Oxendine's notes/analysis based on their written responses)

6. Teachers often feel rushed to cover the standards.

7. Teachers say that, the complexity of the standards make it difficult to plan daily instruction.

8. Teachers say, "We are truly teaching a cluster of standards and not just one."

9. Teachers question the extent or "depth" of the standard that is expected to be taught to the students. They ask themselves, "Are we teaching our students to be surface-thinkers?"

10. A common concern among teachers is that, standards contain multiple tasks.

11. Teachers say that, they meet together "to review prerequisites to the grade level, and break down standards into individual tasks, to address scope and sequencing issues."

12. When asked about the percentage of their students that would be able to master the standards, and in the context of frequently raised discussions about how many standards are not developmentally appropriate, a teacher offered that, "it depends on the teacher's instruction and that, if the teacher fully understands the particular standard, the students tend to be able to grasp that standard." Another participant in the audience was heard over the audio streaming to raise the question, "Surface teaching vs. deep teaching?"

13. Math teachers agreed that "a few tweaks could be made in the elementary Math" in terms of "identifying where the gaps are," and "what the prerequisites are for children, coming from grade level to grade level…because Math is progressive, and it moves from step to step".

14. Teachers say that, high school integrated Math curriculum "really needs to be condensed." The teacher added that a major concern was that, in high school, "it's very, very broad, and there are too many standards".

15. The high school Math teachers also recommended that the "terminology be consistent" in the standards from elementary, middle and high school. The teachers have admitted that, they have many students from grade level to grade level who have come forward and cited the unfamiliarity of certain terms, and that these students claim "they did not do (a particular Math skill) *that* way when, in fact, they did" and "were simply confused by the difference in terminology or vocabulary."

16. In response to the question or issue of standards being "rigorous," Math teachers recommended providing examples which was also referred to as "modelling in the Math," and elaborated that, even if the students already understands a certain Math skill or concept, it is important that the students (particularly for 5th Graders) have the ability to "explain it back" to the teacher and "not just doing the computation." (Teachers want the student to know the answer to the questions, "Why is it that way?" or, "how does the Math work?") The teacher, emphasized that, "this is important in the Math standards---that the teachers understand that students need to comprehend beyond how to compute."

17. The Math teachers also suggested that, "there could be some improvements made in the wording of the testing questions (i.e., multi-step questions in the EOG), making sure that they can apply those skills that they've learned once they've taught those standards…" Also, the teacher mentioned that discussions among Math teachers raised the issue, "if the test questions are worded the same in middle and high school..."

18. Math teachers said that the students must understand why or how the standards are "relevant," and that the standards must cause the students to think, "Is my answer reasonable? Does it make

sense?" Math standards, the teachers say, must make the students think behind "why they are solving the problem?" or in other words, "How is this relevant?"

19. The Math teachers believe that the Math standards are developmentally appropriate but that, there is problem with the way they are presented because, the standards need to be presented in a way that is age-appropriate for the students. Math teachers recommend that the standards be written without so many big words that the students do not understand. They said, "Make it kid-friendly."

20. Teachers also said, "Make the language and vocabulary (of Math standards) developmentally-appropriate…maybe not the standards but the language."

21. A teacher recommended the need to change the way students' learning is being assessed---in a manner that validates the answers of students and without emphasis on how they arrived at the answer for as long as their answers are correct.

22. A Math teacher recommended that the standards have "that vertical connectedness" between grade levels.

23. Math teachers recommend a focus on building on the basic foundation, and that the standards being "so broad" acts as a deterrent to this goal. Teachers add, "We talk about too many concepts", and that "slower but deeper (learning) would be ideal…in order to be rigorous as required to do."

24. Math teachers stressed the need for teachers to be able to fully understand the standards in order to effectively teach such to the students.

25. Math teachers recommended the need to constantly review and identify the gaps in order to address such for the students.

26. Teachers emphasized that there "too many concepts" for students to have to grasp.

27. Teachers request for professional development support, textbooks and resources.

APPENDIX F-5
REGIONAL FOCUS GROUP RESPONSES

Summary Feedback from the ELA and Math Teacher Focus Group
October 15, 2015, Moore County, Sandhills region (3:00-5:00pm)

Following the teacher focus groups via audio-streaming, the following issues and recommendations were raised and discussed among volunteer teacher participants and attending members of the Academic Standards Review Commission:

1. Teachers will teach what is tested.

2. The majority of teachers are comfortable with the segmentation of standards.

3. ELA teachers say that, there is very little time to address writing, and not enough attention given for grammar.

4. Teachers recommend that, "skill-based writing is what the students need."

5. The standards tend to be "very time-consuming" and with "very little time to locate sources." The reading standards for literature take the entire period.

6. Textbooks are either outdated or not available.

7. ELA teachers spend a considerable amount of time simplifying to understand the standards while asking themselves, "What are we being asked to do?" ELA teachers suggest that the lack of clarity in the standards "makes it difficult to plan daily instruction."

8. Further, ELA teachers have said that, "There is no time in the day or year to cover all that we are supposed to do with the standards."

9. An ELA teacher posed the question, "What does '*with support*' mean in reference to standards mentioned for 9th and 10th grade standards?"

10. Common concerns is that several standards contain multiple tasks. Teachers are breaking these standards by themselves in cases where standards contain multiple tasks at once.

11. Teachers feel rushed to cover all the standards.

12. Teachers say that there is a "disconnect between the standards and expectations of the standards," and that, they "need continual support from the district."

13. ELA teachers also say that, "Easily assessable resources are not necessarily the best resources available."

14. The older the students, the more the need to sit-down with ELA teachers and deconstruct the standards

15. Unpacking documents are referenced frequently.

16. However, ELA teachers have also said that, they "do not like the Unpacking documents for ELA high school…it is too flowery and means nothing but, better for elementary."

17. Teachers recommended to "improve the Unpacking documents for high school teachers."

18. Other teachers stated that they love the Unpacking documents and reference it frequently.

19. ELA teachers suggested to, "deconstruct what these standards (are) and break them down to make them more manageable."

20. ELA standards should recommend reading standards at each grade level.

21. Students are exposed to a balanced variety of materials by the time they graduate from high school.

22. On the other hand, an ELA teacher complained that, "12th Grade is all about British literature."

23. Teachers raised their concern about digital resources, saying that, they cannot be assured of access all the time while citing the fact that they have students who are "under-resourced" and do not even have internet at home. Discussion on this topic also mentioned concerns about long-term maintenance to include the digital infrastructure.

24. Teachers have complained that, "changing the DPI website for resources is problematic for teachers who need to go back to a website page for their resources" and at times, find it impossible to return to the location of their resources.

25. Teachers say that, "We teach our students to annotate texts on paper and that's not possible on the digital screen."

26. Parents say that, the DPI (website) is difficult to access, and they ask—"where is the cursive writing, and why is my child having to write so much, why are you making my child look for something so specific?"

27. Math teachers have said, "Stop with all the useless Math. Parents want a textbook! They want to see that their children are doing in school."

28. (K-5 Mathematics) Parents' concerns are the same as in ELA. They do not understand the standards. They are frustrated that they cannot help their children, and they do not have internet at home.

29. Math teacher says they want to teach conceptually, and they need textbooks.

30. Second through 5th grade teachers say that the standards do not help the students 'read' Math.

31. Math teachers suggest that a "shift on focusing of integration of standards is needed."

Other comments expressed by the participants at this teacher focus group:

32. "All standards need to be developmentally appropriate."

33. "Leave the standards alone."

34. "A standard that is not clearly communicated (L.1-B), what exactly does complex or contested usage mean?"

35. "Common Core standards were written from the top-down. 12th Grade standards will make students college-ready."

36. "(ELA) Scope and sequence problems? We have to scaffold! We have to provide background for our students."

37. "Vertically-align the vocabulary to address the scope and sequence concerns."

38. "The vocabulary in K-5 needs to be vertically-aligned. They spent the whole summer vertically-aligning the vocabulary."

39. "K-1 standards are task-heavy and cannot be covered with the time required."

40. "We need to get back to basics to address scope and sequence. We can never complete the curriculum because of time spent on filling in the gaps."

41. "All standards can be rigorous if they are applied the right way."

42. "Please adopt another state's curriculum and let us make that better. If we allow the DPI to do it for us, we will spend another 3 to 4 years trying to understand the Unpacking documents."

APPENDIX G-1
Letters Submitted via Email

November 12, 2015

Dear Members of the Academic Standards Review Commission,

BEST NC appreciates the significant time and energy you all have devoted to reviewing and making recommendations to strengthen North Carolina's academic standards. We applaud your efforts to promote transparency and hear from diverse stakeholders across the state in this critical process.
The business community is deeply committed to ensuring that the academic standards in our state remain among the highest in the nation to prepare all students to succeed in work and life.

Under SB812, the ASRC is charged with conducting a "comprehensive review of all English Language Arts and Mathematics standards" and proposing modifications to ensure the standards:

a) *Increase students' level of academic achievement;*
b) *Meet and reflect North Carolina's priorities;*
c) *Are age-level and developmentally appropriate;*
d) *Are understandable to parents and teachers; and*
e) *Are among the highest standards in the nation.*

We have reviewed the draft recommendations released by the Commission in October. Keeping in mind the Commission's specific legislative mandate, **we offer the following recommendations to inform the ASRC's final report to the State Board of Education:**

1. *Wholesale adoption of another state's standards in any grade or subject is not within the ASRC's statutory purview.* The Commission's draft recommendation that "for K-8 Math, it is recommended that the Minnesota standards be adopted" is in direct conflict with the mandates of SB812 to propose modifications that meet and reflect North Carolina's priorities, and ensuring the standards are among the highest in the nation. North Carolina standards must reflect the priorities of our state, and adopting another state's standards wholesale will not lead to more appropriate standards for North Carolina students, particularly because Minnesota's K-8 math standards have not been identified as the highest in the nation.

2. *Adjustments to the standards to increase their "developmental appropriateness" must be backed by research and not used to perpetuate low expectations for any subgroup of students.* The Commission has recommended improving the

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language and sequencing of the current standards in the early grades to make them more "developmentally appropriate." Any specific modifications along these lines should be backed by high-quality research and not compromise the rigor, sequencing or quality of the standards. BEST NC believes that all students in North Carolina can achieve at high levels, and we will not support any efforts to lower the standards.

3. *Carefully distinguish between standards and implementation of the standards.* Several of the Commission's draft recommendations are related to the implementation of the standards and accompanying curriculum. This makes sense, given that much of the public feedback received by the Commission was related to implementation as opposed to the standards themselves. Delineating recommendations related to curriculum, instructional materials, and professional development is critically important, but often will not necessitate any changes to the standards themselves.

4. *The Commission's recommendations should reflect the integral relationship between standards and assessments.* As the Commission has heard from many sources over the past several months, the success of high standards is closely linked to high-quality, aligned assessments. Teachers are otherwise forced to choose between teaching to the standards or teaching to the test. S812 directs the Commission to make recommendations on summative assessments, and we strongly recommend that the Commission urge the SBOE to build on the work of its Summative Assessment Task Force and ensure tests are aligned with the standards.

We hope you will take these concerns and suggestions into consideration as the Commission finalizes its recommendations to the State Board of Education. We will continue to follow your progress, and wish you all the best in your final two Commission meetings.

Regards,

Brenda Berg
President & CEO, BEST NC
Brenda.Berg@BEST-NC.org

APPENDIX G-2
Letters Submitted via Email

November 11, 2105

Dear Chairman Andre Peek and Chairwoman Tammy Covil,
The Academic Standards Review Commission has a great opportunity to highlight important issues for teachers. We appreciate the efforts to host focus groups, survey teachers and take written comments. Many of us were unable to attend the focus groups, but we have been following your work and recommendations. As a group of concerned teachers from around the state, we have three recommendations as you finalize your report to the State Board of Education.

1) Oppose a complete overhaul
The ASRC math working group recommends repealing North Carolina's math standards and replacing them with Minnesota's standards. We strongly urge you to remove this recommendation from the final report. As you hear from teachers about important challenges we face, we hope you will recognize complete replacement or overhaul exacerbates our challenges and ignores the complexity of the issues.

2) Support better assessments
Many of us face a difficult challenge as we make plans for instruction. Some of the tests we are required to administer do not align well with the standards. While the standards incentivize critical thinking, problem solving and conceptual understanding, our tests often fail to capture these important concepts. Often, concerns about workload and developmental appropriateness are more a problem with the assessments than with the standards. As a commission, we urge you to include in your report that aligned assessments are critical.

3) Recognize the meaning of clarity
We appreciate the commission's focus on clarity and developmental appropriateness. Please also note that these two issues go beyond the standards. We hope the Academic Standards Review Commission will help the State Board of Education ensure that our standards, curriculum and teacher support resources are clear and appropriate.

Sincerely,
Joanna Schimizzi, Charlotte, NC, Independence High School ,Grade 10
Amy Steelman, Wilmington, NC, Charles P. Murray Middle School, Grade 8
Shannon Thomae, Greensboro, Grimsley High School, 9-12 Special Education
Karen McPherson, Buncombe County Schools, High School Math Coach
Roxxane Breland, Charlotte Mecklenburg Schools, ELA Coach
Rob Leichner, West Mecklenburg High School, Charlotte, NC, Grades 9-12, Math
Theodore Mueller English 1 Charlotte-Mecklenburg Schools.
Roberta Rohan, Greensboro, Grimsley High School, Grades 9 through 12
Rolanda Baldwin, Greensboro, NC, Guilford County Schools, K- 12Math Curriculum Coordinator
Hannah Orr, Greensboro, Grimsley High School, 9-11 Math
Sara Keever, Pittsboro, Northwood High School
Kathy Bonyun, Buncombe County Schools, High School Literacy Coach
Susan Orr, Greensboro, Northwest Guilford High School, Curriculum Facilitator
Eric Grant, Buncombe County, social studies and ELA Specialist, Grade 6 – 12

Amy Hardison, Anderson Elementary, 5th Grade Language Arts/Social Studies
Laura Mayer, Asheville, 9-12 Instructional Coach
Michelle Stephan, UNC Charlotte, Math Educator
Lindsey Walborn ,China Grove, Carson High School, High school math
YKeyla Perry, Winston Salem, Quality Education Academy, Grade 3
Barbara Ussary, New Hanover County Schools, K-5 Mathematics, K-8 Science
Jeff Crayton, Greensboro, Grimsley High, Math I
Wendi Pillars, Siler City, NC, Jordan-Matthews High School Grades 9-12
Emily Williams, Charlotte, NC, Independence High School, grades 10-12
Claire Capps, Hillsborough, NC, A.L. Stanback Middle Schools, 8th grade Math
Lucas Pasley, Sparta, NC, Alleghany High School, English Teacher
Trey Ferguson, Raleigh, High School Math
Bryan Christopher, Riverside High School, English
Ben Owens, Murphy, Tri-County Early College High School, grades 9-11
Sarah Henchey, Orange County Schools, English
Courtney Sears, Chapel Hill-Carrboro City Schools, Ephesus Elementary School, 2nd Grade
Keith G. Williams, Science, Charlotte-Mecklenburg Schools, East Mecklenburg High School 9-12
Stephanie Boehmer, Southport Elementary School, Kindergarten, Southport, NC
Heather Layton, Weddington Middle School, Matthews, NC, 7th Grade
Tamara Houchard,Curriculum Specialist/MTSS District Coordinator, Mitchell County Schools, K-12
Melanie Rhyne, Sunset Park Elementary, Wilmington, IAS-K-5; exceptional children's department
Kendra Harrison, Roland Grise Middle School, Wilmington North Carolina, Grade 6 Science Teacher
Kelly M. Oakley, ELA Teacher and Instructional Coach, Roland-Grise Middle School, Wilmington, NC
Joshua Hudgins, Greensboro, Grimsley High, Math I
Lynnette E. Butler, Media Coordinator, Scotland High School
Jordan McEwen, Roland Grise Middle School, Wilmington, NC Grade 8 Science Teacher
Mackenzie Inman, Asheville, North Buncombe HS, 9-12
Dr. James A. Brooks, Millers Creek, NC, West Wilkes High School, English, grade 12
Diana Luong, Biology Teacher, Butler High School, Matthews, NC
Ryan Redd, Math Teacher, Wilmington, Roland Grise Middle School, Math, 8th grade
Nancy Gardner, Mooresville Senior High School, Mooresville, NC 12th grade (retired)
Amy Churchill, Buncombe County Board of Education, Roberson District Representative

APPENDIX G-3
Letters Submitted via Email

John A. Richardson

January 7, 2015

Academic Standards Review
Commission c/o NC Department of
Administration 116 West Jones St.
Raleigh, NC 27603

Dear Commission members:

I am the father of a 3rd grade student in the Chatham county public school system. I am also an older father who never expected to have a child and have been very involved in my child's education. I am writing to voice my concerns about the Common Core standards and to provide specific recommendations (pages 6-10) that I hope you will consider when developing whatever standards North Carolina ultimately adopts as a replacement for Common Core. I have prepared this letter solely to aid your effort to provide a better education for my child. I have not been compensated in any way.

Background

I am a graduate of UNC-Chapel Hill (1977); was a military officer for 23 years and taught for over half of it; served on the policy staff of the Chairman of the Joint Chiefs of Staff for six years in the Pentagon; did a mid-career one-year post-graduate fellowship in public policy at Harvard University's Kennedy School of Government; and, I am currently a captain with a large US airline. I have traveled extensively in my career, studied education in the U.K., and lived in Korea for a year in the early 1980's as that nation was starting its transformation to a global competitor. Therefore, I have some understanding how education in the United States compares to the rest of the world.

Unlike many of Common Core's most vocal critics who are Tea Party ideological conservatives, I am politically independent. For reasons other than education, I voted for President Obama twice. While I support the Obama administration's mostly bipartisan, centrist education goals, I do not support its authoritarian and coercive methods of achieving them with Common Core. The Common Core standards will not achieve the Administration's bipartisan goals because the barriers to higher education achievement in America are largely cultural[1] , and not primarily low or inconsistent standards. In short, the Common Core solution does not address the real problems underlying educational achievement.

Discussion

1) New Math and Common Core. While I was in elementary school in the 1960's another pedagogical experiment occurred called "New Math[2]." Like Common Core, New Math was developmentally inappropriate and replaced fluency in arithmetic with arcane concepts such as Set Theory and non-Base 10 number systems that were supposed to create

"understanding" of math. Instead, New Math created confusion, the same type of confusion that exists among parents, teachers and administrators trying to cope with the bizarre Common Core math today. In his book *Precalculus Mathematics in a Nutshell,* Professor George F. Simmons wrote that the New Math produced students who "had heard of the commutative law, but did not know the multiplication table." Common Core will have similar disastrous results.

2) Professional education bureaucrats have undermined their own credibility. After a difficult and unnecessary fight with my local school system administrators, my child was allowed to skip kindergarten. Contrary to the expectations of these school system professionals, my child has excelled in public school for the last three years despite being the youngest in her grade. This experience convinced me that public school education bureaucrats value control, not educational excellence, as their first priority. I believe the N.C. Department of Public Instruction has exhibited similar behavior in its promotion and defense of Common Core.

   With both the 1960's New Math and the 2010's Common Core there was a clear inverse correlation between graduate degrees held by education bureaucrats, and the common sense they applied in the acceptance and promotion of both of these unproven pedagogical fads. Just as war is said to be too important to be left to generals, pedagogy is too important to be left to so-called education "professionals" who do not teach.
3) Elitism, Statism and Corporatism led to Common Core. Common Core's supporters come both from the Left and the corporate-sponsored Right. What they share in common is the condescending, anti-democratic arrogance of elites and bureaucrats who want to reorder the lives of American citizens and who have a strong desire to profit – financially and bureaucratically – from $500 billion in annual U.S. education spending.

   In March 2009 Common Core proponent Secretary of Education Arne Duncan shockingly told[3]
   PBS interviewer and North Carolinian Charlie Rose[4]: "I think our schools should be open 12, 14 hours a day...six or seven days a week." Stating that "good things happen" when schools are open and school days are longer, Secretary Duncan apparently believes that a model that may have applicability in inner city Chicago, where family structures are weak or non-existent, should be applied to all of America.

   Complementing Secretary Duncan's statist beliefs are the U.S. Chamber of Commerce,[5] which apparently believes that State supported education's job is simply to prepare students to be trainable, compliant worker bees -- not good citizens. Accordingly, in North Carolina the Chamber of Commerce refers to Common Core standards as "HIRE" standards.[6]

   The merging of the Chamber of Commerce's utilitarian "cost unit" view of students and Secretary Duncan's utopian Soviet/Maoist-cadre vision for America's schools means that Common Core is a combination of (a) Mussolini's definition of fascism applied to education ("*Fascism should more appropriately be called Corporatism because it is a merger*

of state and corporate power"), merged with (b) the ends-justify-the-means zealotry of Marxist social reformers, as embodied by both education "experts" who've never actually taught and public school bureaucrats with Ed.D./Ph.D. degrees who are incapable of critical thinking.

Beyond achieving their financial and bureaucratic profits, Common Core's proponents will – by omission or commission -- convert public education into a means of social control and indoctrination. Common Core programming will inevitably yield uniformly compliant, unimaginative students incapable of critical thinking, risk-taking and innovation.[7]

4) Common Core rests on a foundation of three willful falsehoods that are easily disproved:[8]

   - "Common Core standards are world-class and internationally bench marked";

   - "Common Core was State-led and developed"

   - "Common Core standards are the basis of a 'college and career-ready' education."

This dishonesty of these false assertions has undermined the legitimacy of Common Core as a policy, and the credibility of its supporters across the political spectrum. Compounding this dishonesty is the failure of Common Core's proponents to disclose their financial conflicts[9] of interest in their advocacy. Columnist Michelle Malkin has accurately observed:[10] "This bipartisan power grab is Washington-led and Washington-fed. It's not a conspiracy. It's elementary: All Common Core roads lead to K Street."

5) Common Core does not prepare students for STEM course work in college. North Carolina has declared STEM education an "economic imperative" in a State strategic plan[11] directed by the legislature. Common Core proponents asserted for several years that the standards are "college and career-ready." But in 2010 Common Core's key mathematics standards writer, Dr. Jason Zimba[12], was forced to admit that the Common Core standards are "just a floor" and that "it is not for STEM" and "not for selective colleges."[13] Despite Dr. Zimba's admission four years ago, the "college and career-ready" propaganda[14] continues to be used to sell Common Core. In late December, a sympathetic NPR story[15] attempted to sugarcoat Dr. Zimba's role in writing standards by blaming textbook companies and local schools for supposedly misinterpreting the standards. But the consistent nationwide result of this 'misinterpretation' has been complex, arcane teaching of simple arithmetic and age-inappropriate "critical thinking" assignments.[16]

6) Common Core proponents defend the standards with disingenuous or dishonest arguments. For instance, in 2014 former Governor Jeb Bush – whose foundation has been funded [17] by private sector online education and testing companies – and asserted[18] that Common Core opponents supported "dumbing down standards and expectations" for school children. Similarly, Secretary of Education Arne Duncan has blamed[19] "suburban white moms" whose "child isn't as brilliant as they thought they were" as the obstacle to Common Core. The reality is that the most articulate opponents[20] of Common Core are intensely supportive of high educational achievement and often have experience teaching,

but they believe the standards represent a dumbing down of education and a "Race to the Middle."[21]

7) Common Core critics ignore harsh truths that favor education reform, but Common Core does not address cultural and socioeconomic problems: 57 percent of SAT takers 2013 cohort lacked the academic skills to succeed in college-entry, credit-bearing courses without remediation.[22]

   - most States and local school boards in America lack the expertise or funding to develop standards or curriculum; and,

   - low educational performance is highly correlated with lazy, irresponsible, or nonexistent parenting, and not just lower socioeconomic status.[23]

The policy question is: Can new or different education standards address cultural factors that limit achievement? The answer appears to be 'No.' The 2012 annual report [24] on education by the liberal Brookings Institution undermines the notion that there is any "association between measures of the content quality of state standards and student performance on the National Assessment of Educational Progress (NAEP)." A subsequent 2014 Brookings report[25] demonstrates that having Common Core standards or curriculum does not positively affect NAEP test scores.

Therefore, Common Core is simply a belief-based public policy invested in the idea that completely untested and unproven standards – and the profit-driven curriculum and tests that flow from them – are likely to fix what is primarily a cultural problem that crosses race, ethnicity and socio-economic lines. Unfortunately, there are no education standards that can fix a society that has rejected Einstein, Jefferson, Newton, Shakespeare and Homer in favor of Kim Kardashian, *Jersey Shore, Duck Dynasty* and *Dancing With the Stars.*

8) Common Core epitomizes an American cultural belief in high-cost, high-tech "Silver Bullet" solutions for the nation's intractable social problems. Common Core represents a multi-billion dollar[26] gold-plated sledgehammer intended to swat at millions of citizen mosquitoes who either do not value quality education or do not understand that it takes hard work for them and their children to achieve it. While the Common Core golden sledgehammer will enrich the power and wealth of its promoters, America's "common" mosquitoes will not be better educated because this solution does not address the real – largely cultural[27] -- causes of under-achievement in education that are rooted in parenting. Common Core is simply a fraudulent federal "War on Ignorance." Like the federal "War on Poverty" and "War on Drugs", it will be a very expensive – but very profitable – failure.

9) Common Core is an educational Model-T Ford. In response to legitimate educational failures, Common Core simply applies the centrally-planned, corporate assembly-line efficiency and plain-Jane aesthetics of a Ford Model-T to a wasteful, inefficient, and inconsistent US public education system. Henry Ford once said about the Model-T, "You can have any color you want, as long as you want black." Similarly, one of Common Core's

Bill Gates-funded lobbyists, Michael Petrilli[28] of the conservative Fordham Institute, has stated Common Core critics "are letting perfect be the enemy of good enough."[29]

But if Common Core isn't "good enough" for its promoters Bill Gates and Jeb Bush, whose children went or go to private schools, and who both went to private schools themselves, then why is Common Core good enough for the rest of America's parents and their children?
America's elected politicians passively allowed these elitists to fund and lead an undemocratic – and arguably illegal and unconstitutional -- education coup[30] without ever asking this question.

10)Common Core tests proficiency in a pedagogical game, not just knowledge. Although the Common Core proponents deny it, the standards drive a curriculum – especially in mathematics
– that includes arcane, complex strategies to solve problems[31] that require knowledge of the Common Core game to understand and answer simple arithmetic in a Common Core-compliant manner. So, a student who can easily answer a math problem stated in a traditional manner, but who is not trained in Common Core, could fail a Common Core test.
Further, PARCC and SBAC Common Core tests are to be completed online. Recent experience in New Jersey has already demonstrated[32] that students need hours of classroom instruction in how to use the testing software. Therefore, lack of understanding in how to use the testing software (e.g. how to manipulate an online protractor) will lower a student's test score.
The results of this testing gamesmanship can be seen by comparing the new 2014 Common
Core-complaint GED test results with prior years. "In the United States, according to the GED Testing Service, 401,388 people earned a GED in 2012, and about 540,000 in 2013. This year... only about 55,000 have passed nationally. That is a 90 percent drop off from last year."[33]
This shocking drop in GED diplomas awarded is an early indicator of what is in store for public education over the next few years. What Common Core-compliant testing will do is turn US education into a meritocracy in which test-taking prowess is valued more that initiative, ingenuity, inventiveness, and entrepreneurial spirit. The French education system, and Europe in general, have such a testing meritocracy and it has not produced stellar economic results.
11) Common Core standards use a flawed metric of success: that uniform, standardized conformity equals excellence. Ironically, the original justification for widespread use of Bill Gates' Microsoft IBM-PC operating system was not that it was better than Apple's operating system, but rather that it was compatible with many more software programs. The Microsoft operating system was designed to be a cheaper, inelegant, but functional solution for 90% of PC users, and if the remaining 10% wanted excellence they bought an Apple. Common Core has similar design specifications: it is not designed for the top 10% at all and is sub-optimal for at least another 30-40% of students.

Programming children simply to be uniformly compatible guarantees that they will not be critical thinkers capable of innovation, invention, challenging conventional wisdom – or of challenging authority, which may be the end result of Common Core, if not the unstated intent.

In contrast, Apple co-founder Steve Jobs was a non-conformist misfit[34] throughout his public school career, and yet he ultimately created products far superior to Bill Gates bug-ridden, virus-prone Microsoft operating system. If Microsoft founder and Common Core proponent Bill Gates had purposely set out to insure there would never be another American competitor like Apple founder Steve Jobs, Common Core would be the perfect solution.

12)Common Core is a software-based solution for what is predominately a systemic human hardware problem. Just as Windows 8 would never have run on a 1980's IBM computer based on an Intel 8086 processor, even a reformed Common Core replacement will not fix the hardware limitations in education, which are human. Any new educational operating system that fails to address the structural hardware problems limiting achievement (parental, societal and school system corporate culture) is unlikely to be successful because the software is not the primary problem. As demonstrated by Harlem's educational expert Geoffrey Canada,[35] solutions that holistically address the root causes of educational under-achievement – the human hardware – offer a better chance of success than Common Core or any other new standards. 13)Common Core testing drives curriculum, which drives instruction.[36] Microsoft founder and Common Core funder Bill Gates has stated, "We will only know if this effort is successful when the curriculum and tests are aligned to these standards....this will unleash a powerful market of people [i.e. profit-driven companies] providing services for better teaching. For the first time there will be a large, uniform base of customers..."[37]

So, according to Mr. Gates' logic, the purpose of Common Core is to turn American school children into uniform customers who have been programmed by a uniform curriculum, driven by uniform standards, decided by a small cadre of anti-democratic, corporatist or socialist ideologues who serve the agendas of profit-driven corporations and education bureaucracies. The risk to North Carolina and to other States that reject Common Core is that national tests developed[38] to support Common Core will be used as a flawed and invalid metric to measure academic achievement of students in non-Common Core States. North Carolina should join with other non-Common Core states to adopt standards, curriculum and tests that reward teaching, learning, and knowledge – not arcane pedagogical fads and testing gamesmanship.

Conclusion

As a young military fighter pilot I learned a catechism that we recited before every risky, and potentially deadly, peacetime training mission:

"If the desired learning objective is achieved or unachievable – Knock It Off."

If the lives of President Obama, Secretary of Education Arne Duncan, former Governor Jeb

Bush, Microsoft founder and education philanthropist Bill Gates[39] , or Common Core architect David Coleman[40] were at risk if their Common Core social-engineering mission failed, then this misguided public policy would have never flown. But they have nothing at risk, while the American parents who never got a vote on Common Core -- and were never informed about it before the States agreed to it -- have our children's future at risk.

Simply put, with Common Core the "desired learning objective is unachievable." It is the wrong solution to low achievement in American public education, and a solution that only serves the vested interests of those who will profit either financially or bureaucratically from its implementation.

I am strongly in favor of high standards that will achieve economies of scale, greater efficiency in delivery of education using technology, and school system accountability. But the answer to poor education performance is not Common Core as implemented, or a slightly modified and renamed Common Core, developed and imposed in an anti-democratic, non-transparent, or coercive manner.

Recommendations

General:

1) Increase ASRC Commission transparency by placing easily visible links to the ASRC website on the NC DPI and BoE websites. The current lack of visible ASRC links on these websites is a telling indication of bureaucratic resistance to the legislature's intent for the Commission.

2) Require each person presenting testimony or data to the ASRC to fully disclose any financial interest they or their organization have in the adoption, modification, or rejection of Common Core and make these disclosures part of the public record.

3) Invite presentations from States that have or may rejected Common Core. Where possible collaborate to adopt existing high standards, curriculum and tests in order to achieve economies of scale.

4) Investigate the alternatives to Common Core that have been suggested[41]. A Common Core alternative would:

    - recognize that the fundamental problem is not poor standards, but (1) the parenting culture in NC and US and resultant attitudes toward education, and, (2) the factory mass production model of education used for the last 100 years. Standards cannot fix these problems.

- place children's needs first, not the profits of textbook and testing companies, or private sector education consultants and lobbyists, or self-appointed education "reformers" who do not teach or participate in the public education system

- recognize and accept that children learn at different speeds; end regimented standards and testing metrics tied to grade levels and age-based advancement, while providing remedial instruction to under-performing students

- jointly adopt or develop recommended multi-State standards with as many other nonCommon Core States as possible, and allow the States to modify the standards to meet their needs. The best pre-Common Core standards should be the foundation (Massachusetts, Indiana, and California are usually cited).

- develop multi-State standards for science and social studies/civics as well as ELA and math

- have experienced teachers integrally involved in developing and updating the recommended State standards, not consultants who have never taught

- establish and retain a multi-State-run (not consultant run) standards board that would be staffed with with experienced teachers who would rotate in on short-term assignments to develop and maintain the recommended State standards

- eliminate most high-stakes testing, while retaining NAEP. At most, high-stakes tests should be administered at the end of elementary, middle and high school.

- adopt a voluntary summative high school graduation exam, tied to an honors-type diploma. But give equivalent credit to students who have scored above a minimum level on the SAT, ACT, or AP exams. High school students who pass such exams should graduate with "honors" determined by the grade they receive on the exam.
- prohibit reporting of any student-identifiable "Big Data" on children to entities outside the State, including either the federal government or private sector companies including potential employers

- use money saved on high stakes testing to fund remedial education, voluntary summer school and year-round schools

5) Invite two of Common Core's original standards review committee members who became critics, Professor Sandra Stotsky and Professor James Milgram[42], to testify before the ASRC and to provide recommendations for future NC standards. These experts have provided similar testimony and expert review to other States including Texas, Massachusetts, and Indiana.

6) Adopt two or more high school graduation standards, similar to those used by the State of Texas,[43] by the New York State Regents[44] diploma, or by the British system of GCE[45] "O" and "A" level diplomas. Diplomas should be based on either a "college ready" or a "community college/vocational school/career ready" standard. A "college ready" high school diploma should allow entrance into UNC-system schools without remediation.

7) Transition to competency-based, not grade-based standards, recognizing research findings that what is developmentally appropriate is often contingent on prior opportunities to learn. End the production line model of education per the ideas of genuine education expert Kenneth Robinson.[46]

8) Deemphasize "seat time" as the metric of a "prison model" public school education; allow students to participate in learning activities outside of school if in the joint opinion of parents/guardians and the school principal, they will either enhance or not undermine achievement of required State standards.

9) Allow high-achieving students to move ahead, while providing low-achieving students the extra instruction necessary to meet standards for advancement. Prohibit the DPI or LEAs from restricting high-achieving students who have demonstrated mastery in a subject from moving ahead at a pace that will keep them challenged.

10)Encourage counties to adopt year-round instruction in one or more elementary, middle and high schools to meet the changing demands of a more mobile, non-agrarian society. Recommend that the State legislature fund year-round school operations in counties where there is a demand.
11) Recognize that summer breaks allow students to regress and encourage counties to adopt voluntary summer tutoring, especially for low achieving students.
12)Adopt off-the-shelf tests (perhaps the grades 3-12 ACT *Aspire* test series[47]) that do not test arcane multi-step learning strategies, subjective agreement with history or social issues, or knowledge of test gamesmanship instead of knowledge of objective facts. Use paper tests to minimize classroom time devoted to teaching students online testing methodology and techniques, to include typing proficiency.
13)Prohibit curriculum or testing that incorporates "cooperative" or collaborative" group learning methods whereby the "right" answer is a subjectively-derived consensus answer without objective basis. Instruction may include supplemental cooperative, collaborative or group learning learning only if it is focused on achieving an answer or outcome based on objective facts and knowledge and all students are expected to contribute to group work. Supplemental cooperative, collaborative or group learning learning shall not be a substitute for demonstrated individual mastery of knowledge.
14) Require passing a basic civics test, equivalent to the U.S. federal naturalized citizen exam[48], as a prerequisite for any type of diploma or GED awarded in North Carolina.
15)Prohibit any instruction, curriculum, or testing of sex or sexuality prior to high school. Allow parents/guardians to opt their child out of any high school sex education class and replace it with academic or vocational coursework.

16)Prohibit the incorporation of the National Sexual Health Education Standards[49] , or the teaching of subjective sexual norms, in any public school instruction, curriculum or testing.

17)Join with other non-Common Core States to pressure the companies that develop SAT and ACT, as well as summative and other K-12 assessments, to insure North Carolina students will be able to take tests that measure objective knowledge, without requiring understanding of arcane pedagogical games unique to Common Core.

18)Prohibit any DPI/BoE association with and funding of the UNC Hunt Institute as long as the Hunt Institute remains an advocate of (a) the current Common Core program tied to federal coercion through grants tied to compliance with, or waivers from, federal education programs (NCLB and RttT); (b) private third-party copyrighted standards that cannot be modified by

States; (c) high stakes testing and associated external reporting of student-identifiable "Big Data"; (d) teaching of simple arithmetic by arcane, complex methods. Remove any State taxpayer funding or support of the Hunt Institute unless it refocuses solely on high-standards, instead of the Common Core federalism benefiting private-sector company profits.

Mathematics:

19)Align mathematics standards to the National Mathematics Advisory Panel[50] recommendations.

20)Insure all instruction, curriculum, and testing emphasizes objective knowledge, fluency and competency in arithmetic; and not knowledge of arcane, complex, and unproven methods of understanding or problem-solving as a substitute for consistently answering correctly.

21)Prohibit testing of multi-step, complex methods of solving simple arithmetic or its inclusion in standards-based curriculum. Examples of such methods are "decomposing" and "anchoring."[51] Such methods may be used in instruction on as a supplemental means of creating understanding.

22)Limit word problems in grades K-2 to insure class time is primarily focused on knowledge of and fluency in math facts. Insure word problems are written in grade level English in all grades.

23)Prohibit testing of subjective "explain your thinking" methodologies of solving simple arithmetic or its inclusion in the curriculum. In grades 3-12 continue Common Core's emphasis on word problems as a means of testing students' understanding of mathematics and its practical applications.

English Language Arts:

24)Prohibit instruction, curriculum or testing incorporating "cold reading" of historical documents (e.g. Declaration of Independence or Gettysburg Address) without providing historical context.

25)Prohibit the incorporation into K-12 instruction, curriculum, or testing any readings dealing with rape, incest, pedophilia, bestiality, sadomasochism, or psychopathic violence.

26)Mandate that high school literature readings come from widely accepted, enduring classic texts,[52] and not be driven by pop culture or cultural relativism.

27)Mandate reading of literature for the first two years of high school. In the last two years of high school differentiate reading assignments based on the type of diploma a student is pursuing, with lower percentages of literature and higher percentage of informational test for students preparing for a community college/vocational school/career ready diploma.

28)Informational text should be required, but taught as "Practical English" either in specific business writing, vocational or remedial English classes – but not inter-mixed with literature.

29)The high school curriculum should include a mandatory analytic writing course in the junior year focused on concise, fact-based writing and problem solving based on interpretation of informational texts. This course should prepare students for the new optional essay part of the redesigned[53] SAT as well as business[54] and military writing.

If the Commission members or staff have any questions about this letter, you are welcome to contact me via email: jrichardson787 (at) aol.com.

Respectfully,

/s/

John A. Richardson
Parent

1 http://www.cep-dc.org/displayDocument.cfm?DocumentID=392

Jack Jennings, "*Reflections on a Half-Century of School Reform: Why Have We Fallen Short and Where Do We Go From Here?*", Center on Education Policy, 2012

p. 8: "**...much of the variance in student achievement is explained by home and family factors. Those characteristics include family income, parents' level of education, parental involvement in the child's education, the availability of and exposure to reading and educational materials in the home, and the presence of two parents.** Lack of adequate health care, unemployment of parents, and neighborhoods with gangs and high crime rates are also obvious impediments to education...

p. 9: ...Parents should be motivated to do what they can to help their child do well in school.

p.10: **[Federal and State education policymakers] "...should also consider how to encourage greater parental involvement in children's education,** and how to provide services in schools to make up for the social and economic inequities hampering some children's success. **Parental and social influences are so important to securing a good education that they should be involved in any state's plan for broad improvement."**

2 http://en.wikipedia.org/wiki/New_Math

In 1973, Morris Kline published his critical book *Why Johnny Can't Add: the Failure of the New Math.* It explains the desire to be relevant with mathematics representing something more modern than traditional topics. He says certain advocates of the new topics "ignored completely the fact that mathematics is a cumulative development and that it is practically impossible to learn the newer creations if one does not know the older ones" (p. 17). Furthermore, noting the trend to abstraction in New Math, Kline says "abstraction is not the first stage but the last stage in a mathematical development" (p. 98)."

3 https://www.youtube.com/watch?v=e6wRjxfkAU0
Excerpt of Duncan-Rose interview, March 11, 2009

4 http://www.charlierose.com/history.html
Interview with Secretary of Education Arne Duncan, March 11, 2009

5 http://www.businessforcore.org/
and
https://www.uschamber.com/press-release/us-chamber-foundation-releases-common-core-video and http://ncchamber.net/foundation/common-cores/

6 http://hirestandardsnc.org/

7 A valedictorian speaks out against education during her commencement speech:
https://www.youtube.com/watch?v=9M4tdMsg3ts and
http://americaviaerica.blogspot.com/2010/07/coxsackie-athens-valedictorian-speech.html

8 https://www.youtube.com/watch?v=XrpjiywhSQU
Ohio WXIX-TV television reporter "Ben Swann Exposes Common Core" – 3:30 video reviewing both sides of the Common Core debate.

9 http://www.washingtonpost.com/blogs/answer-sheet/wp/2014/12/21/heres-who-got-the-biggest-gates-foundationeducation-grants-for-2014/

10 http://michellemalkin.com/2014/03/21/get-to-know-the-common-core-marketing-overlords/

11 http://www.ncpublicschools.org/docs/stem/overview/education-strategic-plan.pdf

12 http://achievethecore.org/author/35/jason-zimba

13 https://www.youtube.com/watch?v=eJZY4mh2rt8

Jason Zimba, lead writer of the Common Core State Standards for Mathematics, and a Founding Partner of Student Achievement Partners, discussion with Dr. Sandra Stotsky, March 23, 2010. Mr. Zimba later willfully lied about what he very clearly had said (see video above) when he realized that it had been so truthful – and damaging – to the Common Core agenda. See Zimba op-ed here:

http://edexcellence.net/commentary/education-gadfly-daily/common-core-watch/2013/what-i-learned-about-the-commoncore-state-standards-when-i-testified-in-indiana.html

14 http://www.ccsso.org/Resources/Digital_Resources/Common_Core_Implementation_Video_Series.html

15 http://www.npr.org/blogs/ed/2014/12/29/371918272/the-man-behind-common-core-math

From NPR article: These days, Zimba and his colleagues acknowledge better standards aren't enough. "I used to think if you got the assessments right, it would virtually be enough," he says. "In the No Child Left Behind world, everything follows from the test." Now, he says, "I think it's curriculum."

COMMENT: While Dr. Zimba is technically correct, his argument is also intellectually dishonest. Common Core's supporters like Bill Gates have repeatedly lauded the link between standards, curriculum, and tests as a significant advantage of Common Core because it will achieve nationwide standardization and economies of scale. Gates compares education to the electrical grid, and the standards to common plugs/receptacles that will insure all appliances are designed to the standard. In Gates' Common Core analogy, children are simply "appliances." So, Common Core's supporters like Mr. Zimba are trying to have it both ways while promoting their standards as near-perfect, and simultaneously defending them against the resulting less-than-perfect tests, curriculum and teaching methods.

16 https://www.youtube.com/watch?v=_bVBm1miqNY

From NPR article above: "A dad [Jeff Severt] in North Carolina posted a convoluted "Common Core" question from his son's second-grade math quiz on Facebook, along with a letter he'd written to the teacher. "I have a Bachelor of Science Degree in Electronics Engineering which included extensive study in differential equations and other high-math applications," he wrote. "Even I cannot explain the Common Core mathematics approach, nor get the answer correct."

17 www.washingtonpost.com/local/education/jeb-bush-education-foundation-played-leading-role-in-mixing-politicspolicy/2015/01/06/db1db176-903b-11e4-a900-9960214d4cd7_story.html

"...**the foundation, from which Bush resigned as chairman last week as part of his preparations for a possible White House bid, has been criticized as a backdoor vehicle for major corporations** to urge state officials to adopt policies that would enrich the companies. The foundation has, for instance, pushed states to embrace digital learning in public schools, a costly transition that often requires new software and hardware. **Many of those digital products are made by donors to Bush's foundation, including Microsoft, Intel, News Corp., Pearson PLC and K12 Inc.."**

18 http://www.wsj.com/articles/jeb-bush-charts-tricky-course-with-embrace-of-common-core-1402956578 WSJ, 16 Jun 2014:

"...When Mr. Bush was preparing to address the conservative American Legislative Exchange Council last year, an aide suggested remarks that avoided mentioning Common Core. Mr. Bush rejected the draft. "I respect those that don't agree with me," he told the group gathered in Chicago. "What I can't accept are dumbing down standards and expectations.""

19 http://www.usatoday.com/story/news/politics/2013/11/18/duncan-regrets-comment/3634775/
Secretary Duncan stated he regretted saying his race-baiting criticism of "suburban white moms", but he specifically did not apologize.

20 http://whatiscommoncore.wordpress.com/tag/race-to-the-middle/ and
http://www.washingtonpost.com/blogs/answer-sheet/wp/2014/12/08/mom-to-common-core-task-force-take-the-4th-gradeparcc-practice-test-i-dare-you-to-tell-me-it-makes-sense/

The links above describe the efforts of very well-educated "white suburban moms" (Secretary Duncan's term) in Utah and New Jersey who have teaching experience and have been vocal opponents of Common Core. They oppose the dumbing down of public education, not high standards. Their efforts and those of many other Americans disprove the self-serving comments by former Gov Jeb Bush and Secretary Duncan.

21 http://www.cpr.org/news/story/backlash-against-common-core-standards-comes-colorado-capitol The term "Race to the Middle" is attributed to Common Core opponents.

22 https://www.collegeboard.org/pdf/sat/delivering-opportunity/test_specifications_for_the_redesigned_sat_102414.pdf

From the College Board an indictment of the failures of US public schools: "...57 percent of SAT takers in the 2013 cohort lacked the academic skills to succeed in college-entry, credit-bearing courses without remediation in at least one subject, and the success rates for such remediation leading to post-secondary completion are far too low."

23 http://files.eric.ed.gov/fulltext/ED454358.pdf
"*It Takes More Than Testing: Closing the Achievement Gap*", Center on Education Policy, 2000. p.5, 29

-- "A wide racial/ethnic gap exist in achievement test scores: African American and Hispanic students core significantly lower, on average, than White and Asian students.

-- "The achievement gap is present before children start school."

– "The achievement gap is not due to differences in innate ability, nor is it simply the result of biased test questions."

– "Racial-ethnic differences in family income contribute to the achievement gap but do not entirely explain it."

– "There is no simple explanation for the achievement gap. A variety of school, community, and home factors seems to underlie or contribute to the gap."

– p. 29: "The achievement gap can be closed, but probably not with quick fixes. Closing the gap is a complex task that will require multiple, simultaneous, and long-term efforts that target school, home, community, and societal factors."

24 http://www.brookings.edu/research/reports/2013/10/30-standardized-testing-and-the-common-core-chingos

Tom Loveless, "The 2012 Brown Center Report on American Education: How Well Are American Students Learning?" Brown Center on Education Policy, Brookings Institution, February 2012, cited in Chingos, Matthew M. "Standardized Testing and the Common Core Standards: You Get What You Pay For?" Washington, D.C.: Brown Center on Education Policy at the Brookings Institution, October 2013 at p. 3.

25 http://www.brookings.edu/research/reports/2014/03/18-brown-center-report-loveless

Tom Loveless, "The 2014 Brown Center Report on American Education: How Well Are American Students Learning?"Brown Center on Education Policy, Brookings Institution:

"The current study examines data from the NAEP tests conducted in 2011 and 2013 and asks whether the same finding holds for subsequent changes in NAEP scores. Have the states with CCSS-like standards made greater gains on the eighth grade NAEP since 2009? It turns out they have not."

26 The pro-Common Core Fordham Institute estimates over $12 billion in start up costs, but asserts these costs would net to under $2 billion because of hypothetical cost savings. The Pioneer Institute estimated $15.8 billion over seven years for the 45-46 implementing States. See: http://edexcellencemedia.net/publications/2012/20120530-Putting-A-Price-Tag-on-the-Common-Core/20120530-Putting-a-Price-Tag-on-the-Common-Core-FINAL.pdf and http://pioneerinstitute.org/download/summary-national-cost-of-aligning-states-and-localities-to-the-common-corestandards/

27 http://www.davidsongifted.org/db/Articles_id_10094.aspx

Reis, S. & McCoach, D. , *The underachievement of gifted students: What do we know and where do we go?* Gifted Child Quarterly, National Association for Gifted Children (NAGC), Vol. 44, No. 3, pp. 152-170 Summer 2000. See discussion of "Family Dynamics":

"Research on the family characteristics of underachieving gifted students suggests that certain types of home environments may be related to the development of students' underachievement patterns (Baker, Bridger, & Evans, 1998; Brown, Mounts, Lamborn, & Steinberg, 1993; Rimm & Lowe, 1988; Zilli, 1971). Families with underachieving children tend to exhibit less positive affect (Mandel & Marcus, 1988). Whereas parental emphasis on achievement tends to inspire higher academic achievement (Brown et al., 1993), parents of underachievers may exhibit disinterested attitudes towards education (Jeon & Feldhusen, 1993)."

28 http://edexcellence.net/about-us/fordham-staff/michael-j-petrilli

29 https://www.youtube.com/watch?v=zjxBClx01jc
Mr. Petrilli was quoted in the film "Building the Machine" at time 17:33, stating: "I think that Professors Stotsky and Milgram are making the perfect be the enemy of the good."

30 http://www.washingtonpost.com/politics/how-bill-gates-pulled-off-the-swift-common-corerevolution/2014/06/07/a830e32e-ec34-11e3-9f5c-9075d5508f0a_story.html and http://www.washingtonpost.com/blogs/answer-sheet/wp/2014/06/08/did-bill-gates-fund-an-educational-coup/

"...Education historian and activist Diane Ravitch, in a post on her blog...called the Gates involvement an "educational coup.": '**This is the closest thing to an educational coup in the history of the United States.** Our education system is made up of about 14,000 local school districts; most education policy is set at the state level. **But Bill Gates was able to underwrite a swift revolution. It happened so quickly that there was very little debate or discussion.** Almost every consequential education group was funded by the Gates Foundation to study or promote the Common Core standards. **Whereas most businesses would conduct pilot testing of a major new product, there was no pilot testing of the Common Core. These national standards were written with minimal public awareness or participation,** and at least one state — Kentucky — adopted them before the final draft was finished.'

31 https://www.youtube.com/watch?v=dyPVp4KhLg8
"Common Core addition strategies for making 10" – mother uses common sense to analyze a Common Core homework assignment.
and
https://www.youtube.com/watch?v=djmtDxTF4ZI
"Common Core math makes simple arithmetic as complex as calculus" – teacher demonstrates "decomposing" and "anchoring" to add 9+6

32 http://www.washingtonpost.com/blogs/answer-sheet/wp/2014/12/16/10-year-old-tells-school-board-i-love-to-read-ilove-to-do-math-but-i-dont-love-the-parcc-why-because-it-stinks/ and video at the following link of 10-year old Elizabeth Blaine testifying to her BoE about the PARCC test: "It stinks..."

http://insider.foxnews.com/2014/12/17/it-stinks-10-year-old-elizabeth-blaine-slams-common-core-montclair-newjersey-school

33 In 2011, in collaboration with the American Council on Education, the private-sector mega-publisher Pearson took over the GED—the General Education Diploma—that counts as a diploma and helps those who earn a GED get a job or get into college. The GED originated in 1942 during and due to WWII. In January 2014, Pearson instituted a revised
Common Core-compliant GED online-only exam at three times the cost ($120, not including higher preparation costs).
See: http://janresseger.wordpress.com/2015/01/05/pearson-now-runs-the-ged-passage-rate-drops-by-90-percent-in-one-year/ and
http://www.clevescene.com/cleveland/after-a-major-overhaul-to-the-ged-test-in-2014-18000-fewer-ohioans-will-pass-theexam-this-year-than-last-along-with-nearly-500000-across/Content?oid=4442224

34 https://hbr.org/2011/10/steve-jobs-legacy-design-your/

35 https://www.ted.com/talks/geoffrey_canada_our_failing_schools_enough_is_enough

36 http://www.washingtonpost.com/opinions/george-will-doubts-over-common-core-wont-be-easilydismissed/2014/01/15/68cecb88-7df3-11e3-93c1-0e888170b723_story.html
Columnist George Will: "...**what begins with mere national standards must breed ineluctable pressure to standardize educational content. Targets, metrics, guidelines and curriculum models all induce conformity in instructional materials.** Washington already is encouraging the alignment of the GED, SAT and ACT tests with the Common Core. By a feedback loop, these tests will beget more curriculum conformity. All of this will take a toll on parental empowerment, and none of this will escape the politicization of learning like that already rampant in higher education."

37 http://www.gatesfoundation.org/media-center/speeches/2009/07/bill-gates-national-conference-of-state-legislatures-ncsl

Gates speech to the National Conference of State Legislatures, Jul 21, 2009

38 https://www.collegeboard.org/delivering-opportunity/sat/redesign/letter-from-david-coleman
The architect of the Common Core standards, David Coleman, is now the president and CEO of the College Board, which designs the SAT. Mr. Coleman redesigned the SAT in 2014. These changes appear beneficial, but they should not require students to have been educated according to unique Common Core methodologies in order to succeed.

39 http://www.washingtonpost.com/politics/how-bill-gates-pulled-off-the-swift-common-corerevolution/2014/06/07/a830e32e-ec34-11e3-9f5c-9075d5508f0a_story.html

40 https://www.collegeboard.org/about/leadership/david-coleman

41 There have been many Common Core alternatives suggested. Here are just a few ideas: http://www.washingtonpost.com/blogs/answer-sheet/wp/2013/06/18/the-common-cores-fundamental-trouble/ and
http://curmudgucation.blogspot.com/2014/04/what-would-winning-look-like.html and
http://www.scpie.org/alternatives/ and
http://stateimpact.npr.org/ohio/2013/10/29/core-questions-what-are-potential-alternatives-to-the-common-core-standards/ and
http://www.corbettreport.com/the-answer-to-common-core-alternative-models-of-education/

42 http://www.uaedreform.org/sandra-stotsky/ and
http://en.wikipedia.org/wiki/Sandra_Stotsky and
http://www.nasa.gov/offices/nac/members/milgram-bio_prt.htm and
http://parentsacrossamerica.org/james-milgram-on-the-new-core-curriculum-standards-in-math/

43 http://tea.texas.gov/graduation.aspx
"Information on all current graduation programs available at the links below:
2014-2015 Graduation Programs Side by Side (PDF, 308KB)"
http://www.tea.state.tx.us/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=25769809836&libID=25769809849

44 http://www.p12.nysed.gov/ciai/gradreq/diploma-credential-summary.pdf 45

http://en.wikipedia.org/wiki/General_Certificate_of_Education

46 http://www.ted.com/talks/ken_robinson_changing_education_paradigms and
http://www.ted.com/talks/ken_robinson_how_to_escape_education_s_death_valley

47 http://heartland.org/sites/default/files/replacing_common_core-web_1.pdf and
http://www.discoveractaspire.org/assessments/

48 http://www.uscis.gov/citizenship

49 http://www.futureofsexed.org/fosestandards.html

50 http://www2.ed.gov/about/bdscomm/list/mathpanel/report/final-report.pdf see Main Findings and Recommendations, pages xvi-xxvii.

51 https://www.youtube.com/watch?v=djmtDxTF4ZI
"Common Core math makes simple arithmetic as complex as calculus" – 3:55 video of a teacher demonstrating "decomposing" and "anchoring."

52 http://www.goodreads.com/shelf/show/high-school-classics

53 https://www.collegeboard.org/pdf/sat/delivering-opportunity/test_specifications_for_the_redesigned_sat_102414.pdf *The Redesigned SAT*, The College Board, see p. 69-71, et.seq.

54 http://en.wikipedia.org/wiki/The_Business_Style_Handbook