



**A Review of the South Carolina
College- and Career-Ready Standards in
English Language Arts and Mathematics**

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Introduction

This report provides a review of the South Carolina College- and Career-Ready Standards (SCCCRS) for English language arts and mathematics, adopted by the South Carolina Board of Education on March 11, 2015, to replace the Common Core State Standards (CCSS). These new standards stem from state legislation signed by Governor Nikki Haley in 2014 requiring the state to review the CCSS and develop new standards for the 2015–16 academic year. The SCCCRS were developed by South Carolina teachers and others and released in the fall of 2014 for public review and comment. From December 2014 through January 2015, teams of reviewers convened by the state’s Education Oversight Committee (EOC) and the state Department of Education worked through multiple drafts of the standards. The EOC approved a draft in March 2015, which was then sent to the South Carolina Board of Education for final approval and adoption.

Achieve’s review compares the SCCCRS with the CCSS and with the Indiana Academic Standards, which were adopted by the Indiana State Board of Education in April 2014. The rationale for including the Indiana Academic Standards in this comparison is simple: Indiana is the only other state to have adopted the CCSS and subsequently adopted its own college and career readiness standards after its state legislation reversed the state adoption of the CCSS. Similar to the SCCCRS, the Indiana Academic Standards define what students should know and be able to do. They were validated as measuring college and career readiness by the Indiana Education Roundtable, the Indiana Commission for Higher Education, the Indiana Center for Education and Career Innovation, and the Indiana State Board of Education.

This review of the SCCCRS uses the criteria and procedures that Achieve has developed and refined to evaluate academic standards for more than 25 states over the past 15 years. Achieve has used similar methods for comparing standards in 15 countries. These six criteria are rigor, coherence, focus, specificity, clarity/accessibility, and measurability.

Executive Summary

English Language Arts

Much like Indiana's standards, South Carolina's new standards for English language arts (ELA) trace their lineage back to the Common Core State Standards (CCSS) and the research underpinning those standards regarding what skills students must graduate with to be college and career ready. While there are some notable gaps in South Carolina's standards, they retain many of the key strengths of the CCSS.

South Carolina's standards include a couple of important additions over and above what the CCSS or the Indiana Academic Standards demand. Occasionally, South Carolina standards diverge from the CCSS expectations, which affects the rigor of what students are expected to do. But the majority of the new standards South Carolina has advanced draw verbatim — or with only minor or inconsequential wording changes — from the CCSS and also are closely aligned with the Indiana Academic Standards, which themselves are nearly identical to the CCSS. In short, though South Carolina's standards might be framed using slightly different wording from the CCSS or Indiana's standards, most of the standards reflect no substantive changes in overall expectations.

Key Findings

- 1. The South Carolina standards have highlighted a couple of important skills that prepare students for college and careers that are not singled out in the CCSS.**

Fluency is the ability to read a text accurately, at an appropriate rate, and with expression. Readers who lack fluency must read slowly, word by word, which leaves them little ability to understand the meaning of sentences, paragraphs, and the connections between them. Fluent readers do not have to concentrate on decoding words; they can focus their attention on what the text means.

While the CCSS and Indiana Academic Standards include requirements for fluency, those requirements end in grade 5. Yet as students are asked to read and comprehend more complex texts, it is important for them to continue to work on their fluency. South Carolina's standards include a fluency strand up through grade 12.

Independent reading is another important aspect of learning to read. Students develop stamina, efficacy, and persistence through reading on their own a volume of texts that engage them. Independent reading also rapidly expands vocabularies and knowledge bases through contextualized exposure to lots of words and allows students to learn the sheer pleasure of becoming lost in the printed world of ideas.

While the CCSS and Indiana Academic Standards point to the importance of independent reading, embedding that skill in the context of text complexity expectations, South Carolina includes a stand-alone standard that explicitly calls for sustained independent reading:

South Carolina	Common Core State Standards
Read independently for sustained periods of time to build stamina.	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 4–5 text complexity band independently and proficiently.

2. The South Carolina standards note the issue of developing literacy across different content areas but only through a short, broadly stated list of disciplinary literacy practices.

In their present form, the South Carolina standards do not address the need for all content areas to address the issue of literacy skills in instruction. This is crucial because disciplines such as science and history depend on reading and writing, too; literacy skills are not unique to ELA classes. South Carolina’s Disciplinary Literacy practices offer only three broad-based recommendations toward reading and responding to texts in particular disciplines:

- Read, write, and communicate using knowledge of a particular discipline.
- Integrate the Reading, Writing, and Communication Standards and the Inquiry-Based Literacy Standards to communicate and create understanding within content areas.
- Extend and deepen understanding of content through purposeful, authentic, real-world tasks to show understanding and integration of content within and across disciplines.

South Carolina explicitly states that these disciplinary practices “*are not standards*” (their emphasis) and goes on to add that they therefore should not be assessed. Practices that are not assessed likely will be perceived as less important and take a back seat in instruction to content and skills that will be assessed.

The CCSS (and Indiana’s standards) offer an entirely separate set of disciplinary-specific standards — “Literacy in History/Social Studies, Science, and Technical Subjects” — for grades 6–12. Reading and writing are addressed differently in the various content areas, responding to the unique needs of the disciplines and the texts associated with them. In order to help students become truly competent readers, writers, and thinkers, standards should include clear expectations for reading (and writing) that extend beyond the ELA classroom to fully prepare students for the rigors of college and careers. The South Carolina standards include a note that reads, “Additional information and elaboration for Disciplinary Literacy will be included in a support document,” so perhaps more detail will be forthcoming to fill this perceived gap.

3. The South Carolina standards require that students read grade-level texts but do not offer clear guidance as to what is considered appropriate in terms of grade-level complexity.

The research in ACT’s 2006 report, *Reading Between the Lines: What the ACT Reveals About College Readiness in Reading*, showed that “the clearest differentiator in reading between students who are college ready and students who are not is the ability to comprehend *complex* texts.” This is a crucial feature of college- and career-ready standards, and any standards that do not explicitly target this need

lack a critical element.

The South Carolina ELA standards include the same standard repeated at all grade levels that stipulates the level of reading expected: “Read and respond to grade level text to become self-directed, critical readers, and thinkers.”¹ Yet South Carolina’s standards do not offer any additional guidance to educators and students regarding selecting works of appropriate complexity levels to help students become college- and career-ready readers. This could easily result in educators retaining the same texts they are teaching now at their grade levels without actually knowing whether they are grade appropriate in terms of complexity. (Research in *Appendix A* of the CCSS illustrates that students are not regularly reading appropriately complex texts for their grade band.)

Reading standards have grappled with the issue of defining grade-level texts in a variety of ways. One way to do this is by offering a reading list; another is through judicious use of examples within the standards themselves. The CCSS describe a variety of quantitative levels and qualitative factors that define text complexity and include *Appendix A: Research Supporting Key Elements of the Standards*, in which text complexity is defined by grade band. In addition, the CCSS offer *Appendix B*, which includes text complexity exemplars for all grades and most genres.

Within the standards themselves, the CCSS include specific requirements regarding the kinds of grade level-appropriate texts that students should read and have access to, including plays by Shakespeare and an American dramatist as well as seminal U.S. documents of historical and literary significance (e.g., The Declaration of Independence and early 19th-century foundational works of American literature) — exemplars that South Carolina does not include. Being able to handle texts of this range is a strong predictor of college and career readiness and prepares students for a wide variety of reading challenges. Reading seminal U.S. documents in particular helps ensure that students are ready to participate in public discourse and the civic life of the country.

4. Despite the departures noted above, South Carolina’s standards are otherwise closely aligned with the expectations spelled out in the CCSS and Indiana Academic Standards.

Despite the concerns voiced above, South Carolina's standards compare favorably to the CCSS (and Indiana Academic Standards) across a range of categories. The state’s standards oftentimes are identical to the CCSS, and most differences are merely a matter of phrasing. The South Carolina standards for the most part retain the high expectations set by the CCSS and Indiana, exemplified by a broad selection of standards across the grades offered below.

¹ In earlier grades, the standard reads, “Read grade-level texts with purpose and understanding.”

Common Core State Standards	South Carolina College- and Career-Ready Standards ²	Indiana College and Career-Ready Standards
RL.1.7 Use illustrations and details in a story to describe its characters, setting, or events.	RL.1.6.1 Describe the relationship between the illustrations and the characters, setting or events.	1.RL.4.1: Use illustrations and details in a story to describe its characters, setting, or events.
<p>RF.1.4 Read with sufficient accuracy and fluency to support comprehension.</p> <p>a. Read grade-level text with purpose and understanding.</p> <p>b. Read grade-level text orally with accuracy, appropriate rate, and expression on successive readings.</p> <p>c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.</p>	<p>RL.1.4.2 Read grade-level texts orally with accuracy, appropriate rate, and expression on successive readings.</p> <p>RI.1.4.1 Read grade-level texts with purpose and understanding.</p> <p>RI.1.4.2 Read grade-level texts orally with accuracy, appropriate rate, and expression on successive readings.</p> <p>RI.1.4.3 Use context to confirm or self-correct word recognition and understanding rereading as necessary.</p>	1.RF.5: Orally read grade-level appropriate or higher texts smoothly and accurately, with expression that connotes comprehension at the independent level.
RI.4.8 Explain how an author uses reasons and evidence to support particular points in a text.	RI.4.11.2 Explain how an author uses reasons and evidence to support particular points.	4.RN.4.1: Distinguish between fact and opinion; explain how an author uses reasons and evidence to support a statement or position (claim) in a text.
SL.4.5 Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.	C.4.3.2 Create presentations using videos, photos, and other multimedia elements to support communication and clarify ideas, thoughts, and feelings.	4.SL.4.2: Create oral presentations that maintain a clear focus, using multimedia to enhance the development of main ideas and themes that engage the audience.
W.7.10 Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.	W.7.6.1 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.	7.W.1: Write routinely over a variety of time frames for a range of tasks, purposes, and audiences; apply reading standards to support analysis, reflection, and research by drawing evidence from literature and nonfiction texts.
SL.7.5 Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.	C.7.3.2 Utilize multimedia to clarify information and strengthen claims or evidence.	7.SL.4.2: Create engaging presentations that include multimedia components and visual displays to clarify claims and findings and emphasize salient points.
RL.11-12.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.	RL.E3.5.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text including determining where the text leaves matters uncertain; investigate	11-12.RL.2.1: Cite strong and thorough textual evidence to support analysis of what a text says explicitly as well as inferences and interpretations drawn from the text, including

² In referring to South Carolina’s standards, we have adopted the following numbering nomenclature: Standard Area (e.g., “W” for writing, “C” for communications), grade, and then South Carolina’s numbering system. Please note that grades 9–12 in South Carolina’s standards are indicated as E1–E4.

	multiple supported academic interpretations.	determining where the text leaves matters uncertain.
SL.11-12.3 Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.	C.E3.4.1 Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.	11-12.SL.3.2: Evaluate a speaker's point of view, reasoning, and use of evidence and rhetoric, assessing the stance, premises, links among ideas, word choice, points of emphasis, and tone used.

Mathematics

South Carolina’s new standards clearly reflect the CCSS in many ways, particularly at grades K–8, much as Indiana’s standards do. While there are some differences, the South Carolina standards nonetheless retain many of the key elements of the CCSS. Differences between the three sets of standards are more pronounced at the high school level, particularly regarding the indicated knowledge and skills students need if they are to be college and career ready when they graduate from high school.

Key Findings:

- 1. While South Carolina’s expectations for college and career readiness closely parallel the CCSS, the standards have frequently been reworded.**

South Carolina’s mathematics standards for grades K–8 closely parallel the CCSS with respect to the content and performance expectations they set for students, oftentimes using the same wording, minus the cluster headings used in the CCSS to group and further explicate related standards. As such, the South Carolina standards lose a level of clarity in comparison to the CCSS. Sometimes the wording of the two sets of standards is fairly comparable, but the clarity and the mathematical precision of the CCSS are missing. For example:

South Carolina	Common Core State Standards
K.NS.5 Count a given number of objects from 1–20 and connect this sequence in a one-to-one manner.	CC.K.CC.4a When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.

Other times, a South Carolina standard may be reworded to set a different expectation. For example, as seen below, the CCSS expect students to *establish* the Angle-Angle criterion for two triangles, while South Carolina expects students to use the criterion to show that two triangles are similar.

South Carolina	Common Core State Standards
GSRT.3 Prove that two triangles are similar using the Angle-Angle criterion and apply the proportionality of corresponding sides to solve problems and justify results.	G-SRT.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

A difference in the level of specificity of wording comes when comparing South Carolina’s Mathematical Process Standards with the CCSS Standards for Mathematical Practice (and also Indiana’s Process Standards for Mathematics). It appears that South Carolina has reworded, collapsed, and synthesized the narrative descriptors that define the CCSS Practices and, in the process, has lost some of the detail that would have been important as teachers work to implement the South Carolina standards.

2. South Carolina has added some expectations, deleted some expectations, and moved some expectations from one grade level to another. For grades K–8, these modifications are minimal and generally do not detract from the rigor, coherence, and focus of the standards.

The SCCCRS, particularly for grades K–8, are generally rigorous, coherent, focused, specific, clear and accessible, and measurable. They draw on strengths from the CCSS but use the expertise of South Carolina educators to help tailor the standards to meet the needs of the state’s educators and students. They provide the coherence and focus that are characteristic of the CCSS in mathematics and are generally specific enough to convey the level of performance expected of students. With some caveats, particularly at the high school level, they are generally appropriately rigorous, including content and performance expectations at a level of cognitive demand that will put students on a trajectory for college and career readiness. The standards appear to provide an appropriate balance between conceptual understanding; procedural skills and fluency; and application to problem solving.

South Carolina has, in some instances, added expectations that are not in the CCSS, deleted standards that are in the CCSS, and on a few occasions, changed the grade level at which a student expectation is set. However, these modifications are minimal and do not generally affect the quality of South Carolina’s K–8 standards. One addition — the inclusion of matrices and matrix operations at grade 8 — appears with questionable coherence, however, since matrices do not appear again until Pre-Calculus, which many students may never take in high school.

Close alignment between the CCSS and the SCCCRS at grades K–8 means that South Carolina educators should be able to identify and adapt instructional materials that are being published as aligned to the CCSS or Indiana’s Academic Standards — making accommodations in those instances where South Carolina has changed the grade-level placement of selected standards.

3. There are a variety of course sequences that students can take to meet graduation requirements. Regardless of which combination of four courses high school students in South Carolina take, they will miss content that students in other states see in the three years of high school mathematics courses aligned to the CCSS.

While South Carolina requires four units of mathematics as part of its graduation requirements, there are no specific course requirements. Based on the South Carolina High School Mathematics Course Pathways document³, students might, for example, take and pass Algebra 1; Geometry; Algebra 2; and then either Probability and Statistics or Pre-Calculus in order to graduate. Other students might opt to take and pass Foundations in Algebra; Intermediate Algebra; Geometry; and a fourth course such as Algebra II, Probability and Statistics, or Discrete Mathematics. However, with the new SCCCRS, students would also have to take both Probability

³ <https://ed.sc.gov/agency/ie/School-Transformation/State-Priority-School/documents/SCHSMathematicsCoursePathways2015.pdf>

and Statistics and Pre-Calculus to see all of the mathematics that would be included in three mathematics courses aligned to the CCSS or Indiana's Academic Standards. For example, in South Carolina, logarithms and inverse functions first appear in Pre-Calculus while conditional probability and standard deviation appear in Probability and Statistics. As such, students who either take Algebra I, Geometry, Algebra II, and Pre-Calculus or take Algebra I, Geometry, Algebra II, and Probability and Statistics, will not see all of the mathematics targeted in the non-(+) standards in the CCSS. Students who complete the Algebra I, Geometry, and Algebra II course sequence will not experience the same expectations for readiness as students who take those same set of courses aligned to the CCSS or to Indiana's Academic Standards. With the new SCCCRS, students would also have to take both Probability and Statistics and Pre-Calculus, in addition to Algebra I, Geometry and Algebra II, in order to see all of the mathematics that would be included in three mathematics courses aligned to the CCSS.

Although the state does not specify course requirements for graduation, it has identified a subset of the high school standards as Graduation Standards to "specify the mathematics high school students should know and be able to do in order to be both college- and career-ready." The Graduation Standards represents a lower bar for college and career readiness than is envisioned by the CCSS and Indiana's Academic Standards.

Review of South Carolina’s College- and Career-Ready English Language Arts Standards Using Achieve’s Criteria for Evaluating College- and Career-Ready Standards

The purpose of Achieve’s standards review is to assist states in developing high-quality college- and career-ready standards in English language arts (ELA) and literacy that prepare students for success in credit-bearing college courses and quality, high-growth jobs. When evaluating standards, Achieve has historically used a set of six criteria: rigor, coherence, focus, specificity, clarity/accessibility, and measurability. For purposes of this analysis, the South Carolina College- and Career-Ready ELA Standards were analyzed with respect to these criteria and additionally compared with the Common Core State Standards (CCSS) as well as to the 2014 Indiana Academic Standards for ELA.

Rigor

Rigor is the quintessential hallmark of exemplary standards. It is the measure of how closely a set of standards represents the content and cognitive demand necessary for students to succeed in credit-bearing college courses without remediation and in entry-level, quality, high-growth jobs. To reflect the research that identifies what students need to be well prepared for college and careers, standards need to focus on (a) text complexity and academic vocabulary, (b) drawing evidence from texts to support claims and conclusions, and (c) content-rich non-fiction.

The South Carolina standards spotlight the importance of students learning academic vocabulary but lack specificity with regard to the complexity levels (despite requiring students to read grade-level texts).

Research makes clear that the complexity levels of the texts students are presently required to read are significantly below what is required to achieve college and career readiness.⁴ Rather than focus solely on the skills of reading and writing, standards need to build a staircase of text complexity so that all students are ready for the demands of college- and career-level reading by the end of high school.

In South Carolina’s standards, what qualifies as grade-level text remains undefined. Whereas states have used a variety of approaches to indicate the appropriate level of complexity — by including one or more of the following: a reading list, example texts, or a rubric of some kind to guide educators and students in selecting works of appropriate complexity to meet the standards — South Carolina did not. Nor do the South Carolina standards require students to read particular texts or classes of text (e.g., foundational works of American literature or key texts from the Founding Fathers or President Lincoln) and compare them on the basis of theme or topic as the CCSS call for.

Closely related to text complexity — and inextricably connected to reading comprehension by nearly a century of research — is the need for standards to focus on building students’ academic vocabulary — words that appear in a variety of content areas. The South Carolina standards do a good job of addressing general academic and domain-specific vocabulary.

⁴ACT, Inc. (2006). “Reading Between the Lines: What the ACT Reveals About College Readiness in Reading.” Iowa City, IA: Author.

The South Carolina standards provide grounding in drawing evidence from texts.

Surveys of employers and college faculty cite the ability to extract details from texts and draw accurate conclusions in writing using evidence as key to success in college and the workplace.⁵ As the ability to find and use evidence to support claims is a hallmark of strong readers and writers, college- and career-ready standards call on students to answer text-dependent questions that demonstrate their ability to closely read a text. This measure places a premium on students not only explicitly finding what is stated, but also making valid claims that square with the evidence when writing to sources.

The South Carolina writing standards call for writing to sources. There are a couple of lapses wherein the South Carolina standards ask students to go outside the four corners of the text to draw inferences or make claims; curiously, in grades 4 and 5 only, the following standards appear:

- Grade 4: 5.1 Ask and answer inferential questions to analyze meaning beyond the text; refer to details and examples within a text to support inferences and conclusions.
- Grade 5: 5.1 Quote accurately to analyze the meaning of and beyond the text to support inferences and conclusions.

The South Carolina standards place an emphasis on reading content-rich informational text, yet the requirements around conducting research using such text are less clear.

Most of the required reading in college and workforce training programs is informational in structure and challenging in content. Part of the motivation behind supporting the interdisciplinary approach to literacy is the extensive research establishing the need for students to be proficient in reading and learning from complex informational text independently in a variety of content areas. Fulfilling this mandate requires that ELA classes also place greater attention on a specific category of informational text — literary non-fiction — than has been traditional in many classrooms.

The South Carolina reading standards are separated into two sections: Reading Literary Text and Reading Informational Text. This clearly communicates the expectation that, in addition to students reading and studying literature, they will read and study informational texts. The closest South Carolina standards come to providing a research process is their set of Inquiry-Based Literacy Standards. They include formulating questions; gathering information from a variety of sources; organizing, categorizing, and synthesizing important information; and a range of other reading, communication, and metacognitive skills. While the Inquiry-Based Literacy Standards are listed by grade, the language of these standards changes occasionally and slightly moving up the grades — which leads to standards that are sometimes too rigorous for the early grades and don't always reflect the increasing rigor demanded

⁵ 2009 ACT National Curriculum Survey; Intersegmental Committee of the Academic Senates of the California Community Colleges, the California State University, and the University of California, 2002; and Ready or Not: Creating a High School Diploma That Counts. American Diploma Project, 2004.

at the higher grades. In addition, the South Carolina standards include Standard 7 — the CCSS equivalent of an anchor standard — under Reading Informational Text:

Standard 7: Research events, topics, ideas, or concepts through multiple media, formats, and in visual, auditory, and kinesthetic modalities.

This standard lacks the specific focus of the CCSS (and the Indiana Academic Standards) on short as well as sustained research projects and the approach toward conducting them. Requiring several short research projects enables students to repeat the research process many times in a year so they are able to develop the expertise needed to conduct research independently. A progression of shorter research projects also encourages students to develop expertise in one area by confronting and analyzing different aspects of the same topic.

Overall, the South Carolina standards for research are diffuse, with some elements of research embedded in the Inquiry-Based Literacy Standards (e.g., formulating questions, etc.), others (e.g., avoiding plagiarism) embedded in the Argumentative and Explanatory Writing Standards, and still others (e.g., the presentation of findings) in their Communication Standards.

Focus

High-quality standards establish priorities about the concepts and skills that students should acquire by graduation from high school. Choices should be based on the knowledge and skills essential for students to succeed in postsecondary education and the world of work. A sharpened focus also helps ensure that the cumulative knowledge and skills students are expected to learn — and teachers are expected to teach — is manageable.

South Carolina has made real attempts to retain most of the important foci of the CCSS.

South Carolina’s standards reflect an appropriate balance between literature and other important areas such as informational text, evidence, crafting arguments, vocabulary study, and oral and written communication.

South Carolina inexplicably repeats numerous standards from the primary grades all the way through high school.

South Carolina presents many skills in the context of continuing standards from earlier grades (noted by the italics in the grade charts). Sometimes these are standards from as early as kindergarten and grade 1. For example, South Carolina lists the following kindergarten expectations as high school standards: “Recognize and name all upper- and lowercase letters of the alphabet” and “Understand that words are separated by spaces in print.” Continuing to draw attention to these kinds of basic expectations through high school seems unnecessary. It is hard to imagine a high school student who would need instruction in these expectations.

In addition, some of the upper-grade standards supersede the earlier-grade level standards, making the latter's inclusion redundant. For example, the “unfamiliar multisyllabic words” of RI.E3.3.1 would seem to amply cover the skill of understanding “irregularly spelled two-syllable words” and “how syllables work to read multisyllabic words” — both expectations stemming from standards originating in grade 2.

Finally, including all of these standards twice in both the Reading Literary Text strand and again under the Reading Informational Text strand adds unnecessary bulk to the standards; the CCSS and Indiana solve this by creating a reading foundations section of the standards that applies only through grade 5.

South Carolina includes requirements that pertain to handwriting that are not included in the CCSS.

South Carolina’s standards include handwriting from grades 1 through 3, requiring students to print letters in grade 1 and expecting cursive in grades 2 and 3. The CCSS includes only a printing standard at kindergarten and grade 1 — print all upper- and lowercase letters — and does not address cursive at any grade. Including a standard focusing on cursive writing acknowledges a recent debate concerning the teaching of handwriting. It may be the case that some young students are unable to read and write cursive writing, a potential handicap to achieving access to a major form of communication.

Specificity

Quality standards are precise and provide sufficient detail to convey the level of performance expected without being overly prescriptive. Those that are overly broad leave too much open to interpretation, while those that are too atomistic encourage a checklist approach to teaching. Both approaches undermine students’ overall understanding of the discipline, whereas standards that maintain a relatively consistent level of precision (“grain size”) are easier to understand and use.

Although South Carolina’s standards parallel closely the expectations of the CCSS, in some cases the standards are more general and less precise.

As noted previously, there is much parallelism in the language of the South Carolina standards and the CCSS. It’s quite clear that South Carolina used the CCSS as a starting point and the default wording of its standards. Where there are departures, it is equally telling that sometimes the new wording raises issues of clarity and precision avoided by the CCSS and Indiana Academic Standards. Below are some examples.

South Carolina Standards	Common Core State Standards	Indiana Academic Standards
<p>RL.E3.6.1 Analyze the development of related themes across multiple texts citing evidence to support analysis; provide an objective summary.</p>	<p>RL.11-12.2 Determine two or more themes or central ideas of a text and <u>analyze their development over the course of the text, including how they interact and build on one another to produce a complex account</u>; provide an objective summary of the text.</p>	<p>11-12.RL.2.2: Compare and contrast the development of similar themes or central ideas across two or more works of literature and <u>analyze how they emerge and are shaped and refined by specific details.</u></p>

<p>RL.E3.11.1 Analyze how point of view and author’s perspective and purpose shape content, meaning, and style, supports rhetorical or aesthetic purposes, and conveys cultural experience.</p>	<p>RL.11-12.6 Analyze a case in which grasping point of view <u>requires distinguishing what is directly stated in a text from what is really meant (e.g., satire, sarcasm, irony, or understatement).</u></p>	<p>11-12.RL.3.2: Analyze a work of literature in which the reader <u>must distinguish between what is directly stated and what is intended (e.g., satire, sarcasm, irony, or understatement)</u> in order to understand the point of view.</p>
<p>RL.E3.7.1 Analyze the development of theme across diverse media, modality, and format.</p> <p>RL.E3.7.2 Analyze how literary texts and related media allude to themes and archetypes from historical and cultural traditions.</p>	<p>RL.11-12.7 Analyze multiple interpretations of a story, drama, or poem (e.g., recorded or live production of a play or recorded novel or poetry), <u>evaluating how each version interprets the source text. (Include at least one play by Shakespeare and one play by an American dramatist.)</u></p>	<p>11-12.RL.4.1: Analyze multiple interpretations of a story, play, or poem, <u>evaluating how each version interprets the source text and the impact of the interpretations on the audience.</u></p>
<p>RI.E3.11.2 Analyze and critique the reasoning in historical, scientific, technical, cultural, and influential argument writing.</p>	<p>RI.11-12.8 Delineate and evaluate the reasoning <u>in seminal U.S. texts, including the application of constitutional principles and use of legal reasoning (e.g., in U.S. Supreme Court majority opinions and dissents) and the premises, purposes, and arguments in works of public advocacy (e.g., <i>The Federalist</i>, presidential addresses).</u></p>	<p>11-12.RN.4.1: Delineate and evaluate the arguments and specific claims in <u>seminal U.S. and world texts, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.</u></p>
<p>W.E3.6.4 Demonstrate effective keyboarding skills.</p>	<p>W.11-12.6 Use technology, <u>including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.</u></p>	<p>11-12.W.4: Apply the writing process to –</p> <ul style="list-style-type: none"> • <u>Use technology to generate, produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.</u>
<p>RI.7.11.1 Determine the impact of text features and structures on an author’s ideas or claims.</p>	<p>RI.7.5 Analyze the structure an author uses to organize a text, <u>including how the major sections contribute to the whole and to the development of the ideas.</u></p>	<p>7.RN.3.2: Analyze the structure an author uses to organize a text, <u>including how the major sections contribute to the whole and to the development of the ideas.</u></p>
<p>RL.4.7.1 Explore similarities and differences among textual, dramatic, visual, or oral presentations.</p>	<p>RL.4.6 Compare and contrast the point of view <u>from which different stories are narrated, including the difference between first- and third-person narrations.</u></p>	<p>4.RL.3.2: Compare and contrast the point of view <u>from which different stories are narrated, including the difference between first- and third-person narrations.</u></p>

Coherence

The way in which a state’s college- and career-ready standards are categorized and broken out into supporting strands should reflect a coherent structure of the discipline. The structure of the standards ought to reveal significant relationships among the strands and how the study of one complements the

study of another. In addition, the progression of standards should be meaningful and appropriate across the grades.

The South Carolina standards include areas that have been traditionally underrepresented in the ELA curriculum.

The South Carolina standards present a broad vision of ELA that includes important knowledge and skills, not only in such traditional areas of language, writing, and literature, but also in the areas of reading and writing with informational texts and digital media. These areas are critical for preparing students for postsecondary success and have been traditionally underrepresented in the ELA curriculum.

The strands within South Carolina’s standards connect to one another to create an integrated network of study.

The South Carolina standards arrange the ELA strands into five domains: Inquiry Based Literacy, Reading Literary Text Standards, Reading Informational Text Standards, Writing Standards, and Communication Standards. The organization of South Carolina’s standards often attempts to reveal significant relationships among the strands, suggesting how the study of one complements the study of another. Examples include:

- Foundations of reading standards — learning how to read — are included within the reading comprehension strands.
- Language conventions are tied to their application in writing.
- Vocabulary is a significant area of study within the reading comprehension strands.

The South Carolina standards have several layers of demand that could prove complicated for teachers to digest, integrate, and implement.

The South Carolina standards include practices related to the Fundamentals of Reading, Writing and Communication that “delineate the underlying assumptions of the processes students must use and integrate to become successful and proficient readers, writers, and communicators, regardless of their grade level or course placement.” The document states that the Fundamentals “are an integral part of the South Carolina college- and career-ready English Language Arts Standards 2015,” yet the connection between the Fundamentals of Reading and Fundamentals of Writing and the grade-specific standards is not fully clarified. Additionally, the South Carolina standards state that these practices will not be assessed. The connection might be especially confusing to teachers as some of the practices in the Fundamentals also are included as grade-level standards. For example, expectations for writing and communication appear both as Fundamentals and as a grade-specific standard.

Fundamentals of Writing and Communication	Grade-Specific Standards
Employ a recursive writing process that includes planning, drafting, revising, editing, rewriting, publishing, and reflecting.	W.E3.1.1 Write arguments that: h. develop and strengthen writing as needed by planning, revising, editing, rewriting;"
Use active and attentive communication skills by building on other’s ideas to explore, learn, argue, and exchange information.	C.E3.1.2 Initiate and participate effectively in a range of collaborative discussions with diverse partners; build on the ideas of others and express own ideas clearly and persuasively.
Adjusting speech in a variety of contexts and tasks for presenting and participating in the social exchange of ideas in person or electronically.	C.E3.2.4 Adapt speech to a variety of contexts and tasks, using standard English when indicated or appropriate.

The South Carolina standards are uneven with respect to containing meaningful progressions of expectations throughout the grade levels.

Progression is always a fundamental challenge in ELA standards. Students use many of the same reading and writing skills and strategies across all grade levels (such as identifying main idea and supporting details, identifying theme, analyzing point of view or text structure, writing to inform and explain, etc.), but educators expect increasing sophistication and flexibility in the use and application of these skills and strategies, including reading increasingly challenging texts.

Clear patterns of progression are found in the CCSS (and Indiana’s standards). The CCSS show progression in a strand of standards through the use of specific verbs that indicate an increasingly sophisticated performance. Students may progress from identifying and analyzing characters, ultimately evaluating how authors use techniques to develop them. An example of this type of progression is plain to see in the South Carolina standards in grades 4 and 5 in the Reading Literature strand.

Grade 4	Grade 5
9.2 <u>Explain</u> how the author’s choice of words, illustrations, and conventions combine to create mood, contribute to meaning, and emphasize aspects of a character or setting.	9.2 <u>Analyze and cite examples</u> of how the author’s choice of words and conventions combine to create mood, shape meaning, and emphasize aspects of a character or setting.

Yet in later grades, that same sort of clear progression is not evident:

Grade 6	Grade 7
9.2 Analyze the author’s word and convention choices and draw conclusions about how they impact meaning and tone.	9.2 Analyze the impact of the author’s choice of words, word phrases, and conventions on meaning and tone.

Another way the CCSS show progression in a strand of standards is through increasing the complexity of the material involved in performing the standard. An example of this type of visible progression also is evident in the following South Carolina standard:

Grade 4	Grade 5
11.2 Explain how an author uses reasons and evidence to support particular points.	11.2 Explain how an author uses reasons and evidence to support particular points, <u>identifying which reasons and evidence support which points.</u>

But in other grades it is not clear that there is a progression of complexity in the standards:

Grade 10	Grade 11
11.2 Analyze and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.	11.2 Analyze and critique the reasoning in historical, scientific, technical, cultural, and influential argument writing.

A further concern, as discussed in the Focus section of this document (as well as in the Clarity/Accessibility section that follows) is that, on occasion, the standards repeat from grade level to grade level in no discernable pattern.

The South Carolina standards do not maintain parallel structure between like standards.

The inability to maintain parallel structure between like standards within the South Carolina standards could prove confusing to those who use them, with changes implying rather significant differences between standards that ought to have highly similar expectations. For example, here are two grade 11 standards that deal with drawing evidence from texts — one from Reading Literary (RL) Text and the other from Reading Informational (RI) Text:

RL.E3.5.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text including determining where the text leaves matters uncertain; investigate multiple supported academic interpretations.

RI.E3.5.1 Cite significant textual evidence to support synthesis of explicit and inferred meaning and/or in areas the text leaves indeterminate; investigate multiple supported interpretations.

These kinds of differences without a clear rationale will pose challenges in practice. For example, those charged with teaching these two similar standards will want to know what, if anything, the difference is between “strong and thorough textual evidence” and “significant textual evidence.” And they will want to know why the call is for one standard of evidence when reading literature and another when reading informational texts. Lastly, they will want to know what the intended difference is between “analysis” and “synthesis” in the two standards and why “or” is included with respect to informational text but not literature.

Additionally, the South Carolina informational text standards do not include the expectation — that is part of the CCSS (and Indiana’s standards) — of analyzing ideas or sequences of events and how they

interact and develop over the course of the text. This is particularly perplexing given the fact that South Carolina did include a parallel literature standard (RL.E3.8.1) that precisely makes this very same expectation in a literary context.

The South Carolina number system also jumps around considerably, making it more difficult to track coverage. For example, in the CCSS, standard 5 in both reading literature and reading informational text refers to grasping the role of text structure in every grade. In South Carolina, the parallel text structure standards are found in standard 12 in literature, but split between standards 8 and 11 in informational text.

Clarity/Accessibility

In order to be effective, standards must be largely written in clear, familiar language, thereby communicating expectations in prose that can gain widespread acceptance not only by postsecondary faculty but also by educators, parents, school administrators, school boards, legislators, and others who have a stake in schooling.

The format of the South Carolina standards generally makes it easy to recognize the progression of skills from grade to grade as well as the parallel expectations set for each skill; however, formatting on occasion creates confusion rather than clarity with respect to this expectation.

The format of the new South Carolina standards is similar to the CCSS in that it presents the standards in columns by grade so that the progression of demand and complexity ought to be clearly evident moving from left to right across columns. This format allows teachers to see at a glance what their students should have learned in previous years and what students need to be prepared in future years.

However, expectations sometimes are repeated grade to grade in the South Carolina standards, and it is not always clear why that is the case. For example, sometimes standards from grade 3 are repeated verbatim in grade 4. In other standards, it is the grades 4 to 5 standards that repeat one another. This variability is true in other grades, too. Many times expectations for grades 9 and 10 repeat one another as do those for grades 11 and 12; however, there are times when the expectations are different. Here are a couple of examples:

English 1	English 2
11.1 Explain how the author’s ideas or claims are supported through the use of text features and structures.	11.1 <u>Analyze in detail</u> how the author’s ideas or claims are supported through the use of text features and structures.
11.2 Analyze and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.	11.2 Analyze and evaluate the argument and specific claims in a text, assessing whether the reasoning is valid and the evidence is relevant and sufficient; identify false statements and fallacious reasoning.

English 3	English 4
11.1 Evaluate the effectiveness of the author’s use of text features and structures to support a claim.	11.1 <u>Compare and contrast</u> the effectiveness of authors’ uses of text features and structures to support <u>similar</u> claims.
11.2 Analyze and critique the reasoning in historical, scientific, technical, cultural, and influential argument writing.	11.2 Analyze and critique the reasoning in historical, scientific, technical, cultural, and influential argument writing.

As noted previously in the Coherence section, certain standards stop evolving, yet they continue to be referenced in all future grades with the note that “students are expected to build upon and continue applying previous learning” and then a mention of the expectation and the earlier grade that the standard originated in. Sometimes, however, after several grades where the earlier standard is referred to in this fashion, the exact same wording of the earlier standard is listed as if it were a new grade level standard (without the disclaimer). For example, starting in grade 4, standard RL.3.4.2 is repeated: “Read grade-level prose and poetry orally with accuracy, appropriate rate, expression, intonation, and phrasing on successive readings.” Then it shows up again in high school (South Carolina’s standards E1–4) as a stand-alone standard, as if it had not been introduced earlier. This is true of other standards as well, and could prove to be confusing if teachers think the re-introduction of the standard without the disclaimer indicates something different or significant.

Measurability

A critical component of any college- and career-ready set of standards is the ability to measure students’ progress toward meeting the standards.

The South Carolina standards are generally measurable, although they do include a host of expectations that are not.

South Carolina’s standards generally focus on the results of learning and make use of performance verbs that call for students to demonstrate knowledge and skills, rather than those expectations that refer to learning activities or the process of teaching and learning. However, the South Carolina standards also include a series of requirements, such as making predictions, confirming, cross-checking, re-reading, and self-correcting when reading, as well as a host of other strategies and metacognitive skills. Most of these expectations are included under the Fundamentals of Reading. They are techniques and habits that a reader employs in making sense of text — quite often unconsciously — and they are integrated into a reader’s approach to a text, making these techniques not easily observed or measured. The CCSS do not include them (and, with the exception of making predictions, the new Indiana Academic Standards do not include such internal strategy expectations either). Instead, the CCSS (and Indiana’s standards) focus solely on the requirement for students to back up and justify their claims and conclusions by referring “to details and examples from text(s).”

Summary

While there are some notable gaps in South Carolina's standards, these standards retain many of the key strengths of the CCSS. South Carolina's standards include a couple of important additions over and above what the CCSS or the Indiana Academic Standards demand. Occasionally there are South Carolina standards that diverge from the CCSS expectations and affect the rigor of what students are expected to do. But the majority of the new standards South Carolina has advanced draw verbatim — or with only minor or inconsequential wording changes — from the CCSS (and also are closely aligned with the Indiana Academic Standards, which themselves are nearly identical to the CCSS).

Review of the South Carolina College- and Career-Ready Mathematics Standards Using Achieve’s Criteria for Evaluating College- and Career-Ready Standards

The purpose of this standards review is to examine the South Carolina College- and Career-Ready Standards (SCCCRS) for mathematics to determine whether they are high-quality standards in mathematics that prepare students over their K–12 education careers for success in credit-bearing college courses and quality, high-growth jobs.

When evaluating standards, Achieve has historically used a set of six criteria: rigor, coherence, focus, specificity, clarity/accessibility, and measurability. For purposes of this analysis, the newly adopted 2015 SCCCRC were analyzed with respect to these criteria and compared with the Common Core State Standards (CCSS) and the 2014 Indiana Academic Standards for Mathematics. With some caveats and exceptions that are summarized in this report, the SCCCRC generally received favorable evaluations.

Rigor

Rigor refers to the intellectual demand of the standards. It is the measure of how closely a set of standards represents the content and cognitive demand necessary for students to succeed in credit-bearing college courses without remediation and in entry-level, quality, high-growth jobs. Rigorous standards should reflect, with appropriate balance, conceptual understanding, procedural skill and fluency, and applications. For Achieve’s purposes, the CCSS represent the appropriate threshold of rigor.

The SCCCRC are generally appropriately rigorous, including content and performance expectations at a level of cognitive demand, from kindergarten through high school, which will culminate in college and career readiness. There is minor variation as to exactly when content is presented among the SCCCRC, the CCSS, and the Indiana Academic Standards, but the SCCCRC collectively appear to be appropriately rigorous and address with suitable intensity the three components of rigor. There is concern that, in using a subset of the high school SCCCRC to define college and career readiness, South Carolina will set a less intellectually demanding level of expectation than is set in either the CCSS or in Indiana’s Academic Standards.

Grades K–5

For grades K–5, there is generally strong alignment between the expectations in the SCCCRC and the CCSS. The South Carolina writing team typically used their own wording to define student expectations, but strong alignment with the CCSS confirms that the content and performance expectations are comparable. There are only a few instances across these six grades where the SCCCRC address a concept at a different grade level than the CCSS — of these, there are examples where South Carolina introduces concepts both at an earlier and a later grade than the CCSS.

For example, the SCCCRC call for students to use a right angle as a benchmark to identify and sketch acute and obtuse angles in grade 3 (3.G.3), while the CCSS do not introduce concepts of angle measure (including right, acute, and obtuse angles) until grade 4 (CC.4.G.1). Notably, even though the SCCCRC

introduce angle measure one grade earlier than the CCSS, they nonetheless have a 4th grade standard (4.G.1) that mirrors the 4th grade CCSS standard.

There are also occasions where the CCSS set an expectation earlier than South Carolina. For example, the CCSS expect 1st grade students to be able to partition circles and rectangles into two and four equal shares and to describe the shares using the words “half,” “fourth,” and “quarter” and the phrases “half of,” “fourth of,” and “quarter of.” The CCSS also expect students to understand that decomposing into more equal shares creates smaller shares (CC.1.G.3). While South Carolina introduces the concept of partitioning into equal shares in grade 1 (1.G.3), it defers the comparable SCCCRS to 2nd grade (2.G.3).

There are very few cases where South Carolina has added or deleted K–5 standards when compared with the CCSS. One of the few notable added topics is repeating patterns, which South Carolina includes in kindergarten and 1st grade. The Indiana Academic Standards similarly have added patterning in the early grades. While the CCSS require memorization of sums of two one-digit numbers (2.OA.2) and memorization of all products of two one-digit numbers (3.OA.7), the South Carolina standards set no specific memorization requirements.

The SCCCRS, the Indiana Academic Standards and the CCSS have similar expectations with respect to fluency at grades K–5, although the Indiana Academic Standards call for students to be able to demonstrate fluency with addition facts and the corresponding subtraction facts within 20 in 1st grade — one grade earlier than the SCCCRS and the CCSS. All three sets of standards refer to using a standard algorithm, or standard algorithmic approach, when performing mathematical procedures.

Grades 6–8

For grades 6–8, there is similarly strong alignment between the expectations in the SCCCRS and the CCSS. As was the case in grades K–5, South Carolina uses its own wording in its standards but expectations in the CCSS and the SCCCRS are frequently comparable. There are only a few instances across these three grade levels where the SCCCRS include expectations at a different grade level than the CCSS, and all of these involve South Carolina placing standards at both the 6th and 7th grade levels to address concepts that the CCSS addresses only in grade 6. The concepts involved include ordering rational numbers, writing and evaluating expressions containing whole number exponents, and using concepts of equality and inequality to describe situations.

South Carolina has only a few standards that do not clearly align with a CCSS standard for grades 6–8, and there are few instances in which South Carolina has eliminated CCSS content expectations from its standards in grades 6–8. For example, South Carolina expects students to have an understanding of conversion of rational numbers to decimals (7.NS.2e), but the new standards no longer explicitly call for students to be able to convert a rational number to a decimal using long division, as is required in the CCSS (CC.7.NS.2d).

The SCCCRS, the Indiana Academic Standards, and the CCSS all set fluency benchmarks for students in grades 6–8, with the SCCCRS and the CCSS being quite comparable. In addition to the fluency standards

in the CCSS, the Indiana Academic Standards require fluency in solving linear equations with rational coefficients and fluency with computation of rational numbers.

Grades 9–12

For grades 9–12, the comparison across the three standards documents becomes more complex — and frankly confusing. The SCCCRS at the high school level are organized into two formats. First, like the CCSS, the high school standards are organized by conceptual categories that appear in one or more high school courses. The conceptual categories and the key concepts within them are comparable across the two sets of standards, but often the key concepts are slightly reworded and/or sequenced differently.

There are important differences between South Carolina and Indiana in how the high school standards are applied. Graduation requirements for South Carolina, as defined in SBE Regulation 43-234 (Defined Program Grades 9–12 South Carolina Graduation Requirements), state that students are required to have four units of mathematics to graduate. There are no stipulations as to which courses are required. Indiana, on the other hand, specifies that students pursuing a Core 40 diploma — the state’s default college- and career-ready diploma — need to successfully complete Algebra I, Algebra II, and Geometry (or their equivalents). Both states offer a range of courses that extends from Algebra I through Calculus, providing an array of opportunities for all students to be college and career ready. The CCSS also specify the mathematics that *all* students should study to be both college and career ready, and they identify additional mathematics that students should learn in order to take advanced courses such as Calculus, Advanced Statistics, and/or Discrete Mathematics. (Note: The Calculus Standards for South Carolina were not included in this review.)

The SCCCRS high school standards also are organized into courses: Algebra 1, Foundations in Algebra, Intermediate Algebra, Algebra 2, Geometry, Probability and Statistics, Pre-Calculus, and Calculus, and when South Carolina’s high school courses through Probability and Statistics and Pre-Calculus are taken into consideration, the SCCCRS for high school are very similar to the CCSS. However, it would take more than four years of mathematics for a student in South Carolina to be exposed to the full range of the standards expected for all students in the CCSS. Defining which standards get addressed in the various high school courses is generally a helpful tool for districts, schools, and teachers. However, in this case, it may be challenging for educators and guidance counselors to have a clear vision for the course sequences that cover the full range of the state’s standards. It will be incumbent upon both K–12 and postsecondary leaders in South Carolina to clearly communicate to students and parents to understand which pathways will open which doors.

The SCCCRS also denote a subset of the standards as Graduation Standards to “specify the mathematics high school students should know and be able to do in order to be both college- and career-ready.” This designation caused additional confusion during the review in determining which standards *all* students in South Carolina will actually be expected to learn in order to earn a high school diploma. It is unclear, for example, if *all* possible pathways for all students are expected to cover all of the Graduation Standards. Taken together, the combination of the state’s unspecified graduation requirements and the

allocation of graduation standards across courses, it appears that students may be able to earn a high school diploma without taking courses aligned to the full set of graduation standards.

As an example of the confusion around the Graduation Standards consider that in the supporting document, the *South Carolina High School Mathematics Course Pathways*, South Carolina highlights two possible pathways that high school students might pursue. One option is for students to complete Algebra 1, Geometry, Algebra 2, and one other course. The Algebra 1, Geometry, and Algebra 2 sequence does not meet all of the South Carolina Graduation Standards, as some are found in Probability and Statistics and Pre-Calculus courses. According to the Pathways document, however, there exist seven middle school standards that cover those missing high school standards. The middle school equivalencies for six of those standards are not provided. As such, it is not clear whether these are middle schools standards taught at the high school level or high school standards taught at the middle school level. Nor is it clear why the high school versions are included if the material has already been covered.

Students who need additional support in order to be successful in Algebra 1 might instead enroll in a two-course integrated pathway (Foundations in Algebra and Intermediate Algebra) that will provide a foundation in algebra, probability, and statistics. Students who successfully complete this two-course sequence, as well as Geometry, will address all of the South Carolina Graduation Standards. An additional mathematics course will be needed to obtain the fourth mathematics credit required for graduation.

However, there are many topics deemed important for college and career readiness in the CCSS and Indiana's Academic Standards that are not identified as part of the South Carolina Graduation Standards. These topics span the range of South Carolina's high school courses, from Algebra I through Pre-Calculus. For example, all mentions of completing the square fall outside of the Graduation Standards. Some of these topics are addressed only in courses beyond Algebra 2. All mentions of logarithms, inverse functions, and modeling periodicity with trigonometric functions are now found only in Pre-Calculus while conditional probability and standard deviation do not appear until Probability and Statistics. With these shifts it is possible that many South Carolina students will not have the opportunity to study some or all of the topics that will otherwise be seen by students taking courses aligned to the CCSS in other states.

Overall, South Carolina placed much of the CCSS' Statistics and Probability content outside of both the Graduation Standards and the Algebra 1, Geometry, and Algebra 2 course standards. That content is found in the Probability and Statistics course, which many students may not choose to take. One interesting exception, however, is the inclusion of SPMD.4, SPMD.5, and SPMD.6 (similar to CCSS' (+) standards S.MD.5, S.MD.6, and SMD.7) in the Graduation Standards but not in Algebra 1, Geometry, or Algebra 2. These standards are some of those listed in the Pathways document as having middle school equivalencies and therefore as having already been covered before high school. Neither the Pathways document nor the SCCCRS provide the specific middle school equivalencies for these standards.

Beyond these examples, the SCCCRS also diverge from the CCSS by removing some topics overall or adding or changing emphasis on others. The SCCCRS, for example, removed the focus on explaining why the x -coordinates of the intersection of two graphed functions, $f(x)$ and $g(x)$, represent the solution to the equation $f(x)=g(x)$. There is no mention of graphing piecewise or absolute value functions, using completing the square to find the center and radius of a circle given an equation, or applying concepts of density to modeling situations.

The SCCCRS also diverge from the CCSS and Indiana's Academic Standards by changing emphasis or requirements in other ways. The Graduation Standards include additional theorems to be proved in Geometry with an increased emphasis on applying those theorems. There is also a clear shift to using the triangle congruence theorems and the Angle-Angle criterion rather than establishing or explaining them. Beyond the Graduation Standards, some SCCCRS differences include requiring linear programming (Algebra 2); specifically requiring finite geometric series to be applied to financial problems (Pre-Calculus); understanding, rather than just finding, inverse functions (Pre-Calculus); clearly attending to six trigonometric functions (Pre-Calculus); using Venn diagrams (Probability and Statistics); and planning and conducting a statistical survey (Probability and Statistics). Many of these changes may impact the selection of new curricular and instructional materials and will require clear communication to teachers.

Another difference between the CCSS and the SCCCRS is in the treatment of mathematical modeling. The CCSS call modeling out as one of the conceptual categories used to organize the high school standards and to help portray a coherent view of high school mathematics, in addition to addressing modeling with mathematics as a Standard for Mathematical Practice. Since modeling is best interpreted in relation to other standards rather than as a collection of isolated topics, the CCSS identify specific modeling standards throughout the other conceptual categories. South Carolina and Indiana both deal with modeling differently, perhaps since they each have developed course-based standards. Both South Carolina and Indiana include modeling in their Process Standards and have written standards that include specific references to modeling. They also have standards that call for students to create equations or inequalities that represent relationships between quantities in real-world problem-solving situations, solve the problems mathematically, and then interpret the solutions within the context of the situations. This mirrors many of the steps of the basic modeling cycle defined in the CCSS.

Standards for Mathematical Practice

The CCSS define a set of eight Standards for Mathematical Practice that apply to all grade levels from kindergarten through high school. These Practices describe the expertise and skills that teachers in the mathematics classroom should seek to develop in their students. Similarly, both the SCCCRS and the Indiana Academic Standards include process standards (called Mathematical Process Standards in South Carolina and Process Standards for Mathematics in Indiana).

South Carolina appears to have adapted the Standards for Mathematical Practices by rewording them and by providing much briefer descriptions of what is meant by each of the Practices. Rather than

having eight Mathematical Process Standards like the CCSS, South Carolina has decided to define seven Process Standards. It appears that the intent of Process Standard 7 (“identify and utilize structure and patterns”) is to encompass both CCSS Practice 7 (“look for and make use of structure”) and Practice 8 (“look for and express regularity in repeated reasoning”), but this is not clear given the brevity of the descriptions associated with each of the South Carolina Process Standards. The decision to go with abbreviated descriptors for the Process Standards is understandable in that they may be more accessible to teachers. However, in most cases some critical aspects from the Standards for Mathematical Practice are left out. Indiana, on the other hand, adapted the Practices for their own use by maintaining the paragraph descriptors associated with each of the CCSS Practices, but deleting grade-span-specific examples, thereby making their Process Standards functional for each grade level.

Coherence

Coherence refers to how well a set of standards conveys a unified vision of the discipline, establishing connections among the major areas of study and showing a meaningful progression of content across the grades, grade spans, and courses.

The SCCCRS are organized by grade level in K–8. At the high school level, the standards are organized both by conceptual category and course. Grade-level standards for grades K–8 are further organized into Key Concepts that arrange content into broad categories of related standards, and the overviews for grades K–5 and grades 6–8 provide tables that depict the Key Concepts by grade band. This provides a sense of the organizational structure of the standards and also, in some cases, of how progressions develop. For example, while number sense and base ten are addressed at all grades from kindergarten through grade 5, number sense with fractions is introduced in grade 3, progressing to number sense and operations with fractions in grades 4 and 5.

The overview for grades 6–8 stresses the importance of broadening students’ understanding of the interconnectedness of mathematical concepts that were introduced in grades K–5 and that will continue even after the middle school grades. The overview also points out that Key Concepts vary across grades 6–8, with two major shifts occurring. First, there is a conceptual shift from data analysis and statistics in grade 6 to data analysis, statistics, and probability in grades 7 and 8. Second, while students in grades 6 and 7 focus on the key concept of ratio and proportional relationships, a shift is made in grade 8 to focus on functions as a precursor to more concentrated work on functions in high school. The overview for grades 6–8 further attends to coherence by explaining the purposeful wording of some of the standards. For example, some standards at this level call for students to extend their knowledge. Standard 6.NS.8, which calls for students to extend knowledge of the coordinate plane to solve real-world and mathematical problem(s) involving rational numbers, expands upon what students did in grade 5 when graphing ordered pairs only in the first quadrant of the coordinate plane.

At the high school level, South Carolina uses the same basic structure to establish and communicate the standards. Standards are organized first by conceptual category and later by course, but the same Key Concepts are used in both cases to organize content into related standards. The overview points out

that in each of the courses students build on earlier work as they expand their content knowledge and skills. As students progress through the courses, they are intended to deepen their knowledge and gain insight into the relevance of mathematics to other disciplines.

The high school SCCCRS standards use many of the same conceptual categories used in the CCSS and Indiana’s Academic Standards, although they are sequenced differently in the organization by conceptual category with algebra, functions, and geometry preceding number and quantity. As previously noted, the CCSS include a modeling conceptual category, which South Carolina does not have — although the CCSS do not compile a set of standards that address modeling but rather delineate the modeling standards in other conceptual categories. In addition, South Carolina extends its conceptual categories to address calculus, which the CCSS do not do.

The SCCCRS communicate a unity of vision by placing the Mathematical Process Standards at the beginning of each grade-level set of standards and at the beginning of each set of high school course standards. This sends the clear message that while the content may progress from K–12, there is the expectation that these important standards be integrated into teaching and learning for each grade level and course.

The development of the cross-grade progression addressing ratio, rate, and proportional reasoning is one that should be revisited. In grade 6 (6.RP.2b), the SCCCRS define rate as “a type of ratio involving two different units.” Yet this is contradicted in 7.RP.1 when students are asked to find rates when the units are the same. There is an additional mathematical issue in the handling of rate in 7.RP.2e. While the CCSS clarify the distinction between the unit rate, r , and the point $(1,r)$ on a proportional graph, the South Carolina standards confuse the issue by inaccurately referring to the rate *itself* as a point on the graph.

Focus

High-quality standards establish priorities about the concepts and skills that should be acquired by students. A sharpened focus helps ensure that the knowledge and skills students are expected to learn is important and manageable in any given grade or course.

Overall, the focus of the SCCCRS in K–8 is fairly comparable to that of the CCSS and Indiana’s Academic Standards since alignment between the documents is strong. While South Carolina has added a few expectations in the various grade spans, deleted a few expectations that are addressed in the CCSS, and changed the grade level at which a few expectations get treated, the collective impact of these changes is minimal. The SCCCRS are generally focused and manageable, with a few exceptions.

One perplexing example is the inclusion of a single standard on matrices in grade 8 (8.DSP.5). This is a high school level (+) topic in the CCSS, and even in the SCCCRS, the topic is not again addressed until Pre-Calculus, which many students will not take as part of their high school course sequence.

In order to make its high school algebra content focused and manageable for students not prepared to take a comprehensive Algebra I course, South Carolina has designed an integrated two-course sequence that is intended to provide a foundation in algebra, probability, and statistics. This course sequence includes all of the Graduation Standards identified in the Algebra 1 and Algebra 2 courses (and those Probability and Statistics standards similarly identified as Graduation Standards) and provides teachers with a more realistic pace for working with struggling mathematics learners.

Students who follow the Algebra 1, Geometry, and Algebra 2 pathway might choose either Pre-Calculus or Probability and Statistics for their fourth course. The Pre-Calculus students will miss out on many of the expectations in the CCSS' Statistics and Probability such as understanding, calculating, recognizing, and explaining conditional probability; using data from sample surveys to estimate population mean or proportion; constructing and interpreting two-way frequency tables; distinguishing between correlation and causation; and distinguishing between experiments, observational studies, and sample surveys. Students who choose Probability and Statistics will miss out on logarithms, inverse functions, additional work with polynomials, and much of the trigonometry in the CCSS. Then again, a student might choose something altogether different and miss the experiences and standards contained within both courses.

Students who follow the Foundations, Intermediate Algebra, and Geometry pathway might choose to take Algebra 2, Probability and Statistics, or something else as their fourth course. However, it appears that students who choose Algebra 2 will experience a significant overlap and repeat of the content in Intermediate Algebra and Foundations in Algebra. Those students would also miss out on the standards unique to Pre-Calculus and Probability and Statistics. Students who select Probability and Statistics for a fourth course would miss out on the few standards in Algebra 2 not already covered in the previous courses. Examples of these standards include graphing polynomials, identifying zeros when suitable factorizations are available and indicating end behavior, writing a polynomial function of least degree corresponding to a given graph, solving systems using linear programming, or solving systems of linear and quadratic equations.

While the full body of South Carolina high school standards is similar to the CCSS and Indiana's Academic Standards, if any pathways are limited to just the Graduation Standards, then the focus of teaching and learning will be significantly out of alignment with what the CCSS define as mathematics that all students should study to be college and career ready. A periodic review of the Graduation Standards to ensure that they indeed prepare students to be college and career ready is recommended.

Specificity

Quality standards are precise and provide sufficient detail to convey the level of performance expected without being overly prescriptive. Those that maintain a relatively consistent level of precision are easier to understand and use. Those that are overly broad or vague leave too much open to interpretation, while atomistic standards encourage a checklist approach to teaching and learning.

The SCCCRS are generally specific enough to convey the level of performance expected of students at each grade level and in each course. They are sufficiently detailed without being overly prescriptive.

Clarity/Accessibility

High quality standards are clearly written and presented in an error free, legible, easy-to-use format that is accessible to the general public.

The SCCCRS are generally clearly written and presented in a format that is usable by both educators and the general public. This format is clearly explained in the K–12 overview and the overviews that precede the standards for K–5, 6–8, and high school. The format is functional and straightforward, with standards presented by grade level through grade 8 and then both by conceptual category and course at the high school level. The course structure for high school is likely more meaningful for parents and teachers, but the presentation of the standards by conceptual category will be helpful to curriculum developers and professional developers.

The wording of the standards is generally clear, although users unfamiliar with mathematics may not understand all of the terminology used. If one does not already exist, a glossary should be included. South Carolina uses the overviews for grades K–12 and grades 6–8 to clarify the meaning of certain words used extensively in the SCCCRS. For example, in the K–12 overview, explanation is provided for how the terms “including,” “fluently,” “fluency,” and “real-world” are used. The overview for grades 6–8 provides similar clarity to how some of the verbs used to define student expectations (e.g., “investigate,” “explore,” “apply,” “extend,” “discover,” “translate among,” and “translate between”) are used.

Measurability

Standards should focus on the results, rather than the processes of teaching and learning. They should make use of performance verbs that call for students to demonstrate knowledge and skills, with each standard being measurable, observable, or verifiable in some way.

The SCCCRS are generally measurable, observable, or verifiable in some way. They tend to emphasize what it is that students should know and be able to do rather than the processes of teaching and learning. They tend to set limits, as is also the case with the CCSS and the Indiana Academic Standards, to define parameters not only for teaching and learning but also for assessment. For example, 4.NSF.2 in the SCCCRS calls for students to be able to compare two given fractions by creating common denominators or numerators or by comparing to a benchmark fraction. The denominators (2, 3, 4, 5, 6, 8, 10, 12, 25, and 100) that students should be able to use are specified in the standard.

There are some verbs used within the SCCCRS that are not measurable, although they may be observable, and some of these verbs are discussed in the overview portions of the standards document. For example, the overview for grades 6–8 discusses use within the standards of the verbs “investigate,”

“explore,” and “discover.” Both “investigate” and “explore” indicate an initial understanding of a concept, and it is noted that educators may consider using inquiry-based methods to introduce this concept. The overview also explains that the verb “discover” indicates that students will be given the opportunity to determine or uncover some aspect of mathematics through the use of manipulatives or inquiry-based activities and the degree to which this performance can be observed is questionable. The CCSS use non-measurable verbs more sparingly than the SCCRS.

Summary

While South Carolina has added more advanced mathematics to the full set of adopted standards, the combination of the state’s designation of graduation standards and the design of their graduation course requirements might mean that students in South Carolina could earn a high school diploma and not have the opportunity to be exposed to much of the mathematics experienced by students in most of the rest of the country (i.e., states that have adopted CCSS and states with their own college-and career-ready standards, such as Indiana). In other words, South Carolina appears to have added more advanced mathematics to the standards yet lowered expectations for all students.



**Appendix: The Criteria Used for the Evaluation of
College- and Career-Ready Standards in English Language Arts and Mathematics**

Criteria	Description
Rigor: What is the intellectual demand of the standards?	Rigor is the quintessential hallmark of exemplary standards. It is the measure of how closely a set of standards represents the content and cognitive demand necessary for students to succeed in credit-bearing college courses without remediation and in entry-level, quality, high-growth jobs. For Achieve’s purposes, the Common Core State Standards represent the appropriate threshold of rigor.
Coherence: Do the standards convey a unified vision of the discipline, do they establish connections among the major areas of study, and do they show a meaningful progression of content across the grades?	The way in which a state’s College- and Career-Ready Standards are categorized and broken out into supporting strands should reflect a coherent structure of the discipline and/or reveal significant relationships among the strands and how the study of one complements the study of another. If College- and Career-Ready Standards suggest a progression, that progression should be meaningful and appropriate across the grades or grade spans.
Focus: Have choices been made about what is most important for students to learn, and is the amount of content manageable?	High-quality standards establish priorities about the concepts and skills that should be acquired by graduation from high school. Choices should be based on the knowledge and skills essential for students to succeed in postsecondary education and the world of work. For example, in mathematics, choices should exhibit an appropriate balance of conceptual understanding, procedural knowledge, and problem-solving skills, with an emphasis on application, and in English, standards should reflect an appropriate balance between literature and other important areas such as informational text, oral communication, logic, and research. A sharpened focus also helps ensure that the cumulative knowledge and skills students are expected to learn is manageable.
Specificity: Are the standards specific enough to convey the level of performance expected of students?	Quality standards are precise and provide sufficient detail to convey the level of performance expected without being overly prescriptive. Standards that maintain a relatively consistent level of precision (“grain size”) are easier to understand and use. Those that are overly broad or vague leave too much open to interpretation, increasing the likelihood that students will be held to different levels of performance, while atomistic standards encourage a checklist approach to teaching and learning that undermines students’ overall understanding of the discipline. Also, standards that contain multiple expectations may be hard to translate into specific performances.
Clarity/Accessibility: Are the standards clearly written and presented in an error-free, legible, easy-to-use format that is accessible to the general public?	Clarity requires more than just plain and jargon-free prose, which is free of errors. The College- and Career-Ready Standards also must be communicated in language that can gain widespread acceptance not only by postsecondary faculty but also by employers, teachers, parents, school boards, legislators, and others who have a stake in schooling. A straightforward, functional format facilitates user access.
Measurability: Is each standard measurable, observable, or verifiable in some way?	In general, standards should focus on the results, rather than the processes, of teaching and learning. The College- and Career-Ready Standards should make use of performance verbs that call for students to demonstrate knowledge and skills and should avoid using those that refer to learning activities — such as “examine,” “investigate,” and “explore,” — or to cognitive processes, such as “appreciate.”