SC EDUCATION OVERSIGHT COMMITTEE
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AGENDA

Academic Standards and Assessments Subcommittee

Monday, December 1, 2014
1:00 PM, Room 433, Blatt Building

I.	Welcome and Introductions	Dr. Danny Merck
II.	Approval of Minutes of September 22, 2014 Meeting	Dr. Danny Merck
III.	Presentations from EOC Math and ELA Standards Evaluation Teams	Members of EOC Evaluation Teams
IV.	Adjournment	

<u>Subcommittee Members:</u>
Dr. Danny Merck, Chair
Neil Robinson, Vice-Chair
Sen. Mike Fair
Barbara Hairfield
Sen. Wes Hayes
Patti Tate

David Whittemore
CHAIR
Daniel B. Merck
VICE CHAIR
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J. Roland Smith
Patti J. Tate
Mick Zais

Melanie D. Barton
EXECUTIVE DIRECTOR

SOUTH CAROLINA EDUCATION OVERSIGHT COMMITTEE
Subcommittee on Academic Standards and Assessments

Minutes of the Meeting
September 22, 2014
10:00 AM, Room 433 Blatt Building

Subcommittee Members Present:	Mr. Neil Robinson (Vice-Chair); Sen. Mike Fair, Ms. Barbara Hairfield, and Ms. Patti Tate
EOC Staff Present:	Kevin Andrews, Melanie Barton, Paulette Geiger; Rainey Knight, and Dana Yow
Other EOC Members Present:	Ms. Deb Marks and Mr. David Whittemore

Welcome and Introductions
Mr. Robinson welcomed members and guests to the meeting.

Minutes of March 24, 2014
The minutes of March 24, 2014 were approved as distributed.

Public Comments
Mr. Robinson noted that three individuals had signed up to provide public comments concerning the new AP® United States history framework. The chair suggested that the individuals be given up to five minutes to address the subcommittee. There being no objection, the subcommittee received comments from Roger O'Sullivan, chairman of the Greater Charleston Parents Involved in Education; Sherri Timmerman, secretary of the Greater Charleston Parents Involved in Education; and Linda Ensor, a retired newspaper editor from Summerville. Copies of each person's remarks are attached.

Then the subcommittee engaged the following three individuals in a discussion of the issue.

Mr. Larry Krieger, a former social studies teacher in North Carolina and New Jersey schools, author and tutor of SAT, PSAT, & AP Prep Courses, and Founder of InsiderTestPrep.com addressed the subcommittee via Skype. Mr. Krieger expressed the following concerns with the New AP® U.S. History Framework: (1) The framework downplays the role of the military in United States history because no American military commander is included and only two battles**– Gettysburg and Sherman's March to the Sea** are included. In addition the framework overemphasizes the conflicts with Native Americans. (2) The framework downplays the importance of capitalism in United States history. And (3) the framework downplays American exceptionalism as represented by the Colonial Period, the Founding Fathers, etc. Mr. Krieger noted that the criticism of the framework is rooted in the following central question: Do you believe America is an exceptional country? In the opinion expressed by Mr. Krieger, he does not believe that the College Board holds beliefs in such exceptionalism.

The Subcommittee then heard from Dr. Susan Baumann, a current AP and IB Social Studies Teacher at Richland Northeast High School in Richland School District Two. Dr. Baumann has taught social studies for 35 years and AP U.S. History since 1986. Dr. Baumann explained that the framework provides guidelines to teachers, but it does not define the content of her instruction

or assignments. The South Carolina U.S. History Standards are the standards that she follows in all her classes, AP and otherwise. Dr. Baumann noted that the prior AP® U.S. History Framework, which was five pages, did not provide sufficient information to assist teachers in the classroom or in pacing.

Mr. Trevor Packer, Senior Vice President, AP and College Readiness, College Board, participated via telephone from Heathrow airport. Mr. Packer has led the AP program for the past 11 years. AP exams are accepted for college credit at 3,900 colleges and universities nationwide. Colleges are willing to grant credit to high school students because all AP test questions have always been written by college professors nationwide, and that continues to be the process for AP US History. What this means is that not a single AP test question is written by the College Board staff. College Board surveys college professors to determine what their requirements are for college credit.

Prior to 2012, College Board provided a 5-page outline or framework that was very general. This outline did not contain a list of individual names and events. The choice of historical data has always been left up to the teacher and to individual state standards. Just as all college professors have flexibility to emphasize different battles, individuals, and documents, so should states, districts, schools, and AP teachers seeking to offer college-level courses in high school. It is not the AP Program's philosophy to mandate specific content –choices; rather it is their responsibility to be transparent about what colleges require for college credit.
To be more transparent, the College Board developed a new framework that consists of:

> Eight pages of required topics -- very similar to the old framework with no list of individual names and events
>
> 53 pages that show teachers for the first time the results of the survey of college professors on concepts they require students to be familiar with in order to receive college credit and be placed ahead in a college course.

Teachers are advised to use the 53 pages as an indication of the sort of test questions that professors may include on an AP test. But they are told that they should not simply accept the concepts as summarized by college professors, but should teach their students to assess each of those concepts, using the actual documents of history (historical evidence) to determine whether they agree, disagree, or partly agree with each concept. The way the College Board designs the exam is to reward students equally whether they agree or disagree with a claim, so long as they understand the claim and can use historical evidence to make their case accurately and effectively.

Staff provided to the members the following information to members on the AP program in South Carolina. Since 1984, each school district in South Carolina has been required to provide Advanced Placement (AP) courses in all secondary schools that include grades 11 or 12.

Year	Exams Taken	Exams with Scores of 3, 4 or 5	Students Taking Exam
2013	37,226	21,136	23,442
2012	34.086	19,240	21,429
2011	30,845	17,424	18,755
2010	28,763	15,802	17,766
2009	26,453	14,970	16,380
2008	23,901	13,434	14,778
2007	23,254	13,073	14,167

2013 AP® Results in South Carolina

- 23,442 students took 37,226 exams in 31 areas.
- The six most-taken AP® exams were, in order, English Language and Composition, United States history, English Literature and Composition, Human Geography, Calculus AB, and Statistics" [1]
- 4,803 exams administered in US History with 54% of students scoring 3 or higher

2014 AP® Results in South Carolina[2]

- 264 schools had at least one AP US History exam taker in May 2014
- 3,208 AP US History exams received a score of 3 or higher.
- The typical student who receives a score of 3 or higher on two AP Exams has the potential to save an average of $2,200 at a public four-year college in South Carolina.

There being no further business, the Subcommittee adjourned.

[1] **"2013 Results of the Advanced Placement (AP) Examinations. South Carolina Department of Education. Office of Research and Data Analysis, September 24, 2013.** http://www.ed.sc.gov/data/national-assessments/documents/AP2013_final.pdf**.**

[2] **Email from Asenith Dixon of The College Board to Melanie Barton, September 19, 2014.**

EDUCATION OVERSIGHT COMMITTEE

Subcommittee: Academic Standards and Assessment

Date: December 1, 2014

INFORMATION ITEM

Review of Current Academic Standards and Standards submitted by SCDE Writing Panels

PURPOSE/AUTHORITY

In accordance with Act 200, the State Board of Education, in consultation with the Education Oversight Committee, is directed to conduct a cyclical review of the South Carolina English/language arts and mathematics academic standards to ensure the standards are maintaining high expectations for learning and teaching. Per Act 200, the revised standards, once approved by the Education Oversight Committee and the SC State Board of Education, will replace the current standards in the 2015-16 school year.

CRITICAL FACTS

TIMELINE/REVIEW PROCESS

EOC conducted a survey of current standards from July to September 2014; Standards Review teams convened to evaluate drafts of standards from SCDE writing teams five times during October and November 2014.

ECONOMIC IMPACT FOR EOC

Cost:

Fund/Source:

ACTION REQUEST

☐ **For approval** ☒ **For information**

ACTION TAKEN

☐ **Approved** ☐ **Amended**

☐ **Not Approved** ☐ **Action deferred (explain)**

Analysis of Public Input on South Carolina ELA and Math Standards

Submitted to

Education Oversight Committee

By

Curva & Associates, LLC

curva@mindspring.com

October 15, 2014

Project Team

Sande Milton, Ph.D.
Benjamin Milton, B.A.

Introduction

Between July 11 and September 30, 2014, South Carolina citizens were invited to offer their opinions, comments and suggestions regarding existing standards in English language arts and mathematics. A website was made available for interested citizens to provide input. Responses were sought in four categories: English/Language Arts (ELA) standards; Mathematics (Math) standards; appendices containing the text of the standards; and an Exit section for general comments.

The purpose of this report is to present an organized summary of these public comments.

The research team consisted of two persons: one holds an advanced degree in Sociology and had been a professor of Educational Policy until his retirement. He has conducted a similar study of public opinion of standards in Florida. The other holds a degree in History, and was most recently a policy analyst for a quasi-governmental agency in Florida, specializing in children's public policy.

Respondents were asked to comment on each of the standards (over 500 each for ELA and Math). All items were open-ended. Respondents were asked to type their comments in text fields; that is, there were no boxes to check. As a result, the comments needed to be "coded," or categorized for content. Analysts read through a sample of respondents, noting common themes. Once initial themes (codes) were identified, analysts systematically read each comment, assigning a numeric code. Other codes were identified during the process, and some original codes were modified. Once coding was complete, the resulting coded data were used to summarize the results of the survey in tables and figures.

The approach taken by the coding team included the following principles:

- All comments were reviewed and coded; i.e., we did not draw a subsample of the data.
- The analysis is intended to be "lossless," i.e., all comments are retrievable by code number; no information has been lost in the data compilation process.
- A few web respondents commented on a large number of standards, using cut-and-paste techniques to offer the identical comment to hundreds of standards. Although this may appear to be "stuffing the ballot box," these cases were not excluded: the wide distribution of multiple comments per respondent begged the question of where to draw a cut-off point, and would violate the principle of including all comments.

There are five sections of the report:

1. Analysis of comments on state standards (this document-pdf)
2. Lists of all ELA recommendations, coded and organized by standard (Microsoft Excel worksheet)
3. Lists of all Math recommendations, coded and organized by standard (Microsoft Excel worksheet)
   (For a list of the number of recommendations per standard, see Appendices in this document.)
4. A qualitative summary of general comments offered in the Appendices and Exit section of the survey (this document-pdf)
5. Printable files of all comments, sorted by standard (Microsoft Excel)

Data analysis

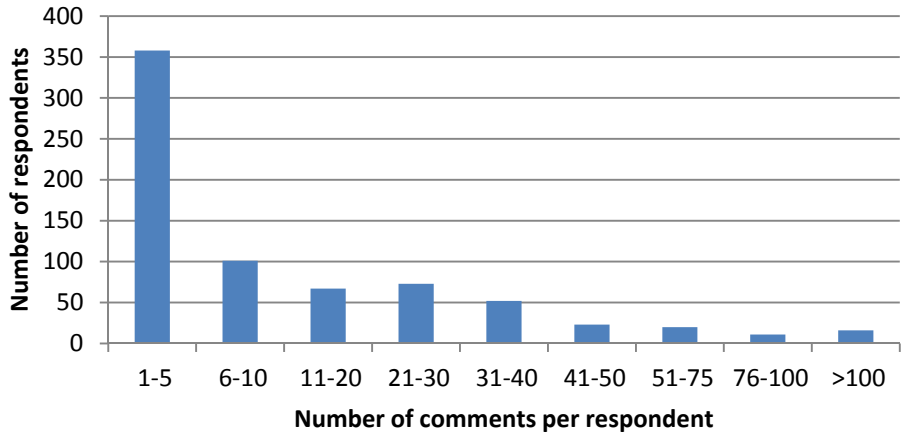
Total number of comments and constituents

A total of **13,274**comments were analyzed, from the following sections of the web survey. These comments were made by a total of 716 respondents (see Table 1). In the English/Language Arts and Math sections, respondents were able to comment on more than 500 ELA and/or math standards. However, most respondents commented on fewer than 10 standards. Sixteen respondents commented on over 100 standards (see Figure 1).

Table 1
Number of comments and constituents by source

Data source	Comments	Constituents
English/Language Arts (ELA) standards	7783	466
Math standards	5197	345
Appendix A (ELA)	24	24
Appendix B (ELA)	12	12
Appendix C (ELA)	13	13
Appendix A (Math)	37	37
Exit comments (General)	208	208
Total (unduplicated count)	**13,274**	**716**

Figure 1
Number of comments by respondents



Respondents' residence and role/occupation

Tables 2 and 3 present county of residence of survey respondents and their occupation or role. Only 11 respondents were from outside South Carolina. Over 60 percent identified themselves as teachers, and nearly 20 percent were parents.

Table 2
County of residence of SC respondents

County	N	Percent	County	N	Percent
Abbeville	5	.7	Horry	37	5.2
Aiken	7	1.0	Kershaw	14	2.0
Anderson	93	13.0	Lancaster	5	.7
Barnwell	3	.4	Laurens	5	.7
Beaufort	7	1.0	Lee	2	.3
Berkeley	29	4.1	Lexington	63	8.8
Calhoun	1	.1	Marion	7	1.0
Charleston	35	4.9	Marlboro	16	2.2
Cherokee	44	6.1	Newberry	5	.7
Chester	5	.7	Oconee	5	.7
Chesterfield	12	1.7	Orangeburg	9	1.3
Clarendon	3	.4	Pickens	7	1.0
Colleton	5	.7	Richland	60	8.4
Darlington	1	.1	Saluda	2	.3
Dorchester	15	2.1	Spartanburg	51	7.1
Edgefield	2	.3	Sumter	8	1.1
Florence	13	1.8	Union	3	.4
Georgetown	8	1.1	Williamsburg	1	.1
Greenville	47	6.6	York	61	8.5
Greenwood	8	1.1	[Out-of-state]	11	1.5
Hampton	1	.1	**Total**	**716**	**100.0**

Table 3
Web respondents by category

	N	**Percent**
Teacher	443	61.9
Parent	139	19.4
Higher Education	15	2.1
School Administrator	14	2.0
Business	12	1.7
District Administrator	11	1.5
Other	82	11.5
Total	**716**	**100**

Analysis of comments and recommendations

Analysts identified 26 general themes in the comments and recommendations. These are listed in Table 4, in the order of their frequency. Table 5 breaks these down by role/occupation

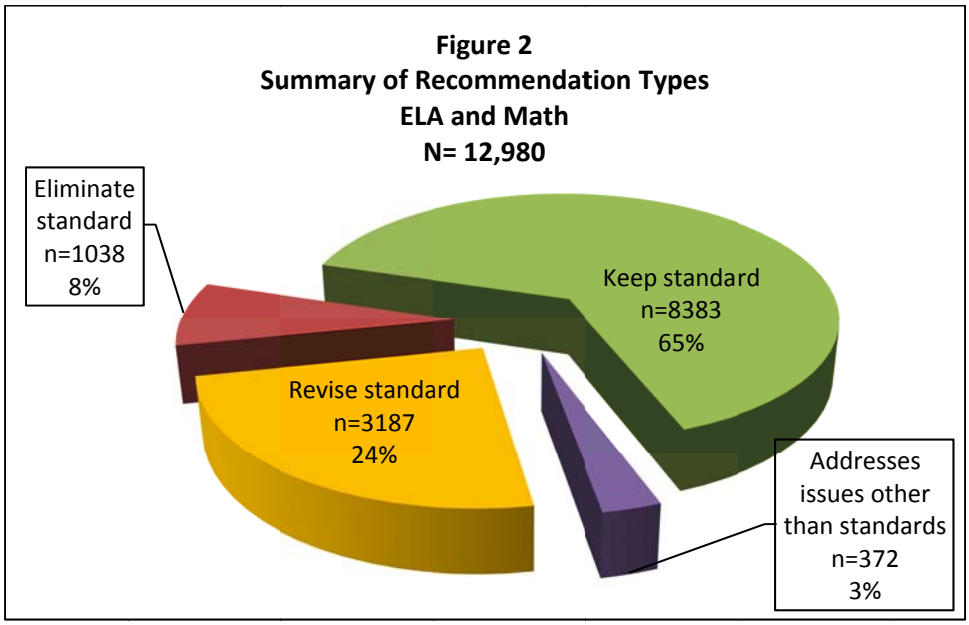
Table 4
Comments: Themes and Categories

Theme	Frequency	Percent
Good standard, keep standard	7375	56.8
Technical suggestion/comment	1514	11.7
Anti-Common Core	695	5.4
Developmentally inappropriate - too hard	636	4.9
Developmentally appropriate	596	4.6
Standard is vague, badly written	421	3.2
Need more examples/specifics	374	2.9
Disagree with the standard	263	2.0
Similar to old standards/Common Core standards	146	1.1
Promotes reading/writing skills	131	1.0
Prepares student for the real world	120	0.9
Difficult to measure/assess	92	0.7
Content may be inappropriate/offensive	83	0.6
Redundant or unnecessary standard	80	0.6
Need more resources or time [to implement the standard]	77	0.6
Promotes lifelong learning	68	0.5
Assumes student is previously prepared	59	0.5
Promotes critical thinking/problem solving	53	0.4
Need more technology [to implement the standard]	43	0.3
Materials should be more closely scrutinized	34	0.3
Debate is too political - not about education	33	0.3
Promotes college readiness	28	0.2
Developmentally inappropriate - too easy	26	0.2
Assumes that student is already fluent in English	14	0.1
Promotes science readiness	12	0.1
Must allow for diverse opinions/answers	7	0.1
Total	**12,980**	**100**

Table 5
Comments: Themes and Categories by Role

	Business	District Admin	Higher Educ	Parent	School Admin	Teacher	Other	**Total**
Good standard, keep standard	16	25	79	1701	63	4038	1453	**7375**
Technical suggestion/comment	25	10	69	189	8	963	250	**1514**
Anti-Common Core	1	63	0	463	0	45	123	**695**
Developmentally inappropriate - too hard	41	5	3	89	2	448	48	**636**
Developmentally appropriate	0	31	0	2	0	273	290	**596**
Standard is vague, badly written	24	13	18	16	3	304	43	**421**
Need more examples/specifics	5	2	3	27	4	293	40	**374**
Disagree with the standard	4	0	1	48	3	179	28	**263**
Similar to old standards/Common Core standards	12	0	0	7	0	115	12	**146**
Promotes reading/writing skills	1	0	2	22	1	85	20	**131**
Prepares student for the real world	2	0	0	3	1	100	14	**120**
Difficult to measure/assess	0	1	0	5	1	83	2	**92**
Content may be inappropriate/offensive	0	0	0	2	0	6	75	**83**
Redundant or unnecessary standard	1	0	4	2	1	70	2	**80**
Need more resources or time [to implement the standard]	0	0	1	23	0	51	2	**77**
Promotes lifelong learning	1	0	5	3	0	52	7	**68**
Assumes student is previously prepared	0	0	0	18	0	36	5	**59**
Promotes critical thinking/problem solving	2	0	2	1	0	40	8	**53**
Need more technology [to implement the standard]	0	0	0	3	0	40	0	**43**
Materials should be more closely scrutinized	0	0	0	0	0	0	34	**34**
Debate is too political - not about education	0	0	0	27	0	6	0	**33**
Promotes college readiness	0	0	0	1	0	27	0	**28**
Developmentally inappropriate - too easy	0	0	0	3	0	23	0	**26**
Assumes that student is already fluent in English	0	0	0	6	2	6	0	**14**
Promotes science readiness	0	0	0	0	0	12	0	**12**
Must allow for diverse opinions/answers	0	0	0	1	0	4	2	**7**
Total	**135**	**150**	**187**	**2662**	**89**	**7299**	**2458**	**12,980**

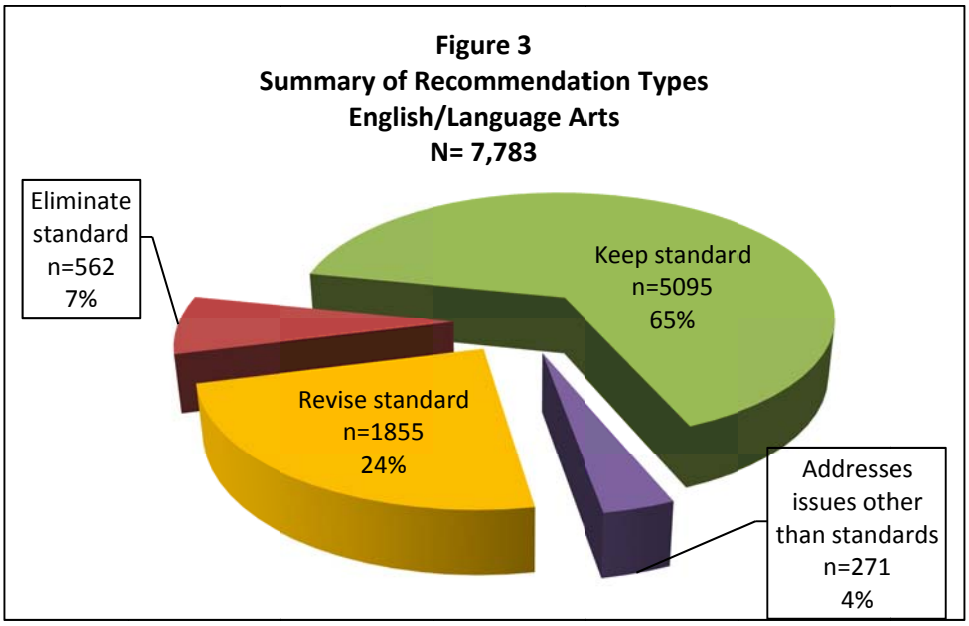
Most of these are comments on specific standards, many others recommended changes to standards, and some were about the common core standards in general. A summary of these is presented in Figure 2. About two thirds (65%) of the comments expressed approval of the standards. One in four comments (24%) were recommendations for changes in the standards. Eight percent recommended elimination of given standards; only three percent addressed other issues.

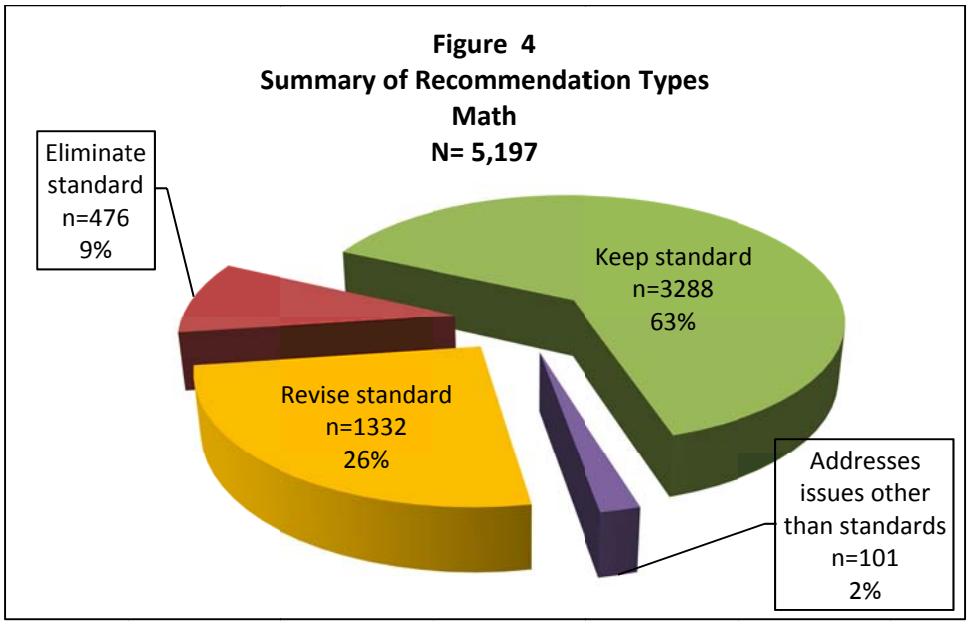


Comments specific to English/Language Arts and Mathematics

Content-specific analysis is presented in two formats. First, we briefly summarize comments according to recommended changes, as above. Second, we provide a separate Excel workbook that organizes constructive and specific recommendations for revising individual standards. These are provided as separate files.

Overall comments related to ELA and Math followed the same pattern as described above:
Most comments approved of the standard. About one fourth recommended technical revisions. Few comments recommended elimination of standards or were off-topic (see Figures 3 and 4).





Summary of Exit Comments

At the conclusion of the survey, respondents were solicited for general comments about the core standards. 208 comments were submitted, many of which were either overwhelmingly in favor of, or sternly against, Common Core. There were other repeated themes, such as concerns over excessive testing and college readiness. Several respondents were concerned that the standards did not take into account that some students are not properly prepared in previous grades. Additionally, there were commenters who felt the survey was too specific and complex for non-educators.

Theme 1: Many commenters were extremely positive about the Common Core standards.

"I believe Common Core has been a positive change to SC! I think many Common Core critics do not understand that Common Core is especially beneficial to students who come to school unprepared to be successful. Unfortunately, we have many students that fall in this category. I know when Common Core first came out many teachers were upset that time and money were not taught in kindergarten. I teach in a school that has almost 80% of its students below the poverty level. Many of these students come to kindergarten not knowing what a number is. Expecting them to tell time by the end of the year is a challenge! We use RTI in our school to remediate students who "don't get it" and to challenge students who already understand it."

"Regarding the ELA standard for grades 6-12: After extensive training from Lexington School District One, I have a profound appreciation for these Common Core Standards. They are excellent. I have worked passionately for the past 26 years in language arts education in South Carolina as a high school English teacher, a high school literacy coach, a middle school literacy coach, a language arts department head in 3 different schools, and now as a middle school media specialist. The common core standards are, without any doubt, the best standards SC has ever had, and they should be reinstated! They are not easy; they are the most challenging standards we have ever had. They require passionate, smart teachers to work hard every day and to make their students work hard every day, but the effort is worth it! Please don't "wimp out" when we are so close to making a giant leap forward in SC education."

"I cannot be helpful on the details as I come from the business world. I am very disappointed that SC no longer will be supporting the CCSS. The CCSS are globally competitive which will be critical to our students' future success in an interdependent world. I support the need to have all our students graduate both college and career ready but lowering our academic standards - to appease various constituencies - is not to the benefit of our students, their parents, educators nor businesses."

"I am a 7th grade math teacher in ASD1. I urge you to consider the Common Core standards as a starting point when you are rewriting the math standards. These standards are rigorous and have required both me and my students to think outside of the box. While it has been a challenging first year with these standards, the rewards have far outweighed the challenges. My students became better thinkers and problem solvers. I think going back to "homegrown" standards would be detrimental to our state's progress in the classroom. "

"Math standards: I have been involved with curriculum work in my district in SC for most of my teaching career. These standards are excellent! I have seen several standards adoptions occur and these by far correlate with best teaching practices. I like the way that the scope and sequence truly develops concepts and skills over time, rather than teaching bits and pieces each year, which results in students never developing a deep understanding of mathematical concepts. If these are fully allowed to be

implemented, I am excited to see the positive results from the Kindergarten students that will be able to follow these for their K-12 school years."

Theme 2: Others were critical of the standards, or felt that they were inappropriate:

"You are no longer using Piaget's Theory of Cognitive Development in planning the standards in math. You are asking children in elementary schools to do things that the majority are not developmentally capable of doing. When Bloom's Taxonomy began being used in education, those who define what students will do and know threw out memorization because it is defined as the lowest form of learning. Therefore, Piaget's Theory, is no longer recognized in the planning of math education. For example, asking a 4th grade child to use algebra to find the missing length of a rectangle given the area. Since, you no longer expect students to memorize multiplication tables, for most 4th graders the task is almost impossible. You are not developing a concrete knowledge of math before asking student to do the abstract."

"It is imperative that a committee of Early Childhood Development specialist approve of the k-3 standards! It is imperative that the Math Standards not encourage "fuzzy math" teaching techniques (k-3). It is imperative that the suggested text exemplars NOT be pornographic literature and that they should be approved reading that doesn't "indoctrinate" students into a specific political ideology. (k-12). Cursive writing should be brought back beginning with grade 3. It is imperative that the fiction and non-fiction reading requirements NOT be balanced in a way that prevents classic literature to be skipped over to reach a set quota of 75% being non fiction! It should be the other way around! Classical fiction reading by well known acclaimed writers should still be the main focus!"

"All of the Common Core standards MUST go. They are inappropriate for early childhood learning, will NOT prepare our students for college and STEM careers, and were forced upon our local school boards by the federal government. Education should be a state responsibility, and MOST of all, should include PARENTAL INPUT!! As a parent, I had no voice in the ridiculous standards that caused my 3rd grader to spend hours trying to figure out how to "explain" her math answers. I've got your explanation- she did it in her head, by route memorization of basic addition/subtraction and multiplication/division, the way it SHOULD be done! No, she didn't need to draw a million circles, color them in, mark some out, then rearranged them."

Theme 3: Another concern related to how the standards would be assessed. Some respondents, particularly parents, were also concerned with excessive testing:

"We have students that will be assessed using a "mystery" test, and parents and teachers do not know what to expect. I feel that this is unfair for all stakeholders and it is very difficult to explain to my child that she and her school will be graded based upon a "mystery" test. We have excellent teachers, but they need to know what to expect so that they can incorporate that information into their daily lessons. I am not saying that they should teach the test, I am just saying that the test may include various features that the students need to be comfortable with. If the students are allowed to use calculators, we need to make sure that the students are exposed to the calculators. Many Middle Schools do not allow students to use calculators unless they have special accommodations in their IEPs. If my child will be able to use a calculator on the test, I want her to be familiar with all of the features so that she can be successful. I know that I am supposed to comment concerning the Standards, but our schools are frowned upon if we are not successful on the Standardized Test(s). (All grade levels.)"

“In the area of ELA or mathematics, the question is how will this be assessed? Research and many business models tell us to begin with the end in mind, what is the end?”

“I have no problem with the standards, and what they are asking our Kindergartners to do. I do not feel the standards are the problem. The rigor and complexity of state testing however I do have a problem with. Performance tasks are important for the children to be exposed to, but asking them to do it independently without guidance or support from the teacher on state testing I feel will set them up for failure. I do not know what the answer is regarding state testing, but I feel standardized testing places too much pressure on our children to "show what they know" on one test and takes no account into what they have accomplished during the year especially when not every child comes in on the same playing field. Educators are constantly told we need to differentiate instruction in our classrooms, but when it comes down to state testing, every child takes the same test regardless of their needs.”

“The objective of the testing is good but what terms are being required to solve the problems. If Common Core terms are used then other teaching methods are useless. The test should be written in such a way that the correct answer is reached, not the method used to get the answer.”

Theme 4: Some respondents noted that the standards could increase students’ readiness for college.

“These standards are very comprehensive and appropriate for all children. We need to keep them and not try to change what the teacher and other expert brain trusts that developed them came up with. These standards, in both ELA and math, WILL prepare our children for college or career at the highest levels!”

“I cannot be helpful on the details as I come from the business world. I am very disappointed that SC no longer will be supporting the CCSS. The CCSS are globally competitive which will be critical to our students' future success in an interdependent world. I support the need to have all our students graduate both college and career ready but lowering our academic standards - to appease various constituencies - is not to the benefit of our students, their parents, educators nor businesses.”

Theme 5: Finally, some respondents were positive about the standards, but worried that students could be unprepared from previous grades:

“Our students are being taught 8th grade standards without the prerequisites needed to even begin the standard. We are not holding students accountable in the lower grades and retaining them in grades K-3 until they are able to master the grade appropriate standards. By the time, they arrive at middle school they are behind. This leads to frustration for both teacher and student. Inability to read and write on grade level and to perform simple mathematical practices like measuring and multiplying is halting the efforts of well-meaning and dedicated teachers.”

“Society does not support such a rigorous curriculum for the average student. This is a wonderful math curriculum for a GT student with supportive parents who value education. Otherwise we are exposing students to higher standards with mastery or fluency of fewer standards. CC standards are designed to prepare students for college. Unfortunately, not all students have that same aspiration. In our struggle to raise the expectations too many students are being lost in the cracks. I am a seasoned 30 yr vet that supports high expectations, but this curriculum doesn't allow students time to acquire skills before moving on.”

“In Math, students need to be exposed to counting changer earlier than 2nd grade. There is not enough time in the year to teach all the math standards and this would help with the pacing. In Math, the state needs to set strategies these students must learn for every school district. I had three different students move into my classroom from schools in South Carolina and none of them were doing any of the strategies we were doing at my school!”

Appendix A-1
Number of Technical Suggestions per Standard-ELA
Sorted by standard number

	Standard	Suggestions
K12-L	Language Standards	261
K12-R	Reading	264
K12-SL	Standards for Speaking and Listening	132
K12-W	Writing Standards	180
K-L	Language Standards	64
K-RF	Reading Standards: Foundational Skills (K-5)	26
K-RI	Reading Standards for Informational Text	39
K-RL	Reading Standards for Literature	32
K-SL	Standards for Speaking and Listening	22
K-W	Writing Standards	49
1-L	Language Standards	36
1-RF	Reading Standards: Foundational Skills (K-5)	15
1-RI	Reading Standards for Informational Text	36
1-RL	Reading Standards for Literature	33
1-SL	Standards for Speaking and Listening	16
1-W	Writing Standards	25
2-L	Language Standards	20
2-RF	Reading Standards: Foundational Skills (K-5)	9
2-RI	Reading Standards for Informational Text	18
2-RL	Reading Standards for Literature	18
2-SL	Standards for Speaking and Listening	13
2-W	Writing Standards	13
3-L	Language Standards	70
3-RF	Reading Standards: Foundational Skills (K-5)	16
3-RI	Reading Standards for Informational Text	48
3-RL	Reading Standards for Literature	41
3-SL	Standards for Speaking and Listening	24
3-W	Writing Standards	45
4-L	Language Standards	46
4-RF	Reading Standards: Foundational Skills (K-5)	5
4-RI	Reading Standards for Informational Text	32
4-RL	Reading Standards for Literature	39
4-SL	Standards for Speaking and Listening	23
4-W	Writing Standards	40
5-L	Language Standards	46
5-RF	Reading Standards: Foundational Skills (K-5)	6
5-I	Reading Standards for Informational Text	18
5-RL	Reading Standards for Literature	25
5-SL	Standards for Speaking and Listening	9
5-W	Writing Standards	17

Appendix A-1
Number of Technical Suggestions per Standard-ELA
Sorted by standard number (cont.)

	Standard	Suggestions
68-RH	Reading Standards for Literacy in History/Social Studies 6–12	5
68-RST	Reading Standards for Literacy in Science and Technical Subjects 6-12	1
68-WHST	Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects	3
6-L	Language Standards	10
6-RI	Reading Standards for Informational Text	1
6-RL	Reading Standards for Literature	1
6-SL	Standards for Speaking and Listening	2
6-W	Writing Standards	8
7-L	Language Standards	21
7-RI	Reading Standards for Informational Text	7
7-RL	Reading Standards for Literature	7
7-SL	Standards for Speaking and Listening	2
7-W	Writing Standards	13
8-L	Language Standards	25
8-RI	Reading Standards for Informational Text	6
8-RL	Reading Standards for Literature	1
8-SL	Standards for Speaking and Listening	2
8-W	Writing Standards	9
910-L	Language Standards	52
910-RH	Reading Standards for Literacy in History/Social Studies 6–12	18
910-RI	Reading Standards for Informational Text	25
910-RL	Reading Standards for Literature	39
910-RST	Reading Standards for Literacy in Science and Technical Subjects 6-12	4
910-SL	Standards for Speaking and Listening	19
910-W	Writing Standards	19
910-WHST	Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects	10
1112-L	Language Standards	25
1112-RH	Reading Standards for Literacy in History/Social Studies 6–12	13
1112-RI	Reading Standards for Informational Text	14
1112-RL	Reading Standards for Literature	25
1112-RST	Reading Standards for Literacy in Science and Technical Subjects 6-12	2
1112-SL	Standards for Speaking and Listening	8
1112-W	Writing Standards	15
1112-WHST	Writing Standards for Literacy in History/Social Studies, Science, and Technical Subjects	12

Appendix A-2
Number of Technical Suggestions per Standard-Math
Sorted by standard number

	Standard	Suggestions
K12-MP	Mathematical Practice	171
K-CC	Counting and Cardinality	35
K-G	Geometry	39
K-MD	Measurement and Data	8
K-NBT	Number and Operations in Base Ten	37
K-OA	Operations and Algebraic Thinking	19
1-G	Geometry	20
1-MD	Measurement and Data	28
1-NBT	Number and Operations in Base Ten	37
1-OA	Operations and Algebraic Thinking	58
2-G	Geometry	18
2-MD	Measurement and Data	49
2-NBT	Number and Operations in Base Ten	29
2-OA	Operations and Algebraic Thinking	16
3-G	Geometry	9
3-MD	Measurement and Data	49
3-NBT	Number and Operations in Base Ten	25
3-NF	Number and Operations - Fractions	16
3-OA	Operations and Algebraic Thinking	32
4-G	Geometry	11
4-MD	Measurement and Data	40
4-NBT	Number and Operations in Base Ten	32
4-NF	Number and Operations - Fractions	23
4-OA	Operations and Algebraic Thinking	12
5-G	Geometry	8
5-MD	Measurement and Data	17
5-NBT	Number and Operations in Base Ten	29
5-NF	Number and Operations - Fractions	32
5-OA	Operations and Algebraic Thinking	3
6-EE	Expressions & Equations	56
6-G	Geometry	24
6-NS	The Number System	51
6-RP	Ratios & Proportional Relationships	18
6-SP	Statistics & Probability	30
7-EE	Expressions & Equations	25
7-G	Geometry	30
7-NS	The Number System	15
7-RP	Ratios & Proportional Relationships	11
7-SP	Statistics & Probability	24

Appendix A-2 (cont.)
Number of Technical Suggestions per Strand-Math
Sorted by standard number

	Standard	Suggestions
8-EE	Expressions & Equations	51
8-F	Functions	18
8-G	Geometry	50
8-NS	The Number System	11
8-SP	Statistics & Probability	14
912-A-APR	Algebra: Arithmetic with Polynomials & Rational Expressions	80
912-A-CED	Algebra: Creating Equations	30
912-A-REI	Algebra: Reasoning with Equations & Inequalities	95
912-1-SSE	Algebra: Seeing Structure in Expressions	35
912-F-BF	Functions: Building Functions	17
912-F-IF	Functions: Building Functions	21
912-F-LE	Functions: Linear, Quadratic, & Exponential Models	13
912-F-TF	Functions: Trigonometric Functions	41
912-G-C	Geometry: Circles	14
912-G-CO	Geometry: Congruence	25
912-G-GMD	Geometry: Geometric Measurement & Dimension	14
912-G-GPE	Geometry: Expressing Geometric Properties with Equations	21
912-G-MG1	Geometry: Modeling with Geometry	10
912-G-SRT	Geometry: Similarity, Right Triangles, & Trigonometry	22
912-N-CN	Number & Quantity: The Complex Number System	15
912-N-Q	Number & Quantity: Quantities	9
912-N-RN	Number & Quantity: The Real Number System	3
912-N-VM	Number & Quantity: Vector & Matrix Quantities	22
912-S-CP	Statistics & Probability: Conditional Probability & the Rules of Probability	9
912-S-IC	Statistics & Probability: Making Inferences & Justifying Conclusions	13
912-S-ID	Statistics & Probability: Interpreting Categorical & Quantitative Data	11
912-S-MD	Statistics & Probability: Using Probability to Make Decisions	18

Evaluation of the Draft South Carolina College and Career Ready Standards

submitted by the South Carolina Department of Education on October 21 and 22, 2014

Prepared by the Math and ELA Standards Evaluation Teams

for the SC Education Oversight Committee and the SCDE ELA and Math Writing Teams

December 2014

Table of Contents

Acknowledgements iii

Introduction 1

Evaluation of the South Carolina College and Career Ready Mathematics Standards (SCCCR) 5

Evaluation of the South Carolina College and Career Ready ELA Standards (SCCCR) 19

Appendices

Appendix A – SCDE Correspondence/Writing Panel Information

Appendix B – Mathematics Draft Standards Review K-12

Appendix C – SC College & Career-Ready Mathematical Process Standards

Appendix D – How to Make Academic Standards & Assessments Work for Students, Colleges & Employers: Letter adopted by 9-12 Mathematics Panel

Appendix E – ELA Draft Standards Review K-12

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Introduction

In accordance with Act 200, the State Board of Education, in consultation with the Education Oversight Committee, is directed to conduct a cyclical review of the South Carolina English/language arts and mathematics academic standards to ensure the standards are maintaining high expectations for learning and teaching. Per Act 200, the revised standards, once approved by the Education Oversight Committee and the SC State Board of Education, will replace the current standards in the 2015-16 school year.

SCDE Writing Panels

In July 2014, the State Department of Education assembled two teams (English Language Arts and Math) to review the current standards. District superintendents were contacted by SCDE staff in June seeking nominations for individuals to "review the current standards and recommend revisions, focusing on the following criteria: comprehensiveness/balance, rigor, measurability, organization/communications, and manageability." A subsequent memo on July 18, 2014, from SCDE General Counsel Shelly Kelly, stated that "the South Carolina Department of Education is not asking the review team to conduct a 'revision' of the Common Core Standards, instead the SCDE is asking the review team to develop new standards, considering many sources of standards, including other states' approved college- and career-ready standards and the former South Carolina standards (that pre-dated Common Core)." On July 31, an SCDE spokesman stated that the writing teams would have access to the Common Core State Standards, a reversal from Ms. Kelly's previous memo (Appendix A).

The SCDE Math Writing Panel began work on July 21 and the ELA team began on August 6. The list of writing team members as well as the sources the teams were authorized to consult are listed in Appendix A. A draft of the standards from the math panel was transmitted to EOC staff on October 21. The final ELA draft followed on October 22.

The SCDE also has placed both sets of draft standards on their website for public review. The review timeframe is November 5-30, 2014. Additionally, Dr. Zais appointed a task force in early November to review the draft standards. The task force members are also included in Appendix A.

EOC Evaluation Panels

As part of the cyclical review process by the Education Oversight Committee, review panels, made up of South Carolina parents, business and industry persons, community leaders, and educators, including special education teachers, were chosen to examine the draft standards written by the SCDE Writing Panels. EOC staff contacted EOC members, SC State Board of

Education members, members of the SC General Assembly, and the leadership of Transform SC for nominations.

A group of 50 individuals chosen was divided into eight subgroups. For each of the subject areas, English language arts and mathematics, there was a subgroup representing Kindergarten through 2nd grade; 3rd-5th grade; 6th -8th grade; and 9th-12th grade. In each of the subgroups, there was at least one educator with expertise in that subject area and grade band representing higher education as well classroom teachers and district-level educators. Special education teachers and teachers of students who speak English as a second language were included in many of the subgroups, as well as parents and business leaders.

As part of the review of the standards, the panels had access to various documents to utilize during the review to include but not limited to:

- Act 200
- NAEP Frameworks in Math and Reading
- ACT Connecting College Readiness Standards to the Classroom Guides
- WorkKeys resources, including sample items publicly available
- VA state-adopted standards resources
- Revised Bloom's Taxonomy and Webbs' Depth of Knowledge Taxonomy
- Current state-adopted standards in ELA and Math
- NC state-adopted standards resources
- Profile of the Graduate from TransformSC
- Portrait of a SC College- & Career-Ready Student from the SCDE
- Consensus positions from the SC Leaders of Mathematics Education and the SC English Language Arts Leaders
- *The State of the State Standards 2010* from the Fordham Institute
- Full text of comments from public survey of current standards as well as Curva summary report of comments.

The ELA and Math evaluation panels met five times: October 2; October 28; November 6; November 12; and November 24. The panels did not have access to the SCDE-developed draft standards until the October 28 meeting.

Standards Review Criteria and Process

Academic standards are statements of the most important, consensually determined expectations for student learning in a particular discipline. The academic standards in English/language arts and mathematics will be specific statements of content knowledge and

skills that students need in order to meet particular grade level or high school area content area expectations.

The review of the English/language arts and mathematics academic standards was conducted on the basis of criteria applied previously during cyclical reviews of academic standards in English/language arts, mathematics and science. The South Carolina Department of Education representatives, district and university curriculum leaders and Education Oversight Committee staff developed the criteria. Decisions on the criteria to be used were based on a comprehensive review of professional literature. The criteria include comprehensiveness/balance, rigor, and organization/communication. In general, the following questions will be utilized by the panels in their review of the standards to ensure the recommendations made will strengthen and support higher levels of learning and teaching.

- Do the standards define what all students should be know and be able to do at high levels?
- Are the standards aligned with national and world-class standards?
- Do the standards serve as a basis for the development of objective and reliable statewide assessments?
- Do the standards reflect the recognized essential concepts and basic knowledge of a particular discipline?
- Are the standards rigorous - that is, demanding and precise, requiring students to master challenging content and processes?
- Are the standards written at a level of specifically that will best inform instruction, neither so narrow as to be trivial nor so broad as to be meaningless?
- Are the standards aligned and specific across grade levels for content knowledge and skill development?

A. CRITERION ONE: COMPREHENSIVENESS/BALANCE

The criterion category for Comprehensiveness/Balance is concerned with how helpful the South Carolina Academic Standards document is to educators in designing a coherent curriculum. The criterion is directed at finding evidence that the standards document clearly communicates what constitutes English/language arts and mathematics content, that is, what all students should know and be able to do in English/language arts and mathematics by the time they graduate. The criterion includes consideration of the following areas:

- The standards address essential content and skills of English/language arts and mathematics;
- The standards are aligned across grades as appropriate for content and skills;

- The standards have an appropriate balance of the content and skills needed for mastery of each area; and
- The standards reflect diversity (especially for ethnicity and gender) as appropriate for the subject area.
- The number and scope of the standards for each grade level should be realistic for teaching, learning, and student mastery within the academic year

B. CRITERION TWO: RIGOR

This criterion calls for standards that require students to use thinking and problem-solving skills that go beyond knowledge and comprehension. Standards meeting this criterion require students to perform at both national and international benchmark levels.

- Standards should focus on cognitive content and skills (not affect);
- Standards should be developmentally appropriate for the grade level;
- Standards should include a sufficient number of standards that require application of learning (application, analysis, synthesis, and evaluation);
- Standards should be informed by the content and skills in national and international standards; and,
- Standards should be written at a level of specificity that would best inform instruction for each grade level.

C. CRITERION THREE: ORGANIZATION/COMMUNICATION

The Organization/Communication criterion category stipulates that the expectations for students are to be clearly written and organized in a manner understandable to all audiences and by teachers, curriculum developers, and assessment writers. Organization includes the following components:

- The content and skills in the standards should be organized in a way that is easy for teachers to understand and follow;
- The format and wording should be consistent across grades;
- The expectations for student learning should be clearly and precisely stated for each grade; and,
- The standards should use the appropriate terminology of the field but be as jargon free as possible.
- The content and skills presented in the standards should be assessable (are observable and demonstrable).

Evaluation of the South Carolina College and Career Ready Mathematics Standards (SCCCR)

Task: Evaluate the K-12 draft South Carolina College and Career Ready Mathematics Standards

Process: The process of evaluating the South Carolina College and Career Ready (SCCCR) Standards submitted by the SCDE writing teams consisted of gathering information from sources listed on page two and three. These sources were intended to assist the review panels in the evaluations of the submitted standards, allowing them to make decisions about content using the criterion of comprehensiveness, rigor, and organization/ communication. The review panel received the SCCCR mathematics standards in advance via email on October 23 in order to familiarize themselves with the SCCCR standards prior to the October 28 meeting.

The mathematics review panel was subdivided initially into four subgroups to more effectively review the standards K through grade 12. The subgroups were: grades K-2; grades 3-5; grades 6-8; and grades 9-12. Throughout the process subgroups would work to ensure the grade levels showed a rigorous progression from grade level to grade level within their grade span subgroup as well as beyond their grade span. For example, the grade 3-5 subgroup reviewed the standards within these grades based on comprehensiveness, rigor and communication but also reviewed standards from grade K-2 and grades 6-8 for content and skill progression. Once all standards in all elementary grades had been reviewed, K-2 subgroup and grade 3- 5 subgroup began working as a single unit.

Middle school took the same approach by reviewing standards for grades 6, 7 and 8 and then reviewing for alignment from elementary grades to middle grades and middle grades to high school.

The high school subgroup (grades 9-12) initially took the same approach as the K-8 subgroups by reviewing the standards for each high school mathematics course in which standards were provided. The high school courses included were: Algebra I, Algebra II, Foundations in Algebra, Intermediate Algebra, Geometry, Pre-calculus, Calculus, and Probability and Statistics. After a period of time of reviewing, discussing and making substantial changes to the Algebra standards (Algebra 1, Algebra 2, Foundations and Intermediate Algebra) and after an initial review of standards in the remaining courses, the high school mathematics panel determined the SCCCR mathematical standards were poorly focused, less cohesive, and inadequately articulated. The panel then refocused their review efforts to submit expectations and suggestions for development of new high school mathematics standards.

Recommendations from the Cyclical Review Panel for K-5 Mathematics

Overall Recommendation: The draft of the South Carolina College and Career Ready Standards for Mathematics (SCCCRM) generally embody the rigor and relevance of the 2010 standards, and based on panel review, will continue to strengthen the knowledge, skills, and preparation necessary for kindergarten through 5th grade students' progression to the next level of instruction. Adoption of the draft of the SCCCRM in their current form, however, would result in gaps in instruction and further need for clarification and consistency of mathematical language and learning expectations for each key concept across grade levels.

The Mathematical Process Standards, which are currently embedded in the state-adopted mathematics standards, are assessed to be both college- and career-ready by this panel and are recommended at the K-5 school level. This panel holds the position that the Mathematical Process Standards are an integral part of instruction and should be clearly stated and assessed in each key concept at each grade level (See Appendix C).

The suggested revisions are substantive in nature and serve to deepen students' mathematical proficiency, as well as provide clear and coherent vertical progressions of standards. To preserve and ensure vertical articulation of standards, it is critical that concerns expressed and notes on the standard by standard table provided **at each grade level** be accepted and included in the final standards document. Therefore, it is only with precise inclusion of each recommendation across all grade levels, the panel recommends the South Carolina College and Career Ready Standards for Mathematics. (See Appendix B for specific recommended changes to individual standards by grade level.)

The following paragraphs summarize the rationale for recommendations made to each grade level.

<u>Kindergarten</u>

A major focus of the Kindergarten standards is students' understanding of cardinality and one-to-one correspondence. The recommended revisions articulated on the standards review template serve to focus attention on a deep understanding of counting numbers, particularly the numbers 0-20. Suggested edits in Kindergarten are substantive in nature, connected to the vertical articulation of standards, and necessary for strong mathematical coherence.

<u>First Grade</u>

Revisions in Grade 1 ensure students have opportunities to compose and decompose numbers in a variety of ways, with particular attention on place value concepts. Problem types play a prominent role in students' internalization and use of addition and subtraction strategies. As

such, suggested revision serve to explicate students' opportunities to compose and decompose numbers using a variety of representations. Geometry standards were revised to provide clear vertical articulation of shapes and geometric concepts. Suggested edits in Grade 1 are substantive in nature, connected to the vertical articulation of standards, and necessary for strong mathematical coherence.

Second Grade

Revisions in Grade 2 ensure students have opportunities to build upon emerging place value concepts to operate on larger numbers. More significant gaps occurred in grade two. The revisions include the addition of the number line as a length model for numbers and partitioning geometric figures, which serves as a critical pre-requisite experience for later fraction concepts. Overall, major revisions are offered in the Geometry strand. Suggested edits in Grade 2 are substantive in nature, connected to the vertical articulation of standards, and necessary for strong mathematical coherence.

Third Grade

The standards presented in Grade 3 are recommended with reservation due to the need for consistency with prior grades and the development of foundational concepts in subsequent grades. Consideration was given to ensure vertical articulation between second and third grades and deepen students' conceptual understanding of multiplication, division and fraction concepts. Suggested edits in Grade 3 are substantive in nature, connected to the vertical articulation of standards, and necessary for strong mathematical coherence.

Fourth Grade

Grade 4 standards required fewer revisions with suggested modifications serving to clarify mathematical language. Overall, major revisions are offered in the Geometry strand and require the inclusion of an additional standard. Suggested edits in Grade 4 are substantive in nature, connected to the vertical articulation of standards, and necessary for strong mathematical coherence.

Fifth Grade

In Grade 5, the key concepts of Geometry and Measurement & Data were accepted. Suggested revisions in the remaining key concept areas serve to ensure vertical articulation among grades and deepen students' conceptual understanding in the areas of fractions and algebraic thinking. It is critical that concerns expressed and notes on the standard by standard table provided at Grade 5 be accepted and included in the final standards document.

Recommendations from the Cyclical Review Panel for Grades 6-8 Mathematics

Overall recommendation: The draft of the South Carolina College and Career Ready Standards for Mathematics (SCCCRM) generally embody the appropriate level of rigor and relevance and based on our panel's review, will continue to strengthen the knowledge, skills, and preparation necessary for 6-8 students' progression to the next level of instruction. Adoption of the draft of the SCCCRM in their current form, however, would result in gaps in instruction and further need for clarification and consistency of mathematical language and learning expectations for each key concept across grade levels.

The Mathematical Process Standards are assessed to be both college- and career-ready by this panel and are recommended at the grade 6-8 school level. This panel holds the position that the Mathematical Process Standards are an integral part of instruction and should be clearly stated and assessed in each key concept at each grade level. See Appendix B.

Therefore, with the suggested revisions, the panel recommends the South Carolina College and Career Ready Standards for Mathematics.

The following summary reflects the thoughts and findings of the middle level standards review panel for grades 6-8. See Appendix B for specific recommendations by grade level by standard.

- The standards, with proposed modifications, define what all students know and should be able to do.
- The standards, with proposed modifications, are aligned with national and world-class standards.
- The standards, with proposed modifications, could serve as an appropriate basis for the development of an objective and reliable statewide assessment.
- The standards, with proposed modifications, do reflect the recognized essential concepts and basic knowledge of a particular discipline.
- The standards, with proposed modifications, are demanding and precise requiring students to master challenging content and processes.
- With the proposed material in a support document to compliment the standards and included modifications, the standards are written at a level of specificity that will best inform instruction, neither so narrow as to be trivial nor so broad as to be meaningless.

It is the recommendation of the review panel that sequences (arithmetic and geometric written in explicit and recursive form) be considered in grade 7 for direct variation and to solidify understanding of functions in grade 8.

An additional request for consideration is the inclusion of an accelerated pathway for students who may take Algebra I in grade 8.

The overall conclusion of the review panel is to recommend with reservations grades 6-8 SCCCR standards. Standards recommendations with reservations are listed below by grade level.

Grade 6 – Standard Revisions	Grade 7– Standard Revisions	Grade 8 – Standards Revisions
6.NS.4.a	7.EEI.3	8.F.1
6.EEI.2.a, b	7.EEI.5	8.F.3
6.EEI.5	7.GM.2	8.F.5
6.EEI.8	7.GM.6.c	8.EEI.1
6.EEI.9	7.DSP.3	8.EEI.2
6.GM.1.a, b, c	7.DSP.4	8.EEI.4.c
	7.DSP.6.a	8.EEI.7
	7.DSP.8	8.EEI.8.b
		8.GM.1
		8.GM.2
		8.GM.3
		8.GM.5.a, b, c

Grade 6 – Support Document Recommendations	Grade 7 – Support Document Recommendations	Grade 8 – Support Document Recommendations
6.NS.1	7.NS.1	8.F.3.c
6.NS.2	7.RP.1	8.F.4
6.NS.3	7.RP.2	8.F.5
6.NS.5	7.RP.3	8.EEI.8.b
6.NS.6.a, b, c, d	7.EEI.1	8.GM.3
6.NS.7.a, b, c, d	7.EEI.2	8.GM.4
6.RP.3.a, b, c, d, e, f	7.EEI.3	8.GM.9
6.EEI.8	7.EEI.4.a, b, c, d	8.DSP.4
6.EEI.9	7.GM.1	

6.DS.1	7.GM.3	
6.DS.5.a, b, c, d, e, f, g	7.GM.4	
	7.GM.6	
	7.DSP.2	
	7.DSP.4	

Recommendations from the Cyclical Review Panel for High School (grades 9 -12) Mathematics

Overall recommendation: The High School Course Content Standards included in the South Carolina College- and Career-Ready Standards for Mathematics (SCCCRM) represent a significant departure from the current SC high school mathematics standards. Based on our panel's review, our overall finding is that the proposed standards do not improve the current standards and, in some areas, weaken and detract from the preparation of high school students in mathematics leading us to conclude that a complete revision is required.

Adoption of the draft SCCCRM high school standards in their current form is likely to have a negative impact on career-readiness of high school graduates and not improve college-readiness. The draft lacks depth, cohesiveness, focus, coherence, and balance. The new draft standards seem derived from 2000, 2007, and current South Carolina mathematics standards as well as from standards of other states in a manner that lacks consistency and clarity both in the language of and in articulation across the standards. Further, the draft includes an excessive number of standards often with many subparts that are prescriptive about what and how to teach. Fewer standards that clearly describe important mathematics for students' learning tied to career- and college-readiness instead of listing content details skewed too heavily toward college-readiness would be superior.

Our panel recommends that the high school standards be revised in a manner that describes with clarity, cohesion, and rigor the mathematics that ALL South Carolina high school students must know and be able to do for both college and career-readiness. The standards must clearly communicate the content to be assessed at grade 11 by the WorkKeys examination as well as the grade 11 assessments. Because the draft standards are embedded within eight specified courses, we are unable to assess what is expected for all learners, and we are concerned that schools and districts will lack the flexibility to implement curriculum that might vary from what is contained in the draft courses. The panel strongly recommends that standards be communicated and organized by key concepts and not within courses. Once the

standards for all learners are established, the South Carolina Department of Education should work with districts and educators to place those standards within specific courses and course pathways. The current South Carolina Composite Course Progressions serves as an example of how the state might collaborate and communicate the implementation of its standards within courses after the standards for all learners are established.

The Mathematical Process Standards, which are currently in the state-adopted mathematics standards, are assessed to be both career- and college-ready by this panel and recommended for implementation at the high school level. The standards document should specifically stipulate and expect that the process standards be assessed to provide evidence that learners have achieved these important expectations for career- and college readiness (See Appendix C).

Supporting Details and Discussions

There is a significant increase in the number of standards with many more focusing on abstract procedures for college-intending students and less attention to critical thinking and real-world applications that benefits both career and college-intending learners.

> **Example**: Procedural focus: Draft Standard A2.P.4.c: "Solve cubic equations and quartic equations… " It then details how to solve.

In the current configuration of standards within specific courses, the draft SCCCRM for high school mathematics offers a less focused, less cohesive, and inadequately articulated set of expectations than the current standards. The panel determined that the draft SCCCR mathematics standards offer a level of rigor comparable to the current SC standards, but we assess the rigor to be focused too heavily on college-readiness and inadequately on career-readiness.

- By "focus" the panel means standards that lead students to build strong conceptual understanding, skill and fluency with mathematical procedures, and the ability to apply mathematics to solve problems both inside and outside the mathematics classroom.
- By "coherence" the panel means standards that connect mathematical concepts within grades and topics as well as vertically across grades and areas of study. Coherent standards support a carefully articulated progression of learning that increases knowledge and builds on skills.
- By "rigor" the panel means standards that blend with equal intensity the development of conceptual understanding, procedural skill and fluency, and the ability to solve applied problems.

The high school review panel initially began its review of the high school SCCCR mathematical standards course by course starting with Algebra 1 through Algebra 2. Numerous concerns were expressed about the magnitude of changes being recommended and the lack of coherence within and among the courses. The specific recommendations made to Algebra 1, Foundations in Algebra, Intermediate Algebra and Algebra 2 are included in Appendix B.

The high school mathematics panel did not review the remaining courses using the same standard-by-standard detail. At this stage the panel determined a more significant revision was needed beyond improving each of the draft courses.

General concerns expressed by the panel regarding the remaining high school SCCCR standards by course were:

- Repeated content in Algebra 1 and Algebra 2, inadequate inclusion of statistics as part of algebra and of probability as part of geometry and algebra.
- Geometry: suggested removal of Reasoning and Proof key concept because reasoning and proof is explicit in the mathematical practices and not specific to geometry)
- Probability and Statistics: lack of focus on critical thinking and practical applications of statistics in decision making and argumentation)
- Pre-calculus: title suggests course is solely for preparation for calculus, Algebra 3, Advanced Mathematics, Algebra 3 and Trigonometry, Pathways to Advanced Mathematics are titles that allow the course to serve for more than calculus preparation)
- Calculus: recommend deletion of standards for a calculus course, high school students studying calculus in high school are better served by A.P. calculus, which is more rigorous, allows for gaining college credit, includes an end-of-course test, requires instructor qualification endorsement, and has long history of success in South Carolina.

Summary of Concerns with the draft SCCCR Mathematics Standards

- **Courses**: Prescribing standards within eight courses limits districts' ability to design and implement curriculum. Also, it does not provide guidance on what standards all SC students must know and be able to do for a grade 11 federally mandated assessment (in compliance with the No Child Left Behind law waiver). Is the implication that all students must take six mathematics courses during the 4 years of high school: Algebra 1, Algebra 2, Geometry, Probability and Statistics, Pre-Calculus and Calculus?
    - High school standards should include a set of standards that are required for mastery by ALL and assessed at grade 11.

- It will be helpful to then also provide guidance on how those standards might be organized within courses, particularly for Algebra 1 that includes a state mandated End-of-course test, but for other standards, districts should have flexibility to organize and implement the curriculum best suited for their student.

- **Mathematical Process Standards**: An effective argument is made for the importance of addressing how students learn mathematics content and that the processes are as important as the content.
  - The seven processes are consistent with national and international research and standards.
  - However, it is not clear that the process standards must be assessed so we can assure SC students in grade K-8 and in high school are achieving these standards. *An explicit statement that the process standards must be assessed would be an improvement.*
  - Mirror both the process standards of SCCCR mathematics and current state standards practices.

- **Standards with multiple parts**: Many of the standards within a key concept include sub-standards with 2 to 9 parts labeled by lower case letters. One must assume each substandard represents an expectation of students so it will require instruction and assessment. This practice increases the overall number of standards. The current South Carolina 9-12 mathematics standards very seldom list multipart standards and when used, parts were limited to typically 2 or 3 and never more than 4. The standards would be more realistic and manageable by all stakeholders if the practice of adding multiple parts were to be eliminated or limited.

- **Number of standards** (counting the lettered sub-standards as a standard):
  - SCCCRM has 297 standards and the current SC 9-12 mathematics standards number 193.
  - In Algebra 1, Algebra 2 and Precalculus combined, there are 152 SCCCR standards compared to 100 in the current South Carolina standards for Number & Quantity, Algebra and Functions, the comparable, combined high school topics (64 for all learners).
  - Geometry, there are 76 standards compared to 44 in the current South Carolina Geometry (or 39 for all learners).
  - Probability and Statistics, there are 41 standards to 34 in the current South Carolina Statistics and Probability (or 23 for all learners).
  - In Calculus, there are 28 SCCCR mathematics standards.

- Vector and Matrix Quantities: in the current SC Number and Quantity there are 15 standards and these are for STEM students
- There are 76 draft SCCCRM Geometry standards of which 38 are very similar or identical to current SC standards (50%). There are 44 current SC standards for Geometry of which 5 are marked with "+" indicating for STEM only. Of the current 39 SC Geometry standards, 26 (67%) are in the SCCCRM standards. One SCCCRM Geometry standard is in the current SC standards as STEM only.
- Of the 41 draft SCCCRM Probability and Statistics standards, 13 matched current SC standards for Statistics and Probability (32%) and of the 34 current SC Statistics and Probability standards of which 11 are "+," 7 of the 23 or 31% of current SC standards within the SCCCRM. One SCCCRM Probability and Statistics standard is in the current SC standards as STEM only.

- **Algebra 1, Foundations and Intermediate Algebra courses**: Including an alternative for 9th and 10th grade learners who are likely to struggle in a regular Algebra 1 course has proven to be a valuable practice widely used in SC high schools. We believe most districts and mathematics supervisors feel strongly that having this option is important. The inclusion of Probability concepts in the Foundations course and Statistics in the Intermediate course make the alternative better than dividing Algebra 1 into two parts. There is not a sufficient connection in these courses to career-ready mathematics.

- **Function Theory** in Algebra 1 and 2: The addition of "Theory" to this key concept name seems unnecessary and inconsistent with the Grade 8 concept. I am not aware of other state and national standards that view "Functions" as a "theory."

- **Reasoning and Proof** in Geometry: Separating the process of reasoning and proof, and listing this as a key concept in Geometry seems misguided and inconsistent with the inclusion of reasoning in the Mathematical Process Standards. The study of logic (Standards #2, 3, 4, 5) is not unique to geometry and the construction of proofs should be addressed in the context of the key concepts for geometry.

- **Modeling**: There is ample and sufficient inclusion of mathematical modeling expectations in the Algebra 1 (including Foundations and Intermediate) and Algebra 2 standards. All of the course narratives address the importance of modeling but the Geometry, Pre-Calculus, Probability and Statistics and Calculus course standards infrequently includes mention of modeling.

- **Recursion**: Functions that are defined recursively are important in the areas of coding and computers yet not addressed in these standards.

- **Vector and Matrix Quantities**: Only one mention of matrices (in Algebra 2 as a sub-standard) and two mentions of vector within Geometry. The current SC mathematics standards include 15 Vector and Matrix standards for college-ready STEM students.

- **Probability and Statistics**: The standards in this section are emphasizing procedures whereas they should be guided by making decisions and predictions based on data analysis and statistical modeling of phenomena.

- **Pre-Calculus**: Why are these standards "packaged" as a course with this title? Could districts not address the same standards with a course called "Algebra 3," "Algebra 3 and Trigonometry" or "Advanced Math?" Why is preparation for calculus privileged in the title in contrast to the actual course content: advanced algebra, analytic geometry, and trigonometry? Are these standards required for all high school students?

- **Calculus**: Is the inclusion of 7 standards within 3 Key Concepts of calculus an expectation that all SC students take calculus (either AP or master these 7 standards)? If so, we believe the expectation is misguided, as many students graduating from high school in South Carolina will not benefit from learning calculus. If not, what is the purpose of including these standards? South Carolina is a leader in AP Calculus achievement having among the highest participation rates and consistently high percentages of students scoring 3 or higher. Including this non-AP course seems ill advised. To quote the past President of Mathematical Association of America David Bressoud: "there is no evidence that taking calculus in high school is of any benefit unless a student learns it well enough to earn college credit. and there is some evidence .. that an introduction to calculus that builds on an inadequate foundation can be detrimental."
  http://www.maa.org/external_archive/columns/launchings/launchings_06_09.html.
  The standards only include two that address the application of calculus to real world problem solving making the emphasis almost entirely on mathematical abstraction.

- It is evident that different writing styles and mathematical terminology usage was employed across similar standards in different courses. For example, in some case "slope and intercept" is used and in others "m and b" is referenced. The inconsistency in language detracts from communication and cohesion.

Recommendations and Expectations:

1. Overall, the draft SCCCR high school mathematical standards lack depth, cohesiveness, focus, coherence, and balance.
2. SCDE should directly address how the standards are tied to career readiness. The ACT WorkKeys exam is currently required of all SC 11th Graders but the new standards provide no direct reference to career-ready the concepts or performance levels on which WorkKeys is based.
3. A support document for teachers to implement new standards will be critical to successful implementation. Standards should not direct how to teach and should not impose curriculum on districts and schools
4. SCDE should provide what standards are going to be assessed (by Algebra 1 End-of-Course test, 11th Grade WorkKeys, and the new 11th Grade mathematics assessment).
5. Many of the sub standards (indicated by letters a, b, c, etc.) should be considered stand-alone standards or included in a support document (particularly when the sub standards are specific to teaching).
6. Standards that are repeated should be clearly coded or used the same coding so it is obvious that it exists in more than one place. For example, Intermediate Algebra IA.NQ.1 is the same as Algebra 2 A2.NQ.1)
7. What was missing that required the addition of the older standards or what value is added by inclusion of older standards?
8. The panel had access to the "Composite Course Progressions" document (available from http://ed.sc.gov/agency/programs-services/190/ProgressionDocuments.cfm) and prefer its table format as an Excel document because this format illustrates concepts and content clusters between and across different standards and courses. This format would make these standards more easily communicated to parents, students and teachers. Within such a document, indicate which of those standards do all students in SC need to graduate. In addition, indicate which standards are "career-ready" and which standards are "college-ready."
9. Vertical alignment was reviewed and multiple problems identified. They were too numerous to specify.
10. Algebra 2 includes too many standards.
11. A course that integrates geometry into Algebra 1, 2 and 3 would be useful to districts.
12. Expectations for all high school students must be clearly expressed. Standards for college-ready students must be differentiated from those that are expected for all learners. The standards from which state and federally mandated 11th grade

assessments are derived must be clearly evident. Using a (+) marker for standards that are expected for STEM or other college-intending high school students is recommended.

13. The need for financial literacy should be included in a set of high school standards.
14. Consider the role of technology and computer science standards in mathematics as well as other content areas. Coding, Computer Science and other Information Technology (IT) course and concepts: While not specific to mathematics, South Carolina High School students' knowledge and skills in IT related areas should be addressed to ensure career- and college-readiness. Integrating IT concepts and skills applicable to mathematics (e.g., recursive functions, combinatorics, discrete mathematics) should be addressed and noted in high school mathematics standards.
15. Consider how to integrate computer related study in Fundamentals and Intermediate Algebra and AP Computer Science as an alternative for those who will not take AP Calculus.
16. Appendix D includes a letter endorsed by the high school review mathematics panel that addresses the concern of ensuring standards are both college and career-ready. Multiple discussions by the high school panel were aimed at a design that would identify mathematics standards expected for ALL students to know and be able to do to graduate from high school.

Summary of Recommendations for the SCCR Mathematics Standards by the Mathematics Review Panel

For grades K through 8, the draft of the South Carolina College and Career Ready Standards for Mathematics (SCCCRM) generally embody the rigor and relevance of the 2010 standards, and based on panel review, will continue to strengthen the knowledge, skills, and preparation necessary for students' progression to the next level of instruction. Adoption of the draft of the SCCCRM in their current form, however, would result in gaps in instruction and further need for clarification and consistency of mathematical language and learning expectations for each key concept across grade levels.

The suggested revisions are substantive in nature and serve to deepen students' mathematical proficiency, as well as provide clear and coherent vertical progressions of standards. To preserve and ensure vertical articulation of standards, it is critical that concerns expressed and notes on the standard by standard table provided **at each grade level** be accepted and included in the final standards document. **Therefore, it is only with precise inclusion of each recommendation across all grade levels, the panel recommends the South Carolina College and Career Ready Standards for Mathematics.** (See Appendix B for specific recommended changes to individual standards by grade level.)

For high school, the panel's overall finding is that the proposed standards do not improve the current standards and, in some areas, weaken and detract from the preparation of high school students in mathematics leading us to conclude that a complete revision is required. Adoption of the draft SCCCR mathematics high school standards in their current form is likely to have a negative impact on career-readiness of high school graduates and not improve college-readiness. The draft lacks depth, cohesiveness, focus, coherence, and balance.

The high school panel recommends that the high school standards be revised in a manner that describes with clarity, cohesion, and rigor the mathematics that ALL South Carolina high school students must know and be able to do for both college and career-readiness.

For grades K through high school, each panel advised that the South Carolina College and Career-Ready Mathematical Process Standards, which are currently in the state-adopted mathematics standards, be adopted as is. The review panels holds the position that the Mathematical Process Standards are an integral part of instruction and should be clearly stated and assessed in each key concept at each grade level. A recommendation was made to include a statement that explicitly states that the process standards must be assessed in both the standards document and any supporting document for teachers.

Evaluation of the South Carolina College and Career Ready ELA Standards (SCCCR)

Task: Evaluate the K-12 draft South Carolina College and Career Ready ELA Standards

Process: The process of evaluating the ELA standards submitted by the writing teams consisted of gathering information from sources listed on page two and three. These sources assisted the teams evaluating the submitted standards, allowing them to make decisions about content using the criterion of comprehensiveness, rigor, and organization/ communication. The evaluation panel received the standards via email on October 23 and struggled initially with understanding the organization of the standards. At the request of the ELA review panel, EOC staff met with Drs. Cindy Van Buren and Brianna Timmerman on November 5 to discuss many of the concerns and issues raised by the evaluation panel. The SCDE team asked that the evaluation panel be as specific in their recommendations to the writing team, in order to provide them with clear direction. EOC staff communicated that directive to the evaluation panel.

The entire ELA panel initially focused on recommending changes to the overall organization of the standards, which was considered a significant barrier to evaluation. Following that process, the K-2, 3-5, and 6-8 subgroups evaluating the draft standards focused their specific recommendations on the Reading: Literary Text strand. The ELA 9-12 subgroup completed their evaluation of the English I, II, III, and IV draft standards but shares the overall and specific observations and concerns of the entire panel. These specific recommendations are included in Appendix E.

Conclusion: The ELA standards, as submitted by the writing team, are inferior to current standards, not college- or career-ready, and insufficient for students and teachers. The current draft standards do not properly reflect the voices of practitioners. Few classroom teachers were part of the SCDE writing teams because of the tremendous time commitment and the required time away from their classrooms during a short window of time.

The process of re-writing content standards must be done with the proper amount of time so that the vertical progression of the standards is evident and standards increase in rigor and complexity from Kindergarten through 12th grade. The evaluation teams realize that the SCDE writing teams did not set out to write standards that were not suitable for students and teachers. They were given an evolving set of directives and a tight timeframe with which to accomplish a monumental task.

A complete re-write of the ELA standards is recommended provided there is significant practitioner involvement, clear directives, and adequate time given to the writing team. The ELA evaluation panel is providing specific guidance in Appendix E of this report, which illustrates the significant amount of revision necessary to complete a rewrite of the standards properly. In

the meantime the ELA review panel recommends that the current ELA standards be maintained as state-approved standards.

However, if the writing team is permitted to *revise* the current, state-approved standards, an approach supported by the results of the survey of the current standards and the legislative intent of Act 200, it is feasible that the ELA standards can be revised by a writing team and meet the directives set forth in Act 200 to have revised, college- and career-ready standards for the 2015-16 school year. This approach is preferred by the ELA evaluation team.

Many of the following observations are supported by a comparison done of the draft standards with the current state standards pertaining to the identification of a main idea in informational text. The comparison, completed as part of the evaluation on November 24, follows the overall observations.

Overall observations of the draft ELA standards:

- There is not clarity and specificity in the draft standards as written. There is no clear progression within the standards, where students build upon foundational skills they have learned in earlier grades. Furthermore, there is no clear progression of learning targets that support an end goal.

- There is a lack of rigor in the draft standards, which will inadequately prepare students from college and career expectations and increase the need for remediation in post-secondary experiences.

- Alignment to expectations for the college or career community is unclear from one grade level to the next.

- There are too many standards. The current, state-adopted standards in ELA are 65 pages while the draft ELA standards total 215 pages. The concern is that teachers will be forced to prioritize standards during implementation. Since *all* standards are essential, each needs to be simple and understandable.

- Research as a skill is de-emphasized within draft strands, which is a critical skill for all students.

- The language selected for the standards is often inappropriate for the grade level. The language in the standards should spiral from one grade level to the next, increasing in rigor and complexity from kindergarten to 12th grade.

- The verbs in the standards represent lower levels of various taxonomy structures and do not represent the rigor needed. Verbs define tasks that are assessable and in many cases, the tasks are not assessable.

- The speaking and listening standards lack depth and are not properly integrated in the draft Communication strand.

- The necessity of preparation *prior to* collaboration is lost in the draft standards.

- The standards writing panel did add cursive writing in the standards appropriately, per Act 275, the "Back to Basics in Education Act of 2014."

Comparison of Draft ELA Standards from SCDE Writing Teams to Current State Standards

Informational Text – Identification of main idea, etc.

	Draft ELA Standards from SCDE Writing Teams	Current State Standards	Comments on Draft Standards
	Kindergarten		
K	**K-RI-MC-2.1** Retell the central idea and key details from a text heard, read or viewed.	**RIK.2** With prompting and support, identify the main topic and retell key details of a text.	Draft standards not developmentally appropriate. Central idea is not introduced in current standards until 6th grade since it is a compilation of main ideas. Also, we are asking Kindergarten students to **retell** something they have not yet leaned to **identify**.
	1st Grade		
1	**1-RI-MC-2.1** Retell the central idea and key details from a text heard, read or viewed.	**RI1.2** Identify the main topic and retell key details of a text.	Same standard as Kindergarten – no progression.
	2nd Grade		
2	**2-RI-MC-2.1** Retell the central idea and key details from multi-paragraph texts as well as the topic of each paragraph heard, read or viewed.	**RI2.2** Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.	"Retell" is not an assessable skill.

	Draft ELA Standards from SCDE Writing Teams	Current State Standards	Comments on Draft Standards
	3rd Grade		
3	**3RI-MC-2.1** State the central idea of a text; recount key details, and explain how they support the central idea.	**RI3.2** Determine the main idea of a text; recount the key details and explain how they support the main idea.	Is "state," "recount" same as "retell"? Still haven't dealt with identification of central idea or how it relates to main idea or topic.
	4th Grade		
4	**4-RI-MC-2.1** Determine and analyze the central idea within a text using key details and summarize the text.	**RI4.2** Determine the main idea of a text and explain how it is supported by key details; summarize the text.	
	5th Grade		
5	**5-RI-MC-2.1** Determine and analyze the common central ideas across texts, citing evidence to support conclusions and summarize the texts.	**RI5.2** Determine two or more main ideas of a text and explain how they are supported by key ideas and details; summarize the text.	For the first time, students are asked to look at common themes using **more than one** text. Students are not asked to do this again until English I.

	Draft ELA Standards from SCDE Writing Teams	Current State Standards	Comments on Draft Standards
	6th Grade		
6	**6-RI-MC2.1** Determine and analyze the central idea and how it develops across text. **6-RI-MC-2.2** Cite evidence of how the central idea develops. **6-RI-MC-2.3** Provide an objective summary of the text.	**Grade 6** **RI2.2** Determine a central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.	Standards for Grades 6, 7, and 8 are exactly **the same**. No progression or rigor built in at all. Also, back to dealing with **one** text.
	7th Grade		
7	**7-RI-MC-2.1** Determine the central idea and analyze how it was developed across a text. **7-RI-MC-2.2** Cite evidence of how the central idea develops. **7-RI-MC-2.3** Provide an objective summary of the	**Grade 7** **RI2.2** Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.	

	Draft ELA Standards from SCDE Writing Teams	Current State Standards	Comments on Draft Standards
	text.		
	8th Grade		
8	**8-RI-MC-2.1** Determine the central idea and analyze how it was developed across a text. **8-RI-MC-2.2** Cite evidence of how the central idea develops. **8-RI-MC-2.3** Provide an objective summary of the text.	**Grade 8** **RI2.2** Determine a central idea of a text and analyze its development over the course of the text, including its relationship to supporting ideas; provide an object summary of the text.	

	Draft ELA Standards from SCDE Writing Teams	Current State Standards	Comments on Draft Standards
	Grades 9-10		
9-10	**E1-RI-MC-2.1** Determine a central idea, cite evidence to support the analysis of its development and include key details in an object summary. **E1-RI-MC-2.2** Identify common central ideas across texts. **E2-RI-MC-2.1** Determine a central idea, cite evidence to support the analysis of its development, and include key details in an objective summary. **E2-RI-MC-2.2** Compare the development of similar central ideas across texts.	**Grade 9-10** **RI.2** Determine a central idea of a text and analyze its development over the course of the text, including how it emerges and is shaped and refined by specific details; provide an object summary of the text.	Students are asked to **identify** common central ideas in high school although kindergarten students are retelling them?

	Draft ELA Standards from SCDE Writing Teams	Current State Standards	Comments on Draft Standards
	Grades 11-12		
11-12	**E3-RI-MC-2.1** Determine a central idea, cite evidence to support the analysis of its development, and include key details in an objective summary. **E3-RI-MC-2.2** Compare and contrast the development of similar central ideas across texts. **E4-RI-MC-2.1** Determine a central idea, cite evidence to support the analysis of its development and include key details in an objective summary. **E4-RI-MC-2.2** Compare, contrast and evaluate the effectiveness of the development of similar central ideas across texts.	**Grade 11-12** **RI2.2** Determine 2 or more central ideas of a text and analyze their development over the course of the text, including how they interact and build on one another to provide a complex analysis; provide an objective summary of the text.	There appears to be some level of rigor built into the high school standards as written.

Overall recommendations:

By consensus, the ELA review team determined the draft ELA standards are **insufficient** for students and teachers and inferior to existing standards. There is a lack of depth, clarity and organization within the standards, which would lead to tremendous confusion among classroom teachers. Furthermore, the lack of specificity, which drives the rigor of the standards, has been removed. Rigor derives from the expectations of teachers, and the expectations of teachers should be rooted in the standards. This lack of clarity and rigor will ultimately hurt the students we are trying to prepare for future success.

A complete re-write of the ELA standards is recommended provided there is significant practitioner involvement, clear directives, and adequate time given to the writing team. In the meantime the ELA review panel recommends that the current ELA standards be maintained as state-approved standards. However, if the writing team is permitted to *revise* the current, state-approved standards, an approach supported by the results of the survey of the current standards and the legislative intent of Act 200, it is feasible that the ELA standards can be revised by a writing team and meet the directives set forth in Act 200 to have revised, college- and career-ready standards for the 2015-16 school year. This approach is preferred by the ELA evaluation team.

The ELA group is united in consensus with the above recommendations. They share a concern that their voices be heard among policymakers and that SC not put standards in place that are a step backwards for our students and teachers. It was noted that it would be easier to go back and accept the work of the writing teams, but in this case, doing what is easy is not what is right for children. The goal should be having more rigorous standards than the standards currently in place.

APPENDIX A

STATE OF SOUTH CAROLINA
DEPARTMENT OF EDUCATION

Mick Zais
Superintendent

1429 Senate Street
Columbia, South Carolina 29201

MEMORANDUM

TO: District Superintendents

FROM: Dr. Cindy Van Buren
Deputy Superintendent
Division of School Effectiveness

DATE: June 5, 2014

RE: Selection of State Panel Members for the Review of the Common Core State Standards for English Language Arts and Mathematics

The South Carolina Department of Education (SCDE) is organizing a cyclical review of the Common Core State Standards (CCSS) for English language arts (ELA) and math upon the passage of Act 200. The SCDE will appoint ELA and math panels to review the current standards and recommend revisions, focusing on the following criteria: comprehensiveness/balance, rigor, measurability, organization/communication, and manageability. **We are going to adopt high-level South Carolina standards for the 2015-16 school year, replacing the Common Core**.

I am asking for your assistance in identifying members to serve on the state panels by widely sharing this information with district staff. To be considered for the panels, individuals must be recognized as experts in the fields of ELA or math (written, taught, lectured, or practiced for at least five years) or be recognized as an expert in standards, assessment, early childhood, special education, or English language learners. Panel members must also be representative of all instructional classifications, i.e., administrator, teacher, district office staff, etc. Every effort will be made to ensure the demographic and geographic areas of the state are represented.

Nominations are due by Monday, June 30 and can only be submitted using an online form: https://adobeformscentral.com/?f=5xz%2A7S2636K0goPCVjItMQ. Selected panel members will receive a letter of invitation during the first week of July. Panel members **must** be available to attend all the meetings in the Midlands this summer. The tentative dates are:

English Language Arts*	**Mathematics***
July 31, 2014	July 21, 2014
August 6-7, 2014	August 4-5, 2014
August 12-13, 2014	August 11-12, 2014
August 20-21, 2014	August 19-20, 2014
August 27-28, 2014	August 26-27, 2014

Meeting dates may be cancelled if all dates are not needed.

phone: 803-734-8492 ● fax: 803-734-3389 ● ed.sc.gov

During these meetings, members will consult with colleagues, closely review the current standards, and share their expertise during our discussions. Members will be reimbursed for travel and lunch will be provided.

If you have any questions regarding this process, please contact Cathy Jones Stork (ELA) at (803) 734-0790, cjones@ed.sc.gov or Mary Ruzga (math) at (803) 734-5954, mruzga@ed.sc.gov.

cc: Chief Academic Officers
English Language Arts Leaders
Mathematics Leaders

STATE OF SOUTH CAROLINA
DEPARTMENT OF EDUCATION

Mick Zais
Superintendent

1429 Senate Street
Columbia, South Carolina 29201

MEMORANDUM

TO: Mick Zais, Ph.D.
State Superintendent of Education

FROM: Shelly Kelly, Esquire
General Counsel

DATE: July 18, 2014

RE: Standards Development Process under Act 200

A question was raised recently as to whether the process that the SCDE put in place to develop new English language arts (ELA) and math standards is in compliance with Act 200, as it amends the Education Accountability Act (EAA). The South Carolina Department of Education (SCDE) is not asking the review team to conduct a "revision" of the Common Core Standards; instead the SCDE is asking the review team to develop new standards, considering many sources of standards, including other states' approved college- and career-ready standards and the former South Carolina standards (that pre-dated Common Core). The SCDE interprets Act 200 as requiring the SCDE to develop *new* college- and career-readiness standards in ELA and math. To do this, the SCDE intends to develop new standards and not simply modify the existing Common Core Standards. Some have argued that Act 200 requires the SCDE to revise the Common Core standards and that the writing committees must use the Common Core Standards as the basis from which they work.

Act 200 specifically instructs the SCDE to develop new college- and career-readiness standards in ELA and math (see Act 200, Section 4, to be codified as S.C. Code Ann. Section 59-18-350(B)). Section 4 states that "a cyclical review must be performed pursuant to subsection (A) for English/language arts and mathematics state content standards not developed by the South Carolina Department of Education. The review must begin on or before January 1, 2015, and the new college and career readiness state content standards must be implemented for the 2015-2016 school year." The proponents of using the Common Core as the foundation for the development of the Act 200 standards seem to interpret this section as requiring a "review" of the current standards. I interpret this section as pinpointing the standards that the General Assembly wanted replaced. In other words, that section specifically instructs the SCDE to start the cyclical review process for ELA and math, even though under the timelines of section 59-18-350(A), the cyclical review would not be required until 2017.

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The proponents of revising the Common Core also seem to rely on the language in section 59-18-350(A) in maintaining that the SCDE must start with the Common Core or the "existing standards." That section requires the State Board of Education (SBE) to provide a cyclical review by academic *area* of the state standards and assessment. The law states "At a minimum, each academic *area* should be reviewed and updated every seven years." The language references each "area," not each "standard." Thus, the mandate is not to take the existing standards documents and review them word for word, but to look at the academic areas such as math, ELA, science, etc. If the General Assembly intended for the review to be limited to the existing standards, it could have used that language. Certainly, in most cases where there is a cyclical review, it would be prudent to work from the existing document. Typically, minor changes are needed with standards. However, the plain language in Act 200 requires the SCDE to develop "new" standards, as evidenced by the use of the term "new" twice in one section of the Act, as opposed to using a term like "revised."

In fact, in the newly added section 59-18-355, the General Assembly included a safeguard to prevent the adoption of standards that are not "SCDE-developed." If the standards are not SCDE-developed, the General Assembly must approve them by a joint resolution. The SCDE's process in starting with a clean slate or with a base product being the last SCDE-drafted standards was to make sure it met this requirement. If the SCDE starts with the Common Core and modifies from there, the General Assembly may have to approve those standards.

Additionally, if the proponents of revising the Common Core are correct in saying that section 59-18-350(A) requires the SCDE to start from the Common Core Standards and build from there, and that failure to do so is unlawful, then the 2010 adoption of the Common Core by the SBE and the Education Oversight Committee (EOC) was unlawful. Since the Common Core Standards were not developed from a review of the then-existing standards, using that same argument, the last legally adopted standards are the 2007 standards; however, I do not believe that to be true. The statutory language in the EAA does not specify how the standards are revised or written to the level of detail that could be interpreted as only allowing for a *revision* of current standards.

The SCDE and the EOC worked under operational guidelines for a number of years that address the process for standards development—both for new standards and for revisions. Those guidelines were last approved by Superintendent of Education Inez Tenenbaum. They are out-of-date and carry no legal weight. They do not address the accelerated process that Act 200 requires and thus should not be relied upon. I believe that some of the confusion surrounding this issue is based on trying to use these guidelines to govern the standards process required by Act 200.

In conclusion, there is nothing in Act 200 or the EAA that requires the SCDE to use the existing standards (Common Core Standards) as the starting point for developing the new standards that are required under this Act. This level of detail is simply not in statute.

MICK ZAIS
STATE SUPERINTENDENT OF EDUCATION

Press Release
July 21, 2014
Contact: Anna Burns, ABurns@ed.sc.gov
FOR IMMEDIATE RELEASE

Math Writing Team Convenes for New Standards

COLUMBIA, SC – Dr. Mick Zais, State Superintendent of Education, issued the following statement announcing the math team writing new standards held their first meeting today.

"This team represents the best and brightest in the field of math around our state," said Zais. "The charge of the General Assembly was tough, but clear: develop new, high-level, college- and career-ready standards that meet the needs of South Carolina students. Given the level of talent and experience these educators have, I am confident they are up to the task," concluded Zais.

A record 365 English and math nominations were received and 19 educators were selected for the math team. The South Carolina Department of Education developed a rubric to apply fairly across the board to select the team members. The Department chose applicants based on their level of expertise and ensured the team represented the diversity found across our state and in our schools. The rubric, comments from educators on why they wanted to serve, and bar charts showing the breakdown of applicants are posted on the Department's website.

Here are the math writing team members and their affiliations:

Name	District	Position	Grade Band
Mary Ruzga	SCDE Elementary Coordinator, Office of Instructional Practices and Evaluations		
Christie Reid	York 2	District Level Administrator	K-5
Dale Smith	Newberry	Instructional Coach	K-5
Karen Owens	York 3	Instructional Coach	K-5
Melanie Hollis	Lancaster	Teacher	K-5
Mary Elizabeth Lloyd	College of Charleston	Higher Education	K-5
Janel Johnson	SCDE Middle School Coordinator, Office of Instructional Practices and Evaluations		
Susan Wood	Greenville	Teacher	6-8
Cindy Doolittle	Spartanburg 6	District Level Administrator	6-8
Kathryn Pedings-Behling	Gov. School for Math and Science	Outreach Personnel	6-8
Gabrielle Wriborg	SC School Deaf Blind	Teacher	6-8

Lindsay Boozer	SCDE High School Coordinator, Office of Instructional Practices and Evaluations		
Rita Bixler	Retired	Teacher	High School
Janice Ward	Pickens	District Level Administrator	High School
Jennifer Thorsten	Berkeley	District Level Administrator	High School
Matthew Owens	Richland 2	District Level Administrator	High School
Christopher Duncan	Lander	Higher Education	High School
James Solazzo	Coastal Carolina Univ.	Higher Education	High School
J. Roberto Gonzalez	Beaufort	English Language Learners	K-12
Department Staff Assisting			
Kim Watkins	SCDE	Office of Special Education Services	
Amy McCaskill	SCDE	Office of Career and Technology Education	
Harriet Pritchard	SCDE	Office of Assessment	

Department staff involved with the math writers assist the educators, but are not considered part of the actual writing team. The agenda for today's meeting is online and can be accessed here. All media queries for the math writers must go through the Department's Legislative and Public Affairs Office.

Follow the agency on Twitter and like our Facebook page to get the latest news and information. We have a weekly blog, Instagram account, Pinterest page, Google+ page, and we're on LinkedIn.

# # #

MICK ZAIS
STATE SUPERINTENDENT OF EDUCATION

Press Release
August 6, 2014
Contact: Anna Burns, ABurns@ed.sc.gov
FOR IMMEDIATE RELEASE

ELA Writing Team Convenes

COLUMBIA, SC – Dr. Mick Zais, State Superintendent of Education, issued the following statement today announcing the team writing new English Language Arts standards held their first meeting.

"This is a high-caliber group of teachers represented on the English Language Arts writing team," said Zais. "We are confident that these educators from across the state will deliver a high-quality product – college- and career-ready standards that will ensure our students have a bright future. On behalf of parents, students, teachers, and taxpayers across South Carolina, I thank them for their willingness to invest time in this important task."

A record 365 ELA and math nominations were made and 19 educators were selected for the ELA team. The team will focus on all components of ELA, including reading, writing, speaking, listening, viewing, and researching. The South Carolina Department of Education developed a rubric to apply fairly across the board to select the team. The Department chose applicants based on their level of expertise and ensured the team represented the diversity found in our schools and across our state. The rubric, comments from educators on why they wanted to serve, and bar charts showing the breakdown of applicants are posted on the Department's website.

Here are the ELA writing team members and their affiliations:

Name	District	Position	Grade Band
Lou Jacobs	Spartanburg 7	Literacy Coach/Instructional Coach	K-2
Kimberly McAbee	Spartanburg 4	District Curriculum Specialist	K-2
Kim Camp	Cherokee	Building Level Administrator	K-2
Brenda Bowling	Oconee	Literacy Coach	K-2
Tracey Dumas Clark	Anderson 5	Instructional Facilitator	3-5
Cynthia Magrath	Horry	Literacy Coach/Instructional Coach	3-5

Kelly Childers	Anderson 3	Classroom Teacher/Literacy Coach	3-5
Neely Kelly	Fairfield	District Level Administrator	3-5
Paula Miller	Lexington 1	Literacy Coach	6-8
Angela McClary-Rush	Williamsburg	District Level Administrator	6-8
Barbara Goggans	Georgetown	Instructional Coach	6-8
Pat Ogletree	Lexington 2	District Level Administrator	6-8
Vicki Brockman		Retired Educator	6-8
Ebony Summers-Fogel	Dorchester 2	District Level Administrator	High School
Emily Kimpton	Sumter	District Level Administrator	High School
Nathan Croston	Anderson 1	Classroom Teacher, Department Chair	High School
Catherine Moore	Anderson 2	Classroom Teacher	High School
Daniel Ennis	Coastal Carolina	Higher Education	High School
Rachel Traynham	Laurens 55	ESOL	All

Department staff assist the ELA writers, but are not considered part of the actual writing team. All media queries for the ELA writers must go through the Department's Legislative and Public Affairs Office.

Follow the agency on Twitter and like our Facebook page to get the latest news and information. We have a weekly blog, Instagram account, Pinterest page, Google+ page, and we're on LinkedIn.

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From www.ed.sc.gov, Retrieved 11/21/2014

Wednesday, November 5, 2014

S.C. Convenes Taskforce and Releases Drafts of New Standards for Public Review

COLUMBIA – Today, State Superintendent of Education Dr. Mick Zais announced that the taskforce convened to review drafts of the new English and mathematics standards had completed their work. The draft standards are being issued to the public for review and feedback.

"I want to thank the educators who put in more than 4,200 hours to develop these new standards," said Zais. "They have worked hard to create appropriate standards for our students, with the goal of ensuring their readiness for careers and college.

"The taskforce we have convened represents South Carolina's top leaders in the fields of business and education, with parents and community leaders serving as an integral part of the review process. Having South Carolinians develop, review, and approve these new standards is most appropriate for our state," concluded Zais.

"As technology continues to re-shape our society and re-define what success means in a global economy, it is important to periodically assess our educational standards to ensure our graduates are prepared to enter the workforce, the military, or continue their education," said taskforce member Pamela Lackey, President of AT&T South Carolina. "The review of these new draft standards provides an opportunity for South Carolinians to do an even better job of educating our next generation of citizens. I appreciate the work by our team of dedicated educators, who wrote the standards, and by the taskforce members, who provided valuable feedback," concluded Lackey.

"South Carolina made the right decision to develop its own standards," said U.S. Congressman Joe Wilson (R-SC), a member of the U.S. House Education and Workforce Committee. "As the husband of an educator with more than 30 years of teaching experience, I trust South Carolina teachers to make the right decisions for our students. As the father of four sons who were all Eagle scouts and graduates of public schools in Lexington County, I have seen firsthand the important work done by our teachers to develop these new standards. This taskforce of parents and business leaders will help ensure our new standards will prepare our students for the workforce, college, or military," said Wilson.

"We applaud the dedication and service of the educators who wrote these new standards," said Rosalea Donahue, a teacher, principal, and early childhood specialist with more than 30 years of teaching experience. "As a member of South Carolina Parents Involved in Education (SCPIE), we believe that it is vital for parents, businessmen and women, and community leaders to be engaged in the process to review these new standards. This taskforce has brought together diverse leaders from across South Carolina. Their feedback will allow our teachers to build upon these draft standards and improve them before they are presented for approval to the State Board of Education and the Education Oversight Committee. I am honored to have been appointed to this taskforce, and I am thankful for the many hours spent by both the teachers who wrote these new standards and the taskforce members who reviewed them."

“We appreciate the enormous amount of time that South Carolina educators took to develop these new standards,” said LaDonna Ryggs, a communications executive from Spartanburg. “We should thank them all for their hard work and dedication. We now have new standards developed by South Carolina teachers for South Carolina students, reviewed by South Carolina parents, business, and community leaders. I’m proud of what we have achieved.”

The taskforce consisted of parents, business and community leaders, higher education professionals, and special education teachers. These diverse leaders, who represent the best of their professions, spent many hours reviewing the draft standards and providing feedback to the standards writing teams.

Here are the taskforce members and their affiliations:

Name	Affiliation
Dr. Lisa Johnson	Winthrop University
Dr. Rebecca Stern	University of South Carolina
Dr. Kathryn Hansen	The Citadel
Dr. Megan Che	Clemson University
Debi MacCandrew	Florence-Darlington Technical College
Sam McDonald	South Carolina State University
Dr. Raymond Watkins	Central Carolina Technical College
The Honorable Joe Wilson	U.S. House of Representatives
The Honorable Katrina Shealy	S.C. Senate
The Honorable Eric Bedingfield	S.C. House of Representatives
The Honorable Larry Grooms	S.C. Senate

Otis Rawl	S.C. Chamber of Commerce
Pamela Lackey	AT&T
Tom DeLoach	S.C. BIPEC
Kristen Blanchard	Nutramax Laboratories
Lewis Gossett	S.C. Manufacturers Alliance
Bernadette Hampton	S.C. Education Association
Kathy Maness	Palmetto State Teachers Association
Kathy Richardson	S.C. Education Association Foundation
Dr. Oran Smith	Palmetto Family Council
Ellen Weaver	Palmetto Policy Forum
Regina Hitchcock	Students First South Carolina
Ally Forrester	Richland School District One
Marcel Marina	Florence School District Three
Susan Seigler	Hampton School District One
Brenda Hunt	Beaufort County School District
Dr. Laura O'Laughlin	Greenville County School District

Dr. Wendy Balough	Rock Hill School District Three
Dr. Sheila Quinn	Clover School District
Dr. Julie Fowler	Greenwood School District 51
Beth Watson	Lexington-Richland Five School Board
Debbie Knight	Lexington One School Board
Hope Carter	Public Charter School Parent
LaDonna Ryggs	Communications Industry
Eaddy Roe Willard	Community Leader
Wilma Hoffmann Storey	Accountant
Terrye Campsen Seckinger	Board Member – Commission on Higher Education
Laura Phipps	School Improvement Council – Irmo
Martha Burleson	Supersod Farm
Zan Tyler	Homeschool Leader
Peggy Fraser	Independent Educator
Capt. Thomas Barry	Retired Naval Officer

Rosalea Donahue	Retired Educator
Bill Dieckmann	Minister
Dr. Jill Boggs Denton	Pickens High School
Dr. Jeff Venables	Northwestern High School

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APPENDIX B

Standards Review - Mathematics

Kindergarten

KEY CONCEPT: NUMBER SENSE		
The student will	**Group Recommendations**	**Comments/Recommendations**
K.NS.1 Count forward by ones to 100.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Add counting by 10s to 100. Counting numbers serve as prerequisite knowledge for place value concepts to come in 1st grade. Further, recognizing patterns in counting numbers can support counting by ones to 100. In all, counting by 10s is a unitizing action needed to successfully encounter place value concepts.
K.NS.2 Count forward by ones beginning from any number less than 100.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
K.NS.3 Read numbers from 0-20 and represent a number of objects 0-20 with a written numeral.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	More clearly stated: Read and write numerals 0 – 20 which represent a number of objects 0 – 20.
K.NS.4 Understand the relationship between number and quantity. Connect counting to cardinality by demonstrating an understanding that: *a. number words are always assigned in the same order;* *b. the last number said tells the number of objects in the set;* *c. the number of objects is the same regardless of their arrangement or the order in which they are counted;* *d. each successive number name refers to a quantity that is one more and each previous number name refers to a quantity that is one less.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
K.NS.5 Count out a given number of objects from 1-20 and connect this sequence in a one-to-one manner and recognize instantly a quantity of up to ten objects.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Subitizing is suggested here and should be more overly stated. Subitizing is thoughts about in arrangements of objects, which should also be included in the wording of

KEY CONCEPT: NUMBER SENSE		
The student will	**Group Recommendations**	**Comments/Recommendations**
		the standard. The following changes are recommended: "…. and recognize instantly (subitize) a quantity of up to ten objects in an arrangement."
K.NS.6 Compare two sets of 0-10 objects each using more, less or equal.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	For parallel construction to later standards and some additional clarity, reword to "Compare two sets of 0 – 10 objects in each set using more than, less than, or equal to."
K.NS.7 Compare two written numerals up to 10 using more, less or equal.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	For parallel construction to later standards and some additional clarity, reword to "Compare two numbers between 0 – 10 represented as written numerals using more than, less than, or equal to."
K.NS.8 Identify the positions first and last in a line of objects.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Deep understanding of numbers 0 – 20 is expected in Kindergarten; consequently, it is recommended that ordinal numbers be consistent with standards elsewhere. As such, ordinal numbers 1 – 20 (first, second, third, fourth, etc), including the last position in a linear arrangement, should be included here.
Key Concept Summary: Number Sense ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: NUMBER SENSE AND BASE TEN		
The student will	**Group Recommendations**	**Comments/Recommendations**
K.NSBT.1 Compose and decompose numbers from 11-19 separating ten ones from the remaining ones.	❑ Recommend ❑ Recommend with reservation(s) ☑ Do not recommend	While this standard is included in the CCSS-M and some related progressions documents, there is not a compelling argument to include introductory place value concepts in Kindergarten. It stands to reason that this standard exists due to the complexity of the English language with counting numbers in the teens, as well as a brief introduction to the notion of "10-nes" (ie groups of 10 on the left, remaining pieces on the right). All seminal research studies in mathematics education related to place value work originate at grade 1. It would also make sense that to understand 10-nes one would need to see beyond an exclusive look at a single 10, to a broader view of multiple 10s. From this perspective, eliminating this standard allows it to naturally be subsumed into the proposed 1.NSBT.2. The inclusion of skip counting by 10s (see first note) at the K level would allow students to develop the unitizing needed to see 10 as a unit. Proposed K.ATO.3 represents the type of composition and decomposition of numbers needed to later encounter place value concepts. All this to say, the necessary prerequisite skills are either already in the standards, or in the proposed revisions here.
Key Concept Summary: Number Sense and Base Ten ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: ALGEBRAIC THINKING AND OPERATIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
K.ATO.1Model situations that involve addition and subtraction within 10.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Model is vague in the Standards as a whole. While a support/implementation document may clarify, it is also important to ensure those developing tests clearly understand what is meant by models – they will not turn to a support document to determine. Consequently, we propose the following: "Model with manipulatives, pictures, story problems, and numerical representations situations that involve addition and subtraction within 10."
K.ATO.2Solve story problems using objects and drawings to find sums up to 10 and differences within 10.	❑ Recommend ❑ Recommend with reservation(s) ☑ Do not recommend	The suggested edits to K.ATO.1 eliminate the need for this standard.
K.ATO.3Compose and decompose numbers up to 10 using objects, drawings, and equations.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
K.ATO.4Create a sum of 10 using objects and drawings when given one of two addends 1-9.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
K.ATO.5Identify simple repeating patterns.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	The term simple is not self-evident. Consider clarifying how many items repeat. It is suggested to include 2 – 4 items.
Key Concept Summary: Algebraic Thinking and Operations ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: GEOMETRY		
The student will	**Group Recommendations**	**Comments/Recommendations**
K.G.1 Describe positions of objects by appropriately using terms including below, above, beside, between, inside, outside, in front of, behind.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Add "next to" to the list of position words.
K.G.2 Identify and name shapes and shapes of objects in everyday situations to include two-dimensional shapes (squares, rectangles, triangles, hexagons, and circles) and three-dimensional shapes (cones, cubes, cylinders, and spheres).	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
K.G.3 Classify shapes as two-dimensional/flat or three-dimensional/solid and explain the reasoning used.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
K.G.4 Analyze and compare two- and three-dimensional shapes of different sizes and orientations using informal language.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
K.G.5 Model two-dimensional shapes using multiple representations.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	The vagueness of this standard makes in not measurable. Consider the following wording: "Model shapes in the world from components (e.g. sticks and clay balls) and drawing shapes."
K.G.6 Combine shapes to form a larger shape.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Geometry ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: MEASUREMENT and DATA ANALYSIS		
The student will	**Group Recommendations**	**Comments/Recommendations**
K.MDA. Identify and describe several measureable attributes of an object.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Add" …of an object, such as number of sides, corners,, having sides of equal length."
K.MDA.2 Compare objects based on common measureable attributes.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Add" … measureable attributes, such as sides, corners, having sides of equal length."
K.MDA.3 Sort and classify data into 2 or 3 categories.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	To be consistent with number sense expectations, reword to: "….categories, with data not to exceed 20 items in each category."
K.MDA.4 Represent data using object graphs and picture graphs and draw conclusions from the representations.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	To be consistent with number sense expectations, reword to: "….categories, with data not to exceed 20 items in each category." The EOC review team appreciates the addition of this new standard.
Key Concept Summary: Measurement and Data Analysis ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	
Grade Level K Summary ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Grade Level**	

Standards Review - Mathematics

Grade 1

KEY CONCEPT: NUMBER SENSE AND BASE TEN		
The student will	**Group Recommendations**	**Comments/Recommendations**
1.NSBT.1 Extend the number sequence to: *a. count to 120, starting at any number within 120;* *b. count by 5s and 10s within 100;* *c. read, write and represent numbers to 100 using concrete models, standard form, number names, and expanded form.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Add to part c: "…number names, expanded form, and in an equation." This change will support development of 1.ATO.7
1.NSBT.2 Understand place value within 100 by demonstrating that: *a. ten ones can be thought of as a bundle (group) called a "ten";* *b. the tens digit in a two-digit number represents the number of tens;* *c. two-digit numbers can be decomposed into tens and ones.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Add to part c: "….tens and ones in a variety of ways (e.g. 52 = 5 tens and 2 ones = 4 tens and 12 ones, etc)"
1.NSBT.3 Compare two two-digit numbers based on the meanings of the tens and ones digits, using the words greater than, equal to, or less than.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
1.NSBT.4 Add within 100, using place value understanding. *a. Add a two-digit number and a one-digit number;* b. *Add a two-digit number and a multiple of 10;* c. *Understand that in adding two-digit numbers one adds ones and ones, tens and tens, and that sometimes it is necessary to compose a ten.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
1.NSBT.5 Determine the number that is 10 more or 10 less than a given number up to 100 and explain the reasoning used.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Vagueness here results in difficult measurability. Consider adding: "…reasoning used through multiple representations and use of a variety of concrete

KEY CONCEPT: NUMBER SENSE AND BASE TEN		
The student will	**Group Recommendations**	**Comments/Recommendations**
		models.”
1.NSBT.6 Subtract a multiple of 10 from a larger two-digit number.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	We recommend stronger language: “Find differences between two numbers in multiples of 10 up to 100 and explain both verbally and in writing the reasoning used.”
1.NSBT.7 Decompose two-digit numbers in multiple ways and record the decomposition in expanded form and as an equation.	❑ Recommend ❑ Recommend with reservation(s) ☑ Do not recommend	Redundant. See 1.NSBT.1c with recommended changes.
Key Concept Summary: Number Sense and Base Ten ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: ALGEBRAIC THINKING AND OPERATIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
1.ATO.1 Solve story problems using addition (as a joining action and as a part-part-whole action) and subtraction (as a separation action, finding parts of the whole, and as a comparison) within 20.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	The inclusion of direct references to CGI problem types is appreciated. It is also important to note the unknowns in all positions. Consequently, Add: "…within 20 with unknowns in all positions." The support document should include as much of Chapter 2, pp.7 – 12 of *Children's Mathematics: Cognitively Guided Instruction* as possible.
1.ATO.2 Solve story problems that include three whole number addends whose sum is less than or equal to 20.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
1.ATO.3 Apply properties of operations to add two or three numbers with a sum up to 20.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Vague. Consider the following rewording to improve mathematical precision: "Apply commutative and associate properties of addition to find the sum of two or three addends with a sum up to 20."
1.ATO.4 Understand subtraction as an unknown addend problem.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
1.ATO.5 Recognize how counting relates to addition and subtraction.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
1.ATO.6 Add and subtract within 20 and demonstrate fluency with basic addition and related subtraction facts within 10.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	There are two separate standards here that need to be measured independent of one another. That is, I can be fluent with facts within 10 but not be able to add/sub all the way to 20, or vice versa. Thus the two standards are: (a) Add and subtract within 20 (b) Demonstrate fluency with addition and subtraction facts within 10 The word basic is not needed in the second standard here.

KEY CONCEPT: ALGEBRAIC THINKING AND OPERATIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
1.ATO.7 Understand the meaning of the equal sign and determine if equations involving addition and subtraction are true.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Needs clarification of which meaning of the equal sign. The following reword will clarify: "Understand the meaning of the equal sign as a relation between two quantities (sameness) and determine if …"
1.ATO.8 Determine the missing number in addition and subtraction equations.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
1.ATO.9 Create and extend simple repeating and growing patterns and explain reasoning used.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	As was the case in Kindergarten, the number of items in the pattern needs to be defined (it is recommended to limit 2 – 4 objects in the pattern (e.g. ABCDABCD). Further is it recommended that the following language be added: "…explain reasoning using pictures and words."
Key Concept Summary: Algebraic Thinking and Operations ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: GEOMETRY		
The student will	**Group Recommendations**	**Comments/Recommendations**
1.G.1 Distinguish between a two-dimensional shape's defining and non-defining attributes.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Term "non-defining" lacks clarity. Add non-defining examples (e.g. color, orientation, overall size)
1.G.2 Combine shapes to form a larger shape in more than one way.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Lacks clarity and measurability. Consider the following language: *Combine two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape in more than one way.* *(Note: students do not need to learn formal names for shapes)*
1.G.3 Partition two-dimensional shapes into two or four equal parts.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
1.G.4Identify and describe two-dimensional shapes (rhombus and trapezoid) and three-dimensional shapes (right rectangular prism and right triangular prism).	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	The review committee found no compelling reason for students to know the three-dimensional shape terminology at this grade level. Consequently, it is recommend that the standard read: "Identify and describe the two dimensional shapes rhombus and trapezoid."
Key Concept Summary: Geometry ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: MEASUREMENT AND DATA ANALYSIS		
The student will	**Group Recommendations**	**Comments/Recommendations**
1.MDA.1 Order three objects by length using indirect comparison.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
1.MDA.2 Use nonstandard physical models to show the length of an object as the number of same size units of length.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Add "…of same size units of length <u>with no gaps or overlaps</u>."
1.MDA.3 Use analog and digital clocks to tell and record time to the hour and half hour.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
1.MDA.4 Collect, organize, and represent data with up to 3 categories using object graphs, picture graphs, and t-charts or tallies.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	While the intent with "t-charts or tallies" may be a combination of the two, the choice of the word "or" leads to measurement ambiguity. That is, students may be asked to construct t-charts *or* tallies, which mean they need to be taught t-charts *and* tallies. Further, since students are expected to draw conclusions from bar charts in 1.MDA.5, it is recommended that bar charts be included here. As such, it is recommended that "or" be replaced with "and": "…picture graphs, bar charts, t-charts, and tallies."
1.MDA.5 Draw conclusions from given object graphs, picture graphs, y-charts, tallies, and bar graphs.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Typo: "y-charts" – change to "t-charts"
1.MDA.6 Identify a penny, nickel, dime and quarter and write the coin values using a ¢ symbol.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Excellent new standard to scaffold students into operations with coins in grade 2.
Key Concept Summary: Measurement and Data Analysis ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

Grade Level 1 Summary	**Comments/Rationale – Grade Level**
❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	

Standards Review - Mathematics

Grade 2

KEY CONCEPT: NUMBER SENSE AND BASE TEN		
The student will	**Group Recommendations**	**Comments/Recommendations**
2.NSBT.1 Understand place value within 1,000 by demonstrating that: *a. 100 can be thought of as a bundle (group) of ten tens called a "hundred";* *b. the hundreds digit in a three-digit number represents the number of hundreds;* *c. three-digit numbers can be decomposed in multiple ways.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Although occurring in earlier grades (b) should also include 10s and 1s as they would likely be thought about collectively. Thus the following wording is recommended: *" the hundreds digit in a three-digit number represents the number of hundreds, the tens digit represents the number of tens, and the ones digit represents the number of ones;"* Part c should include an example similar to the following: 524 = 5 hundreds, 2 tens, and 4 ones = 4 hundreds, 12 tens, and 4 ones.
2.NSBT.2 Count within 1000 by 2s, 5s, 10s, and 100s beginning with 0.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
2.NSBT.3 Read, write and represent numbers to 1000 using concrete models, standard form, number names and expanded form.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
2.NSBT.4 Compare two three-digit numbers based on the meanings of the hundreds, tens and ones digits, using the symbols >, =, or <.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
2.NSBT.5 Add and subtract fluently within 100.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Fluency is predicated on a strong understanding of place value and number relationships, as such the following wording is suggested: "Add and subtract fluently within 100 using knowledge of place value and properties of operations."

KEY CONCEPT: NUMBER SENSE AND BASE TEN		
The student will	**Group Recommendations**	**Comments/Recommendations**
2.NSBT.6 Add up to four two-digit numbers using strategies and algorithms based on knowledge of place value and properties of operations.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	An algorithm (traditional, student invented, etc.) is subsumed in the term "strategies." Therefore, we recommend removing the word algorithms and leave as simply "strategies." "Add up to four two-digit numbers using strategies based on knowledge of place value and properties of operations."
2.NSBT.7 Add and subtract within 1000, using place value understanding and strategies.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	As operations are extended to larger place value parts, there is a pattern across grade levels of returning to multiple representations to demonstrate mathematical understanding. The review committee appreciates this construction and would like to see it present in this standard: "Add and subtract within 1000 using concrete models, pictures, and symbols which convey strategies connected to place value understanding."
2.NSBT.8 Use relationships to determine the number that is 10 or 100 more or less than a given number up to 900 and explain the reasoning used.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Clarify wording: "…explain the reasoning used <u>verbally and in writing</u>."
Key Concept Summary: Number Sense and Base Ten ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: ALGEBRAIC THINKING AND OPERATIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
2.ATO.1 Solve one- and two-step story problems involving addition and subtraction within 100.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	A similar construction to 1.ATO.1 needs to be included here. Problem types are analogous and equally important in grade 2. Standard would then read: "Solve story problems, including lengths that are given in the same units, using addition (as a joining action and as a part-part-whole action) and subtraction (as a separation action, finding parts of the whole, and as a comparison) within 100 with unknowns in all positions."
2.ATO.2 Demonstrate fluency with basic addition facts and related subtraction facts within 20.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Editorial changes for clarity and conciseness: remove "basic" and first instance of "facts": "Demonstrate fluency with addition and related subtraction facts within 20."
2.ATO.3 Determine whether a number up to 20 is odd or even using pairings of objects to represent the numbers.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Suggested pathways are included here ("using pairings of objects"), which the committee appreciates. Further pathways are necessary to included: "Determine whether a number up to 20 is odd or even using pairings of objects, counting by twos, or finding equal addends to represent the numbers."
2.ATO.4 Use addition to find the total number of objects arranged in a rectangular array with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal groups.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	This standard sets the formal pathway to multiplication in grade 3 with an area/array model. The committee views the area/array is a critical model extending into high school. Therefore, it is important to distinguish the area/array model from equal groups, which is a different (and more simplistic) model for multiplication as repeated addition. With this in mind, we suggest replacing "equal groups" with "equal addends"
Key Concept Summary: Algebraic Thinking and Operations ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: GEOMETRY		
The student will	**Group Recommendations**	**Comments/Recommendations**
2.G.1 Recognize, build, and sketch two-dimensional shapes (pentagon and octagon) and recognize and build three-dimensional shapes (square pyramid) based on defining attributes (e.g., number of angles, equal length of sides, right angles, closed, number of faces, etc.)	❑ Recommend ❑ Recommend with reservation(s) ☑ Do not recommend	The committee could not identify a rationale for the inclusion of the shapes in this standard. In particular, a vertical alignment view found this standard to be misguided in students' future geometric development in grades 3 – 5. In lieu of this standard, the committee recommends the following: "Identify triangles, quadrilaterals, pentagons, hexagons, and cubes. Recognize and draw shapes having specified attributes, such as a given number of angles or a given number of equal faces. " This standard allows students to begin to informally explore relationships among shapes with a focus on properties. Such opportunities are important as students head into more formal descriptions in grades 3 – 5.
2.G.2 Understand that when partitioning a two-dimensional shape into two, four, or eight equal parts, the parts become smaller as the number of parts increase.	❑ Recommend ❑ Recommend with reservation(s) ☑ Do not recommend	Partitioning descriptions are missing in structure of this standard. The committee proposes two standards in place of this one that highlight partitioning a rectangular whole into equal parts (which serves to prepare students for rational number development in grade 3, as well as area/array models for partitive multiplication (and distributive property) in grades 3 and 4. Learning trajectories for rational number development are well understood, and require opportunities for partitioning and iteration in grade 2 prior to more formal development in grade 3. The following standards would then become 2 and 3 in the geometry cluster: 2.G.2 Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. 2.G.3 Partition circles and rectangles into two, three, or four equal shares, describe the shares using the words halves, thirds, half of, a third of, etc., and describe the

KEY CONCEPT: GEOMETRY		
The student will	**Group Recommendations**	**Comments/Recommendations**
		whole as two halves, three thirds, four fourths. Recognize that equal shares of identical wholes need not have the same shape.
2.G.3 Identify two-dimensional regular and irregular shapes as polygons and non-polygons.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Becomes standard 4.
Key Concept Summary: Geometry ❑ Recommend ❑ Recommend with reservation(s) ☑ Do not recommend	**Comments/Rationale – Key Concept** The review committee finds that the Geometry Key Concept needs significant re-visioning due to the specification of geometric figures and the lack of partitioning and iteration, which prepares students for rational number concepts in grade 3. The committee has specified certain actions, which would alleviate conceptual gaps with regards to rationale numbers. It is further recommended that the K-2 writing team consult with the 3-5 writing team to cohesively address categorizations of geometric figures. To the extent possible, the committee recommends the development of standards which focus on classes of shapes and relationships among shapes over identification of discrete shapes.	

KEY CONCEPT: MEASUREMENT AND DATA ANALYSIS		
The student will	**Group Recommendations**	**Comments/Recommendations**
N/A	Additional Standard	The committee feels strongly that the number line is a critical representation for students' understanding of number. This is supported by a large volume of policy and research documents. Further, grades 3 – 5 make use of the number line to develop critical fraction concepts. Further, standard tools for measurement make use of number line models. As such, the inclusion of the following standard is critical in students' development: "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." The committee recommends the above standard be considered 2.MDA.1
2.MDA.1 Select and use appropriate tools to measure the length of an object.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Examples of appropriate tools are needed here. "… appropriate tools (e.g. rulers, yardsticks, meter sticks, measuring tape)" The assumption is that these are standard tools, but the point should be clarified.
2.MDA.2 Measure the same object or distance using a standard unit of one length and then a standard unit of a different length and explain how and why the measurements differ.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	To be consistent with language used throughout K-2, change language to "… and explain <u>verbally and in writing</u> how and why the measurements differ."
2.MDA.3 Estimate length/distance in customary units (inch, foot, yard) and metric units (millimeter, centimeter, meter).	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	The review committee recommends the removal of millimeter in grade 2. Millimeters are covered in grade 3 under 3.MDA.4. Further, we question the ability of 2nd grade students to use concrete objects to represent such a small linear measurement, thus we suggest delaying this unit of measure.

KEY CONCEPT: MEASUREMENT AND DATA ANALYSIS		
The student will	**Group Recommendations**	**Comments/Recommendations**
2.MDA.4 Measure to determine how much longer one object is than another, using standard length units.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
2.MDA.5 Use analog and digital clocks to tell and record time to the nearest five-minute interval using a.m. and p.m.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
2.MDA.6 Solve story problems involving dollar bills using the $ symbol or involving quarters, dimes, nickels and pennies using the ¢ symbol.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
2.MDA.7 Generate data by measuring objects in whole-unit lengths and organize the data in a line plot using a horizontal scale.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	The additional standard included in this domain (see above) affords opportunities to make connections to number line representations in specific ways, thus the following additional language is recommended: "… horizontal scale marked in whole number units."
2.MDA.8 Collect, organize, and represent data with up to four categories using picture graphs and bar graphs with a single-unit scale.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
2.MDA.9 Draw conclusions and make predictions from data representations.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	The committee appreciates the addition of this new standard. Some clarifying language is needed with regards to "make predictions." Is the language "more likely" "less likely" the sorts of predictions expected? It may be that more information resides in a support document, but it is the committee's belief that standards themselves should be clear so that measurements of them are equally clear.
Key Concept Summary: Measurement and Data Analysis ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

Grade Level 2 Summary	**Comments/Rationale – Grade Level**
❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	

Standards Review - Mathematics

Grade 3

KEY CONCEPT: NUMBER SENSE AND BASE TEN		
The student will	**Group Recommendations**	**Comments/Recommendations**
3.NSB.1Use place value understanding to round whole numbers to the nearest 10 or 100.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
3.NSB.2Add and subtract whole numbers fluently within 1000.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	To parallel grade 2.NSBT.5, please consider: "Add & Subtract fluently within 1000 using knowledge of place value and properties of operations."
3.NSB.3Multiply one-digit whole numbers by multiples of 10 in the range 10-90.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	For consistency to prior grades & to deepen the conceptual understanding, consider: "… the range 10-90, using knowledge of place value and properties of operations."
3.NSB.4Read and write numbers within 1,000,000 in standard and expanded form.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
3.NSB.5Compare and order numbers within 1,000,000 and represent the comparison using the symbols >, =, or <.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Number Sense and Base Ten ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** Appropriate mathematical vocabulary is critical. Please specify vocabulary terms in the support guide K-12.	

KEY CONCEPT: NUMBER SENSE -- FRACTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
3.NF.1 Develop an understanding of fractions as numbers. *a. A fraction 1/b (called a unit fraction) is the quantity formed by one part when a whole is partitioned into b equal parts;* *b. A fraction a/b is the quantity formed by a parts of size 1/b;* *c. Represent a fraction on a number line based on counts of a unit fraction.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	3.NF.2 requires students to demonstrate understanding fraction equivalence using set, area, & linear models. Perhaps consider: Including "Fraction be represented using set, area, and linear models." As 3.NF.1.c & then move current "c" to "d"
3.NF.2 Explain fraction equivalence by demonstrating an understanding that: *a. two fractions are equal if they are the same size, based on the same whole, or at the same point on a number line;* *b. fraction equivalence can be represented using set, area, and linear models;* *c. whole numbers can be written as fractions (e.g., 4 = 4/1 and 1 = 3/3);* *d. fractions with the same numerator or same denominator can be compared by reasoning about their size based on the same whole.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	To specify the expected equivalent fractions and to prepare students to encounter 4.NF.1, we recommend the following changes to part b: " *fraction equivalence can be represented using set, area, and linear model, limited to the unit fractions ¼, 1/3, ½."*
3.NF.3 Recognize and represent a mixed number as an equivalent fraction greater than one.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	The importance of the number line model permeates grade 3. The extension of this model is important to understanding mixed numbers. Operations with mixed numbers in grade 4 are predicated on a strong understanding of 3.NF1.b for numbers beyond 1. Furthermore, the existing standard does not communicate connectedness to the linear model nor the importance of iterating the unit fraction, which are important developmental concepts. As such, the review committee recommends the following language: *"Develop an understanding of mixed numbers as iterations of unit fractions on a number line."*
Key Concept Summary: Number Sense -- Fractions ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** Appropriate mathematical vocabulary is critical. Please specify vocabulary terms in the support guide.	

KEY CONCEPT: ALGEBRAIC THINKING AND OPERATIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
3.ATO.1 Use drawings and symbols to represent multiplication of two single-digit whole numbers and explain the relationship between the factors (0-10) and the product.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	3rd grade begins the foundation of multiplication, the review committee recommends the inclusion of the the words "concrete objects" written below: "Use concrete objects, drawings, and symbols to represent multiplication…"
3.ATO.2 Use drawings and symbols to represent division and explain the relationship among the whole-number quotient (0-10), divisor (1-10), and dividend.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	3rd grade begins the foundation of division, the review committee recommends the inclusion of the words "concrete objects" written below: "Use concrete objects, drawings, and symbols to represent division…"
3.ATO.3 Solve contextual problems using basic multiplication and related division facts. Represent the problem situation using an equation with a symbol for the unknown.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	To communicate the importance of multiplicative problem structures, the review committee recommends: *"Solve contextual problems* Involving equal groups, area/array, and number line models *using basic multiplication…"*
3.ATO.4 Determine the unknown whole number in a multiplication or division equation relating three whole numbers when the unknown is a missing factor, product, dividend, divisor, or quotient.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
3.ATO.5 Apply properties of operations as strategies to multiply and divide and explain the reasoning.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Specify the properties to be taught. Specify strategies on how they should be taught.(Commutative, Associative, & distributive).
3.ATO.6 Understand division as a missing factor problem.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
3.ATO.7 Demonstrate fluency with basic multiplication and related division facts within 100.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Of products and dividends within 100.

KEY CONCEPT: ALGEBRAIC THINKING AND OPERATIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
3.ATO.8 Solve two-step contextual problems using the four operations of addition, subtraction, multiplication and division.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	
3.ATO.9 Identify a rule for an arithmetic pattern.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Algebraic Thinking and Operations ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** Appropriate mathematical vocabulary is critical.	

KEY CONCEPT: GEOMETRY		
The student will	**Group Recommendations**	**Comments/Recommendations**
3.G.1 Understand that shapes in different categories may share attributes but the shared attributes can define a larger category.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	The review committee recommends the following additional language be included in the standard: "Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories."
3.G.2 Partition two-dimensional shapes into equal areas and describe these areas using the same unit fraction.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
3.G.3 Use a right angle as a benchmark to identify and sketch angles (right, acute, obtuse).	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
3.G.4 Identify a 3-Dimensional shape based on a given two-dimensional net & explain the reasoning.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	In grade 1, the review committee recommended the omission of right rectangular prism and right triangular prism from standard 1.G.4. The review committee find 3.G.4 to be an appropriate place to specify 3D shapes. Thus, the following language is recommend: "Identify 3D shapes right rectangular prism, right triangular prism, and pyramids based on a given 2D net and explain the relationship between the shape and the net."
Key Concept Summary: Geometry ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** Appropriate mathematical vocabulary is critical. Please specify vocabulary terms in the support guide k-12. Specify which shapes per grade k-12	

KEY CONCEPT: MEASUREMENT AND DATA ANALYSIS		
The student will	**Group Recommendations**	**Comments/Recommendations**
3.MDA.1 Use analog and digital clocks to determine and record time to the nearest minute, using a.m. and p.m.; measure time intervals in minutes; and solve problems involving addition and subtraction of time intervals in minutes.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Specify type of time intervals. Will students have to say something like 72 minutes have elapsed or would it be within 60 minutes? *"… subtraction of time intervals within 60 minutes."*
3.MDA.2 Estimate and measure liquid volumes (capacity) in customary units (cp., pt., qt., gal.) and metric units (ml, L) to the nearest whole unit	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
3.MDA.3 Collect, organize, and classify data with multiple categories and draw a scaled picture graph or a scaled bar graph to represent the data.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Change the word "or" to the word "and" "Collect, organize, classify <u>& interpret</u> data with multiple categories … *picture graph AND a scaled bar graph…"*
3.MDA.4 Generate data by measuring length to the nearest inch, half-inch, foot, yard, millimeter, centimeter, or meter, and organize the data in a line plot using a horizontal scale.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
3.MDA.5 Understand the concept of area measurement. *a. Recognize area as an attribute of plane figures;* *b. Measure area by counting standard unit squares;* *c. Determine the area of a rectilinear figure and relate to multiplication and addition.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Change "rectilinear" to the word "quadrilateral"
3.MDA.6 Determine the perimeter of a polygon (regular and irregular).	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Measurement and Data Analysis ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

Grade Level 3 Summary	**Comments/Rationale – Grade Level**
❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Please provide specificity throughout the standards with regards to SHAPE, Vocabulary, Measurement Units, Fraction Denominators, etc.**

Standards Review - Mathematics

Grade 4

KEY CONCEPT: NUMBER SENSE AND BASE TEN		
The student will	**Group Recommendations**	**Comments/Recommendations**
4.NSBT.1 Understand that, in a multi-digit whole number, a digit represents ten times what it would represent in the place to its right.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Clarify what "it" is. It should be the "same digit".
4.NSBT.2 Recognize and use number patterns to read and write in standard form large numbers including billions.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	To delineate the meaning of patterns, the review committee recommends: "Recognize math periods & number patterns within each period *to read and write in standard form large numbers including billions."*
4.NSBT.3 Round whole numbers to any given place value.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Rounding is but one form of estimation. Support document should outline multiple forms of estimation. The review committee recommends: "Estimate whole numbers to any place value."
4.NSBT.4 Add and subtract multi-digit whole numbers.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.NSBT.5 Multiply up to a four-digit number by a one-digit number and multiply a two-digit number by a two-digit number using strategies based on place value and the properties of operations.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.NSBT.6 Divide up to a four-digit dividend by a one-digit divisor using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	

KEY CONCEPT: NUMBER SENSE AND BASE TEN		
The student will	**Group Recommendations**	**Comments/Recommendations**
Key Concept Summary: Number Sense and Base Ten ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: NUMBER SENSE AND OPERATIONS -- FRACTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
4.NF.1 Explain why a fraction, a/b, is equivalent to a fraction, (nxa)/(nxb), by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.NF.2 Compare two given fractions with different numerators and different denominators using a variety of methods, and represent the comparison using the symbols <,>,=.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.NF.3 Develop an understanding of addition and subtraction of fractions based on unit fractions. *a. Compose and decompose a fraction in more than one way, recording each composition and decomposition as an addition or subtraction equation;* *b. Add and subtract mixed numbers with like denominators, representing the mixed numbers as their equivalent fractions;* *c. Solve contextual problems involving addition and subtraction of fractions referring to the same whole and having like denominators.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	*The review committee recommends the deletion of the following language, since this was part of the standard from 3.NF.3* *"b. Add and subtract mixed numbers with like denominators. ~~representing the mixed numbers as their equivalent fractions;"~~*
4.NF.4 Apply and extend understanding of multiplication to multiply a whole number by a fraction to solve mathematical and contextual problems.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	The standard as written it too vague for teachers and not easily measured. The committee recommends the following language as a – c substandards: a. Understand a fraction a/b as a multiple of 1/b. For example, use a visual fraction model to represent 5/4 as the product 5 × (1/4), recording the conclusion by the equation 5/4 = 5 × (1/4). b. Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express 3 × (2/5) as 6 × (1/5), recognizing this product as

KEY CONCEPT: NUMBER SENSE AND OPERATIONS -- FRACTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
		6/5. (In general, n × (a/b) = (n × a)/b.) c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. For example, if each person at a party will eat 3/8 of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?
4.NF.5 Express a fraction with a denominator of 10 as an equivalent fraction with a denominator of 100 and use this technique to add two fractions with respective denominators 10 and100.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.NF.6 Write a fraction with a denominator of 10 or 100 using decimal notation and read and write a decimal as a fraction.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.NF.7 Compare and order decimals to hundredths and justify using concrete and visual models.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Number Sense and Operations -- Fractions ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** Please specify the denominators to be addressed in the 4th grade in the support document.	

KEY CONCEPT: ALGEBRAIC THINKING AND OPERATIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
4.ATO.1 Interpret a multiplication equation as a comparison. For example, interpret 35 = 5x7 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.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.ATO.2 Solve contextual problems using multiplication (product unknown) and division (group size unknown, number of groups unknown).	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.ATO.3 Solve multi-step contextual problems using the four operations. Represent the problem using an equation with a variable as the unknown quantity.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.ATO.4 Recognize that a whole number is a multiple of each of its factors. Find all factors for a whole number in the range 1-100 and determine whether the whole number is prime or composite.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.ATO.5 Generate a number or shape pattern that follows a given rule and determine an element that falls later in the sequence	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Algebraic Thinking and Operations ☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: GEOMETRY		
The student will	**Group Recommendations**	**Comments/Recommendations**
4.G.1 Draw points, lines, line segments, rays and angles (right, acute, obtuse). Identify these in two-dimensional figures.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.G.2 Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.	❑ Recommend ❑ Recommend with reservation(s) ☑ Do not recommend	The review committee finds this standard to include multiple measureable standards. As such, the review committee recommends the delineation of the standards in the following way: 4.G.2 Classify quadrilaterals based on the presence or absence of parallel or perpendicular lines. 4.G.3 Recognize right triangles as a category, and identify right triangles.
4.G.4 Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.	New Standard	The review committee recommends the addition of this standard as symmetry has been omitted in K-5 completely. This is an appropriate point to integrate symmetry as students begin to solidify understandings of 2D shapes.
Key Concept Summary: Geometry ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: MEASUREMENT AND DATA ANALYSIS		
The student will	**Group Recommendations**	**Comments/Recommendations**
4.MDA.1 Convert measurements within a single system of measurement, customary (in., ft., yd., oz., lb., Tbsp., cp., pt., qt., gal., sec., min., hr.) or metric (g, kg, mm, cm, m, km, mL, L) from a larger to a smaller unit.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.MDA.2 Solve contextual problems involving distance, intervals of time, liquid volume, mass, and money using the four operations.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.MDA.3 Apply the area and perimeter formulas for rectangles.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.MDA.4 Make a line plot to display a data set of measurements in fractions of a unit.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	To parallel construction to grade 3 and to increase rigor, the committee recommends the following changes: "Generate and interpret a line plot to display a set of measurements in fractions of a unit."
4.MDA.5 Measure angles in whole number degrees using a protractor.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
4.MDA.6 Solve addition and subtraction problems to find unknown angles.	❑ Recommend ❑ Recommend with reservation(s) ☑ Do not recommend	This standard is unclear. What types of problems? Is complementary and supplementary included? Sum of the interior angles of a polygon? The current state standard 4.MD.7 provides much more clarity.
4.MDA.7 Determine the value of a collection of coins and bills greater than $1.00.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Measurement and Data Analysis ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

Grade Level 4 Summary	**Comments/Rationale – Grade Level**
❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	

Standards Review - Mathematics

Grade 5

KEY CONCEPT: NUMBER SENSE AND BASE TEN		
The student will	**Group Recommendations**	**Comments/Recommendations**
5.NSBT.1 Understand in a multi-digit whole number, a digit in one place represents 10 times what it represents in the place to its right, and represents 1/10 times what it represents in the place to its left.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Clarify what "it" is. It should say the "same digit".
5.NSBT.2 Write and evaluate numerical expressions involving whole number exponents as a power of 10. *a. Understand how the whole number exponents as a power of 10 affects the value of the base;* *b. Identify the relationship between the exponent and the number of zeros in the product.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Exponents – affects (subject verb agreement)
5.NSBT.3 Read, write and compare decimal numbers to thousandths in standard and expanded form.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Standard needs clarity – "Read & Write decimals in both forms. Compare decimal numbers to the thousandths." If the intent was to compare in expanded form, then please clarify in support documents.
5.NSBT.4 Round decimals to any given place value within thousandths.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
5.NSBT.5 Divide up to a four-digit dividend by a two-digit divisor, using strategies based on place value, the properties of operations, and the relationship between multiplication and division.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
5.NSBT.6 Add, subtract, multiply, and divide decimals to hundredths using models or drawings.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	To develop fluency with operations with decimals, the review committee recommends the following changes in language to: "…concrete area models and drawings"

KEY CONCEPT: NUMBER SENSE AND BASE TEN		
The student will	**Group Recommendations**	**Comments/Recommendations**
Key Concept Summary: Number Sense and Base Ten ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** *****Missing standard that needs to be added*** Fluency with multiplication NBT.5 MUST be added.**	

KEY CONCEPT: NUMBER SENSE AND OPERATIONS -- FRACTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
5.NF.1 Add and subtract fractions with unlike denominators including mixed numbers, using a variety of strategies.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Change the word "strategies" to the word "models" Include in this standard, something like "using or including visual models, area model, number lines, etc." instead of "using a variety of strategies" Do the strategies matter, if so, they should be specified. *Add and subtract fractions,* ***represented as areas & lengths,*** *with unlike denominators including mixed numbers, ~~using a variety of strategies~~*
5.NF.2 Solve contextual problems involving addition and subtraction of fractions with unlike denominators.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
5.NF.3 Understand the relationship between fractions and division of whole numbers by interpreting a fraction as the numerator divided by the denominator (a/b = a ÷ b).	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
5.NF.4 Extend the concept of multiplication to multiply a fraction or whole number by a fraction. *a. Interpret multiplication of a fraction by a whole number and a whole number by a fraction and compute the product;* *b. Interpret multiplication in which both factors are fractions less than one and compute the product;* *c. Recognize the relationship between multiplying fractions and finding the areas of rectangles with fractional side lengths.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	To afford a logical sequencing, please place c. first & let a. & b. follow Since students compute with mixed numbers in grade 4.NF.4 (based upon the recommended revisions), expansion of these concepts to grade 5 would benefit from the following addition to the stem: "…whole number by a fraction and a mixed number."
5.NF.5 Explain the reasonableness of a product when multiplying with fractions. *a. Estimate the size of the product based on the size of the two factors;* *b. Explain why multiplying a given number by*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	

KEY CONCEPT: NUMBER SENSE AND OPERATIONS -- FRACTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
a number greater than 1 (e.g., fractions, mixed numbers, whole numbers) results in a product larger than the given number; *c. Explain why multiplying a given number by a fraction less than 1 results in a product smaller than the given number;* *d. Explain why multiplying the numerator and denominator by the same number has the same effect as multiplying the fraction by 1.*		
5.NF.6 Solve contextual problems involving multiplication of fractions including mixed numbers.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
5.NF.7 Extend the concept of division to divide unit fractions and whole numbers. *a. Interpret division of a unit fraction by a non-zero whole number and compute the quotient;* *b. Interpret division of a whole number by a unit fraction and compute the quotient.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	To deepen a conceptual understanding of division of fractions, add to the end of the stem: "… *by using visual fraction models and equations."*
5.NF.8 Solve contextual and mathematical problems involving division of unit fractions and whole numbers by using visual fraction models and equations	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Contextual problems are inherently mathematical. Further, contextual problems insinuate particular modes, making the additional language unnecessary. *Solve contextual ~~and mathematical~~ problems involving division of unit fractions and whole numbers ~~by using visual fraction models and equations.~~*
Key Concept Summary: Number Sense and Operations -- Fractions ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: ALGEBRAIC THINKING AND OPERATIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
5.ATO.1 Write and evaluate numerical expressions involving parentheses.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Parentheses serve as one type of grouping symbol. Broader language that includes braces, brackets, and parentheses provides mathematical coherence. The review committee recommends the following changes: … involving grouping symbols."
5.ATO.2 Translate verbal phrases into numerical expressions and interpret numerical expressions as verbal phrases.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
5.ATO.3 Investigate the relationship between two numerical patterns. *a. Generate two numerical patterns given two rules and organize in tables;* *b. Translate the two numerical patterns into two sets of ordered pairs;* *c. Graph the two sets of ordered pairs on the same coordinate plane;* *d. Identify the relationship between the two numerical patterns.*	❑ Recommend ❑ Recommend with reservation(s) ☑ Do not recommend	Although the standard is clearly written, however, the standard is a misinterpretation of the existing state standard. Please change the standard to read as… Generate two numerical patterns using given rules, record them in a table, and graph the corresponding values of the patterns as ordered pairs on the coordinate plane.
Key Concept Summary: Algebraic Thinking and Operations ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: GEOMETRY		
The student will	**Group Recommendations**	**Comments/Recommendations**
5.G.1 Define a coordinate system. *a. The x- and y- axes are perpendicular number lines that intersect at 0 (the origin);* *b. Any point on the coordinate plane can be represented by its coordinates;* *c. The first number in an ordered pair is the x-coordinate and represents the horizontal distance from the origin;* *d. The second number in an ordered pair is the y-coordinate and represents the vertical distance from the origin.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
5.G.2 Plot and interpret points in the first quadrant of the coordinate plane to represent contextual and mathematical situations.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	As contextual situations are mathematical, the review committee recommends the following changes: *Plot and interpret points in the first quadrant of the coordinate plane to represent contextual* ***&*** ***non-contextual*** *mathematical situations.*
5.G.3 Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
5.G.4 Classify two-dimensional figures in a hierarchy based on their attributes.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Geometry ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: MEASUREMENT AND DATA ANALYSIS		
The student will	**Group Recommendations**	**Comments/Recommendations**
5.MDA.1 Convert between measurement units within a given measurement system.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
5.MDA.2 Create a line plot consisting of unit fractions and use operations on fractions to solve problems related to the line plot.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
5.MDA.3 Understand the concept of volume measurement. *a. Recognize volume as an attribute of right rectangular prisms;* *b. Measure volume by counting standard unit cubes;* *c. Determine the volume of right rectangular prisms and relate to the operations of multiplication and addition.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
5.MDA.4 Differentiate among perimeter, area and volume and identify when the application of those conceptsis appropriate for a given situation.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Measurement and Data Analysis ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	
Grade Level 5 Summary ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Grade Level**	

Standards Review - Mathematics

Grade 6

KEY CONCEPT: THE NUMBER SYSTEM		
The student will	**Group Recommendations**	**Comments/Recommendations**
6.NS.1 Use a variety of procedures to compute and represent quotients of positive rational numbers, including fractions divided by fractions. Include visual models, equations, and real-world situations.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Does "real world situations" mean "word problems?" Specify in support document what is meant by "equations" $\frac{a}{b} \div \frac{c}{d} = \frac{ad}{bc}$ <u>and</u> equation for common denominators Include number line models in support document
6.NS.2 Fluently compute the division of multi-digit whole numbers using a standard algorithmic approach.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Like the use of "a standard algorithm" In support document include multiple algorithmic approaches to division: long division, partial quotients
6.NS.3 Fluently compute the addition, subtraction, multiplication, and division of multi-digit decimal numbers using a standard algorithmic approach.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Define "fluently compute" – does it mean, accurate, efficient, flexible?
6.NS.4 Perform computations with two whole numbers. *Compute the greatest common factor (GCF) within 100.* *Compute the least common multiple (LCM) within 12.* a. *Express sums of two whole numbers, each within 100, using the distributive property to factor out the GCF of the original addends.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	The use of "within" phrasing instead of CC "less than or equal to 100" or 12 makes this standard incomprehensible. Emphasize whole numbers (no integers). Rewrite part c to include all common factors (distributive property in reverse is a good idea). Example from CC makes this clear: $40 = 30 + 10 = 10(3 + 1) = 5(6 + 2) = 2(15 + 5)$ – support document?
6.NS.5 Understand that the positive and negative representations of a number are opposites in direction and value. Use these numbers to represent quantities in real-world situations and explain the meaning of zero in each situation.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Include explanation "for example" from CC in support document for further clarification.
6.NS.6 Associate rational numbers with a location on a number line and extend to the coordinate plane.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Include examples in support document.

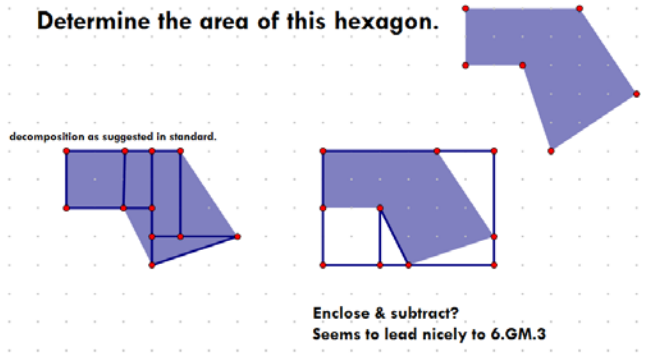
KEY CONCEPT: THE NUMBER SYSTEM		
The student will	**Group Recommendations**	**Comments/Recommendations**
a. Understand the concept of opposite numbers, including zero, and their relative locations on the number line. *b. Understand that the signs of the coordinates in ordered pairs indicate their location on an axis or in a quadrant on the coordinate plane.* *c. Understand that (a,b), (-a,b), (a,-b), and (-a,-b) are reflections of each other on the coordinate plane across one or both axes.* *d. Plot rational numbers on number lines and ordered pairs on coordinate planes.*		
6.NS.7 Understand and apply the concepts of comparing, ordering, and absolute value to rational numbers. *a. Interpret statements using less than (<), greater than (>), and equal to (=) as relative locations on the number line.* *b. Use concepts of equality and inequality to write and explain real-world and mathematical situations.* *c. Use absolute value of a rational number to represent real-world situations and understand that absolute value represents a number's distance from zero on the number line.* *d. Recognize the difference between comparing absolute values and ordering rational numbers. For negative rational numbers, understand that as the absolute value increases, the value of the negative number decreases.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Include examples in support document.
6.NS.8 Extend knowledge of the coordinate plane to solve real-world and mathematical problems. *a. Plot points in all four quadrants.* *b. Find the distance between two points when ordered pairs have the same x-coordinates or same y-coordinates.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	

KEY CONCEPT: THE NUMBER SYSTEM		
The student will	**Group Recommendations**	**Comments/Recommendations**
c. Relate finding the distance between two points in a coordinate plane to absolute value using a number line.		
6.NS.9 Translate among multiple representations of rational numbers (fractions, decimal numbers, percentages). Fractions should be limited to those with denominators of 2, 3, 4, 5, 8, and 10.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Add denominator of 100.
Key Concept Summary: The Number System ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** Consistent verbiage throughout grade 6; verbs investigate, explore, apply, extend, discover are missing from Number System yet they appear in all others. Suggests computation only. Assume there will be a support document so subgroup is making recommendations about information that should appear in that document to further clarify/explain standard.	

KEY CONCEPT: RATIOS AND PROPORTIONAL RELATIONSHIPS		
The student will	**Group Recommendations**	**Comments/Recommendations**
6.RP.1 Interpret the concept of a ratio as the relationship between two quantities including part to part and part to whole.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
6.RP.2 Investigate relationships between ratios and rates. *a. Translate between multiple representations of ratios (a/b, a:b, a to b).* *b. Recognize that a rate is a type of ratio involving two different units.* *c. Convert from rates to unit rates.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
6.RP.3 Apply the concepts of ratios and rates to solve real-world and mathematical problems. *a. Create a table consisting of equivalent ratios and plot the results on the coordinate plane.* *b. Use multiple representations including tape diagrams, tables, double number lines, and equations to find missing values of equivalent ratios.* *c. Use two tables to compare related ratios.* *d. Apply concepts of unit rate to solve problems including unit pricing and constant speed.* *e. Understand that a percentage is a rate per 100 and use this to solve problems involving wholes, parts, and percentages.* *f. Use unit rates to solve one-step dimensional analysis problems.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Clarification needed for solving one-step dimensional analysis problems. Is conversion of measurement units included here? For example, miles to yards.
Key Concept Summary: Ratios and Proportional Relationships ☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: EXPRESSIONS, EQUATIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
6.EEI.1 Write and evaluate numerical expressions involving whole-number exponents.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
6.EEI.2 Extend the concepts of numerical expressions to algebraic expressions. *a. Translate between verbal phrases involving variables and algebraic expressions.* *b. Investigate and identify parts of algebraic expressions using mathematical terminology including term, coefficient, constant, and factor.* *c. Evaluate real-world and algebraic expressions for specific values using the Order of Operations.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Order of operations – need to know the content limit here (seems like this needs to be added to 7th EEI.3 as well to include expressions with fraction bar (vinculum) as a grouping symbol.
6.EEI.3 Apply mathematical properties (e.g., commutative, associative, distributive) to generate equivalent expressions.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
6.EEI.4 Apply mathematical properties (e.g., commutative, associative, distributive) to justify that two expressions are equivalent.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
6.EEI.5 Understand that the solution set for an equation or inequality consists of values that make the equation or inequality true.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Add “if any solutions exist” and “infinitely many solutions”.
6.EEI.6 Write expressions using variables to represent quantities in real-world and mathematical situations. Understand the meaning of the variable in the context of the situation.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
6.EEI.7 Write and solve one-step linear equations in one variable involving nonnegative rational numbers for real-world and mathematical situations.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	

KEY CONCEPT: EXPRESSIONS, EQUATIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
6.EEI.8 Extend knowledge of inequalities used to compare numerical expressions to include algebraic expressions. *Write an inequality of the form x>c or x<c and graph the solution set on a number line.* *Recognize that inequalities have infinitely many solutions.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Include $x \geq c$ and $x \leq c$ and $x \neq c$. Include the commonly used words associated with inequalities: at most, maximum, at least, etc. in support document (helps students makes sense of answer in context of real world situations – can I really purchase 3 .75 shirts for $50?)
6.EEI.9 Investigate multiple representations of relationships in real-world and mathematical situations. *a. Write an equation that models a relationship between independent and dependent variables.* *b. Analyze the relationship between independent and dependent variables using graphs and tables.* *c. Relate graphs and tables to equations.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Replace "relate" with "translate among/between" - as written standard has reduced rigor. In support document suggest _____ determines _____ for conceptualizing independent & dependent variable distinction. ____ depends _____ confusing for many students.
Key Concept Summary: Expressions, Equations and Inequalities ☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: GEOMETRY AND MEASUREMENT		
The student will	**Group Recommendations**	**Comments/Recommendations**
6.GM.1 Solve real-world and mathematical problems involving area of polygons. *a. Compute the area of right triangles by composing two triangles into a rectangle.* *b. Compute the area of other triangles by composing two triangles into a parallelogram.* *c. Compute the area of special quadrilaterals and polygons by decomposing these figures into triangles and rectangles.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Composing two triangles" should be "duplicating the original." Clarify what is meant by "other polygons" (regular, irregular) and special quadrilaterals (kite, trapezoid, isosceles trapezoid, rhombus, parallelogram).
6.GM.2 Pack a right rectangular prism (fractional edge lengths) with unit cubes of fractional edge lengths to discover the formulas for volume (V=lwh,V=Bh) are the same for whole or fractional edge lengths. Apply these formulas to solve real-world and mathematical problems.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
6.GM.3 Apply the concepts of polygons and the coordinate plane to real-world and mathematical situations. *a. Given coordinates of the vertices, draw a polygon in the coordinate plane.* *b. Find the length of an edge if the vertices have the same x-coordinates or same y-coordinates.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
6.GM.4 Unfold three-dimensional figures into two-dimensional rectangles and triangles (nets) in order to find the surface area and solve real-world and mathematical problems.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	

Key Concept Summary: Geometry and Measurement ☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**

KEY CONCEPT: DATA ANALYSIS AND STATISTICS		
The student will	**Group Recommendations**	**Comments/Recommendations**
6.DS.1 Differentiate between statistical questions and non-statistical questions.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	In support document, provide examples of statistical questions and non-statistical questions.
6.DS.2 Use center, spread, and shape to describe the distribution of a set of data collected to answer a statistical question.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
6.DS.3 Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
6.DS.4 Select and create an appropriate display for numerical data including dot plots, histograms, and box plots.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
6.DS.5 Describe numerical data sets in relation to their real-world context. *a. State the sample size.* *b. Describe the qualitative aspects of the data (e.g., how it was measured, units of measurement).* *c. Give measures of center (median, mean).* *d. Give measures of variability (interquartile range, mean absolute deviation).* *e. Describe the overall pattern (shape) of the distribution.* *f. Justify the choices for measure of center and measure of variability based on the shape of the distribution.* *g. Describe the impact that inserting or deleting a data point has on the measures of center (median, mean) for a data set.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	In support document include descriptive terms: skew left, skew right, (approximately) symmetric. Absolute value is reference is in 6.NS.8; where is it defined formally?

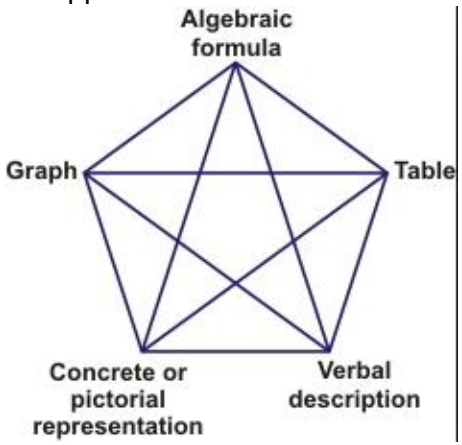
Key Concept Summary: Data Analysis and Statistics ☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** Address role of technology as a tool for exploring/investigating statistical questions. How much calculation "by hand" vs. Hand-held s or computer applications (support document).
Grade Level 6 Summary ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Grade Level** Support document will be key component in describing and providing examples of standards.

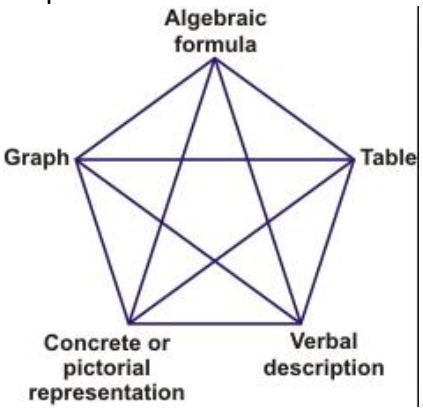
Standards Review - Mathematics

Grade 7

KEY CONCEPT: THE NUMBER SYSTEM		
The student will	**Group Recommendations**	**Comments/Recommendations**
7.NS.1 Extend prior knowledge of operations with positive rational numbers to add and subtract all rational numbers and represent the sum or difference on a number line. *a. Understand that the additive inverse of a number is its opposite and their sum is equal to zero.* *b. Understand that the sum of two rational numbers ($p + q$) represents a distance from p on the number line equal to $\|q\|$ where the direction is indicated by the sign of q.* *c. Translate between the subtraction of rational numbers and addition using the additive inverse, $p - q = p + (-q)$.* *d. Demonstrate that the distance between two rational numbers on the number line is the absolute value of their difference.* *e. Apply mathematical properties (e.g., commutative, associative, distributive, or the properties of identity and inverse elements) to add and subtract rational numbers.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	In support document specify models (number line, two color counters, etc.).
7.NS.2 Extend prior knowledge of operations with positive rational numbers to multiply and divide all rational numbers. *a. Understand that the multiplicative inverse of a number is its reciprocal and their product is equal to one.* *b. Understand rules for multiplying signed numbers.* *c. Understand rules for dividing signed numbers and that a quotient of integers (with a non-zero divisor) is a rational*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	

KEY CONCEPT: THE NUMBER SYSTEM		
The student will	**Group Recommendations**	**Comments/Recommendations**
number. *d. Apply mathematical properties (e.g., commutative, associative, distributive, or the properties of identity and inverse elements) to multiply and divide rational numbers.* *e. Understand that some rational numbers can be written as integers and all rational numbers can be written as fractions or decimal numbers that terminate or repeat.*		
7.NS.3 Apply the concepts of all four operations with rational numbers to solve real-world and mathematical problems.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
7.NS.4 Understand and apply the concepts of comparing and ordering to rational numbers. *a. Interpret statements using less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥) and equal to (=) as relative locations on the number line.* *b. Use concepts of equality and inequality to write and explain real-world and mathematical situations.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
7.NS.5 Translate among multiple representations of rational numbers (fractions, decimal numbers, percentages).	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: The Number System ☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: RATIOS AND PROPORTIONAL RELATIONSHIPS		
The student will	**Group Recommendations**	**Comments/Recommendations**
7.RP.1 Compute unit rates including those involving complex fractions with like or different units.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	In support document clarify meaning of "complex fractions" with examples: Run $\frac{1}{2}$ mile in $\frac{1}{4}$ hour = $\frac{\frac{1}{2}mile}{\frac{1}{4}hour} = \frac{1mile}{hour} * 4 = \frac{2miles}{1hour}$ An additional example would be useful.
7.RP.2 Identify and model proportional relationships given multiple representations, including tables, graphs, equations, diagrams, verbal descriptions, and real-world situations. *a. Determine when two quantities are in a proportional relationship.* *b. Recognize or compute the constant of proportionality.* *c. Understand that the constant of proportionality is the unit rate.* *d. Use equations to model proportional relationships.* *e. Investigate the graph of a proportional relationship and explain the meaning of specific points (e.g., origin, unit rate) in the context of the situation.* *f.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	In support document remind teachers of this model: 
7.RP.3 Solve real-world and mathematical problems involving ratios and percentages using proportional reasoning (e.g., multi-step dimensional analysis, percent increase/decrease, tax).	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	In support document, further clarify test for proportionality with examples: • Equivalent ratios in a table • Graphing on coordinate plane to see of graph is a straight line through the origin • Identify the constant of proportionality (unit rate) in all representations (tables, graphs, equations, diagrams and verbal descriptions) • Special attention to the points (0, 0) and ((1, r) where r is the unit rate.

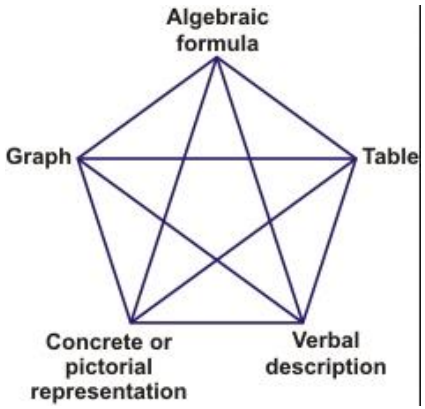
KEY CONCEPT: RATIOS AND PROPORTIONAL RELATIONSHIPS		
The student will	**Group Recommendations**	**Comments/Recommendations**
		Reiterate the importance of thinking about proportional relationships with this model in mind.  Specify the real-world situations to be considered: • Simple interest • Tax (sales, income) • Gratuities and commissions • Mark-ups and mark-downs • Percent increase and percent decrease • Percent error What is meant by multi-step dimensional analysis? Further clarification – is this what you intend? Example: If the total cost of a lunch order is proportional to the number of boxes purchased at a constant rate of \$6/box, the relationship between the total cost and the number of boxes ordered can be expressed as T=6b and $T = \frac{\$6}{box} * b$ boxes = $\$6b$ Or…Total distance traveled is a function of time Driving at 60 miles per hour. D=60t and we travel for 5 hours and 15 minutes?

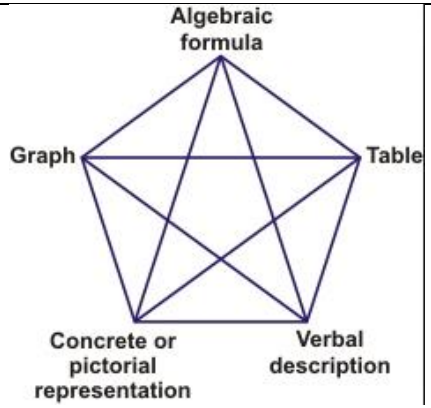
Key Concept Summary: Ratios and Proportional Relationships ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**

KEY CONCEPT: EXPRESSIONS, EQUATIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
7.EEI.1 Apply mathematical properties (e.g., commutative, associative, distributive) to simplify and factor linear algebraic expressions with rational coefficients.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	In support document elaborate on what is meant by simplify (add, subtract, expand).
7.EEI.2 Recognize that algebraic expressions may have a variety of equivalent forms and determine an appropriate form for a given real-world situation.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	In support document clarify with examples: • a + 0.10a = 1.10a means that "increase by 10%" is the same as "multiply by 1.10" • a – 0.10a = 0.90a means that "decrease by 10%" is the same as "multiply by 0.90" (Implied but we think this needs to be explicit)
7.EEI.3 Use appropriate procedures to efficiently solve multi-step real-world and mathematical problems involving rational numbers. Determine the reasonableness of the solution.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Add "positive and negative" rational numbers in standard. In support document reiterate that rational numbers include whole numbers, fractions and decimals.
7.EEI.4 Apply the concepts of linear equations and inequalities in one variable to real-world and mathematical situations. *a. Write and fluently solve linear equations of the form $ax + b = c$ and $a(x + b) = c$.* *b. Write and solve multi-step linear equations that include the use of the distributive property and combining like terms.* *c. Write and solve two-step linear inequalities. Graph the solution set on a number line and interpret its meaning.* *d. Identify and justify the steps for solving multi-step linear equations and two-step linear inequalities.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	In support document suggest solving linear equations of form $c = ax + b$ and $c = a(x + b)$ as well. Provide an example – for instance: • Jodie cleans the bird cages at an animal shelter. There are seven adult birds already living at the shelter, and some baby birds were just born, b. Each adult or baby bird as its own cage that takes 3 minutes to clean. $T = 3(b + 7)$ In support document list the properties of operations that apply to the rational number system: • Associative property of addition • Commutative property of addition • Additive property of zero • Existence of additive inverses • Associative property of multiplication

KEY CONCEPT: EXPRESSIONS, EQUATIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
		• Commutative property of multiplication • Multiplicative identity of one • Existence of multiplicative inverses • Distributive property of multiplication over addition In support document list the properties of equality that apply to the rational number system (real and complex): • Reflexive property of equality • Symmetric property of equality • Transitive property of equality • Addition property of equality • Subtraction property of equality • Multiplication property of equality • Division property of equality • Substitution property of equality In support document list the properties of inequality. [a, b and c are arbitrary numbers in the rational (or real) number system]: • Exactly one of the following is true: $a < b, a = b, a > b$. • If $a > b \text{ and } b > c, \text{then } a > c$. • If $a > b, \text{then} - a < -b$. • If $a > b, \text{then } a \pm c > b \pm c$. • If $a > b \text{ and } c > 0, \text{then } a * c > b * c$. • If $a > b \text{ and } c < 0, \text{then } a * c < b * c$. • $a > b \text{ and } c > 0, \text{then } a \div c > b \div c$. • $a > b \text{ and } c < 0, \text{then } a \div c < b \div c$. In support document provide an example (or two) of 7.EEI.4d.

KEY CONCEPT: EXPRESSIONS, EQUATIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
7.EEI.5 Understand and apply the laws of exponents to simplify numerical expressions that include whole-number exponents.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	In standard specify laws of exponents: • Product rule • Quotient rule • Power to a power • Product to a power • Quotient to a power
Key Concept Summary: Expressions, Equations and Inequalities ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: GEROMETRY AND MEASUREMENT		
The student will	**Group Recommendations**	**Comments/Recommendations**
7.GM.1 Determine the scale factor and translate between scale models and actual measurements (e.g., lengths, area) of real-world objects and geometric figures using proportional reasoning.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	In support document emphasize connections Between multiple representations: 
7.GM.2 Construct triangles and other geometric figures. *a. Construct triangles given all measurements of either angles or sides.* *b. Decide if the measurements determine a unique triangle or no triangle.* *c. Construct other geometric figures given specific parameters about angles or sides.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Need to add use of tools (rulers, protractors, others).
7.GM.3 Describe two-dimensional cross-sections of three-dimensional figures, specifically right rectangular prisms and right rectangular pyramids.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	In support document provide examples of all possible polygons resulting from the slicing (at any angle) of the right rectangular prisms and right rectangular pyramids. Encourage use of concrete models and the use of technology.
7.GM.4 Investigate the concept of circles. *a. Demonstrate an understanding of the proportional relationships between diameter, radius, and circumference of a circle.* *b. Know that the constant of proportionality*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Make connections with circle $c = \pi d$ to direct variation and proportionality $y = kx$.

KEY CONCEPT: GEROMETRY AND MEASUREMENT		
The student will	**Group Recommendations**	**Comments/Recommendations**
between the circumference and diameter is π. *c. Explore the relationship between circumference and area using a visual model.* *d. Use the formulas for circumference and area of circles appropriately to solve real-world and mathematical problems.*		
7.GM.5 Write equations to solve problems involving the relationships between angles formed by intersecting lines including supplementary, complementary, vertical, and adjacent.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
7.GM.6 Apply the concepts of two- and three-dimensional figures to real-world and mathematical situations. *a. Understand that the concept of area is applied to two-dimensional figures such as triangles, quadrilaterals, and polygons.* *b. Understand that the concepts of volume and surface area are applied to three-dimensional figures such as cubes, right rectangular prisms, and right triangular prisms.* *c. Use the formulas for area, volume, and surface area appropriately.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Provide examples of a regular and an irregular Polygonal base in 2D to its corresponding prism (for volume, packing/filling and for surface area, covering with net to develop $v = Bh$ and $SA = 2B + area\ of\ lateral\ faces$. As written, we fear teachers will go straight to formulas; visualization of solids & decomposition into component polygons is very important and needs to be developed more from grade 6.
Key Concept Summary: Geometry and Measurement ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: DATA ANALYSIS, STATISTICS AND PROBABILITY		
The student will	**Group Recommendations**	**Comments/Recommendations**
7.DSP.1 Investigate concepts of random sampling. *a. Understand that a sample is a subset of a population and both possess the same characteristics.* *b. Differentiate between random and non-random sampling.* *c. Understand that generalizations from a sample are valid only if the sample is representative of the population.* *d. Understand that random sampling is used to gather a representative sample and supports valid inferences about the population.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
7.DSP.2 Draw inferences about a population by collecting multiple random samples of the same size to investigate variability in estimates of the parameter (characteristic of interest).	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Cite example from Common Core in support Document. Suggest a variety of sampling. Examples: • Mean word length • % of blue M&Ms in fun size bag, etc. • Low tech/no tech to simulations; conduct hands-on simulations and experiments
7.DSP.3 Visually compare the centers, spreads, and overlap of two displays of data that are graphed on the same scale.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Add “and draw inferences about this data” after phrase highlighted in yellow.
7.DSP.4 Compare the numerical measures of center and variability from two random samples to draw inferences about the populations.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Provide examples of types of graphs to compare/consider: • Line plots versus box plots • Box plots versus box plots • Box plots versus histograms Specify measures of center (mean and median) and measures of variability (Mean absolute deviation and

KEY CONCEPT: DATA ANALYSIS, STATISTICS AND PROBABILITY		
The student will	**Group Recommendations**	**Comments/Recommendations**
		interquartile range). Emphasize that numerical and graphical summaries should be considered together.
7.DSP.5 Investigate the concept of probability of chance events. *a. Determine probabilities of simple events.* *b. Understand that probability measures likelihood of a chance event occurring.* *c. Understand that the probability of a chance event is a number between 0 and 1.* *d. Understand that a probability closer to 1 indicates a likely chance event.* *e. Understand that a probability close to ½ indicates that a chance event is neither likely nor unlikely.* *f. Understand that a probability closer to 0 indicates an unlikely chance event.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
7.DSP.6 Investigate the relationship between theoretical and experimental probabilities. *a. Predict outcomes using theoretical probability.* *b. Perform experiments that model theoretical probability.* *c. Compare theoretical and experimental probabilities.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	"Predict" suggests a result from empirical/experimental probability investigation; consider use of the verb "determine" instead. Add "for simple events."
7.DSP.7 Apply the concepts of theoretical and experimental probabilities. *a. Differentiate between uniform and non-uniform probability models (distributions).* *b. Develop both uniform and non-uniform probability models.* *c. Perform experiments to test the validity of probability models.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	

KEY CONCEPT: DATA ANALYSIS, STATISTICS AND PROBABILITY		
The student will	**Group Recommendations**	**Comments/Recommendations**
7.DSP.8 Extend the concepts of simple events to investigate compound events. *a. Understand that the probability of a compound event is between 0 and 1.* *b. Identify the outcomes in a sample space using organized lists, tables, and tree diagrams.* *c. Determine probabilities of compound events using organized lists, tables, and tree diagrams.* *Design and use simulations to collect data and determine probabilities*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Add this to standard as "e." Compare theoretical and experimental Probabilities for compound events.
Key Concept Summary: Data Analysis, Statistics and Probability ☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	
Grade Level 7 Summary ☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Grade Level**	

Standards Review - Mathematics

Grade 8

KEY CONCEPT: THE NUMBER SYSTEM		
The student will	**Group Recommendations**	**Comments/Recommendations**
8.NS.1 Explore the real number system and its appropriate usage in real-world situations. a. *Recognize the differences between rational and irrational numbers.* b. *Understand that all real numbers have a decimal expansion.* c. *Model the hierarchy of the real number system including natural, whole, integer, rational, and irrational numbers.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
8.NS.2 Estimate and compare the value of irrational numbers by plotting them on a number line.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
8.NS.3 Translate among multiple representations of rational numbers (fractions, decimal numbers, percentages). Extend to include the conversion of repeating decimal numbers to fractions.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: The Number System ☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
8.F.1 Understand the definition of a function. *a. Relate inputs (x) and outputs (y) to independent and dependent variables.* *b. Recognize that a function has multiple representations including mappings, tables, graphs, equations, and verbal descriptions.* *c. Graph a function from a table of values. Understand that the graph and table both represent a set of ordered pairs of that function.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Add** back to standard: "understand that a function assigns to each input exactly one output"
8.F.2 Compare two functions using multiple representations including tables, graphs, equations, and verbal descriptions in order to draw conclusions.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
8.F.3 Investigate the differences between linear and nonlinear functions. *a. Define an equation in slope-intercept form ($y = mx + b$) as being a linear function.* *b. Recognize that the graph of a linear function has a constant rate of change.* *c. Provide examples of nonlinear functions.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Add** to standard: Using multiple representations (tables, graphs, equations, and verbal descriptions). In support document, specify non-linear functions: • Linear piecewise • Exponential (growth & decay) • Step • Linear absolute value • Quadratic • Square root
8.F.4 Apply the concepts of linear functions to real-world and mathematical situations. *a. Understand that slope is the constant rate of change and the y-intercept is the point where x = 0.* *b. Determine the slope and y-intercept of a linear function given multiple representations including two points, tables, graphs, equations, and verbal descriptions.* *c. Construct a function that models a linear*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	In support document: • X=0 frequently considered an "initial value" except in arithmetic sequence • Emphasize/illustrate how tables can be extended forward or backward to determine y-intercept • Emphasize/illustrate how rate of change (slope) can be continued forward or backward to determine y-intercept graphically. • From a table and a graph, determine rate of

KEY CONCEPT: FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
relationship between two quantities. *d. Interpret the meaning of the slope and y-intercept of a linear function.*		change as ratio of change in dependent variable to change in independent variable; ratio of change in outputs to change in inputs; ratio of change in vertical distance to change in horizontal distance
8.F.5 Apply the concepts of linear and non-linear functions to graphs. *a. Analyze and describe attributes of graphs of functions (e.g., increasing/decreasing, linear/nonlinear).* *b. Sketch the graph of a function from a verbal description.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Add** to standard: c. Write a verbal description from the graph of a function with and without scales. **Add** to standard: • Constant • Increasing and decreasing • Maximum • Minimum • Extrema **Please address** in 8.F.5 (needed to truly understand/describe many real-world situations and interpret solutions contextually) • Discrete • Continuous
Key Concept Summary: Functions ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** Seems like an appropriate time to address/connect arithmetic sequences to linear functions – is this an omission in standards 6-12? Arithmetic & geometric sequences provide opportunity for contrast and for examination of discrete/continuous domain & range. Agree that slope as a constant rate of change from multiple perspectives is very useful; no mention of $m = \frac{y_2 - y_1}{x_2 - x_1}$ and rise/run noted as a POSITIVE approach.	

KEY CONCEPT: EXPRESSIONS, EQUATIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
8.EEI.1 Understand and apply the laws of exponents to simplify numerical expressions that include integer exponents.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Specify** laws of exponents in standard: $a^0 = 1$ $a^{-n} = \frac{1}{a^n}$ **Revisit** order of operations and exponents?
8.EEI.2 Investigate concepts of square and cube roots. *a. Find the exact and approximate solutions to equations of the form $x^2 = p$ and $x^3 = p$ where p is a positive rational number.* *b. Evaluate square roots of perfect squares.* *c. Evaluate cube roots of perfect cubes.* *d. Recognize that square roots of non-perfect squares are irrational.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Add** "approximate" square roots.
8.EEI.3 Explore the relationship between quantities in decimal and scientific notation. *a. Express very large and very small quantities in scientific notation in the form $a \times 10^b = p$ where a is a single digit and b is an integer.* *b. Translate between decimal notation and scientific notation.* *c. Estimate and compare the relative size of two quantities in scientific notation.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
8.EEI.4 Apply the concepts of decimal and scientific notation to solve real-world and mathematical problems. *a. Perform operations using numbers expressed in scientific notation. Include problems using both decimal and scientific notation.* *b. Select appropriate units of measure when representing answers in scientific notation.* *c. Translate how different technological devices display numbers in scientific notation.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Is this a standard? Test eligible? Or is this a strategy to be cited in support document (provide examples of scientific notation depicted in a spreadsheet as well as a handheld device)

KEY CONCEPT: EXPRESSIONS, EQUATIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
8.EEI.5 Apply concepts of proportional relationships to real-world and mathematical situations. *a. Graph proportional relationships.* *b. Interpret unit rate as the slope of the graph.* *c. Compare two different proportional relationships given multiple representations including tables, graphs, equations, diagrams, and verbal descriptions.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
8.EEI.6 Apply concepts of slope and y-intercept to graphs, equations, and proportional relationships. *a. Explain why the slope, m, is the same between any two distinct points on a non-vertical line using similar triangles.* *b. Derive the slope-intercept form ($y = mx + b$) for a non-vertical line.* *c. Relate equations for proportional relationships ($y = kx$) with the slope-intercept form ($y = mx + b$) where $b = 0$.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
8.EEI.7 Extend concepts of linear equations and inequalities in one variable to more complex multi-step equations and inequalities in real-world and mathematical situations. *a. Solve linear equations and inequalities that include the use of the distributive property, combining like terms, and variables on both sides.* *b. Recognize the three types of solutions to linear equations: one solution ($x = a$), infinitely many solutions ($a = a$), or no solutions ($a = b$).* *c. Generate linear equations with the three types of solutions.* *d. Justify why linear equations have a specific type of solution.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Add** to standard**:** • rational number coefficients

KEY CONCEPT: EXPRESSIONS, EQUATIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
8.EEI.8 Investigate and solve real-world and mathematical problems involving systems of linear equations in two variables with integer coefficients. *a. Graph systems of linear equations and estimate their point of intersection.* *b. Understand why a solution to a system of linear equations is represented on a graph as the point of intersection of the two lines.* *b. Solve systems of linear equations algebraically, including methods of substitution and elimination, or through inspection.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Add** to standard: • "Understand and verify" • Understand that systems of linear equations can have one solution, no solution, or infinitely many solutions. **Content limit**: integer coefficients and lattice point solutions (to differentiate between algebra systems standard) Add to support document: • Elimination and linear combinations are terms used interchangeably. • Verification of solution can include algebraic, graphic and tabular approaches.
Key Concept Summary: Expressions, Equations and Inequalities ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: GEOMETRY AND MEASUREMENT		
The student will	**Group Recommendations**	**Comments/Recommendations**
8.GM.1 Investigate the properties of rigid transformations (rotations, reflections, translations). *a. Verify that lines are mapped to lines, including parallel lines.* *b. Verify that corresponding angles are congruent* *c. Verify that corresponding line segments are congruent.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Add** to standard (or support document): "Use a variety of tools – grid paper, reflective devices, graphing calculator, dynamic software, etc."
8.GM.2 Apply the properties of rigid transformations (rotations, reflections, translations). *a. Recognize that two-dimensional figures are only congruent if a series of rigid transformations can be performed to map the pre-image to the image.* *b. Given two congruent figures, describe the series of rigid transformations that justifies this congruence.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Be more **specific** in standard: • Horizontal, vertical and diagonal translations <x, y> • Reflect with respect to x-axis, to y-axis, and line y = x • Rotate 90, 180 and 270 degrees (clockwise and counterclockwise) about the origin
8.GM.3 Use coordinate geometry to describe the effect of transformations (rotations, reflections, translations, dilations) on two-dimensional figures.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Write** a separate standard for dilations; it seems to get lost in this list and it will be the first time this is examined. Relate scale factor in scale drawings to dilation factor.
8.GM.4 Apply the properties of transformations (rotations, reflections, translations, dilations). *a. Recognize that two-dimensional figures are only similar if a series of transformations can be performed to map the pre-image to the image.* *b. Given two similar figures, describe the series of transformations that justifies this similarity.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	In support document, provide example(s). Illustrate that there may be more than one way to map a pre-image to its image.

KEY CONCEPT: GEOMETRY AND MEASUREMENT		
The student will	**Group Recommendations**	**Comments/Recommendations**
8.GM.5 Extend previous knowledge of angles to properties of triangles, similar figures, and parallel lines cut by a transversal. Discover that the three angles in a triangle sum to 180 degrees. *a. Discover the relationship between interior and exterior angles of a triangle.* *b. Identify congruent and supplementary pairs of angles when two parallel lines are cut by a transversal.* *c. Recognize that two similar figures have congruent corresponding angles.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	"…and apply." How will this standard be assessed? Do you expect fill-in-the-blank type questions (identification only) or do you anticipate application of these relationships?
8.GM.6 Use models to demonstrate a proof of the Pythagorean Theorem and its converse.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
8.GM.7 Apply the Pythagorean Theorem to model and solve real-world and mathematical problems in two and three dimensions involving right triangles.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
8.GM.8 Find the distance between any two points in the coordinate plane using the Pythagorean Theorem.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
8.GM.9 Solve real-world and mathematical problems involving volumes of cones, cylinders, and spheres and the surface area of cylinders.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	In support document: • Extend notion/theme of V=Base*height to circular bases and perpendicular heights • Develop relationship between volume of one to volume of cylinder Are you implying that you will simply "give the formula" for the volume of a sphere or will this be developed conceptually as a three-dimensional decomposition (pyramids or slices)?

KEY CONCEPT: GEOMETRY AND MEASUREMENT		
The student will	**Group Recommendations**	**Comments/Recommendations**
Key Concept Summary: Geometry and Measurement ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: DATA ANALYSIS, STATISTICS AND PROBABILITY		
The student will	**Group Recommendations**	**Comments/Recommendations**
8.DSP.1 Investigate bivariate data. *a. Collect bivariate data.* *b. Graph the bivariate data on a scatter plot.* *c. Describe patterns observed on a scatter plot including clustering, outliers, and association including positive, negative, or no correlation and linear or non-linear.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
8.DSP.2 Draw an approximate line of best fit on a scatter plot that appears to have a linear association and informally assess the fit of the line to the data points.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
8.DSP.3 Apply concepts of an approximate line of best fit in real-world situations. *a. Find an approximate equation for the line of best fit.* *b. Interpret the slope and intercept.* *c. Solve problems using the equation.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
8.DSP.4 Investigate bivariate categorical data in two-way tables. *a. Organize bivariate categorical data in a two-way table.* *b. Interpret data in two-way tables using relative frequencies.* *c. Explore patterns of possible association between the two categorical variables.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	In support document provide two examples of these standards: one with an association between the two categorical variables and one without an association between the two categorical variables.
Key Concept Summary: Data Analysis, Statistics and Probability ☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** Change thread label (formerly cluster)	
Grade Level 8 Summary ☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Grade Level** Connect/relate scale factor to dilations.	

Standards Review - Mathematics

Foundations in Algebra

KEY CONCEPT: QUANTITIES AND EXPRESSIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
FA.QE.1 Reason quantitatively by using units appropriately in modeling situations. *a. Understand that quantities are numbers with units, including derived units, and involve measurement.* *b. Specify and define quantities that appropriately describe the attributes of interest in a real-world problem, such as per-capita income, person-hours, or fatalities per vehicle-mile traveled.* *c. Choose and interpret appropriate labels, units, and scales when quantities are displayed in a graph.* *d. Report the solution to a real-world problem using quantities with the appropriate level of accuracy for the given context.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Done in Algebra I
FA.QE.2 Extend previous knowledge of exponents to write numerical and algebraic expressions in different forms. *a. Apply the laws of exponents and the commutative, associative, and distributive properties to evaluate and generate equivalent numerical and algebraic expressions involving integer and rational exponents.* *b. Translate between radical and exponential forms of numerical and algebraic expressions.* *c. Rewrite numerical and algebraic radical expressions involving square roots in simplest radical form.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Done in Algebra I

KEY CONCEPT: QUANTITIES AND EXPRESSIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
FA.QE.3 Interpret the meanings of coefficients, factors, terms, and expressions based on their contexts.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Done in Algebra I
Key Concept Summary: Quantities and Expressions ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Comments/Rationale – Key Concept Done in Algebra I	

KEY CONCEPT: FUNCTION THEORY		
The student will	**Group Recommendations**	**Comments/Recommendations**
FA.F.1 Extend previous knowledge of a function to apply to general behavior and features of functions. *Understand the formal definition of a function where the input/output relationship becomes a correspondence between two sets, the domain and range. Provide examples and non-examples from both mathematical and non-mathematical contexts.* *Determine if a relation is a function from a variety of representations, including mappings, sets of ordered pairs, graphs, tables, equations, and verbal descriptions.* *Represent a function using function notation and explain that f(x) denotes the output of function f that corresponds to the input x. Explain the meaning of expressions involving function notation from a mathematical perspective and in terms of the context when the function describes a real-world situation.* *Explain that the solution set for the equation that defines a function is the set of all ordered pairs on the graph of the function.* *Given an equation, graph, or verbal description of a function, specify the domain and range appropriate for the situation. Include functions with continuous and discrete domains. Given an element of either the domain or range of a function, find the corresponding value(s) from the equation or the graph and interpret these values in terms of a real-world context.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Done in Algebra I
FA.F.2 Interpret graphs of functions, presented with or without scales, which represent mathematical and real-world situations. *a. Provide a qualitative analysis of the graph of a function that models the relationship between two quantities and interpret key features of the graph in terms of the context of*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Done in Algebra I

KEY CONCEPT: FUNCTION THEORY		
The student will	**Group Recommendations**	**Comments/Recommendations**
the quantities. Key features include intercepts, extrema, intervals where the function is increasing, decreasing, constant, positive, or negative. *b. Sketch a graph showing key features given a verbal description of the relationship between two quantities.*		
FA.F.3 Determine, with and without technology, the solution(s) of the equation f(x)=g(x) by identifying the x-coordinate(s) of the point(s) of intersection of the graphs of y=f(x) and y=g(x).		Done in Algebra I
Key Concept Summary: Function Theory ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** Done in Algebra I	

KEY CONCEPT: LINEAR EQUATIONS, FUNCTIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
FA.L.1 Extend previous knowledge of solving equations and inequalities in one variable. *a. Understand that the steps taken when solving linear equations in one variable create new equations that have the same solution as the original. Justify each step in solving an equation.* *b. Represent real-world problems, including those involving proportional relationships, using linear equations and inequalities in one variable and solve such problems. Interpret the solution in terms of the context and determine whether it is reasonable.* *c. Solve compound linear inequalities in one variable and represent and interpret the solution on a number line. Write a compound linear inequality given its number line representation.* *d. Solve absolute value linear equations and inequalities in one variable.* *e. Solve literal equations and formulas for a specified variable. Include equations and formulas that arise in a variety of disciplines.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I
FA.L.2 Analyze a relationship between two quantities represented in tabular or verbal forms to determine if the relationship is linear.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I
FA.L.3 Create a linear function to model a real-world problem and interpret the meaning of the slope and intercepts in the context of the given problem. Recognize that a function represents a proportional relationship when the y-intercept is zero.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I
FA.L.4 Apply transformations kf(x) and f(x)+k, for any real number k, to the parent function f(x)=x when represented in graphical, tabular, and algebraic form, including transformations that occur in real-world situations. Relate the	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I

KEY CONCEPT: LINEAR EQUATIONS, FUNCTIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
slope-intercept form y=mx+b to transformations of the parent function.		
FA.L.5 Translate among verbal, tabular, graphical, and symbolic representations of linear and piece-wise linear functions, including absolute value and step functions. Explain how each representation reveals different information about the function.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I
FA.L.6 Translate among equivalent forms of equations for linear functions, including slope-intercept, point-slope, and standard forms. Explain how each form reveals different information about a given situation.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I
FA.L.7 Write equations of linear functions given two points, one point and a slope, and a slope and the y-intercept.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I
FA.L.8 Extend previous knowledge of solving mathematical and real-world problems that can be modeled with linear systems in two variables, including those involving equations as well as inequalities. *a. Describe the relationship between a solution of a pair of linear equations in two variables and the point of intersection of the graphs of the corresponding lines. Solve pairs of linear equations in two variables by graphing; approximate solutions when the coordinates of the intersection are non-integer numbers.* *b. Solve pairs of linear equations in two variables using substitution and elimination.* *c. Determine whether a system of linear equations has no solution, one solution, or an infinite number of solutions. Relate the number of solutions to pairs of lines that are intersecting, parallel or identical.* *d. Verify whether a pair of numbers satisfies a system of two linear equations in two unknowns*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I

KEY CONCEPT: LINEAR EQUATIONS, FUNCTIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
by substituting the numbers into both equations. *e. Graph the solution of a linear inequality in two variables as a half-plane, and graph the solution set of a system of linear inequalities as the intersection of the corresponding half-planes.*		
FA.L.9 Construct a scatter plot to determine the possible association between two quantities. For associations that appear linear, informally fit a linear function to the data and compare the function to the line generated by technology. Interpret the coefficients m and b to explain the nature of the relationship between the two quantities and use the function to make predictions and solve problems.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I
Key Concept Summary: Linear Equations, Functions and Inequalities ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** We did in Algebra I	

KEY CONCEPT: QUADRATIC EQUATIONS AND FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
IA.Q.1Apply algebraic techniques to solve mathematical and real-world problems involving quadratic equations. *a. Solve quadratic equations, including those with rational coefficients, by taking square roots, factoring, completing the square, and applying the quadratic formula as appropriate for the given form of the equation. Recognize that equations can have one real solution, two real solutions, or two complex solutions.* *b. Solve quartic equations that are in quadratic form.* *c. Derive the quadratic formula by completing the square on the standard form of the quadratic equation.* *d. Create equations in one variable to model quadratic relationships arising in real-world and mathematical problems, defining variables with appropriate units, and solve such equations. Interpret the solutions and determine whether they are reasonable.* *e. Solve a system of two equations consisting of a linear and a quadratic equation, or two quadratic equations, algebraically and graphically. Understand that such systems may have zero, one, two, or infinitely many solutions.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I & II
IA.Q.2 Apply analytic and graphical properties of quadratic functions to solve mathematical and real-world problems. *a. Describe the key features of the parent quadratic function y=x^2, including the vertex, axis of symmetry, domain, range, minimum/maximum, intercepts, direction of opening, and ordered pairs (±1, 1) and (±2, 4).* *b. Apply the transformations kf(x), -f(x), f(x)+k, and f(x+k), for any real number k, to the*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I & II

KEY CONCEPT: QUADRATIC EQUATIONS AND FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
parent function f(x)=x^2 when represented in graphical, tabular, and algebraic form. *c. Rewrite a quadratic function from standard form to vertex form, y=a〖(x-h)〗^2+k, by completing the square to determine the axis of symmetry, vertex, and range and relate this form to transformations of the parent function.* *d. Explain how the equation for the axis of symmetry, x= -b/2a , of a quadratic function relates to the midpoint of the segment joining zeros as determined by the quadratic formula and use the equation for the axis to find the vertex of the quadratic function.* *e. Sketch the graph of a quadratic function choosing appropriate scales and units for the given context, and interpret the key features, including maximum/minimum, zeros, y-intercept, and domain, in terms of the context.* *f. Determine the equation that defines a quadratic function by analyzing its graph.* *Find the zeros of a quadratic function by rewriting it in equivalent factored form and explain the connection between the zeros of the function, its linear factors, the x-intercepts of its graph, and the solutions to the corresponding quadratic equation.*		
IA.Q.3Model and solve a variety of real-world problems using quadratic equations, including problems involving projectile motion and optimization.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I & II
Key Concept Summary: Quadratic Equations and Functions ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: RATICAL FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
FA.R.1 Graph the reciprocal function f(x)=1/x and describe the key features of the graph, including domain, range, intercepts, asymptotes, symmetry, and intervals of increase and decrease.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Should say: Intervals where the function increases and where the function decreases. *"intervals of increase and decrease" – from Algebra II. Poor wording*
FA.R.2 Model real-world situations and solve problems involving inverse variation using the function f(x)=k/x.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	From Algebra Ii but added "and solve problems:
Key Concept Summary: Radical Functions ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** **See Above**	

KEY CONCEPT: EXPONENTIAL FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
FA.E.1 Evaluate exponential functions at integer inputs without technology and at non-integer inputs with technology.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I
FA.E.2 *Graph the parent exponential function, f(x)= b^x, where b>0 and b≠1, and describe the key features of the graph, including domain, range, asymptote, and y-intercept. Understand which values of b indicate exponential growth and which indicate exponential decay.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I
FA.E.3 Describe the meaning of the values of a and c in exponential functions of the form f(x)=ab^x+c in real-world contexts and relate the values of a and c to transformations of the parent function.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I
FA.E.4 Differentiate between linear and exponential functions and choose the appropriate model to represent mathematical and real-world relationships. *a. Understand that linear functions change by equal differences over equal intervals and that exponential functions change by equal factors over equal intervals in order to distinguish between situations that can be modeled with linear functions and those that can be modeled with exponential functions.* *b. Recognize that sequences are functions with discrete domains in that their domains are a subset of the integers. Express arithmetic and geometric sequences as functions, both recursively and explicitly. Use such functions to model linear and exponential relationships presented graphically, tabularly, or verbally.* *c. Create exponential functions that model real-world situations, including those that involve growth and decay, and use the*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I

KEY CONCEPT: EXPONENTIAL FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
functions and their graphs to solve problems.		
Key Concept Summary: Exponential Functions ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** We did in Algebra I	

KEY CONCEPT: PROBABILITY		
The student will	**Group Recommendations**	**Comments/Recommendations**
FA.PR.1 Understand and use Venn diagrams. *a. Use Venn diagrams to represent intersections, unions, and complements.* *b. Relate intersections, unions, and complements to the words and, or, and not.* *c. Represent sample spaces for compound events using Venn diagrams.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Not from Algebra I. New from Prob Stats
FA.PR.2 Understand and apply concepts of probability. *a. Describe two or more events as complementary, dependent, independent, and mutually exclusive.* *~~b. Explain the Law of Large Numbers and its application to probability~~.* *c. Apply the Addition Rule and the Multiplication Rule to determine probabilities, including conditional probabilities, and interpret the results in terms of the probability model.* *d. ~~Distinguish between experimental and theoretical probabilities.~~ Collect data on a chance event and use the relative frequency to estimate the theoretical probability of that event. Determine whether a given probability model is consistent with experimental results.* *e. Compute conditional probability using two-way tables. Justify the results in terms of the probability model and interpret the results in context.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Each "a. b. c. d" should be Individual Standards. Remove "b" from standards altogether Separate into individual standards. In "d" remove 1st sentence then this is ok.
Key Concept Summary: Probability ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** **See Above**	

Foundations in Algebra Course Summary	**Comments/Rationale – Grade Level**
❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	

Standards Review - Mathematics

Intermediate Algebra

KEY CONCEPT: NUMBER AND QUANTITY		
The student will	**Group Recommendations**	**Comments/Recommendations**
IA.NQ.1 Reason quantitatively by using units appropriately in modeling situations. *a. Understand that quantities are numbers with units, including derived units, and involve measurement.* *b. Specify and define quantities that appropriately describe the attributes of interest in a real-world problem, such as per-capita income, person-hours, or fatalities per vehicle-mile traveled.* *c. Choose and interpret appropriate labels, units, and scales when quantities are displayed in a graph.* *d. Report the solution to a real-world problem using quantities with the appropriate level of accuracy for the given context.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	*From Alg II. Will be addressed there*
IA.NQ.2 Know there is a complex number i where i^2= -1 and that every complex number has the form a+bi where a and b are real numbers.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Number and Quantity ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: FUNCTION THEORY		
The student will	**Group Recommendations**	**Comments/Recommendations**
IA.F.1 Determine the average rate of change over a specified interval of a function represented in graphical, tabular, and symbolic forms. Include functions that model real-world problems and interpret the meaning of the average rate of change in the given context.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I & II
IA.F.2 Describe the effect of the transformations kf(x), f(x)+k, f(x+k), and combinations of such transformations on the graph of y=f(x) for any real number k. Write the equation of a transformed parent function given its graph.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Number Sense and Operations -- Fractions ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: POLYNOMIALS		
The student will	**Group Recommendations**	**Comments/Recommendations**
IA.P.1 Identify whether an expression is a polynomial and classify it according to degree and number of terms.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
IA.P.2 Apply the properties of operations and laws of exponents to perform operations with polynomials (add, subtract, multiply, divide by a monomial, and factor). *a. Model addition, subtraction, and multiplication of linear polynomials using area models.* *b. Know and apply the structures of special products to find the product of 〖(a+b)〗^2, 〖(a-b)〗^2, and (a-b)(a+b).* *c. Multiply polynomials by applying the distributive property. Include multiplying two binomials and multiplying a binomial by a trinomial.* *d. Analyze the structure of binomials, trinomials and other polynomials in order to factor them using an appropriate strategy, including greatest common factor, difference of two squares, perfect square quadratic trinomials, and grouping.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	We did in Algebra I & II
IA.P.3 Define a variable and create polynomial expressions to model quantities in real-world situations, interpreting the parts of the expression in the context of the situation.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Polynomials ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: QUADRATIC EQUATIONS AND FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
IA.Q.1Apply algebraic techniques to solve mathematical and real-world problems involving quadratic equations. *a. Solve quadratic equations, including those with rational coefficients, by taking square roots, factoring, completing the square, and applying the quadratic formula as appropriate for the given form of the equation. Recognize that equations can have one real solution, two real solutions, or two complex solutions.* *b. Solve quartic equations that are in quadratic form.* *c. Derive the quadratic formula by completing the square on the standard form of the quadratic equation.* *d. Create equations in one variable to model quadratic relationships arising in real-world and mathematical problems, defining variables with appropriate units, and solve such equations. Interpret the solutions and determine whether they are reasonable.* *e. Solve a system of two equations consisting of a linear and a quadratic equation, or two quadratic equations, algebraically and graphically. Understand that such systems may have zero, one, two, or infinitely many solutions.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**We did in Algebra I & II**
IA.Q.2 Apply analytic and graphical properties of quadratic functions to solve mathematical and real-world problems. *a. Describe the key features of the parent quadratic function y=x^2, including the vertex, axis of symmetry, domain, range, minimum/maximum, intercepts, direction of opening, and ordered pairs (±1, 1) and (±2, 4).* *b. Apply the transformations kf(x), -f(x), f(x)+k, and f(x+k), for any real number k, to the*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**We did in Algebra I & II**

KEY CONCEPT: QUADRATIC EQUATIONS AND FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
parent function f(x)=x^2 when represented in graphical, tabular, and algebraic form. *c. Rewrite a quadratic function from standard form to vertex form, y=a〖(x-h)〗^2+k, by completing the square to determine the axis of symmetry, vertex, and range and relate this form to transformations of the parent function.* *d. Explain how the equation for the axis of symmetry, x= -b/2a , of a quadratic function relates to the midpoint of the segment joining zeros as determined by the quadratic formula and use the equation for the axis to find the vertex of the quadratic function.* *e. Sketch the graph of a quadratic function choosing appropriate scales and units for the given context, and interpret the key features, including maximum/minimum, zeros, y-intercept, and domain, in terms of the context.* *f. Determine the equation that defines a quadratic function by analyzing its graph.* *Find the zeros of a quadratic function by rewriting it in equivalent factored form and explain the connection between the zeros of the function, its linear factors, the x-intercepts of its graph, and the solutions to the corresponding quadratic equation.*		
IA.Q.3Model and solve a variety of real-world problems using quadratic equations, including problems involving projectile motion and optimization.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**We did in Algebra I & II**
Key Concept Summary: Quadratic Equations and Functions ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: RATICAL EQUATIONS AND FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
IA.RD.1 Solve algebraically and graphically equations involving square roots, indicating the existence of any extraneous solutions.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
IA.RD.2 Graph $f(x)=\sqrt{x}$ and $f(x)=\sqrt[3]{x}$ and their transformations and describe the key features of the graphs, including the domain, range, intercepts, and symmetry.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
IA.RD.3 Use radical functions and equations to model and solve real-world problems, including those involving the distance formula and those involving the period of a pendulum.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Radical Equations and Functions ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept**	

KEY CONCEPT: STATISTICS		
The student will	**Group Recommendations**	**Comments/Recommendations**
IA.S.1 Classify variables as: categorical or quantitative; discrete or continuous; and nominal, ordinal, ratio, or interval.	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Same as PS.DS.I in Prob Stat**
IA.S.2 Create graphical displays of categorical and quantitative data. *a. Create graphical displays of univariate categorical data, including Pareto charts and pie charts.* *b. Create graphical displays of univariate quantitative data, including stem-and-leaf plots, box plots, dot plots, histograms, ~~frequency polygons~~, and cumulative frequency distributions (ogives), using appropriate technology.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Separate into (a, b, c, c…) Individual Standards** **Eliminate "a" ONLY pare to charts** **"b"- change polygons to frequency "distributions"**
IA.S.3 Analyze and compare data sets graphically and quantitatively. *a. Recognize and explain misleading uses of data and distortions in data displays.* *b. Analyze graphical displays of quantitative data to identify shape, center, spread, clusters, gaps, and outliers.* *c. Explain the meanings of the standard deviation and interquartile range of a data set and the significance of these values relative to the values in the data set.* *~~d. Classify distributions as symmetric, positively skewed, or negatively skewed and explain the significance of the shape of a distribution on determining appropriate measures of center (mean and median) and spread (standard deviation and interquartile range).~~* *~~e. Predict the effect of transformations of data on the shape of the distribution and on measures of center and spread.~~*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Separate into (a, b, c, d…) Into individual Standards** **Omit d, e, g from here but leave in Prob. Stat. Course**

KEY CONCEPT: STATISTICS		
The student will	**Group Recommendations**	**Comments/Recommendations**
f. Compare the distributions of two or more univariate data sets by analyzing centers and spreads, clusters and gaps, shapes, and outliers. ~~*g. Analyze bivariate categorical data using two-way tables and identify possible associations between the two categories using marginal, joint, and conditional frequencies.*~~		
Key Concept Summary: Statistics ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** **See Above**	
Intermediate Algebra Course Summary ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Grade Level**	

Standards Review - Mathematics

Algebra I

KEY CONCEPT: QUANTITIES AND EXPRESSIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
A1.QE.1 Reason quantitatively by using units appropriately in modeling situations. *a. Understand that quantities are numbers with units, including derived units, and involve measurement. (Replace with A1.QE.1)* *b. Specify and define quantities that appropriately describe the attributes of interest in a real-world problem, such as per-capita income, person-hours, or fatalities per vehicle-mile traveled.* *c. Choose and interpret appropriate labels, units, and scales when quantities are displayed in a graph.* *d. Report the solution to a real-world problem using quantities with the appropriate level of accuracy for the given context.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Reservations with part "a". What does "a" really mean? Don't feel "a" belongs. Eliminate part "a" or "a" should be in the upper paragraph *Would prefer b, c, & d to be separate standards if they are going to be assessed separately B-D from Common Core
A1.QE.2 Rewrite algebraic expressions involving integer exponents in equivalent forms by applying the laws of exponents and the commutative, associative, and distributive properties.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Clarification on what an algebraic expression is? Monomial, Binomial # of variables? Want integer or whole # exponents?
A1.QE.3Interpret the meanings of coefficients, factors, terms, and expressions based on their contexts..	❑ Recommend ❑ Recommend with reservation(s) ☑ Do not recommend	No value to standard without knowing what the "context" is. Should this be placed in a "modeling' standard? Is addressed in A1.P.3
A1.QE.4 Rewrite numerical and algebraic expressions involving square roots and cube roots using rational exponents.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	

KEY CONCEPT: QUANTITIES AND EXPRESSIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
A1.QE.5Rewrite numerical and algebraic radical expressions involving square roots in simplest radical form.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Quantities and Expressions ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Comments/Rationale – Key Concept See comments above!	

KEY CONCEPT: FUNCTION THEORY		
The student will	**Group Recommendations**	**Comments/Recommendations**
A1.F.1. Extend previous knowledge of a function to apply to general behavior and features of functions. *a. Understand the formal definition of a function where the input/output relationship becomes a correspondence between two sets, the domain and range. Provide examples and non-examples from both mathematical and non-mathematical contexts.* *b. Determine if a relation is a function from a variety of representations, including mappings, sets of ordered pairs, graphs, tables, equations, and verbal descriptions.* *c. Represent a function using function notation and explain that f(x) denotes the output of function f that corresponds to the input x. Explain the meaning of expressions involving function notation from a mathematical perspective and in terms of the context when the function describes a real-world situation.* *d. Explain that the solution set for the equation that defines a function is the set of all ordered pairs on the graph of the function.* *e. Given an equation, graph, or verbal description of a function, specify the domain and range appropriate for the situation. Include functions with continuous and discrete domains.* *f. Given an element of either the domain or range of a function, find the corresponding value(s) from the equation or the graph and interpret these values in terms of a real-world context.*	❑ Recommend ❑ Recommend with reservation(s) ☑ Do not recommend	F.I.F.1 & F.I.F.2- From Common Core found in "a" and "c" F.I.F.3-That deals with recursion is NOT addressed in this section or functions. Please consider realigning with current "Interpreting Function" standards. Current standards from this have focus, balance, and coherence. Change wording of "Function Theory" to "Concepts of Functions" or "Functions" or "Function Concept" Wording: Given a function, its graph or verbal descriptions….
A1.F.2 Interpret graphs of functions, presented with or without scales, which represent mathematical and real-world situations. *a. Provide a qualitative analysis of the graph of a function that models the relationship*	❑ Recommend ❑ Recommend with reservation(s) ☑ Do not recommend	Use current standards Put F.IF.7A Algebra I; 7B, C, E Algebra II; and 7D in Pre-Calculus

KEY CONCEPT: FUNCTION THEORY		
The student will	**Group Recommendations**	**Comments/Recommendations**
between two quantities and interpret key features of the graph in terms of the context of the quantities. Key features include intercepts, extrema, intervals where the function is increasing, decreasing, constant, positive, or negative. *b. Sketch a graph showing key features given a verbal description of the relationship between two quantities.*		Not including 7B-E or as appropriate to Algebra I Refer back to current standards F.I.F.7A-phrased much better. Better defined and articulated.
A1.F.3 Determine, with and without technology, the solution(s) of the equation f(x)=g(x) by identifying the x-coordinate(s) of the point(s) of intersection of the graphs of y=f(x) and y=g(x).	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Explain which functions? Refer to current standards A-REJ.11- Only thru linear functions and possibly quadratics functions
Key Concept Summary: Function Theory ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** **See Comments.** **Change Title from Function Theory to Functions-Not used for function concepts**	

KEY CONCEPT: LINEAR EQUATIONS, FUNCTIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
A1.L.1 Extend previous knowledge of solving equations and inequalities in one variable. *~~a. Understand that the steps taken when solving linear equations in one variable create new equations that have the same solution as the original. Justify each step in solving an equation.~~* *b. Represent real-world problems, including those involving proportional relationships, using linear equations and inequalities in one variable and solve such problems. Interpret the solution in terms of the context and determine whether it is reasonable.* *c. Solve compound linear inequalities in one variable and represent and interpret the solution on a number line. Write a compound linear inequality given its number line representation.* *d. Solve absolute value linear equations and inequalities in one variable.* *e. Solve literal equations and formulas for a specified variable. Include equations and formulas that arise in a variety of disciplines.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	B, c, d, & e – should be <u>individual</u> standards. b=A1.L.2 c=A.1.L.3 d=A.1.L.4 e=A.1.L.5 "a"-Replace "a" with A-RE I.1 c, e d.1 in current standards-Omit last sentence "Construct…
A1.L.2 Analyze a relationship between two quantities represented in tabular or verbal forms to determine if the relationship is linear.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
A1.L.3. Create a linear function to model a real-world problem and interpret the meaning of the slope and intercepts in the context of the given problem. Recognize that a function represents a proportional relationship when the y-intercept is zero.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Include <u>graphical</u> Need to add wording to include "Direct" Proportion or Relationship when y=0
A1.L.4. Apply transformations kf(x) and f(x)+k, for any real number k, to the parent function f(x)=x when represented in graphical, tabular, and algebraic form, including transformations that occur in real-world situations. Relate the	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	

KEY CONCEPT: LINEAR EQUATIONS, FUNCTIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
slope-intercept form y=mx+b to transformations of the parent function.		
A1.L.5 Translate among verbal, tabular, graphical, and symbolic representations of linear and piece-wise linear functions, including absolute value and step functions. Explain how each representation reveals different information about the function.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Move piece-wise, absolute value, & step function to Algebra II.
A1.L.6 Translate among equivalent forms of equations for linear functions, including slope-intercept, point-slope, and standard forms. Explain how each form reveals different information about a given situation.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Great place to use process standard- specifically #7
A1.L.7 Write equations of linear functions given two points, one point and a slope, and a slope and the y-intercept.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Include real word application.
A1.L.8 Extend previous knowledge of solving mathematical and real-world problems that can be modeled with a system of two linear equations in two variables. *a. Describe the relationship between the solution of a pair of linear equations in two variables and the point of intersection of the graphs of the corresponding lines. Solve pairs of linear equations in two variables by graphing; approximate solutions when the coordinates of the intersection are non-integer numbers.* *b. Solve pairs of linear equations in two variables using substitution and elimination.* *c. Determine whether a system of linear equations has no solution, one solution, or an infinite number of solutions. Relate the number of solutions to pairs of lines that are*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Separate a, b, c into 3 Standards (I, II, III) Integrate “d” into a, b, and/or c as appropriate

KEY CONCEPT: LINEAR EQUATIONS, FUNCTIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
intersecting, parallel or identical. ~~*d. Verify whether a pair of numbers satisfies a system of two linear equations in two unknowns by substituting the numbers into both equations.*~~		
A1.L.9 Construct a scatter plot to determine the possible association between two quantities. For associations that appear linear, informally fit a linear function to the data and compare the function to the line generated by technology. Interpret the coefficients m and b to explain the nature of the relationship between the two quantities and use the function to make predictions and solve problems.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Change “m” & “b” to slope and y intercept
Key Concept Summary: Linear Equations, Functions and Inequalities ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** **See Comments**	

KEY CONCEPT: POLYNOMIALS		
The student will	**Group Recommendations**	**Comments/Recommendations**
A1.P.1 Identify whether an expression is a polynomial and classify it according to degree and number of terms.	❑ Recommend ❑ Recommend with reservation(s) ☑ Do not recommend	OMIT because can discuss with odd, even functions
A1.P.2 Apply the properties of operations and laws of exponents to perform operations with polynomials (add, subtract, multiply, divide by a monomial, and factor). *~~a. Model addition, subtraction, and multiplication of linear polynomials using area models.~~* *b. Know and apply the structures of special products to find the product of 〖(a+b)〗^2, 〖(a-b)〗^2, and (a-b)(a+b).* *c. Multiply polynomials by applying the distributive property. Include multiplying two binomials and multiplying a binomial by a trinomial.* *d. Analyze the structure of binomials, trinomials and other polynomials in order to factor them using an appropriate strategy, including greatest common factor, difference of two squares, perfect square quadratic trinomials, and grouping.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	A-APR-1 from current standards needs to be included Omit "a". Support Doc; Not a Standard Change remaining to P.1 – P.4 A1.P.1= 1 b.=2 c.=3 d=4
A1.P.3 Define a variable and create polynomial expressions to model quantities in real-world situations, interpreting the parts of the expression in the context of the situation.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Change to modeling or an EQUATION with variables-Change to only Linear & Quadrant (Limit 40)
Key Concept Summary: Polynomials ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** **See Comments**	

KEY CONCEPT: QUADRATIC EQUATIONS AND FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
A1.Q.1 Apply algebraic techniques to solve mathematical and real-world problems involving quadratic equations. *a. Solve quadratic equations, including those with rational coefficients, by taking square roots, factoring, completing the square, and applying the quadratic formula as appropriate for the given form of the equation. Recognize that equations can have one real solution, two real solutions, or no real solutions.* *~~b. Derive the quadratic formula by completing the square on the standard form of the quadratic equation.~~* *c. Create equations in one variable to model quadratic relationships arising in real-world and mathematical problems, defining variables with appropriate units, and solve such equations. Interpret the solutions and determine whether they are reasonable.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	"a" we question whether students should solve quadratics using so many methods? Remove "b".
A1.Q.2 Apply analytic and graphical properties of quadratic functions to solve mathematical and real-world problems. *a. Describe the key features of the parent quadratic function y=x^2, including the vertex, axis of symmetry, domain, range, minimum/maximum, intercepts, direction of opening, and ordered pairs (±1, 1) and (±2, 4).* *b. Apply the transformations kf(x), -f(x), f(x)+k, and f(x+k), for any real number k, to the parent function f(x)=x^2 when represented in graphical, tabular, and algebraic form, and relate the vertex form y=a〖(x-h)〗^2+k to transformations of the parent function.* *c. Sketch the graph of a quadratic function choosing appropriate scales and units for the given context, and interpret the key features,*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**"**a" should be a standard on its own "b" possibly move to Algebra II "c, d, e" combined to include: interpret key features of quadratic graph

KEY CONCEPT: QUADRATIC EQUATIONS AND FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
including maximum/minimum, zeros, y-intercept, and domain, in terms of the context. *d. Determine the equation that defines a quadratic function by analyzing its graph.* *e. Explain how the equation for the axis of symmetry, x=- b/2a , of a quadratic function relates to the midpoint of the segment joining zeros as determined by the quadratic formula and use the equation for the axis to find the vertex of the quadratic function.* ~~*f. Find the zeros of a quadratic function by rewriting it in equivalent factored form and explain the connection between the zeros of the function, its linear factors, the x-intercepts of its graph, and the solutions to the corresponding quadratic equation.*~~		Omit "f"
A1.Q.3 Model and solve a variety of real-world problems using quadratic equations, ~~including~~ problems involving projectile motion ~~and optimization.~~	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Too specific-put a period after Omit optimization Change to: for example
Key Concept Summary: Quadratic Equations and Functions ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** **See Comments**	

KEY CONCEPT: EXPONENTIAL FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
A1.E.1 Evaluate exponential functions at integer inputs without technology and at non-integer inputs with technology.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
A1.E.2 Graph the parent exponential function, f(x)=b^x, where b>0 and b≠1, and describe the key features of the graph, including domain, range, asymptote, and y-intercept. Understand which values of b indicate exponential growth and which indicate exponential decay.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Designate x as an integer! No rational #'s
A1.E.3 Describe the meaning of the values of a and c in exponential functions of the form f(x)=ab^x+c in real-world contexts and relate the values of a and c to transformations of the parent function.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
A1.E.4 Differentiate between linear and exponential functions and use them to model relationships which exhibit growth or decay. ~~*a. Understand that linear functions change by equal differences over equal intervals and that exponential functions change by equal factors over equal intervals in order to distinguish between situations that can be modeled with linear functions and those that can be modeled with exponential functions.*~~ ~~*b. Recognize that sequences are functions with discrete domains in that their domains are a subset of the integers. Express arithmetic and geometric sequences as functions, both recursively and explicitly. Use such functions to model linear and exponential relationships presented graphically, tabularly, or verbally.*~~	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Keep A1.E.4 ONLY Remove "a" Move "b" to functions F.1.F.3 Refer to for recursive

Key Concept Summary: Exponential Functions ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** **See Comments**
Algebra I Course Summary ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Grade Level**

Standards Review - Mathematics

Algebra 2

KEY CONCEPT: NUMBER AND QUANITITY		
The student will	**Group Recommendations**	**Comments/Recommendations**
A2.NQ.1 Reason quantitatively by using units appropriately in modeling situations. *a. Understand that quantities are numbers with units, including derived units, and involve measurement.* *b. Specify and define quantities that appropriately describe the attributes of interest in a real-world problem, such as per-capita income, person-hours, or fatalities per vehicle-mile traveled.* *c. Choose and interpret appropriate labels, units, and scales when quantities are displayed in a graph.* *d. Report the solution to a real-world problem using quantities with the appropriate level of accuracy for the given context.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	*A2.NQ.1 a-d: Same as Algebra I A1.QE.1. See comments on or Algebra I*
A2.NQ.2 Understand complex numbers and perform arithmetic with complex numbers. *a. Know there is a complex number i where i^2= -1 and that every complex number has the form a+bi where a and b are real numbers.* *b. Use the relation i^2= -1 and the commutative, associative, and distributive properties to add, subtract, multiply, and divide complex numbers and express those results in a + bi form.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Wordy, not very concise Common Core Standards much more concise & clear n-cn-1/2 a.-Old Standard n-cn.1 b.-Old Standard n-cn-2
Key Concept Summary: Number and Quantity ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** See above	

KEY CONCEPT: FUNCTION THEORY		
The student will	**Group Recommendations**	**Comments/Recommendations**
A2.F.1 Determine the average rate of change over a specified interval of a function represented in graphical, tabular, and symbolic forms. Include functions that model real-world problems and interpret the meaning of the average rate of change in the given context.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Key Concept- just "Functions" In Common Core (F-IF.6)
A2.F.2 Create functions to describe the relationship between two quantities by forming the sum, difference, and product of standard function types and determine the domains of the resulting functions.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	See BF-A.1.B Rewrite for clarity Common Core more specific and concise. This is too wordy and not easy to interpret. Also see F.IF.5
A2.F.3 Understand the concept of inverse function graphically and symbolically, and calculate inverses of functions which have inverses. *a. Understand that an inverse function can be obtained by expressing the dependent variable of one function as the independent variable of another, as f and g are inverse functions if and only if f(x)=y and g(y)=x, for all values of x in the domain of f and all values of y in the domain of g.* *b. Find the inverse of an invertible function algebraically.* *c. Understand that if the graph of a function contains a point (a,b), then the graph of the inverse relation of the function contains the point (b,a) and the inverse is a reflection over the line y=x. Given the graph of a function, draw the graph of the inverse.* *d. Determine if a function has an inverse by demonstrating whether or not the function is one-to-one using the horizontal line test.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	You don't calculate an inverse. "Determine" or "Find." Common Core F-B4.4 Either get rid of or rewrite correctly! Passing. D is unclear, needs to be rewritten. Horizontal line test means Inverse will also be a function.

KEY CONCEPT: FUNCTION THEORY		
The student will	**Group Recommendations**	**Comments/Recommendations**
~~*A2.F.4 Understand composition of functions as an algebraic operation and combine functions with composition.*~~ ~~*a. Use composition to combine functions that are represented in graphical, tabular, and symbolic form and determine the domain and range of the composition. Interpret the composition of functions in real-world situations.*~~ ~~*b. Demonstrate the following properties of composition of functions.*~~ ~~*i. The function f(x)=x is the identity for composition.*~~ ~~*ii. The composition of a function and its inverse yields the identity function.*~~ ~~*iii. Composition of functions is not a commutative operation.*~~ *c. Describe the effect of the transformations kf(x), f(x)+k, f(x+k), and combinations of such transformations on the graph of y=f(x) for any real number k. Write the equation of a transformed parent function given its graph.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Leave only "c". Move a & b to Pre-Cal or Algebra III Common Core F.BF.3A. Make "c" a stand-alone standard.
Key Concept Summary: Function Theory ❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** See Above	

KEY CONCEPT: POLYNOMIAL EQUATIONS, FUNCTIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
A2.P.1 Demonstrate that the sum, difference, and product of two polynomials result in a polynomial, and analyze the relationships between the degrees of the polynomials. ~~in such algebraic operations.~~	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Rename Key Concept: Polynomials and Linear Inequalities Make more concise. Not clear.
A2.P.2 Describe the properties of the graphs of f(x)=x^n for n = 2, 3, and 4, including shape, relative magnitude, domain, range, symmetry, intercepts, relative extrema, and end behavior.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
A2.P.3 Rewrite a quadratic function from standard form to vertex form by completing the square to determine the axis of symmetry, vertex, and range.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
A2.P.4 Solve polynomial equations, including quadratic equations that have complex solutions. *a. Determine by substitution if a given complex number is the solution of a quadratic equation.* *b. Use a variety of techniques, including taking square roots, factoring, completing the square, and the quadratic formula to solve quadratic equations with complex solutions.* *c. Solve cubic equations and quartic equations algebraically and with technology. Algebraic methods include factoring the greatest common factor, factoring by grouping, factoring sums and differences of two cubes, and factoring quartics in quadratic form.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Make a, b, c separate standards "C"-clarify what this means. Rewrite "c." Needs clarity-too wordy. See A. APR.4 and A.APR.3
A2.P.5 ~~Graph, approximately, a~~ polynomial function of degree 4 or less having only real roots by considering the leading term and the multiplicities of its roots when given the polynomial's factorization. Write a polynomial function of least degree corresponding to a given graph.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Rewrite. Needs clarity-too wordy. See A. APR.4 and A.APR.3 Replace Graph, approximately, a with "Sketch" polynomial functions of degree 4 or less, …

KEY CONCEPT: POLYNOMIAL EQUATIONS, FUNCTIONS AND INEQUALITIES		
The student will	**Group Recommendations**	**Comments/Recommendations**
A2.P.6 Apply graphical and analytic knowledge to solve problems involving systems of equations and problems involving systems of inequalities. *a. Solve a system of two equations consisting of a linear and a quadratic equation, or two quadratic equations, algebraically and graphically. Understand that such systems may have zero, one, two, or* *infinitely many solutions.* *b. Represent two-by-two and three-by-three linear systems in matrix form and use row reduction to solve such systems.* *c. Graph the solution of a linear inequality in two variables as a half-plane, and graph the solution set of a system of linear inequalities as the intersection of the corresponding half-planes.* *d. Use linear programming to optimize functions arising in real-world situations involving constraints which can be represented as a system of linear inequalities.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Replace "analytic" with "analytical". For "b" we questioned if this was appropriate for Algebra III—maybe move to Pre-Cal or Discrete Mathematics. "d" Same recommendation as stated with "b"
A2.P.7 Model and solve real-world problems with polynomial functions and equations.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Polynomial Equations, Functions and Inequalities ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** See Above. Concern about vertical alignment. Refer to Composite Course Progression Spreadsheet Document	

KEY CONCEPT: RATIONAL EXPRESSIONS, EQUATIONS AND FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
A2.R.1 Apply algebraic techniques to manipulate rational expressions and solve rational equations. *a. Use algebraic techniques to find the sum, difference, product, and quotient of rational expressions or to simplify a complex fraction.* *b. Solve a rational equation which can be transformed into a polynomial equation of degree 4 or less, indicating the existence of any extraneous solutions.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	"a" Clarify "complex fraction". "b" Rewrite for clarity. See AREI.2 of Common Core
A2.R.2 Understand analytic and graphical properties of the reciprocal function. *a. Graph f(x)=1/x and its transformations and describe the key features of the graph, including domain, range, intercepts, asymptotes, symmetry, and intervals of increase and decrease.* *b. Show that f(x)=1/x is its own inverse and explain this relationship graphically in terms of the symmetry about the line y=x.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	
A2.R.3 Model real-world situations involving inverse variation with the function f(x)=k/x.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
Key Concept Summary: Rational Expressions, Equations and Functions ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** See Comments Above.	

KEY CONCEPT: RADICAL EXPRESSIONS, EQUATIONS AND FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
A2.RD.1 Apply algebraic knowledge to write radical expressions in different forms and to solve radical equations. *a. Translate between radical and exponential forms of numerical and algebraic expressions and write radical expressions in simplest radical form.* *b. Apply the laws of exponents and properties of operations to evaluate and generate equivalent numerical and algebraic expressions involving rational exponents.* *c. Solve radical equations algebraically and graphically, indicating the existence of any extraneous solutions.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Question if this (A 2RD 1, RD 2, RD 3) should be in Algebra II "C"= Common Core A Rel-2
A2.RD.2 Understand analytic and graphical properties of the square root and cube root functions. *Graph $f(x)=\sqrt{x}$ and $f(x)=\sqrt[3]{x}$ and their transformations and describe the key features of the graphs, including the domain, range, intercepts, and symmetry.* *Determine inverses of $f(x)=\sqrt{x}$ and $f(x)=\sqrt[3]{x}$ algebraically and graphically, specifying the domain and range of the inverses.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
A2.RD.3 Use radical functions to model and solve real-world problems, including those involving vehicle stopping distance and involving the period of a pendulum.	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Rewrite to explain connections between vehicle distance & period of pendulum. Unclear connection.
Key Concept Summary: Rational Expressions, Equations and Functions ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** See Comments Above.	

KEY CONCEPT: EXPONENTIAL/LOGARITHMIC EQUATIONS AND FUNCTIONS		
The student will	**Group Recommendations**	**Comments/Recommendations**
A2.EL.1 Understand the inverse relationship between exponential and logarithmic functions. *a. Translate between exponential and logarithmic forms of an equation using the definition of logarithm.* *b. Graph f(x)=log_b x and g(x)=b^x describing key features, including domain, range, end behavior, intercepts, and asymptotes.* *c. Demonstrate graphically that a logarithm and the exponential with the same base are inverse functions.*	❑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	Should this be in Alg II? Is this on ACT? Maybe Move to Pre-Cal or Alg III.
A2.EL.2 Evaluate logarithmic functions. *a. Calculate, without technology, the value of a logarithm when its argument can be written as an integer power of its base.* *b. Calculate, with technology, the value of a logarithm with any base.*	❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	Question if should bin in Alg II
A2.EL.3 Solve simple exponential and logarithmic equations algebraically and graphically.	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	
A2.EL.4 Use exponential and logarithmic functions to solve problems. *a. Create exponential functions that model real-world situations, including those involving growth and decay, and use the functions and their graphs to solve problems.* *b. Use logarithmic functions to model real-world scenarios, including those involving the Decibel, Richter, and pH scales, and use those functions and their graphs to solve problems.*	☑ Recommend ❑ Recommend with reservation(s) ❑ Do not recommend	

Key Concept Summary: Exponential/Logarithmic Equations and Functions ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Key Concept** See Above
Algebra 2 Course Summary ❑ Recommend ☑ Recommend with reservation(s) ❑ Do not recommend	**Comments/Rationale – Grade Level**

APPENDIX C

South Carolina College and Career-Ready

Mathematical Process Standards

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.
4. Connect mathematical ideas and real-world/contextual situations through modeling.
5. Use a variety of mathematical tools effectively and strategically.
6. Communicate mathematically and approach mathematical situations with precision.
7. Identify and utilize structure and patterns.

APPENDIX D

South Carolina Education Oversight Committee

Standards Review Panel

How Do We Make Academic Standards and Assessments Work for Students, Colleges and Employers?

As we review the proposed academic standards, the panel is seeking to define college and career-ready within the structure of the standards. The difficulty is that our standards are locked into an education model that is one size fits all, keep up or fall behind, pass or fail, smart or dumb. We ask "What do students need to know?" to determine what standards should be assessed. The answer is the academic content students need to know and master varies greatly depending on their education and career plans. To make the state standards and assessments work for students, colleges and employers, we need to break the paradigm of one-size fits all and move to individualized credentialing of each student's mastery of a spectrum of academic standards.

Colleges and employers already do this. The math standards for entry into the college of engineering are different from the college of nursing and the college of education. Employers use WorkKeys scores based on profiles of individual jobs to assess the foundational knowledge required to perform in those jobs. WorkKeys scores that range from 3 to 7, reflect mastery of specific standards. For example, Applied Math Level 4 demonstrates skills of solving problems that require one or two operations, calculate averages, ratios and rates and put information in the right order before performing calculations. Applied Math Level 5 demonstrates skills to look up formulas for systems of measurement, decide what information, calculations or unit conversions to use to solve a problem, calculate percent discounts and markups, calculate perimeters and areas of basic shapes. Applied Math Level 7 demonstrates the skills to solve problems with more than one unknown, set up and manipulate complex ratios and proportions and apply basic statistical concepts. In the U.S. economy, a WorkKeys Level 4 satisfies the requirements for 65% of jobs including electrician, college administrator, paramedics and HR specialists. A WorkKeys Level 5 satisfies the requirements of 93% of all jobs including electrical engineer, business CEO, database administrator, HVAC technician, registered nurse and college professor. Less than 1% of jobs in the U.S. economy require a WorkKeys Level 7. The WorkKeys national job profile database can provide a good guide for career-ready academic standards and all 11th graders in South Carolina will now be taking the WorkKeys assessment.

In our panel discussions, we have agreed we want our standards to be rigorous and aspirational for our students. We have also recognized that 25% of our students get left behind, become discouraged and fail to graduate and 41% of those who do graduate need remedial courses before qualifying for college level work. We have also agreed we do not want to "dumb down"

our standards or create a two track system. In fact, when we look at the WorkKeys job profiles, the math standards required of an electrical engineer and college professor with at least four year degrees are the same as those for a HVAC technician and registered nurse with two year degrees. By going to an assessment system where students earn credentials or badges based on the standards mastered, South Carolina can enable individualized learning that gives students credit for what they have learned relative to their education and career plans and still encourage students to aspire to the highest levels of academic achievement. If our curriculum can be restructured to allow students to move at a more individualized pace that enables them to work on a standard until it is understood and mastered and not miss the building blocks needed to progress in their learning, then many more students may stay in school, graduate and not need remediation when they go to college.

APPENDIX E

Specific Recommendations regarding the ELA draft standards:

- Fundamentals of Reading/Writing/Communication should be deleted and placed in a support document.
- Bookends (inquiry based learning and disciplinary literacy) should be deleted as constructed and embedded **into** the standards.
- Foundations of Reading should be added as the first strand for K-5. Foundation of Reading should be deleted in grades 6-12 and placed in support document (Note: These foundations are the same for grades 6-12)
- Current "standards" should be compiled at the beginning of the document as "Essential Standards."
- Current "indicators" should be written as "standards," those things that a student should be able to do at the end of the grade level or course.
- Language and its accompanying standards need to be separated out within an additional strand. The language standards do not fit as they are currently placed as key ideas within the various strands.
- The "Meaning and Context" key idea should be revised to "Key Ideas and Textual Support"
- Utilize a consistent classification taxonomy within the standards to ensure rigor.
- Remove standards that are clearly better suited for a support document. For example, proposed indicator 2-W-L-2.7 states "consult a word wall, anchor chart, picture dictionary, and/or simple reference material as needed and appropriate."
- Replace references to "Standard American English" with technical terms referring to the standard conventions of American English writing and grammar.

Evaluation of K-2 ELA Draft Standards
Reading – Literary Text Standards

Kindergarten	1st Grade	2nd Grade
Meaning and Context	**Meaning and Context**	**Meaning and Context**
Essential Standard 1 1. With guidance and support, make predictions using prior knowledge, pictures, illustrations, author/illustrator and title. 2. With guidance and support, ask and answer questions to determine who, what, when, where, why, and how to identify the key details. 3. With guidance and support, draw conclusions from what is heard or read and use evidence from the text to support responses. Essential Standard 2 4. With guidance and support, retell a familiar text, including identifying a text's beginning, middle and end. Essential Standard 3 5. With guidance and support, identify the characters, the setting, and major events in a story. 6. With guidance and support, identify the problem and solution	Essential Standard 1 1. Ask and answer questions to make predictions using prior knowledge. 2. With guidance and support, ask and answer questions to determine who, what, when, where, why, and how to identify the main idea and details. 3. Infer and draw conclusions from what is heard or read and use evidence from the text to support responses. Essential Standard 2 4. Retell a familiar text, including identifying a text's beginning, middle and end. Essential Standard 3 5. Describe characters (including their actions and feelings), the setting, and major events in a text. 6. Identify the plot within a text. a. Identify problem and solution within a text. b. Determine cause and effect of events within a text.	Essential Standard 1 1. Ask and answer questions to make predictions using prior knowledge, pictures/illustrations, and information about author/illustrator and title. 2. Ask and answer questions to determine who, what, when, where, why, and how to identify the main idea and details 3. Infer, draw conclusions, and analyze text from what is heard or read and use evidence from the text to support responses. Essential Standard 2 4. Summarize the sequence of major events within a text. Essential Standard 3 5. Describe characters and setting within in a story. a. Describe the characters' actions, feelings, and responses to major events

Kindergarten	1st Grade	2nd Grade
within a text. Essential Standard 4 7. With guidance and support, compare and contrast the adventures and experiences of characters in familiar stories.	Essential Standard 4 7. Compare and contrast the adventures and experiences of characters in familiar stories.	or challenges in a story. b. Describe how the setting affects the development of story. 6. Analyze the plot of story. a. Explain the relationship between problem and solution within a text. b. Explain cause and effect relationships within a text. Essential Standard 4 7. Compare and contrast multiple stories. a. Compare and contrast multiple versions of the same story. b. Compare and contrast multiple stories by the same author or within the same genre.
Language, Craft, and Structure	**Language, Craft, and Structure**	**Language, Craft, and Structure**
Essential Standard 1 8. With guidance and support, identify words and phrases that suggest feelings and appeal to the senses. 9. With guidance and support, discuss the author's craft and how it contributes to the meaning of the text.	Essential Standard 1 8. Identify words and phrases that suggest feelings and use descriptive language to appeal to the senses. 9. Discuss the author's craft and how it contributes to the meaning of the text. a. Identify how the author uses	Essential Standard 1 8. Explain how descriptive words or phrases in text communicate feelings and influence the reader. 9. Discuss the author's use of literary devices and how it contributes to the meaning of the text. a. Explain the author's uses of repetitive language, rhyme,

Kindergarten	1st Grade	2nd Grade
a. With guidance and support, identify how the author uses repetitive language, rhyme and rhythm. b. With guidance and support, explain how author's word choice and use of illustrations affect meaning within the text. Essential Standard 2 10. With guidance and support, recognize types of literary texts. (specificity?) Essential Standard 3 11. Identify the author and illustrator and define the role of each. Essential Standard 4 12. With guidance and support, use context clues to determine the meaning of a word or phrase. a. Identify new meanings for familiar words and apply them accurately (multiple meaning words). b. Use inflections and affixes to determine the meaning of unknown words. (specificity?) c. Explore word relationships and nuances in word meanings. (specificity)	similes, onomatopoeia, and alliteration. b. Explain how author's word choice and use of illustrations affect meaning within the text. Essential Standard 2 10. Classify literary texts according to characteristics of a genre. (specificity?) Essential Standard 3 11. Identify who is telling the story, the narrator or characters. Essential Standard 4 12. Use a variety of strategies to determine the meaning of a word or phrase based on Grade 2 reading and content, choosing flexibly from an array of strategies. a. Use sentence level context as a clue to the meaning of a word or phrase. b. Use inflections, prefixes, and suffixes to determine the meaning of unknown words. (specificity?) c. Identify frequently occurring root words and their inflectional forms.	rhythm, similes, onomatopoeia, alliteration, and metaphors. b. Explain the effect of word choice, use of repetition, conventions, and illustrations on meaning and tone. Essential Standard 2 10. Explain differences among literary genres based upon a wide range of text types. (specificity?) Essential Standard 3 11. Distinguish who is telling the story at various points in a text, the narrator or characters. Essential Standard 4 12. Use a variety of strategies to determine the meaning of a word or phrase based on Grade 2 reading and content, choosing flexibly from an array of strategies. a. Use sentence level context as a clue to the meaning of a word or phrase. b. Use prefixes and suffixes to determine the meaning of new words formed. (specificity?) c. Use a known root word to

Kindergarten	1st Grade	2nd Grade
		determine the meaning of an unknown word with the same root.
Range and Complexity	**Range and Complexity**	**Range and Complexity**
Essential Standard 1 13. With guidance and support, read text at the appropriate text complexity for Kindergarten.	Essential Standard 1 13. With guidance and support, read text at the appropriate text complexity for grade 1.	Essential Standard 1 13. By the end of the year, read and comprehend literature at the appropriate text complexity for grade 2.

Comments

- Language standards should be their own strand
- The standards for range and complexity did not address range and complexity. Use of small group and whole group instruction doesn't belong in the standards; that could be addressed in a supporting document.
- The standards in Kindergarten are done with guidance and support, therefore that phrase was added.
- Certain skills should be moved. Example: cause/effect, theme, onomatopoeia, alliteration should be removed from Kindergarten - More examples are evident in example progression shown above.
- Use words and phrases acquired through talk and text. in Kindergarten (move to Communication)
- There are places within the standards that specificity is needed. Some are marked in the example progression shown above.

Evaluation of 3-5 ELA Draft Standards
Reading Standards

Reading		
Essential Standard 1: Demonstrate understanding of the organization and basic features of print. (Kindergarten and Grade 1 only) **Essential Standard 2: Demonstrate understanding of spoken words, syllables, and sounds (phonemes). (Kindergarten and Grade 1 only)** **Essential Standard 3: Know and apply grade-level phonics and word analysis skills in decoding words.**		
Grade 3	Grade 4	Grade 5
1. Identify and know the meaning of the most common prefixes and derivational suffixes. 2. Decode words with common Latin suffixes. 3. Decode multisyllabic words. 4. Read grade-appropriate irregularly spelled words.	1. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and roots and affixes to read accurately unfamiliar multisyllabic words in context.	1. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and roots and affixes to read accurately unfamiliar multisyllabic words in context.

Evaluation of 3-5 ELA Draft Standards
Reading – Literary Text Standards

Essential Standard 4: Read with sufficient accuracy and fluency to support comprehension.		
Grade 3	Grade 4	Grade 5
1. Read grade-level text with purpose and understanding. 2. Read grade-level prose and poetry orally with accuracy, appropriate rate, expression, intonation, and phrasing on successive readings. 3. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	4-FOR-4.1 Read grade-level text with purpose and understanding. 4-FOR-4.2 Read grade-level prose and poetry orally with accuracy, appropriate rate, expression, intonation, and phrasing on successive readings. 4-FOR-4.3 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.	5-FOR-4.1 Read grade-level text with purpose and understanding. 5-FOR-4.2 Read grade-level prose and poetry orally with accuracy, appropriate rate, expression, intonation, and phrasing on successive readings. 5-FOR-4.3 Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Reading – Literary Text

Key Ideas and Textual Support

Essential Standard 1: Determine meaning and develop logical interpretations drawn from text, including where the text leaves things indeterminate, by making predictions, inferring, drawing conclusions, analyzing, synthesizing, providing evidence, and exploring multiple interpretations.

Grade 3	Grade 4	Grade 5
1. Ask and answer questions to demonstrate understanding of a text. Referring explicitly to the text for the basis for the answer. (Delete indicators)	1. Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.	1 Quote accurately from a text to describe incidents that advances the plot, explaining how each gives rise to or foreshadows future events. 2 Quote accurately from a text to make inferences and draw conclusions.
Essential Standard 2: Determine and analyze the development of themes of texts; summarize key details and ideas to support analysis.		
1. Recall stories, including fables, folktales, legends, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the text.	1. Determine a theme of a story, drama or poem from details in the text; summarize the text.	1. Determine and analyze the themes across texts, citing evidence to support conclusions and summarize the text.

Essential Standard 3: Analyze the development of and interactions among characters, events, and ides that situate a text within a particular context.		
1. Describe characters in a story (e.g. their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.	1. Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).	1. Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text. (e.g. how characters interact).
~~**Standard 4: Analyze the relationship among similar ideas, themes, or topics through multiple and diverse media, modalities, and formats.**~~		
3-RL-MC-C-4.1~~Explain how ideas are supported through illustrations and details.~~ ~~3-RL-MC-C-4.2 Compare and contrast how an author uses characters to develop theme and plot in different texts within a series~~. Addressed in Integration of Knowledge and Ideas	~~4-RL-MC-4.1 Explain how descriptions and ideas in the text are depicted in visual or auditory representations.~~ ~~4-RL-MC-4.2 Compare and contrast how diverse texts approach similar ideas, themes, and topics.~~ Addressed in Integration of Knowledge and Ideas	~~5-RL-MC-4.1 Compare and contrast how multiple mediums of artistic representation, video, writing, and other media can develop the author's message.~~ ~~5-RL-MC-4.2 Analyze similarities and differences between an original text and related diverse media.~~ Addressed in Integration of Knowledge and Ideas
Language- should be a separate strand		
Language, Craft, and Structure		
Essential Standard 1: Interpret the author's use of words, phrases, conventions, features and their relationships to analyze how the author's choices shape meaning and tone.		
1. Determine the meaning of words and phrases as they are used in a text, distinguishing literal from nonliteral language.	1. Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g. Herculean).	1. Determine the meaning of words and phrases as they are used in a text, including figurative language such as metaphors and similes.

Essential Standard 2: Analyze the author's choice of structure within text and the relationship of the parts to each other and the whole to shape meaning.		
1. Reference parts of stories, dramas, and poems when writing or speaking about a text, using terms such as chapter, scene, and stanza; describe how each part builds earlier sections.	1. Explain major differences between poems, drama, and prose, and refer to the structural elements of poems (e.g. verse, rhythm, meter and drama (e.g. casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text.	1. Explain how a series of chapters, scenes, or stanzas fits together to provide the overall structure of a particular story, drama, or poem.
Essential Standard 3: Analyze and provide evidence of how point of view and the author's perspective and purpose shapes content, meaning, and style.		
1. Distinguish their own point of view from that of the narrator or those of the characters.	1. Compare and contrast the point of view from which different stories are narrated, including the difference between first- and third- person narrations.	1. Describe how a narrator's or speaker's point of view influences how events are described.
~~**Standard 4: Apply a range of strategies to determine the meaning of unknown and multiple-meaning words, phrases, and jargon; acquire and use general academic and domain-specific vocabulary.**~~		

Integration of Knowledge and Ideas NEW because of a need for integration		
1. Explain how specific aspects of a text's illustrations contribute to what is conveyed by the words in the story (e.g. create mood, emphasize aspects of a character or setting). 2. Compare and contrast the themes, settings, and parts of stories written by the same author about the same or similar characters (e.g. in books from a series)	1. Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text 2. Compare and contrast the treatment of similar themes and topics (e.g. opposition of good and evil) and patterns of events (e.g. the quest) in stories, myths, and traditional literature from different cultures.	1. Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a text (e.g. graphic novel, multimedia presentation of fiction, folktale, myth, poem) 2. Compare and contrast stories in the same genre (e.g. mysteries and adventure stories) on their approaches to similar themes and topics.

Range and Complexity

Essential Standard 1: Read independently and comprehend a variety of texts for the purposes of reading for enjoyment, acquiring new learning, and building stamina; reflect and respond on increasingly complex text over time.		
1. By the end of the year, read and comprehend literature at the high end of the grades 2-3 text complexity band independently and proficiently. 2. Read and respond to grade level text using scaffolding as needed considering reader and task.	1. By the end of the year read and comprehend literature, including stories, dramas, and poetry, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at high end of the range. 2. Read and respond to grade level text using scaffolding as needed considering reader and task.	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4-5 text complexity band proficiently, with scaffolding as needed at high end of the range. 2.Read and respond to grade level text using scaffolding as needed considering reader and task.

Evaluation of 6-8 ELA Draft Standards
Reading – Literary Text Standards

ADD back the standards for Integration of Knowledge and Ideas
Take the language standards out as a separate domain

READING – LITERARY TEXT					
Key Ideas and Contextual Support					
5th	**6th**	**7th**	**8th**		
Standard 1: Determine meaning and develop logical interpretations drawn from text, including where the text leaves things indeterminate, by making predictions, inferring, drawing conclusions, analyzing, synthesizing, providing evidence, and exploring multiple interpretations.					
1.1 Quote accurately from a text to describe incidents that advances the plot, explaining how each gives rise to or foreshadows future events.	1.1 Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text	1.1 Cite multiple examples of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.	1.1Cite the evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.		
1.2 Quote accurately from a text to make inferences and draw conclusions.					

Standard 2: Determine and analyze the development of themes of texts; summarize key details and ideas to support analysis.					
2.1 Determine and analyze the themes across texts, citing evidence to support conclusions and summarize the text.	.2.1 Determine a theme or main idea of a text and how it is influenced by particular details; provide a summary of the text.	2.1 Determine a theme or main idea and analyze its development over the course of a text; provide an objective summary.	2.1Determine a theme or main idea of a text and analyze its development over the course of a text, including the relationship to the elements within the text; provide an objective summary.		
Standard 3: Analyze the development of and interactions among characters, events, and ideas that situate a text within a particular context.					
3.1 Cite evidence within text to analyze two or more characters, events, settings, or ideas in a text and explain the impact on the plot;	3.1 Describe a story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot is resolved.	3.1Analyze how specific elements of a story or drama interface (e.g., how setting shapes the characters or plot).	3.1 Analyze how specific lines of dialogue or events in a story or drama propel the actions, reveal aspects of a character, or prompt as decision.		
3.2 Cite evidence within text to support an opinion about the text using multiple events, procedures, ideas, concepts, and elements.					

Standard 4: Analyze the relationship among similar ideas, themes, or topics through multiple and diverse media, modalities, and formats.					
4.1 Compare and contrast how multiple mediums of artistic representation, video, writing, and other media can develop the author's message.	4.1 Compare and contrast the experience of reading a story, drama, or poem to listening to or viewing an audio, video, or live version of the text, including contrasting what they "see" and "hear" when reading the text to what they perceive when they listen or watch.	4.1 Compare and contrast a written story, drama, or poem to its audio, filmed, staged, or multimedia version, analyzing the effects of techniques unique to each medium (e.g., lighting, sound, color, or camera focus and angles in a film).	4.1 Analyze the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script, evaluating the choices made by the director or actors.		
4.2 Analyze similarities and differences between an original text and related diverse media.	4.2 Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.	4. 2 Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.	4.2 Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new.		

READING – LITERARY TEXT					
Language, Craft, and Structure					
5th	**6th**	**7th**	**8th**		
Standard 1: Interpret the author's use of words, phrases, conventions, features, and their relationships to analyze how the author's choices shape meaning and tone.					
1.1 Cite examples of the author's intention to craft using figurative language, dialogue, imagery, idioms, adages, and proverbs.	1.1 Analyze the impact of an author's craft on meaning and tone.	1.1 Analyze the intent of the author's use of conventional or unconventional language to convey meaning and tone.	1.1Evaluate the author's use of conventional or unconventional language to convey meaning and tone.		
1.2 Analyze how the use of word choice and features combine to shape meaning.	1.2 Analyze the intent of the author's use of conventional or unconventional language to convey meaning and tone.	1.2 Analyze the connotative and figurative meanings of the author's words and phrases.	1.2 Analyze the impact of the author's use of analogies and allusions on meaning and tone.		
	1.3Determine the connotative and figurative meanings of the author's words and phrases.	1.3 Analyze the impact of the author's use of onomatopoeia and alliteration on meaning and tone.	1.3 Analyze the denotative, connotative and figurative meanings of the author's words and phrases.		
			1.4 Analyze the shades of meaning of words with similar denotations; surmise the impact of connotation.		

Standard 2: Analyze the author's choice of structure within text and the relationship of the parts to each other and the whole to shape meaning.					
2.1 Analyze the author's use of words, repeated phrases, transitions, dialect, and dialogue to structure text.	2.1 Analyze how a particular sentence, chapter, scene or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.	2.1 Analyze how the form or structure of a drama or poem contributes to the meaning	2.1Compare and contrast the structure of two or more texts with similar topics or themes and analyze how the differing structure of each contributes to meaning and style.		
2.2 Explain how a series of chapters, scenes, or stanzas fit together to provide the overall structure of a particular story, drama, or poem.					
Standard 3: Analyze and provide evidence of how the author's choice of point of view, perspective or purpose shapes content, meaning, and style of text.					
3.1 Explain how the author's choice of the point of view of a narrator or character impacts how events are described.	3.1 Explain how an author's development of the point of view of the narrator or speaker in a text impacts content, meaning, and style.	3.1 Analyze how an author develops and contrasts points of view in text to impact content, meaning, and style.	3.1Analyze how the author's development of the differences in points of view between the characters and the reader create suspense or humor.		
3.2 Analyze how an author's choice of point of view impacts the content and meaning of text.					

Standard 4: Apply a range of strategies to determine the meaning of unknown and multiple-meaning words, phrases and jargon; acquire and use general academic and domain-specific vocabulary.					
4.1 Use context to determine the meaning of a word or phrase.	4.1 Use context to determine the meaning of a word or phrase.	4.1 Use context to Determine the meaning of a word or phrase.	4.1Use context to Determine the meaning of a word or phrase.		
4.2 Use Greek and Latin affixes and roots to determine the meaning of a word.	4.2 Use Greek and Latin affixes and roots to determine the meaning of an unknown word.	4.2 Use Greek and Latin affixes and roots to determine the meaning of an unknown word.	4.2 Use Greek and Latin affixes and roots to determine the meaning of an unknown word.		
4.3 Consult print and digital resources to find the pronunciation and determine or clarify the precise meaning of key words or phrases.	4.3 Consult print and digital resources to find the pronunciation and determine or clarify the precise meaning of key words or phrases.	4.3 Consult print and digital resources to find a word's pronunciation or its parts of speech to determine or verify the precise meaning.	4.3 Consult print and digital resources to find a word's pronunciation or its parts of speech to determine or verify precise meaning		
4.4 Acquire and use general academic and domain specific words or phrases demonstrating an understanding of transitional words and phrases, nuances, and jargon.	4.4 Acquire and use general academic and domain specific words or phrases demonstrating an understanding of nuances and jargon.	4.4 Acquire and use general academic and domain specific words or phrases demonstrating an understanding of transitional words and phrases, nuances, and jargon.	4.4 Acquire and use general academic and domain specific words or phrases demonstrating an understanding of transitional words and phrases, nuances, and jargon.		

READING – LITERARY TEXT					
Range and Complexity					
5th	**6th**	**7th**	**8th**		
Standard 1: Read independently and comprehend a variety of texts for the purposes of reading for enjoyment, acquiring new learning, and building stamina; reflect on and respond to increasingly complex text over time.					
1.1 Read grade level text independently and confer with adults and peers to comprehend a text as self-directed, critical readers and thinkers.	1.1 Read grade level text independently and confer with adults and peers to comprehend a text as self -directed, critical readers and thinkers.	1.1 Read grade level text independently and confer with adults and peers to comprehend a text as self-directed, critical readers and thinkers.	1.1Read grade level text independently and confer with adults and peers to comprehend a text as self-directed, critical readers and thinkers.		
1.2 Read and respond to grade level text using scaffolding as needed considering reader and task.	1.2 Read and respond to grade level text using scaffolding as needed considering reader and task.	1.2 Read and respond to grade level text using scaffolding as needed considering reader and task.	1.2 Read and respond to grade level text using scaffolding as needed considering reader and task.		

Research needs to be added in the informational text or in writing.

READING – INFORMATIONAL TEXT					
Meaning and Context					
5th	**6th**	**7th**	**8th**		
Standard 1: Determine meaning and develop logical interpretations drawn from text, including where the text leaves things indeterminate, by making predictions, inferring, drawing conclusions, analyzing, synthesizing, providing evidence and exploring multiple interpretations.					
1.1 Ask and answer questions to quote accurately from a text.	1.1 Use text features to locate information and explain how the information contributes to an understanding of print and digital text.	1.1 Apply knowledge of text features to locate information and explain how the information contributes to an understanding of print and digital text.	1.1Analyze and evaluate information from print and digital text features to support comprehension.		
1.2 Ask and answer questions to explain what the text says citing evidence.	1.2 Cite multiple examples of textual evidence to identify and analyze various perspectives from multiple texts.	1.2 Cite multiple examples of textual evidence to identify and analyze various perspectives from multiple texts	1.2 Cite multiple examples of textual evidence to identify and analyze various perspectives from multiple texts.		
1.3 Ask and answer questions to make inferences from and draw conclusions supported by the text.					

Standard 2: Determine and analyze the development of central ideas of texts; summarize key details and ideas to support analysis.					
2.1 Determine and analyze the common central ideas across texts, citing evidence to support conclusions and summarize the texts.	2.1 Determine and analyze the central idea and how it develops across text.	2.1 Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.	2.1 Determine two or more central ideas in a text and analyze their development over the course of the text; provide an objective summary of the text.		
	2.2 Cite evidence of how the central idea develops.	2.2 Cite evidence of how central ideas develop.	2.2 Cite evidence of how central ideas develop.		
	2.3 Provide an objective summary of the text.	2.3 Provide an objective summary of the text.	2.3 Provide an objective summary of the text.		
Standard 3: Build knowledge of a topic, idea, or concept through researching in multiple media, modalities, and formats.					
3.1 Use information from multiple media and digital resources to identify reasons and evidence that supports key ideas, topics, and concepts.	3.1 Examine how ideas, topics and concepts are portrayed from multiple media and digital resources.	3.1 Compare and contrast the arguments, claims, and information from multiple media and digital resources.	3.1Explain how the relevancy and use of different mediums impacts the argument, claims, and information on topics, concepts and ideas.		
3.2 Compare and contrast how events, topics, concepts, and ideas are depicted in primary and secondary sources.	3.2Incorporate information from primary and secondary Sources to support reasons and evidence regarding topics, concepts, and ideas.	3.2 Incorporate information from multiple texts to support reasons and evidence on topics, concepts, and ideas.	3.2 Incorporate information from multiple texts to support reasons and evidence on topics, concepts and ideas.		

Evaluation of 9-12 ELA Draft Standards

Reading Literary Texts				
Standard	English 1	English 2	English 3	English 4
Meaning and Context **Standard 1 – Determine meaning and develop logical interpretations drawn from text, including where the text leaves things indeterminate, by making predictions, inferring, drawing conclusions, analyzing, synthesizing, providing evidence, and exploring multiple interpretations**				
E1-4-RL-MC-1.1	Cite significant textual evidence in order to articulate explicit meanings and meanings that can be inferred from the text; identify multiple supported interpretations	Cite significant textual evidence in order to articulate explicit meanings and meanings that can be inferred from the text; identify multiple supported interpretations.	Cite significant textual evidence to support synthesis of explicit and inferred meaning and/or in areas the text leaves indeterminate; investigate multiple supported interpretations.	Cite significant textual evidence to support synthesis of explicit and inferred meaning and/or in areas the text leaves indeterminate; critique multiple supported interpretations.
Standard 2: Determine and analyze the development of themes of texts; summarize key details and ideas to support analysis.				
E1-4-RL-MC-2.1	Determine a theme and analyze its development over the course of a text; identify common themes or central ideas across texts including the relationship to elements within	Determine themes and analyze their development within and across texts; including how they are shaped and refined by specific details; cite evidence to support the	Determine themes and analyze the development and interaction among themes among multiple texts, including how themes or central ideas interact and build upon one another to	Determine two or more themes and analyze the development among a variety of complex texts, including how they interact and build upon one another to increase the complexity of the

Comment [t1]: Cite textual evidence to support explicit or inferred meaning from the text

Comment [t2]: Concern about what is meant by identify multiple supported interpretations – whose interpretations?

Evaluation of 9-12 ELA Draft Standards

Reading Literary Texts				
Standard	English 1	English 2	English 3	English 4
	the text; cite evidence to support the analysis; provide an objective summary.	analysis; provide an objective summary.	increase the complexity of the text; cite evidence to support the analysis; provide an objective summary.	text; cite evidence to support the analysis; provide an objective summary.
Standard 3: Analyze the development of and interactions among characters, events, and ideas that situate a text within a particular context				
E1-4-RL-MC-3.1	Analyze the development of and interactions among characters, events, and ideas in a text and explain the influence of historical, cultural, social and/or political contexts.	Analyze the development of and interactions among characters, events, and ideas in a text and interpret the influence of historical, cultural, social and/or political contexts.	Analyze the development of and interactions among characters, events, and ideas in a text to explain the particular historical, cultural, social and/or political contexts	Analyze the development of and interactions among characters, events, and ideas in a text to explain the particular historical, cultural, social and/or political contexts
Standard 4: Analyze the relationship among similar ideas, themes, or topics through multiple and diverse media, modalities, and formats.				
E1-4-RL-MC-4.1	Analyze the development of a common theme in two different artistic mediums.	Analyze the development of a common theme in two different artistic mediums.	Assess how literary texts allude to themes, patterns of events, or character types from historical and	Assess how literary texts allude to themes, patterns of events, or character types from historical and

Comment [t3]: Indicator is overloaded with 4 independent skills or tasks– what is the focus? Separate skills into separate indicators or reword to "Determine common themes and analyze their development over the course of the text , including the relationship to textual elements."

Comment [t4]: Overall, this indicator lacks the rigor implied in CCSS RL 3 The standard is the same across the grades. Where is the progression?

Comment [t5]: Insert Complex characters

Comment [t6]: Insert Complex characters

Comment [t7]: Insert Complex characters

Comment [t8]: Replace allude with reflect

Evaluation of 9-12 ELA Draft Standards

Reading Literary Texts				
Standard	English 1	English 2	English 3	English 4
			cultural traditions	cultural traditions
E1-4-RL-MC-4.2	Analyze how literary texts allude to themes, patterns of events, or character types from historical and cultural traditions.	Analyze how literary texts allude to themes, patterns of events, or character types from historical and cultural traditions	Determine how creative choices in literary texts and those in diverse media work to analyze similar ideas, themes, or topics	Differentiate creative choices in literary texts and those in diverse media in order to assess the effectiveness of those choices in communicating similar ideas, themes, or topics
E1-4-RL-MC-4.3	Identify the archetypes used across literary texts and diverse media.	Identify the archetypes used across literary texts and diverse media.	Analyze archetypes across literary texts and diverse media.	Analyze archetypes used across literary texts and diverse media.
E1-4-RL-LCS-1.1	Analyze the impact of diction and figurative language on meaning	Analyze and interpret the impact of the author's use of diction and figurative language, and multiple-meaning words on meaning and tone	Analyze the cumulative impact of the author's use of diction and figurative language, and multiple-meaning words on meaning and tone	Evaluate the impact of the author's use of diction, figurative language, and multiple meaning words

Comment [t9]: How is this indicator significantly different from 4.1? Can you assess "Differentiate"?

Comment [t10]: Could this indicator be included with 4.2 to say, " Determine how literary text and diverse media reflect patterns of events or character types from historical and cultural traditions, including archetypes."

Comment [t11]: Change the verb in comment above to "Analyze"

Comment [t12]: Show progression in higher order thinking with"Evaluate effectiveness of how…, including archetypes."

Comment [t13]: References to figurative language need to be moved to Meaning and Context standards. It is a not an element of language, craft, or structure.

Comment [t14]: Analyze how author's craft , including diction, syntax, point of view…, impacts meaning and tone.

Comment [t15]: How is a multiple-meaning word not an element of diction? Could it be included parenthetically?

Language Craft and Structure **Standard 1: Interpret the author's use of words, phrases, conventions, features, and their relationships to analyze how the author's choices shape meaning and tone**				
E1-4-RL-LCS-1.2	Analyze the author's language choices to convey meaning and tone	Analyze the author's choice of words and consider the impact of denotations, connotations, and shades of meaning. (1.2)Analyze and interpret the author's language and convention choices to convey meaning and tone	Analyze the author's choice of words and consider the impact of denotations, connotations, and shades of meaning; identify unique usages that create aesthetic effects. (1.2)Evaluate the purpose of the author's language and convention choices to convey meaning and tone.	Interpret the author's choice of words and consider the impact of denotations, connotations, and shades of meaning; identify unique usages that create aesthetic effects.
E4-RL-LCS-1.3				Evaluate the effectiveness of the author's language and convention choices to convey meaning and tone

Comment [t16]: Do we need this standard? Connotation and denotation are a part of diction.

Comment [t17]: Is this an error in numbering?

Comment [t19]: Number error?

Comment [t18]: Do we need these standards? Author's craft includes the convention choices. Maybe there needs to be a list of elements included in author's craft that teachers can reference.

Comment [t20]: Replace the E4RL-LCS1.1 with this verbiage.

Standard 2: Analyze the author's choice of structure within text and the relationship of the parts to each other and the whole to shape meaning.				
E1-4-RL-LCS-2.1	Determine the significance of the author's use of text structure and plot organization to create mood or effect citing support from the text.	Determine the significance of the author's use of text structure, plot organization, and manipulation of time to create mood or effect, citing support from the text.	Analyze the relationships among structure, plot, and manipulation of time to determine how meaning is derived from structure, citing support from the text.	Evaluate various texts to form and opinion on the authors' use of structure, plot, and manipulation of time, citing support from the texts
Standard 3: Analyze and provide evidence of how point of view and the author's perspective and purpose shape content, meaning, and style				
E1-4-RL-LCS-3.1	Determine the significance of point of view and author's perspective and purpose in shaping content, meaning, and style.	Analyze how point of view and author's perspective and purpose shape content, meaning, and style.	Analyze how point of view and author's perspective and purpose shape content, meaning, and style.	Evaluate how the author's choice of point of view, perspective, content, and style support rhetorical or aesthetic purposes and conveys cultural experience
E4-RL-LCS-3.2				Evaluate how point of view and author's perspective and purpose shape content, meaning, and style

Comment [t23]: An opinion, not and. What are they supposed to do with the opinion? Just eliminate the reference to opinion.

Comment [t21]: Insert comma

Comment [t22]: We like the specificity of the wording in the CCSS RL5 when discussing the importance of structure.

Comment [t24]:

Comment [t25]: delete

Comment [t26]: replace the indicator above – consistent language.

Standard 4: Apply a range of strategies to determine the meaning of unknown and multiple-meaning words and phrases; acquire and use general academic and domain-specific vocabulary and jargon				
E1-4-RL-LCS-4.1	Use context to determine the meaning of a word or phrase.	Use context to determine the meaning of a word or phrase.	Use context to determine the meaning of a word or phrase.	Use context to determine the meaning of a word or phrase
E1-4-RL-LCS-4.2	Use Greek and Latin affixes and roots to determine the meaning of a word	Use Greek and Latin affixes and roots to determine the meaning of a word	Use Greek and Latin affixes and roots to determine the meaning of a word	Use Greek and Latin affixes and roots to determine the meaning of a word
E1-4-RL-LCS-4.3	Consult print and digital resources to find the pronunciation of a word to determine or verify its precise meaning, part of speech, or etymology.	Consult print and digital resources to find the pronunciation of a word to determine or verify its precise meaning, part of speech, or etymology	Consult print and digital resources to find the pronunciation of a word to determine or verify its precise meaning, part of speech, or etymology	Consult print and digital resources to find the pronunciation of a word to determine or verify its precise meaning, part of speech, or etymology.
E1-4-RL-LCS-4.4	Acquire and use general academic and domain specific words or phrases demonstrating an understanding of word relationships, nuances, and jargon.	Acquire and use general academic and domain specific words or phrases demonstrating an understanding of word relationships, nuances, and jargon.	Acquire and use general academic and domain specific words or phrases demonstrating an understanding of word relationships, nuances, and jargon.	Acquire and use general academic and domain specific words or phrases demonstrating an understanding of word relationships, nuances, and jargon.

Comment [t27]: Articulate which should be taught at each grade.

Range and Complexity **Standard 1: Read independently and comprehend a variety of texts for the purposes of reading for enjoyment, acquiring new learning, and building stamina; reflect on and respond to increasingly complex text over time.**				
E1-4-RL-RC-1.1	Read grade level text independently and confer with adults and peers to comprehend a text as self-directed, critical readers and thinkers.	Read grade level text independently and confer with adults and peers to comprehend a text as self-directed, critical readers and thinkers.	Read grade level text independently and confer with adults and peers to comprehend a text as self-directed, critical readers and thinkers.	Read grade level text independently and confer with adults and peers to comprehend a text as self-directed, critical readers and thinkers
E1-4-RL-RC-1.2	Read and respond to English 1 texts using scaffolding as needed considering reader and task.	Read and respond to English 2 texts using scaffolding as needed considering reader and task.	Read and respond to English 3 texts using scaffolding as needed considering reader and task	Read and respond to English 4 texts using scaffolding as needed considering reader and task.
Additional Standard requested				

Comment [t28]: Teachers scaffold, not students. Move the concept of scaffolding Standard should reference reading grade level texts independently by the end of the year.

Comment [t29]: CCSS specifically says "stories, drama and poems. Needs to be included here

Comment [t30]: Please consider adding a standard similar to the CCSS RL 9. In 9th grade, it could specify the study of mythology. In 10th grade, it could specify World Lit, including foundations in Greek drama. Eleventh grade could specify foundational works of American Lit, including how two or more texts from the same period treat similar topics and themes. Twelfth grade could specify British Lit… Specific texts (if desired) could be listed in a support document.

Reading – Informational Text				
Standards	**English 1**	**English 2**	**English 3**	**English 4**
Meaning and Context **Standard 1: Determine meaning and develop logical interpretations drawn from text and where the text leaves things indeterminate by inferring, drawing conclusions, analyzing, synthesizing, providing evidence, and exploring multiple interpretations**				
E1-4-RI-MC-1.1	Cite strong and thorough textual evidence in order to support an analysis of what the text says explicitly as well as inferences drawn from the text.	Cite strong and thorough textual evidence in order to support an analysis of what the text says explicitly as well as inferences drawn from the text.	Cite strong and thorough textual evidence in order to support an analysis of what the text says explicitly as well as inferences drawn from the text.	Cite strong and thorough textual evidence to support an analysis of what the text says explicitly as well as inferences drawn from the text and to support synthesis of explicit
E1-4-R1-MC-1.2	Cite strong and thorough textual evidence from multiple texts to support synthesis of explicit and inferred meaning and to identify and analyze various perspectives.	Cite strong and thorough textual evidence from multiple texts to support synthesis of explicit and inferred meaning and to identify and analyze various perspectives.	Cite strong and thorough textual evidence from multiple texts to support synthesis of explicit and inferred meaning and to identify and analyze various perspectives.	Identify and analyze various perspectives in multiple and increasingly complex texts.

Comment [t31]: There appears to be little difference between 1.1 and 1.2. Consider consolidating them into one standard with a more clear progression of learning outcomes. At this point the standards are essentially the same back to 6th grade.

Standard 2: Determine and analyze the development of central ideas or themes of texts; summarize key details and ideas to support analysis.				
E1-4-RI-MC-2.1	Determine a central idea, cite evidence to support the analysis of its development, and include key details in an objective summary.	Determine a central idea, cite evidence to support the analysis of its development, and include key details in an objective summary.	Determine a central idea, cite evidence to support the analysis of its development, and include key details in an objective summary	Determine a central idea, cite evidence to support the analysis of its development, and include key details in an objective summary
E1-4-RI-MC-2.2	Identify common central ideas across texts.	Compare the development of similar central ideas across texts.	Compare and contrast the development of similar central ideas across texts.	Compare, contrast, and evaluate the effectiveness of the development of similar central ideas across texts.
Standard 3: Analyze the relationship among similar ideas or topics through multiple and diverse media, modalities, and formats (such as charts, graphs or diagrams; letters, memorandums, legal documents, and manuals)				
E1-4-RI-MC-3.1	Explain how the use of different mediums, modalities, or formats impacts topics, concepts, and ideas in argument of informative texts	Explain how the use of different mediums, modalities, or formats impacts topics, concepts, and ideas in argument of informative texts.	Analyze how the use of different mediums, modalities, or formats impacts topics, concepts, and ideas in argument of informative texts	Analyze how the use of different mediums, modalities, or formats impacts topics, concepts, and ideas in argument of informative texts

Comment [t32]: Analyze two or more central ideas across multiple texts

Comment [t34]: Analyze two or more central ideas across multiple texts

Comment [t33]: See CCSS RI2 for rigor

Comment [t35]: See CCSS RI2 for rigor

Comment [t36]: Delete this indicator. You can't accomplish 2.1 without doing the task in 2.2

Comment [t37]: Reconsider inserting CCSS RI 3, which deals with text structure and how it impacts an informational text

Comment [t38]: Suggestion – move this verbiage to replace language in 2.1

Comment [t39]: Insert examples

Comment [t40]: Eliminate wordiness by deleting "modalities or formats"

Comment [t41]: SOOO wordy. Rephrase to say "Explain how the use of different mediums impact argument or informative texts.

Comment [DB42]: Is this meant to be OR?

Language, Craft and Structure **Standard 1: Interpret the use of words, phrases, text features, structures, and their relationships to analyze how the author's choices shape meaning.**				
E1-4-RI-LCS-1.1	Analyze the impact of author's language choices on idea development, meaning, and tone	Analyze the impact of author's language choices on idea development, meaning, and tone	Analyze the cumulative effect of the structure and features an author uses to communicate meaning	Analyze the cumulative effect of the structure and features an author uses to communicate meaning.
E1-4-RI-LCS-1.2	Explain how the author's message is supported by the use of text features and structure.	Explain how the author's message is supported by the use of text features and structure.	Analyze and evaluate the effectiveness of the author's language choices to convey meaning and tone.	Analyze and evaluate the effectiveness of the author's language choices to convey meaning and tone
Standard 2: Analyze and provide evidence of how the author's purpose or perspective shapes the structure and style of the text.				
E1-4-RI-LCS-2.1	Analyze and provide evidence of how style and structure convey the author's purpose or perspective.	Analyze and provide evidence of how style and structure convey the author's purpose or perspective	Analyze and provide evidence of how style and structure convey the author's purpose or perspective	Analyze and provide evidence of how style and structure convey the author's purpose or perspective

Comment [t43]: Doesn't this belong in 1.2 for English 3 and 4?

Comment [t44]: This indicator needs to be moved up and swapped with the standard above.

Comment [t45]: This standard is identical from English 1-4. Look at CCSS RI 5 to differentiate and add rigor.

Standard 3: Apply a range of strategies to determine the meaning of unknown and multiple-meaning words, phrases, and jargon; acquire and use general academic and domain-specific vocabulary.				
E1-4-RI-LCS-3.1	Use context to determine the meaning of a word or phrase.	Use context to determine the meaning of a word or phrase.	Use context to determine the meaning of a word or phrase.	Use context to determine the meaning of a word or phrase.
E1-4-RI-LCS-3.2	Use Greek and Latin affixes and roots to determine the meaning of a word	Use Greek and Latin affixes and roots to determine the meaning of a word	Use Greek and Latin affixes and roots to determine the meaning of a word	Use Greek and Latin affixes and roots to determine the meaning of a word
E1-4-RI-LCS-3.3	Consult print and digital resources to find the pronunciation of a word to determine or verify its precise meaning, part of speech, or etymology	Consult print and digital resources to find the pronunciation of a word, to determine or verify its precise meaning, its part of speech, or its etymology.	Consult print and digital resources to find the pronunciation of a word, to determine or verify its precise meaning, its part of speech, or its etymology.	Consult print and digital resources to find the pronunciation of a word, to determine or verify its precise meaning, its part of speech, or its etymology.
E1-4-RI-LCS-3.4	Acquire and use general academic and domain specific words or phrases demonstrating an understanding of word relationships, nuances, and jargon.	Acquire and use general academic and domain specific words or phrases demonstrating an understanding of word relationships, nuances, and jargon.	Acquire and use general academic and domain specific words or phrases demonstrating an understanding of word relationships, nuances, and jargon.	Acquire and use general academic and domain specific words or phrases demonstrating an understanding of word relationships, nuances, and jargon.

Comment [t46]: See comments on LCS 3..1-3.4 in the Literary Texts. Concerns are identical.

Range and Complexity **Standard 1: Read independently and comprehend a variety of texts for the purposes of reading for enjoyment, acquiring new learning, and building stamina; reflect and respond to increasingly complex text over time.**				
E1-4-RI-RC-1.1	Read grade level text independently and confer with adults and peers to comprehend a text as self-directed, critical readers and thinkers	Read grade level text independently and confer with adults and peers to comprehend a text as self-directed, critical readers and thinkers	Read grade level text independently and confer with adults and peers to comprehend a text as self-directed, critical readers and thinkers.	Read grade level text independently and confer with adults and peers to comprehend a text as self-directed, critical readers and thinkers.
E1-4-RI-RC-1.2	Read and respond to English 1 texts using scaffolding as needed considering reader and task.	Read and respond to English 2 texts using scaffolding as needed considering reader and task.	Read and respond to English 3 texts using scaffolding as needed considering reader and task.	Read and respond to English 4 texts using scaffolding as needed considering reader and task.
PLEASE INSERT RIGOR				

Comment [t47]: Replace all four grade bands with this statement "Read, comprehend, and respond to complex informational texts appropriate to the grade level ."

Comment [t48]: Observation – the words that denote rigor and complexity have been removed from these standards. We are concerned about the lack of rigor. We do not want to return to a worksheet based instructional model for which students do not need critical thinking skills.

Writing				
Standards	**English 1**	**English 2**	**English 3**	**English 4**
Meaning and Context **Standard 1: Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence**				
E1-4-W-MCC-1.1	Write arguments that: a. introduce a precise claim and differentiates between the claim and counterclaims; b. use an organizational structure that establishes clear relationships among claims, counterclaims, reasons, warrants, and evidence; c. develop the claim and counterclaims ethically without bias, providing evidence and data for each while pointing out the strengths and limitations of the claim and counterclaims; d. use words, phrases, and clauses to signal transitions between elements of the argument, to provide unity, and to clarify the relationship between the claim and counterclaim, between the claim and reasons, and among	Write arguments that: a. introduce a precise claim and differentiate between the claim and counterclaims; b. use an organizational structure that establishes clear relationships among claims, counterclaims, reasons, warrants, and evidence; c. develop the claim and counterclaims ethically without bias, providing evidence and data for each while pointing out the strengths and limitations of the claim and counterclaims; d. use words, phrases, and clauses to signal transitions between elements of the argument, to provide unity, and to clarify the relationship between the claim and counterclaim, between the claim and reasons, and among evidence, reasons, and	Write arguments that: a. introduce a clearly articulated and well-informed claim, establish the significance of the claim and differentiate between the claim and counterclaims; b. develop claim and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases; c. use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between claim(s) and reasons, between reasons and evidence, and between claim(s) and counterclaims; d. establish and maintain a formal style and objective	Write arguments that: a. introduce a clearly articulated and well-informed claim, establishes the significance of the claim and differentiates between the claim and counterclaims; b. develop claim and counterclaims fairly and thoroughly, supplying the most relevant evidence for each while pointing out the strengths and limitations of both in a manner that anticipates the audience's knowledge level, concerns, values, and possible biases; c. use words, phrases, and clauses as well as varied syntax to link the major sections of the text, create cohesion, and clarify the relationships between

Comment [DB53]: The indicators are not parallel from grade to grade, so it is difficult to see the progression of a skill

Comment [t51]: Insert "relevant researched evidenc…"

Comment [t49]: Insert "Providing well-researched evidence and data"

Comment [t50]: Repeat suggestion from t49

Comment [DB52]: Is formal style not an expectation before English 3? It is an expectation in 8th grade.

Writing				
Standards	**English 1**	**English 2**	**English 3**	**English 4**
	evidence, reasons, and warrants; e. avoid logical fallacies and demonstrate an understanding of objectivity and subjectivity; f. provide a concluding statement or section that follows from and supports the argument presented; and g. include a call to action.	warrants; e. avoid logical fallacies and demonstrate an understanding of objectivity and subjectivity; f. provide a concluding statement or section that follows from and supports the argument presented; and g. include a call to action.	tone while attending to the norms and conventions of the discipline in which they are writing; and e. provide a concluding statement or section that follows from and supports the argument presented; and f. include a call to action.	claims and reasons, between reasons and evidence, and between claims and counterclaims; d. establish and maintain a formal style and objective tone while attending to the norms and conventions of the discipline in which they are writing; e. provide a concluding statement or section that follows from and supports the argument presented, and f. include a call to action
Standard 2: Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.				
E1-4-W-MCC-2.1	Write informative/ explanatory pieces that: a. introduce a topic; b. organize complex ideas, concepts, and information to make important connections and distinctions; c. include formatting, graphics, and multimedia to aid comprehension as needed;	Write informative/explanatory pieces that: a. introduce a topic; b. organize complex ideas, concepts, and information to make important connections and distinctions; c. include formatting, graphics, and multimedia to aid comprehension as needed;	Write informative/explanatory pieces that: a. introduce a topic; b. organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; c. include formatting, graphics, and multimedia to	Write informative/explanatory pieces that: a. introduce a topic; b. organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; c. include formatting,

Writing				
Standards	**English 1**	**English 2**	**English 3**	**English 4**
	d. develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic; e. use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts; f. use precise language and domain-specific vocabulary to manage the complexity of the topic; g. establish and maintain a consistent style and objective tone while attending to the norms and conventions of the discipline of the writing; and h. provide a concluding statement or section that follows from and supports the information or	d. develop the topic with well-chosen, relevant, and sufficient facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic; e. use appropriate and varied transitions to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts; f. use precise language and domain-specific vocabulary to manage the complexity of the topic; g. establish and maintain a consistent style and objective tone while attending to the norms and conventions of the discipline of the writing; and h. provide a concluding statement or section that follows from and supports the information or explanation presented.	aid as needed; d. develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic; e. use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts; f. use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic; g. establish and maintain a consistent style and objective tone while attending to the norms and conventions of the discipline of the writing; and h. provide a concluding statement or section that follows from and supports	graphics, and multimedia to aid as needed; d. develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic; e. use appropriate and varied transitions and syntax to link the major sections of the text, create cohesion, and clarify the relationships among complex ideas and concepts; f. use precise language, domain-specific vocabulary, and techniques such as metaphor, simile, and analogy to manage the complexity of the topic,; g. establish and maintain a consistent style and objective tone while attending to the

Comment [DB54]: Again – reference to research? Be more explicit.

Writing				
Standards	**English 1**	**English 2**	**English 3**	**English 4**
	explanation presented.		the information or explanation presented.	norms and conventions of the discipline of the writing; and h. provide a concluding statement or section that follows from and supports the information or explanation presented.
Standard 3: Write narratives to develop real or imagined experiences or events using effective techniques, well-chosen details, and well-structured event sequences.				
E1-4-W-MCC-3.1	Incorporate narrative techniques to produce clear, cohesive writing as appropriate to purpose and topic.	Incorporate narrative techniques to produce clear, cohesive writing as appropriate to purpose and topic	Incorporate narrative techniques to produce clear, cohesive writing as appropriate to purpose and topic.	Incorporate narrative techniques to produce clear, cohesive writing as appropriate to purpose and topic.

Language **Standard 1: Demonstrate command of the conventions of Standard American English grammar and usage when writing or speaking**				
E1-4-W-L-1.1	Identify and use verbals (gerunds, infinitives, and participles) in writing;	Use all types of phrases (verb, noun, prepositional, verbal) to communicate different meanings	Use all types of phrases (verb, noun, prepositional, verbal) to communicate different meanings	Demonstrate command and mastery of Standard American English grammar and usage rules.
E1-4-W-L-1.2	Identify and use active and passive tense verbs;	Use all types of clauses (independent, dependent, noun, relative, adverbial) to convey shades of meaning and variety.	Use all types of clauses (independent, dependent, noun, relative, adverbial) to convey shades of meaning and variety	
E1-W-L-1.3	Explain and use verb mood (indicative, imperative, subjunctive, conditional) to communicate different messages; and	No standard in English 2	Demonstrate command of grammar and usage rules.	No Standard in English 4
E1-W-L-1.3	Use parallel structure to communicate similar ideas.	Use parallel structures to communicate similar ideas.	No standard in English 3	No standard in English 4
Standard 2: Demonstrate command of the conventions of Standard American English capitalization, punctuation, and spelling when writing.				
E1-W-L-2.1	Demonstrate command of the conventions of Standard American English capitalization, punctuation, and spelling when writing.	Demonstrate command of the conventions of Standard American English capitalization, punctuation, and spelling when writing.	Demonstrate command of the conventions of Standard American English capitalization, punctuation, and spelling when writing.	Demonstrate command of the conventions of Standard American English capitalization, punctuation, and spelling when writing.
E1-W-L-2.4	Spell correctly.	Spell correctly.	No standard in English 3	No standard in English 4

Comment [DB55]: Omission or intentional?

Comment [DB56]: Should this be repeated in English 2 and 4?

Comment [t57]: Repeat of indicator number

Range and Complexity **Standard 1: Write independently and routinely for a variety of tasks, purposes, and audiences over short and extended time frames.**				
E1-W-RC-1.1	Write routinely and persevere in writing tasks over short and extended time frames, for a range of domain-specific tasks, and for a variety of purposes and audiences.	Write routinely and persevere in writing tasks over short and extended time frames, for a range of domain-specific tasks, and for a variety of purposes and audiences	Write routinely and persevere in writing tasks over short and extended time frames, for a range of domain-specific tasks, and for a variety of purposes and audiences	Write routinely and persevere in writing tasks over short and extended time frames, for a range of domain-specific tasks, and for a variety of purposes and audiences.
E-1-W-RC-1.2	Adjust the writing process for the task increasing length and complexity.	Adjust the writing process for the task increasing length and complexity.	Adjust the writing process for the task increasing length and complexity.	Adjust the writing process for the task increasing length and complexity.

Communication

Meaning and Context

Standard 1: Interact with others to explore ideas and concepts, communicate meaning, and develop logical interpretations through collaborative conversations; build upon the ideas of others to clearly express one's own views while respecting diverse populations.

Indicator	Grade 8	English I	English II	English III	English IV
1.1	Attend discussions prepared to share evidence that supports the topic, text, or issue being probed and discussed.	Share evidence that supports the topic, text, or issue being probed and discussed.	Initiate and participate effectively in a range of collaborative discussions with diverse partners.	Initiate and participate effectively in a range of collaborative discussions with diverse partners.	Initiate and participate effectively in a range of collaborative discussions with diverse partners.
1.2	Ask probing questions that connect the ideas of several speakers and respond with relevant ideas, evidence, and observations.	Building on the ideas of others and expressing their own clearly and persuasively.	Share evidence that supports the topic, text, or issue being probed and discussed	Share evidence that supports the topic, text, or issue being probed and discussed	Share evidence that supports the topic, text, or issue being probed and discussed
1.3	Consider new ideas and diverse perspectives of others when clearly and persuasively expressing one's own views.	Ask relevant questions to acquire or confirm information.	Build on the ideas of others and expressing their own clearly and persuasively	Build on the ideas of others and expressing their own clearly and persuasively	Build on the ideas of others and expressing their own clearly and persuasively

Comment [DB59]: There is no mention of collaboration or group discussions in this standard. With whom are they to share evidence? In oral or written communication?

Comment [DB58]: Don't omit the need for preparation before discussion in other grade levels. Effective communication comes from preparation.

Comment [DB60]: What is the learning target here? Can we assess "building on the ideas of others"?

Comment [DB61]: This is the same verbiage as the English 1 1.1. Is that an error?

Comment [DB62]: There is a pattern to the way a skill is introduced in English 1 under one indicator and then dropped to another indicator in English 2-4. Confusing and lacks clear vertical articulation.

Indicator	Grade 8	English I	English II	English III	English IV
1.4	Prepare for and engage in conversations to explore complex ideas, concepts, and texts; build coherent lines of thinking.	Synthesize areas of agreement and disagreement including justification for personal perspective.	Ask relevant questions to acquire or confirm information.	Ask relevant questions to acquire or confirm information.	Ask relevant questions to acquire or confirm information.
1.5		Revise conclusions using new evidence and reasoning presented.	Synthesize areas of agreement and disagreement including justification for personal perspective, revising conclusions using new evidence and reasoning presented.	Synthesize areas of agreement and disagreement including justification for personal perspective, revising conclusions using new evidence and reasoning presented.	Synthesize areas of agreement and disagreement including justification for personal perspective, revising conclusions using new evidence and reasoning presented.
1.6		Utilize various modes of communication to present a clear, unique interpretation of diverse perspectives with well-chosen and well-organized facts and details.	Utilize various modes of communication to present a clear, unique interpretation of diverse perspectives with well-chosen and well-organized facts and details.	Utilize various modes of communication to present a clear, unique interpretation of diverse perspectives with well-chosen and well-organized facts and details.	Utilize various modes of communication to present a clear, unique interpretation of diverse perspectives with well-chosen and well-organized facts and details.

Indicator	Grade 8	English I	English II	English III	English IV
1.7		Engage in dialogue with peers and adults to explore meaning and interaction of ideas, concepts, and elements of text, reflecting, constructing, and articulating new understandings.	Engage in dialogue with peers and adults to explore meaning and interaction of ideas, concepts, and elements of text, reflecting, constructing, and articulating new understandings.	Engage in dialogue with peers and adults to explore meaning and interaction of ideas, concepts, and elements of text, reflecting, constructing, and articulating new understandings.	Engage in dialogue with peers and adults to explore meaning and interaction of ideas, concepts, and elements of text, reflecting, constructing, and articulating new understandings.
1.8		Evaluate and selectively applying critical review of peers and adults for improvement of communication.	Evaluate and selectively applying critical review of peers and adults for improvement of communication.	Evaluate and selectively applying critical review of peers and adults for improvement of communication.	Evaluate and selectively applying critical review of peers and adults for improvement of communication.

Comment [DB63]: There is no mention of establishing rules for collegial conversations. Students don't come to this task without instruction and structure. If you don't address it in a standard, will teachers teach that structure?

Comment [DB64]: This indicator seems so fundamental that it should be listed first under communication.

Comment [DB65]: Selectively apply?

Standard 2: Articulate ideas, claims, and perspectives in a logical sequence using information, findings, and credible evidence from sources.

Indicator	Grade 8	English I	English II	English III	English IV
2.1	Articulate claims or findings in a focused, well-organized, concise, and coherent manner that contain well-chosen details and sound reasoning.				
2.2	Address alternative or opposing perspectives appropriate to the mode of communication.	Organize and effectively incorporate the introduction, transitions, body, and conclusions including appropriate facts, original thinking, literary quotations, anecdotes, and/or references to authoritative sources based on topic, audience, occasion, and purpose.	Organize and effectively incorporate the introduction, transitions, body, and conclusions including appropriate facts, original thinking, literary quotations, anecdotes, and/or references to authoritative sources based on topic, audience, occasion, and purpose.	Organize and effectively incorporate the introduction, transitions, body, and conclusions including appropriate facts, original thinking, literary quotations, anecdotes, and/or references to authoritative sources based on topic, audience, occasion, and purpose.	Organize and effectively incorporate the introduction, transitions, body, and conclusions including appropriate facts, original thinking, literary quotations, anecdotes, and/or references to authoritative sources based on topic, audience, occasion, and purpose.
2.3	Distinguish between credible and non-credible	Articulate a perspective with clear reasoning and	Articulate a perspective with clear reasoning and	Articulate a perspective with clear reasoning and	Articulate a perspective with clear reasoning and valid

Comment [DB66]: No 2.1 in the upper grades? Why?

Comment [DB67]: Organization is not a vertical progression of addressing alternative perspectives.

Comment [DB68]: Loss of articulation from the 8th grade skill of distinguishing a credible source. Or is "valid evidence" the link?

Indicator	Grade 8	English I	English II	English III	English IV
	sources of information presented in diverse media and formats.	valid evidence.	valid evidence.	valid evidence.	evidence.

Standard 3: Communicate information through strategic use of multiple modalities, visual displays, and digital media to enrich understanding when presenting ideas and information.

Indicator	Grade 8	English I	English II	English III	English IV
3.1	Utilize appropriate multimedia components and digital tools to clarify information and emphasize salient points.	Recognize how context influences choice of communication strategies, and determine the appropriate modes for presenting ideas in a given situation.	Recognize how communication context influences choice of communication strategies, and determine the appropriate mode for presenting ideas in a given situation.	Analyze how communication context influences choice of communication strategies, and employ the appropriate mode for presenting ideas in a given situation.	Analyze how communication context influences choice of communication strategies, and employ the appropriate mode for presenting ideas in a given situation.
3.2		Create engaging visual and/or digital presentations, strategically using a variety of media forms to enhance understanding of findings, reasoning,	Create engaging visual and/or digital presentations strategically using a variety of media forms to enhance understanding of findings, reasoning,	Construct engaging visual and/or digital presentations strategically using a variety of media forms to enhance understanding of findings, reasoning,	Construct engaging visual and/or digital presentations strategically using a variety of media forms to enhance understanding of findings, reasoning,

Comment [DB69]: If a student "determines" the appropriate mode, does he also employ it to create a product? The standard indicates a product would be created, but the indicator for English 1 and English 2 does not explicitly require the student to create anything – just be theoretical about it.

Comment [DB70]: Here is explicit language

Comment [DB71]: Look at the denotation of create and construct – what's the difference? The standards are identical except for semantics. No progression of skills.

Indicator	Grade 8	English I	English II	English III	English IV
		and evidence for diverse audiences.	and evidence for diverse audiences.	and evidence for diverse audiences.	and evidence for diverse audiences.

Language, Craft and Structure

Standard 1: Critique how a speaker addresses content and craft techniques that stylistically and structurally inform, engage, and impact audience and convey messages.

Indicator	Grade 8	English I	English II	English III	English IV
1.1	Determine if a speaker is conscious of the audience and makes needed adjustments.	Determine if the speaker develops well-organized messages that use logical, emotional, and ethical appeals.	Determine if the speaker develops well-organized messages that use logical, emotional, and ethical appeals.	Analyze the speaker's delivery of messages that present an apparent and logical perspective on the subject and support the central idea with well-chosen and well-organized facts and details.	Evaluate the speaker's delivery of messages that present an apparent and logical perspective on the subject and support the central idea with well-chosen and well-organized facts and details.
1.2	Identify the speaker's use of consonance, assonance, and modulation to convey messages.	Determine if the speaker remains conscious of the audience and anticipates possible misconceptions or objections.	Determine if the speaker remains conscious of the audience and anticipates possible misconceptions or objections.	Analyze how different mediums communicate similar ideas to a variety of audiences.	Evaluate how different mediums communicate the similar ideas to a variety of audiences.
1.3	Analyze the effectiveness of the speaker's craft to	Analyze the speaker's use of effective repetition, rhetorical	Analyze the speaker's use of effective repetition, rhetorical	Analyze how different media forms of television	Evaluate how different media forms of television news,

Comment [DB72]: Wouldn't evaluate be a better verb? What are students expected to do with this indicator? What's the learning target? Are they peer evaluators of a speaker?

Comment [DB73]: There is no clear articulation in this indicator from grade to grade.

Comment [DB74]: Not appropriate for this standard. Consonance and assonance are not generally evaluated as a part of rhetorical speech making. What is the goal here?

Comment [DB75]: Not sure that this is a natural progression from the 8th grade through English 2, but I like all the grade level indicators.

Indicator	Grade 8	English I	English II	English III	English IV
	convey a message.	questions, and delivery style to convey the message and impact the audience.	questions, and delivery style to convey the message and impact the audience.	news, documentaries, and online news sources cover the same event.	documentaries, and online news sources cover the same event.
1.4	Identify the speaker's use of analogies and allusions to convey messages.	Explain how different mediums communicate similar ideas or events to a variety of audiences.	Explain how different mediums communicate similar ideas or events to a variety of audiences.	Analyze stated and implied and/or literal and figurative meanings of a message.	Evaluate stated and implied and/or literal and figurative meanings of a message.
1.5		Explain stated and implied and/or literal and figurative meanings of a message.	Explain stated and implied and/or literal and figurative meanings of a message.		
1.6		Compare how different media forms of television news, documentaries, online news sources cover the same event.	Compare how different media forms of television news, documentaries, online news sources cover the same event.		

Comment [DB76]: English 1 and 2 indicators seem more closely tied to the intent of indicator 1.3 for English 3 and 4.

Comment [DB77]: Ok – I think these need to be moved up to 1.4

Comment [DB78]: These need to be moved up to be the grade level indicators of

Standard 2: Incorporate craft techniques to stylistically and structurally engage and impact audience and convey messages.

Indicator	Grade 8	English I	English II	English III	English IV
2.1	Consider audience when selecting presentation types.	Remain conscious of the audience and anticipate possible misconceptions or objections.	Remain conscious of the audience and anticipate possible misconceptions or objections	Give extemporaneous and planned presentations that are engaging and well-crafted.	Give extemporaneous and planned presentations that are engaging and well-crafted.
2.2	Create a well-organized and concise presentation.	Employ effective repetition, rhetorical questions, and delivery style to convey message impact on the audience.	Employ effective repetition, rhetorical questions, and delivery style to convey message impact on the audience.	Deliver messages that present an apparent and logical perspective on the subject and support the central idea with well-chosen and well-organized facts and details.	Deliver messages that present an apparent and logical perspective on the subject and support the central idea with well-chosen and well-organized facts and details.
2.3	Adjust presentations as needed based on audience awareness.	Develop messages that use logical, emotional, and ethical appeals.	Develop messages that use logical, emotional, and ethical appeals.		
2.4	Employ the sound devices of consonance, assonance, and modulation to convey messages.				
2.5	Employ analogies and allusions to convey messages.				

Comment [DB79]: Lack of clarity – what does this mean?

Comment [DB80]: How does one assess this?

Comment [DB81]: I can assess this – there is a learning target

Comment [DB82]: What is an "apparent perspective"? Is this a clear perspective – a point of view or opinion?

Comment [DB83]: Why is this indicator not continued?

Comment [DB84]: Not cognitively appropriate

Comment [DB85]: Good idea – why is it not continued in high school? Is the assumption that it has been previously taught so students will continue to employ them?