
# Coming Together to Raise Achievement

## New Assessments for the Common Core State Standards

Updated July 2011

Prepared by the
Center for K–12 Assessment & Performance Management at ETS

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Center for K–12 Assessment & Performance Management at ETS

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*Distinguished Presidential Scholar and Executive Director*

**Dear Colleague:**

We are pleased to provide this updated resource on the comprehensive assessment designs and related activities being launched by the Partnership for Assessment of Readiness for College and Careers (PARCC) and the SMARTER Balanced Assessment Consortium (SBAC).

The Center for K–12 Assessment & Performance Management at ETS (or "the Center") has created this updated guide to stimulate discussions about the opportunity before us. We begin, as in the February 2011 version, with an overview of the Common Core State Standards (CCSS) — what's new, why they're needed, and how these standards will drive new designs in assessment — along with descriptions of the two assessment systems being built. We have updated the Consortia membership lists, incorporated the June 2011 revisions to the PARCC design, and added brief summaries of the Supplemental Application grants that were awarded to the Consortia and will support the transition to the CCSS at the local and state levels. Finally, we offer our best thinking on the work ahead in assessment — the most significant and high-leverage measurement and technical challenges within the designs of these new assessment systems.

How fortunate we are to be participants in a historic moment in education reform. The federal Race to the Top (RTTT) initiative has brought forward unprecedented resources to stimulate bold proposals for improving the way our schools operate and the quality of tools available to our students and educators. Used well, it is a much-needed investment in our nation's future. While the performance of U.S. students has improved over the past two decades, the pace has been too slow. Student performance in major competitor countries is improving at a faster rate — and some have already surpassed us. We must reverse that trend, and do so quickly.

One critical strategy in this effort is the RTTT Assessment Program, which has provided funding to two Consortia of states to develop a new generation of assessments intended to yield timely data to enhance instruction, accelerate learning, and provide accurate information on how our students and schools are performing. Each Consortium has more than $175 million and just four short years to push the frontiers of the assessment field and build their new testing and instructional support systems. In addition, each Consortium has received a $15.8 million Supplemental Application grant from the U.S. Department of Education (USED) to support activities with its partner states, districts, lead teachers, and higher education institutions and to develop resources for a successful transition in school year 2014–15 and thereafter.

This initiative is about much more than just "better tests." The adoption of a common set of college- and career-readiness standards by all but five states, to date, means that more than 80 percent of our nation's public school students and teachers will be focused on the same content standards for their students. This is a fundamental shift in the education marketplace. As Thomas Friedman, author of *The World is Flat*, noted, innovations that allow large numbers of people to access one another's ideas and collaborate have, in the past, created "inflection points" — marked increases in the pace of innovation. The CCSS, aligned common assessments, and the open-source platforms being developed to collect and share resources create the opportunity for an inflection point in American public education.

This is truly a time that calls for a groundswell of American ingenuity and a fierce commitment to finding solutions. As the income gap between the well-educated and the poorly educated grows and we struggle to rebuild our economy, it has become clear that improving public education is both the moral and the economic imperative of our generation. Let's each do our part.

# WHAT WILL THE NEW ASSESSMENTS MEASURE?

Our nation's current patchwork of state standards has resulted in great variability in the academic expectations for students. A student found to be performing at the distinguished level in one state may be below the standard in another. This doesn't make sense — or serve our students well.

In 2009, the National Governors Association (NGA) and the Council of Chief State School Officers (CCSSO) decided to address this problem. Together with 48 states, two territories, and the District of Columbia, they began the development of the CCSS in English language arts and mathematics to define consistent and clear expectations of the skills students need in order to compete in college and the workplace. The final standards were informed by nearly 10,000 public comments and by standards in other top-performing countries. These standards, released in June 2010, have been adopted by 45 states and the District of Columbia to date.

The assessment Consortia described in this publication will be building comprehensive assessment systems for the primary purpose of measuring student progress against these new CCSS.

***How are these standards different from those most states currently have, and how will they impact instruction and the assessments used for accountability? The Center asked two thoughtful and deeply knowledgeable educators to provide their responses to these questions.***

# THE COMMON CORE STATE STANDARDS FOR MATHEMATICS

*By William G. McCallum*

In crafting a restaurant menu, locally grown produce served in regional recipes makes sense. Academic standards, however, need to travel across state lines in order to prepare students from all parts of the country to compete on the national and world stage.

In recognition of this, CCSSO and the NGA came together to work on what has come to be known as the CCSS. These standards represent the hard work and best thinking of far more people and organizations than can be listed here.[1] As a lead writer, I was fortunate to work with Jason Zimba, Phil Daro, and a distinguished group of mathematicians and math educators.

The standards began with the idea that all students will be ready for success in nonremedial college mathematics and set about teasing out what, exactly, that means for each grade level. We considered available research (scant in some areas, stronger in others); expectations about what students learn and when they learn it in other countries; and expectations of the most rigorous state standards. We avoided dictating matters such as how technology should be used or what pedagogical approach was right. We kept the focus on what, not how, students learn.

The effort paid off. The standards have received very high marks from organizations like the Fordham Foundation that rate academic standards. Students meeting these standards will be poised for success after high school.

## The Standards Are Focused

The CCSS bring a new focus and coherence to the mathematics curriculum. These standards avoid the "mile wide and an inch deep" problem that has characterized American education.

In the elementary grades, more than half the time in each grade is focused on addition, subtraction, multiplication, and division (number and operations), with most of the remaining time devoted to geometry. Setting aside stale debates, the standards build both skills and understanding in parallel, each reinforcing the other, so that students retain knowledge rather than forgetting it by the next grade. For example, students are expected to know addition facts and multiplication tables from memory, even as they build an understanding of the relation between addition and subtraction and then between multiplication and division.

## The Standards Are Clear and Coherent

Embedded in the standards is information that guides teachers on how mathematical knowledge builds coherently from one grade to the next. For example, the teaching of algebra in grade 8 actually starts in grade 1. This coherent stairway begins when students are asked to think algebraically about addition, subtraction, multiplication, and division. It widens in grade 3 to include fractions and decimals, reaching, in grade 6, a solid platform of understanding on which to scaffold work with expressions and equations, culminating in the study of functions in grade 8.

Providing this level of clarity helps teachers avoid re-teaching content from previous years. Because sufficient time is allocated and important ideas are developed over many years, there will be less need for teachers to repeat the same content year after year. This avoids another commonly criticized feature of today's mathematics education system: endless cycles of repetition, particularly in middle school.

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[1] Detailed information on the initiative may be found at **www.corestandards.org**.

## The Standards Are Rigorous

The foundations laid in elementary school allow for rich hands-on experiences in middle school with statistics and probability, ratio and proportion, geometry, and algebra — the bedrock on which high school builds the mathematical knowledge needed for today's colleges and careers and for an informed citizenry. During the middle school grades, students informally study sampling and probability, forming the foundation for a serious study of statistics in high school. This knowledge is necessary to make sense of data, to extract useful information from it, and — finally — to determine if, when, and how confidently the data can be used to inform decisions in science, commerce, and society.

The high school standards define a rigorous level of college and career readiness. The melding of skills and understanding begun in the elementary grades prepares students to apply mathematics to novel situations, a key requirement for work in colleges and careers. In addition to standards for quantitative reasoning, algebra, geometry, statistics, and probability, the high school standards include an overarching set of modeling standards embedded in every other area.[2]

## The Standards Include Standards for Mathematical Practice

In addition to content standards, the CCSS lay out eight standards for Mathematical Practice, which describe the ways of thinking and habits of mind of a proficient user of mathematics.

For example, Practice Standard 5, "Use appropriate tools strategically," requires that students make sound decisions about when to use technological tools and how to judge the answers they generate. Practice Standard 2, "Reason abstractly and quantitatively," resolves another sterile debate in mathematics education — an argument over the importance of pure vs. applied — by requiring both the ability to use symbols proficiently and the ability to attend to the contextual meaning of the symbols used.

## The Standards Provide Priorities for Assessment

The introductions to grades K–8 identify two to four critical areas for each grade level, setting priorities for teachers, professional developers, and assessment writers. For example, in grade 3, the areas are multiplication and division, fractions, area, and two-dimensional shapes.

Faithful assessments will focus most of their time on these critical areas. They also will address the structure of mathematical knowledge by including multistep problems that require students to put together different but connected skills and understandings. They will include word problems and modeling problems that require students to read about a situation, represent it mathematically, carry out procedures for solution, and interpret the solution in terms of the context. They will attend to the standards for mathematical practice by designing tasks that draw on the habits of mind and ways of thinking of a mathematically expert practitioner. All of this will require a higher proportion, than we see today, of free-response items, assessments embedded in classroom instruction, and assessments that ask students to make a strategic choice of mathematical and technological tools.

The CCSS are only a beginning. Focused and coherent standards for mathematics can be a gift to teachers; the knowledge and skills contained therein should be thought of as our promise to students. By taking seriously the implications for curriculum and assessment, we can help teachers unwrap the gift and deliver the promise.

[2] Modeling is the process of choosing and using mathematics and statistics to represent and analyze situations in order to understand them better and to make better decisions.

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# THE COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS & LITERACY IN HISTORY/SOCIAL STUDIES, SCIENCE, & TECHNICAL SUBJECTS

*By Elise M. Frangos*

Oliver Wendell Holmes explained, "A mind that is stretched by new experience can never go back to its old dimensions."

As a longtime English language arts teacher and Curriculum Director who has taught across grades 5–12, I think the new CCSS will shift literacy instruction toward empowering students with more of the skills they need to succeed in college and at work.

Before this happens, the CCSS will foster many spirited conversations among colleagues, between schools, and within districts. It will profoundly influence professional development and the inception of new pedagogical techniques. But ultimately, students across all economic backgrounds will be stretched in powerful and multidimensional ways.

Student literacy experiences will directly engage students in ways that are critical to their future success. The CCSS document distills support for what we already know works — that students need to interact with great texts, drill into them, comprehend and evaluate them, and use them as models for their own creative work.

Its emphasis directs students toward becoming *rhetors*, people who can speak and write effectively to communicate with others while appreciating context, understanding their audience, and knowing their purpose. In essence, the CCSS will help students find their voices and more effectively partake in both face-to-face and virtual communities.

## Revitalizing Rhetoric, Promoting Fresh Writing

Whether one teaches composition in grade 2, grade 7, grade 10, or college, a common teacher lament is that student essays are often in search of a thesis. Meandering essays "talk about stuff," but students have difficulty forming an argument. The student may have written a lot, but the teacher wonders: Where was she going? What was the writer's purpose? Students need to not only think and feel, they also need to question, gather evidence, shape, re-shape, and revise their understandings. They need the opportunity to formulate arguments and argue a lot. They need to know how to create claims and launch them after gathering sound, informed evidence. Students need the tools and models of civil discourse and to study examples of successful written arguments and those that failed. Through the CCSS, they will get experience in this.

The CCSS outline what students will know and be able to do. By grade 6, students will trace and evaluate an argument and determine the specific claims supported by evidence and those that are not. By grades 9 and 10, students will have read U.S. documents of historical and literary significance and will learn to delineate and evaluate the reasoning in these texts.

The study of argument won't be limited to expository writing; student writers will think expansively. Whether a student argues that Conrad's depictions of the River Thames and the Congo in *Heart of Darkness* stand in contrast, creating images of the known vs. the unknown, or if she claims that the calm, lovely natural world of Golding's island imagery in *Lord of the Flies* intensifies the horror of Piggy's death, she is still forming an argument. Effective composition, whether focused on imaginative literature-prose, poetry, or drama, is based on knowing one's purpose, content, and audience and relaying an argument in such a way that the piece hits the target.

With the advent of the CCSS, students will be taught to support claims with varied evidence, guide readers to their conclusion, and also anticipate the perspectives of those who differ with their arguments. Once students are taught the tools of rhetoric, they will see that an argument is the backbone of all expository and literary work.

The CCSS provide the backwards planning to help students get there. In the elementary years, students will focus on the comprehension of main ideas in their reading. As students progress through the curriculum, in grade 6 they will "trace and evaluate an argument and the specific claims in a text distinguishing claims that are not supported by evidence." To accomplish

this, key Aristotelian claims of ethos, logos, and pathos will have to be taught. By grade 9, students will be "able to read and comprehend seminal U.S. documents of historical and literary significance." Students also will be expected to know how to make a counterclaim or concession.

## Discarding the Five-Paragraph Straitjacket

When student writers display the backbone of a solid argument, it is often supported in the form of a five-paragraph essay. This formulaic template offers the younger student a predictable skeleton for writing, but it can wrench the purpose of the composition, confine proofs to the prescribed three, and fail to engage the reader. Writers learn best from reading. The shift toward reading great nonfiction, in addition to imaginative texts, will assist student writing.

## The Study of Sentence Scrambling

The CCSS extend grammar study into the realm of syntax. We may see fewer middle school, high school, and college level writers clinging to the standard sentence form of subject/predicate. By grade 5, students will "expand, combine, and reduce sentences for meaning, reader/listener interest, and style." By high school, students will " … Use words, phrases, and clauses as well as varied syntax." The focus on sentence acrobatics in the CCSS propels teachers to work with students on sentence structure and word arrangement. Sentences will be written to suit the desired musicality in writing or the purposes of the argument.

## Ethical Information Gathering

Twenty-first century students need to know how to gather information and communicate information with people in front of them and beyond the classroom in fresh, clear ways. With the explosion of research sites, students need to know what research is evidence-based and salient to their research questions. The CCSS value ethical, multigenre research. Research will start in the early grades, focused on short projects to build knowledge. As students advance through the grades, they will gain experience gathering information from digital and print sources, learning how to synthesize multiple research sources and properly credit the sites they use.

## Common Core Collegiality and Cooperation

Our increasingly diverse world is full of people with different ideas, histories, and cultures. Sadly the news and, sometimes, our schools are rife with stories of incivility, intolerance, and conflict. With the CCSS, practice in discourse is on the horizon. Small children will have the opportunity to learn concession and counterclaim. They'll build proficiency as collegial members of learning communities.

For me, the most heartening facets of the CCSS are the speaking and listening standards. As early as kindergarten, students will learn how to have collaborative conversations and learn to ask for help on grade-level appropriate topics.

The CCSS will stretch students to continue to read across genres, but learn how to use great stories encountered in canonical, contemporary, and multicultural literary texts to support their arguments. Students will learn how to formulate forceful and fortified arguments in writing or in speaking. Students will learn to research skillfully and write about what they find, weaving information together with artful sentences in organized compositions. Most importantly, the CCSS compel collaboration; students will know how to be smart, sound smart, and affirm the intelligent contributions of the people with whom they work or learn.

Our 21st-century students, heading to rigorous college work or the workplace, will benefit from the CCSS's shifts in literacy instruction, the classroom experiences that teachers will craft to transmit them, and the assessments that will inevitably measure these new directions.

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THE COMPREHENSIVE ASSESSMENT CONSORTIA:

# PARTNERSHIP FOR ASSESSMENT OF READINESS FOR COLLEGE AND CAREERS (PARCC)

- MEMBERSHIP: 23 states and the District of Columbia, more than 25 million K–12 students or approximately 51 percent of the nation's K–12 public school students
- GOVERNING STATES*: Arizona, Arkansas, the District of Columbia, Florida, Georgia, Illinois, Indiana, Louisiana, Maryland, Massachusetts, New Jersey, New York, Oklahoma, Rhode Island, Tennessee
- PARTICIPATING STATES**: Alabama, Colorado, Delaware, Kentucky, Mississippi, North Dakota, Ohio, Pennsylvania, South Carolina
- PROCUREMENT STATE***: Florida
- PROJECT MANAGEMENT PARTNER: Achieve
- HIGHER ED PARTNERSHIPS: More than 200 two- and four-year institutions, which typically receive 90 percent of all students across the PARCC Consortium states who enter college within two years of graduating from high school, will use the assessments as an indicator of readiness for credit-bearing entry-level courses.
- AWARD: $186 million total (assessment and supplemental grants)

This information is accurate as of July 18, 2011.

The following summary of the PARCC assessment system has been approved by the PARCC Consortium.

The purpose of the PARCC system is to increase the rates at which students graduate from high school prepared for success in college and the workplace. To reach this goal, PARCC intends the assessments to help educators increase student learning by providing data during the year to inform instruction, interventions, and professional development as well as to improve teacher, school, and system effectiveness. The assessments will be designed to provide valid, reliable, and timely data; provide feedback on student performance; help determine whether students are college and career ready or on track; support the needs of educators in the classroom; and provide data for accountability.

On June 24, 2011, the PARCC Governing Board voted to adopt revisions to the PARCC assessment system design in order to reduce ongoing costs of the system, ensure curricular flexibility, and reduce the amount of time required for summative assessment. This design, described on pages 7–10, has been submitted for approval by the United States Department of Education, as per the terms of the cooperative agreement.

## SYSTEM COMPONENTS

### SUMMATIVE ASSESSMENTS FOR ACCOUNTABILITY

Assessments will be developed in English language arts (ELA) and mathematics for grades 3–8 and high school that assess the full range of standards within the CCSS. The assessments are to be delivered on computer, with a paper-and-pencil format available as an accommodation and for grades 3–5**** until studies confirm that students in these grades are ready for computer-based assessments.

The revised PARCC assessment system will be composed of two summative/accountability components given as close to the end of the school year as possible.

- **Performance-Based Assessments (Component 3):** These assessments will be given primarily on computers or other digital devices and utilize a mix of human and computer scoring. Multiple types of items will be used, including computer-enhanced items and performance tasks, and emphasis will be placed in this component on the hard-to-measure standards. Each assessment may require several

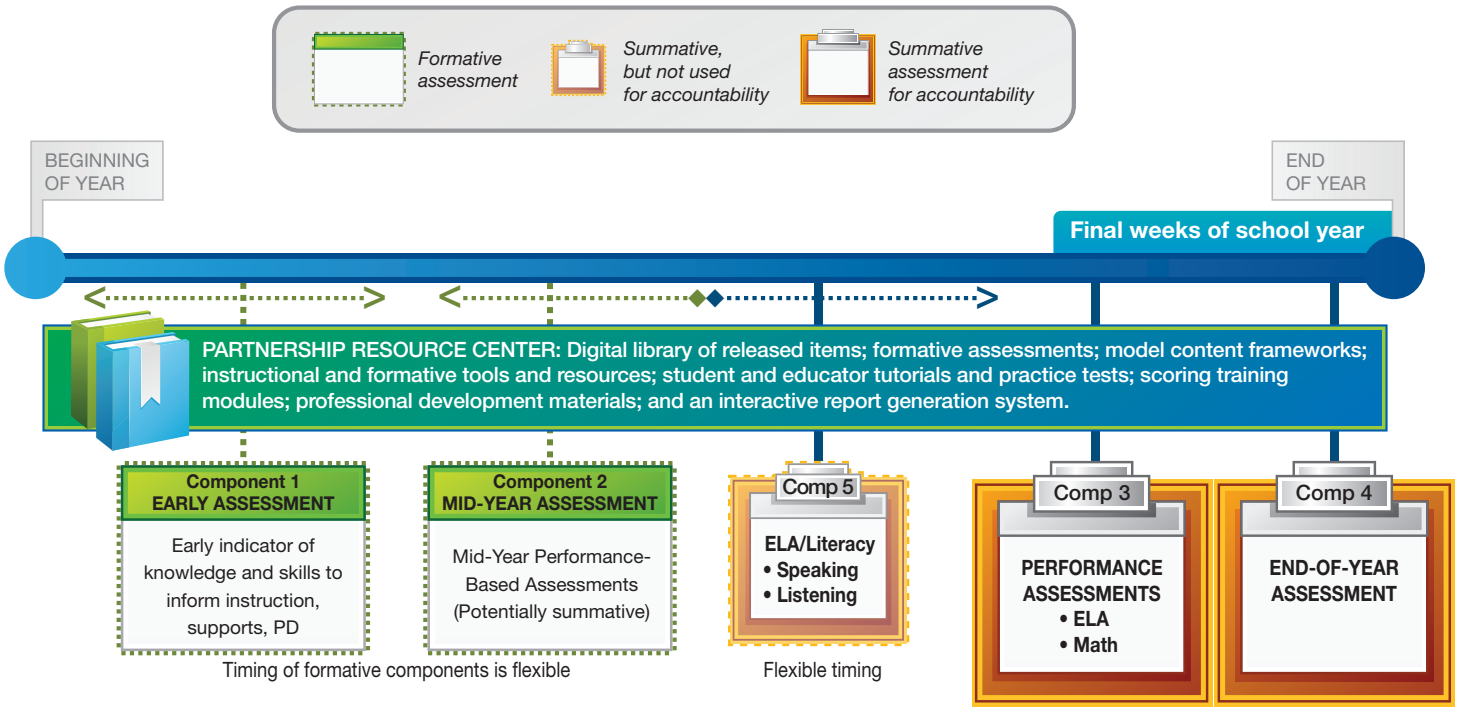
* GOVERNING STATES cast decision-making votes on test design and policy.

** PARTICIPATING STATES consult on test design and policy, but have no decision-making authority and must participate in pilot and field testing.

*** PROCUREMENT STATES are the fiscal agents.

**** Assessments in grades 3–5 will be delivered online with students responding via pencil and paper.

# PARCC




sessions/class periods. Results are expected to be reported within two weeks of completion.

For ELA/literacy, these tasks will focus on writing effectively when analyzing text and using evidence drawn from the texts to support their claims. Students may be required to conduct electronic searches (within a predefined set of digital sources), evaluate the quality of the sources, and compose an essay or research paper using evidence from them. At each grade level, the sources will represent a range of reading/text complexity levels to enable students at higher and lower ranges of performance to demonstrate their skills.

The mathematics assessment will require students to apply key mathematical skills, concepts, and processes to solve complex problems of the types encountered in everyday life, work, and decision making. Focus will be placed on the math practices in the CCSS and on multistep problems that require abstract reasoning, precision, perseverance, and strategic use of tools.

To assess the speaking and listening standards within the CCSS, an assessment will be required but not used in the determination of the summative score **(Component 5)**. This component may be administered at any time between Components 2 and 4. Teachers will score the student's speaking and listening skills using a standardized rubric and may use the scores within the determination of student grades.

- **End-of-Year (EOY) Comprehensive Assessment (Component 4):** The EOY assessments in ELA/literacy and mathematics will sample all of the standards for the grade level. These assessments will be taken online during the last few weeks of the school year, utilize a range of innovative items types and technological tools, and be entirely computer scored.

  The ELA/literacy assessment will focus on reading and comprehending complex texts, including vocabulary and editing for grammar, usage, and language conventions. For high school students, literacy in science and social



For more information about PARCC, visit **http://parcconline.org**

studies will also be assessed, as called for in the CCSS.

The mathematics EOY assessment will assess the full range of mathematic standards. Technology will be used within items to enable students to, for example, create equations, graph functions, draw lines of symmetry, or create bar graphs. At the high school level, states will have the option of selecting assessments based on either a traditional mathematics course sequence or an integrated mathematics sequence.

**Scoring:** PARCC states will adopt a common set of performance standards and scoring rubrics so results will be comparable across states.

For performance tasks in Component 3, a combination of computer and distributed human scoring (either teacher or vendor) will be used. To monitor the quality and reliability of scoring, 10–20 percent of randomly selected items for grades 3 through high school will be scored a second time by humans. In addition, in high school (due to the higher stakes when used to determine college course placement), an additional 10–20 percent will be scored again.

The EOY component will utilize 100-percent computer scoring. The Partnership plans to press for advances in automated scoring, including the use of artificial intelligence (AI).

When paper forms are used for younger students or students with disabilities, responses will be scanned for electronic or human scoring.

The Partnership will develop a technology platform to support efficient, distributed human scoring. Member states will have the option of utilizing trained teachers (who will not score their own students' work), vendor services, or a combination thereof. In all states, all teachers will have access to the online training modules for scoring so they can more deeply understand the assessments and score classroom assignments in a consistent manner.

These scoring and administration plans may change as a result of the research conducted during the development phase.

**Measuring Growth:** Because scores will be combined for Components 3 and 4 for accountability purposes, PARCC anticipates having nearly twice as many score points in its summative tests than are typically found in current state tests, thus providing the room to measure the low and high tails of performance well enough to measure growth. If additional precision at the tails is needed, the EOY test will either be lengthened or customized for very high- and low-performing students using a "staged" or "block" adaptive approach.

**Accountability:** The Partnership plans to use the results from Components 3 and 4 to calculate annual combined accountability scores for each student. Both proficiency and growth data will be produced by the system for use, as needed, in accountability systems.

**Reporting:** An online Interactive Data Tool will provide teachers, parents, and administrators with access to results after each assessment and include various tools for displaying data, creating customized reports, and comparing the performance of similar schools. In addition, parents will be mailed printed reports after each assessment. For administrators, the system will include tools to help identify the individual professional development needs of teachers, as well as grade-level and school-level needs.

## RESOURCES, TOOLS, AND CAPACITY BUILDING

*See additional resources and supports to be provided through the Supplemental Grant on pages 11–12.*

**Optional Early and Mid-Year Formative Assessments (Components 1 and 2) can be administered at any point prior to Component 3, as locally determined:**

- **Component 1:** These early formative assessments in ELA and mathematics will be designed to provide an indicator of student knowledge and skills so that instruction, supports, and professional development can be tailored to address student needs. For students who did not meet the prior grade-level standards, it may be possible to also provide an indication of whether progress has been made or those standards have been met.
- **Component 2:** These mid-year formative assessments will be composed primarily of rich performance tasks and designed to provide instructionally useful feedback to teachers and students. The tasks will preview the types of tasks to be completed in Component 3. Over time, states may consider using the scores from these tasks in the summative/accountability scores.

**The Partnership Resource Center:** This web-based platform is designed to be a continually expanding collection of resources for teachers, students, administrators, and parents. The resources, some of which will be available prior to 2014–15 to allow users to gain familiarity with the PARCC system, will include the following:

- **Model Content Frameworks and Model Instructional Units** — PARCC will develop Model Content Frameworks in ELA/literacy and mathematics that provide the natural link from the CCSS to assessments by determining priorities and areas of emphasis within the new standards. In addition, PARCC will provide support to state efforts to build additional resources and provide the digital platform for sharing them across states. The Model Content Frameworks and additional resources will be for voluntary use by states, districts, schools, and educators.
- **Released Test Items and Performance Tasks** — Teachers will be able to use these within the flow of instruction to check student understanding. States may contribute existing state-owned items or tasks aligned to the CCSS. Within a few years, all performance tasks used in the summative assessments will be added, along with student performance data, scoring rubrics, and sample responses for each item. The item bank will include capabilities for sharing, improving, analyzing, comparing, ranking, and accrediting items, as well as formative and interim assessments.
- **Educator Training Materials** — Designed to help teachers understand the assessment system, implement the assessments, and interpret and use the results.
- **Online Practice Tests for Educators and Students** — These will allow teachers, students, and parents to become familiar with the assessments.
- **An Item Development Portal and Tools** — Teachers can develop their own innovative, computer-scored assessment items and share them with others via the item bank.
- **Optional Formative Performance Tasks for Grades K–2** — Teachers and schools can use these "ready-to-use" formative tasks to monitor students' performance and progress. The tasks will consist of developmentally appropriate measures such as observations, checklists, running records, and on-demand performance events and may include the use of technology innovations, such as touch screens.

**The Interactive Data Tool:** See "Reporting" on page 9.

**Sharing State-Developed Tools:** Formative and diagnostic tools being developed by member states and districts may be added, including a diagnostic reading tool (New York City), classroom reading and math diagnostic assessments (Pennsylvania), and an adaptive assessment platform (Tennessee).

**Capacity Building:** To help educators use the new assessment system well, the Partnership will:

- Build a leadership cadre of content experts within each state;
- Develop training tools to help educators implement the assessment system;
- Develop a sequence of online training modules for educators to learn to score, interpret, and use the assessment results; and
- Share advice on effective ways in which educators can understand and address the curricular and instructional implications of the CCSS and the Partnership's assessments.

## TIMELINE

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|---|---|
| **2010–2011** | Development and approval by member states of common policies and procedures |
| **2011–2012** | Item and task development, piloting of components<br><br>Release of Model Content Frameworks, as well as prototype items and tasks |
| **2011–2012** | Development of professional development resources and online platform |
| **2012–2014** | Field testing |
| **2014–2015** | New summative assessments in use |
| **Summer 2015** | Setting of achievement standards |

## TECHNOLOGY

Technology is a critical component for all aspects of the PARCC assessment system, from test delivery, administration, scoring, and reporting to delivery of professional development and model lesson plans. The Partnership plans to require that all of the technology created with the support of federal RTTT resources be open source and any pre-existing technology employed in the system be either open source or documented in a fully transparent way. PARCC received a supplementary $10 million award to support development of a highly robust and stable system and to accelerate advances in technology-enhanced items and scoring engines.

# THE PARCC SUPPLEMENTAL GRANT FOR TRANSITION SUPPORTS

The PARCC Consortium was awarded a four-year supplemental grant of $15.8 million to help member states make a successful transition to the implementation of the CCSS and the aligned PARCC assessments. All member states, both Governing and Participating, will be provided with support in three major areas:[3]

A. Support for the development and execution of each state's **strategic transition and implementation plan**, including training of educator leadership cadres ($7.6 M);

B. Collaborative development of voluntary **instructional tools** to support quality teaching and student learning ($4.23 M); and

C. Support for state and local **technology transitions** ($0.5 M).

This supplemental grant also provides support for a short-term planning process for the 10 states in PARCC that won RTTT state grants[4] to enable them to coordinate their investments toward a "coherent and complete set of tools" from which all states can benefit.

## A. Support for Strategic Transition and Implementation Planning

PARCC will support states and districts in the transition to the CCSS through three major activities:

- **State Leadership Teams:** First, PARCC will work with its member states to develop and utilize a comprehensive implementation planning tool that can be used by state leadership teams to develop and monitor their transition plans. Funding will support two gatherings of state leadership teams annually. These teams will include state leaders, district/local leaders, and other critical stakeholders, as determined by each state. PARCC will provide summaries of each gathering and distribute them to all member states. It also will organize webinars and/or conference calls to further support cross-state sharing and problem solving.

- **Educator Leadership Cadres:** Support is included for states to build cadres of educators who understand and are able to train others in the implementation of the CCSS and use of the PARCC resources. Groups of K–12 educators from each member state will attend regional meetings to receive in-depth, content-based training on the standards, as well as the new assessments and tools being developed. Webinars and/or conference calls will provide additional support between meetings. Using a "train-the-trainers" model, states and districts will be able to deploy these educators as leaders in their capacity building efforts. State leadership teams will select these educators and provide additional training and support. These educator leadership cadre meetings are due to begin in late 2011.

- **Technical Working Groups:** As states transition to the CCSS and PARCC assessments, they will face a number of technical issues. Support is provided to cover three multistate technical working group gatherings per year that will focus on priority issues related to transition and implementation. Based on early conversations, PARCC anticipates that these working groups may address challenges states will confront in modifying their test blueprints, using PARCC assessments in teacher evaluations and/or aligning instructional tools to the CCSS, PARCC tools, and PARCC assessments. At the gatherings, PARCC states will have access to the advice of contracted assessment and measurement experts and the opportunity to problem solve collectively. While it is envisioned that only six to eight member states will participate in any given meeting, the products and lessons will be shared with all PARCC states. Over the four-year project, every PARCC state will be invited to participate in at least one of these gatherings.

## B. Collaborative Development of Instructional Tools

The PARCC assessment grant contains funds for the development of a set of professional development and instructional tools, aligned to the CCSS, which will support good teaching. Supplemental grant funds will be used to expand the development and acquisition of these resources.

In order to provide guidance to educators on how the CCSS may be organized into quarterly progressions within each grade based on the logical progression of the subject matter, educators from PARCC states are currently developing content frameworks.

[3] In addition, this grant provides support for the PARCC Technical Advisory Committee (TAC), joint TAC meetings with SBAC, attendance of state teams at six two-day technical assistance meetings to be hosted by USED, and project management. For the complete Supplemental Budget, visit **www.fldoe.org/parcc**.

[4] PARCC members that won RTTT state grants are Delaware ($119 M), District of Columbia ($75 M), Florida ($700 M), Georgia ($400 M), Maryland ($250 M), Massachusetts ($250 M), New York ($700 M), Ohio ($400 M), Rhode Island ($75 M), and Tennessee ($500 M).

In addition, PARCC intends to purposefully leverage the 10 state RTTT grants, which also contain funding for the development of formative assessments and instructional tools. An organizing framework will be created that will enable these states to coordinate the uses of their state grants with each other and PARCC resources. The goal is to produce "a coherent and complete set of tools" from which all member states can benefit.

This continuously growing set of professional development and instructional resources will be made available through the Partnership Resource Center, and their use will be voluntary. These will serve as "building blocks" that states and districts can use to augment their own resources as they create curricula and support systems aligned to the CCSS.

Four categories of products will be produced collaboratively by PARCC member states:

- A **guiding framework** that will identify the priority tools most important for improving teaching and learning, including: the development of common definitions and criteria; instructional tools; formative assessments; professional development modules; and communication tools for use by teachers, students, and educators;
- **Prototypes** of the through-course assessments that will be available through the Partnership Resource Center as early as fall 2011, with the goals of a) refining and improving these tools over the remaining years of the grant, and b) providing exemplars that assessment and instructional resource developers can use to align their work;
- A set of 38 **voluntary model instructional units**, across grades and subjects, to address a) CCSS standards that will be measured by the through-course assessments, b) CCSS standards that are most foundational and/or require the greatest "stretch" as compared to current standards, and c) content and skills that are particularly challenging for large numbers of students at a particular grade level or in a specific subject; and
- **Voluntary college-readiness tools** for students who need additional support to meet the high school standards, such as model 12th-grade bridge courses and/or online tools to help diagnose students' gaps.

In addition, the PARCC assessment grant will support the development of sample assessment tasks for grades K–2 in mathematics and English language arts. These will be designed to be embedded in and supportive of instruction.

## C. Support for Technology Transitions

The two Consortia will collaborate on the development of an online interactive tool to help states and local districts evaluate their current level of readiness to implement computer-based assessments, identify strategies to address gaps, and monitor progress.

In addition, because the assessment system designs of both Consortia rely heavily on the use of AI scoring engines to score complex items quickly and cost-efficiently, the two Consortia will collaborate on the development of standardized AI scoring protocols. They also will explore a possible collaboration on the procurement of an AI engine.

### Coordination between SBAC and PARCC

Through a combination of funds within the primary and supplemental grants, SBAC and PARCC will work together in the following areas that both Consortia are pursuing:

- Development of common achievement standards that create the foundation for **comparability of student scores** both within each Consortium of states and across the two Consortia;
- Anchoring of high school assessments with the skills and knowledge needed for **college and career readiness**;
- **AI scoring engines**;
- **Support for state and local technology transitions**;
- Joint **Technical Advisory Committee meetings**; and
- **State participation** in USED-sponsored assistance meetings.

## THE COMPREHENSIVE ASSESSMENT CONSORTIA:

# SMARTER BALANCED ASSESSMENT CONSORTIUM (SBAC)

- MEMBERSHIP: 29 states[5] serving more than 23 million K–12 students, representing approximately 49 percent of the nation's K–12 public school students
- GOVERNING STATES*: California, Connecticut, Hawaii, Idaho, Iowa, Kansas, Maine, Michigan, Missouri, Montana, Nevada, New Hampshire, North Carolina, Oregon, Utah, Vermont, Washington, West Virginia
- ADVISORY STATES**: Alabama, Colorado, Delaware, Kentucky, North Dakota, Ohio, Pennsylvania, South Carolina, South Dakota, Wisconsin, Wyoming
- PROCUREMENT STATE***: Washington
- PROJECT MANAGEMENT PARTNER: WestEd
- HIGHER ED PARTNERSHIPS: A strong majority of the two- and four-year institutions in these 29 states has committed to participate in the Consortium, help design the new assessments, and use the assessments as an indicator of readiness for credit-bearing entry-level courses in lieu of existing placement tests. These participating institutions**** typically receive 78 percent of all students in SBAC Consortium states who begin college within two years of graduating from high school.
- AWARD: $176 million total (assessment and supplemental grants)

This information is accurate as of July 22, 2011.

The following summary of the SBAC assessment system was developed by the Center and has been approved by the SBAC Consortium.

The design of the SMARTER Balanced Assessment Consortium is intended to strategically "balance" summative, interim, and formative assessment through an integrated system of standards, curriculum, assessment, instruction, and teacher development, while providing accurate year-to-year indicators of students' progress toward college and career readiness.

The assessments and formative resources for teachers will rely on research-based learning progressions, which further define how students acquire the knowledge and skills called for in the standards. The EOY summative assessments will include both performance tasks and a computer-adaptive assessment to assess the full range of the CCSS. In addition, SBAC will provide a suite of optional interim and formative tools and resources. These include: computer-adaptive interim assessments using nonsecure item types and performance tasks similar to those used in the summative assessments that provide teachers with instructionally useful information about each student's progress during the year; formative tools and strategies for more regular classroom use; and professional development resources in the formative assessment process and use of assessment data of all types to adjust and improve instruction.

Technology will be leveraged in this design in several ways: adaptive testing will be used to enhance the precision of scores across the full achievement spectrum; technology-enhanced test items will expand the range of skills that can be assessed; online professional development resources and research-supported instructional tools will support improved instruction and school leadership; and, through use of an interoperable electronic platform, the Consortium will support both standardized and customized reports that can be targeted to a range of audiences for tracking and analyzing progress.

A guiding principle for the SBAC Consortium is "responsible flexibility." SBAC will make it possible for states to customize system components, while also ensuring comparability of student scores across all participating states on the summative assessments.

*The design of the SMARTER Balanced Assessment Consortium is intended to strategically "balance" summative, interim, and formative assessment through an integrated system of standards, curriculum, assessment, instruction, and teacher development, while providing accurate year-to-year indicators of students' progress toward college and career readiness.*

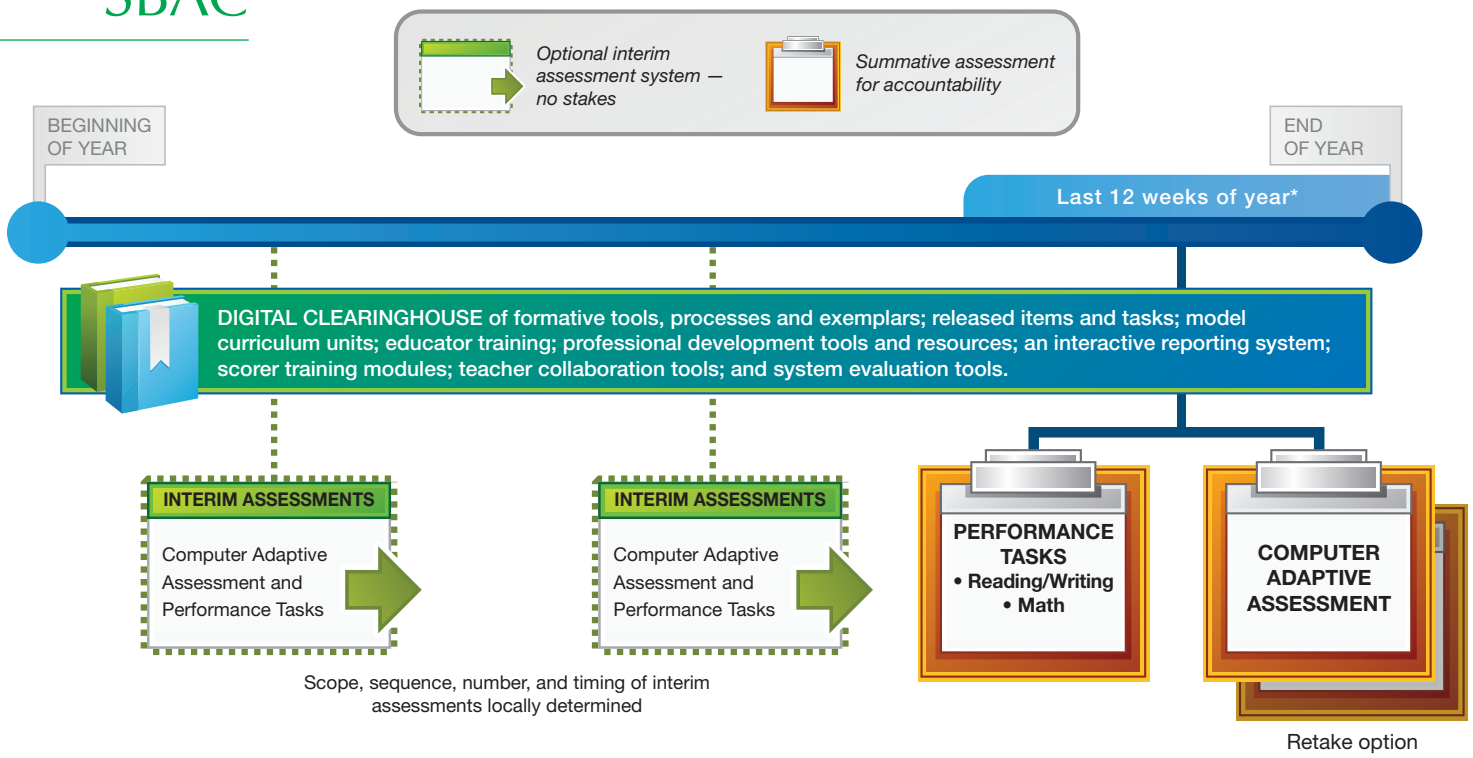
[5] Eight states currently belong to both Consortia and six states (AK, MN, NE, NM, TX, VA) belong to neither.

* GOVERNING STATES cast decision-making votes on test design and policy.

** ADVISORY STATES consult on test design and policy, but have no decision-making authority.

*** PROCUREMENT STATES are the fiscal agents.

**** Note that the total number of higher education partners and the percentage of students have not been updated to include California.




* Time windows may be adjusted based on results from the research agenda and final implementation decisions.

# SYSTEM COMPONENTS

## SUMMATIVE ASSESSMENTS FOR ACCOUNTABILITY

Assessments will be developed for English language arts and mathematics for grades 3–8 and 11, with access to a non-secure interim assessment bank for 9th- and 10th-grade assessments for states that choose to use them. Although all assessments are to eventually be delivered via computer, the Consortium expects to offer a paper-and-pencil option for three years to support states that do not yet have sufficient technology infrastructure to make a complete transition at the outset.

Taken during the final 12 weeks of the school year*, the summative assessments for each grade and subject will have two major components: performance tasks and a comprehensive end-of-year computer adaptive assessment, as described below. All of these assessments will provide students with information regarding their achievement, growth, and progress toward college and career readiness by the end of high school.

- **Performance Tasks:** Students will complete one task in reading, one in writing, and two in mathematics annually[6] during a Consortium-defined testing window. Performance tasks may be delivered via computer and will generally require one to two class periods to complete. These tasks will evaluate aspects of the CCSS that are difficult or not possible to assess through more traditional items. They will involve student-initiated planning, management of information and ideas, interaction with other materials and/or people, and production of an extended response such as an oral presentation, exhibit, product development, or an extended written piece. A combination of machine and teacher/human scoring will be used, with results available as soon as possible.

- **Computer Adaptive Assessments:** The computer adaptive assessment will consist of approximately 40–65 questions per content area. It will include selected-response, constructed-response, and technology-enhanced items. The system will use a combination of immediate scoring by computer and rapid online scoring by teachers. This component includes a retake option, as locally determined. Students who are approved to do so may take the assessment a second time, but will see a new set of items.



* Time windows may be adjusted based on results from the research agenda and final implementation decisions.

[6] This proposed number of performance tasks may be modified after further review of the CCSS.

**Scoring:** Performance tasks will have some components that are scored by computer and others that require human scoring. A Consortium priority is the strategic involvement of teachers in the development of items and scoring guides and in the scoring of constructed-response items (10 percent teacher scored) and performance tasks (33 percent teacher scored), although no teacher would score his/her student's responses. An online system will be developed to allow efficient distributed human scoring and monitoring of the accuracy of each reader.

For the computer adaptive component, selected-response and technology-enhanced items will be computer-scored. Additional items that can be reliably scored using artificial intelligence engines will be electronically scored, with 10 percent back-read by humans to verify the accuracy of the engine. Final combined scores for these summative assessments are expected to be delivered within two weeks.* The Consortium plans to leverage advances in both electronic item types and electronic scoring to support its design and will invest in the development of a training system for human scorers.

**Measuring Growth:** The Consortium intends to build vertical scales across the grade 3–11 span in English language arts and mathematics, which can then be used as the basis for growth measures evaluating the individual's progress toward college and career readiness across the years, but also will build horizontal (grade-specific) scales. Both the summative assessment results and the interim assessment results will be reportable on these vertical and horizontal scales. The Consortium will conduct studies of the characteristics of different models when used in conjunction with the data from the summative assessments to inform subsequent decisions.

**Accountability:** Student scores from both the performance tasks (one in reading, one in writing, and two in math per year) and the computer adaptive assessment will be combined for the annual summative score. Research will be conducted to inform decisions concerning the aggregation and weighting of the results from these two components.

**Reporting:** A common electronic platform will be developed to manage assessment data and provide sophisticated data reporting and analysis tools for customized reports. Students, teachers, parents, and administrators will be given security settings to access appropriate data only. Student scores on the performance tasks will be reported separately, as well as in combination with the computer adaptive assessment. Student performance levels will be explained with examples to aid interpretation. Reports will provide item-level information for clusters of items, provided that this is found to yield valid and reliable information. In addition to summative results, scores from the interim assessments throughout the school year will be available in the same reporting suite and report more detailed information concerning progress toward that grade level's standards. This system also will include links to model curriculum and instruction resources and assessment professional development resources. The reporting tool will be customizable, allowing each state to "brand" the reporting in a manner consistent with other state-level reports.

## RESOURCES, TOOLS, AND CAPACITY BUILDING

**Optional Interim Assessments:** These optional computer adaptive assessments can be self-administered several times each year (to be determined by states/locals) and will provide near-immediate results on the same scale as the computer adaptive component of the summative assessment. The item types will mirror those on the summative comprehensive assessment.

Two modes of test administration will be available, both of which can be given multiple times per year at the discretion of the state, district, or school. One version mirrors the length and scope of the end-of-year computer adaptive assessment and yields a scale score that can be used as a growth or achievement metric. A shorter "cluster assessment" version also will be available that assesses, at a deeper level, a smaller set of standards based on defined learning progressions, thereby providing more detailed feedback. The items will be stored in a nonsecure item bank and can be grouped into customized clusters based on state or local curricula and can be administered before, during, or near the end of instruction. Reports of student results will link teachers to appropriate formative tools and strategies for their students and professional development resources.

**Comprehensive Electronic Platform:** The SMARTER Balanced Assessment System will be built around a secure, credential-based comprehensive electronic platform that contains an expanding collection of resources for teachers, administrators, students, and parents, including:

- **A System Portal** — This portal will serve as the single point of entry for educators, students, parents, and policymakers to all components of the system. In addition to the features described below, the portal will provide access to the assessment delivery platform, the distributed hand-scoring platform, and issue-focused chat rooms.

* Time windows may be adjusted based on results from the research agenda and final implementation decisions.

- **The Educator Dashboard** — A secure online portal will allow educators to:
  - download, view, and analyze assessment reports, scoring rubrics, and longitudinal data;
  - generate custom reports;
  - access model curricula that are aligned to the CCSS;
  - access research-based instructional strategies and interventions related to specific assessment results for individuals or subgroups;
  - access vetted instructional units, formative tools, and sample performance tasks; and
  - network with teachers to share information and resources and discuss curricula, instruction, and assessment.
- **Formative Tools, Processes, and Practices Clearinghouse** — To be developed for grades 3–8 and high school, this bank of resources will include:
  - formative assessment tools and strategies, including the use of performance tasks to solicit formative information, and rubrics that can be used by teachers on-demand to support teaching and learning;
  - assessments created by teachers using these tools and instruments, which can be administered as computer-adaptive assessments, teacher-administered performance tasks, or classroom exercises; and
  - research-based instructional tools and processes.
- **Item Development/Scoring Application** — Online training modules will be available for both development of assessment items and tasks and for scoring of items and tasks. For those educators who successfully complete the training, item authoring and scoring software will become accessible.
- **Reporting Suite** — See "Reporting" on page 15.
- **Feedback/Evaluation Tools** — These tools will support regular surveying of system users (teachers, administrators, students, and parents) and vetting of submitted materials.

## TECHNOLOGY

The Consortium will accelerate the development of technological solutions that support improved teaching and learning. The assessment system will combine both state-of-the-art existing software and newly developed, open-source technology that advances the field in the delivery, scoring, and reporting of the assessments. Upon completion of the system development, a public license defining this as free, open-source software will be created.

## TIMELINE*

| SUMMATIVE ASSESSMENT | |
|---|---|
| May–Sept. 2011 | Conduct initial analysis of the CCSS and create content specifications for the assessments, develop criteria for item/task prototypes, and develop sample item/task sets |
| Oct. 2011–Feb. 2012 | Develop test specifications, item specifications, test blueprints, and initial achievement-level descriptors |
| Feb.–July 2012 | Conduct item/task writing and editing, including vetting of state-submitted items and tasks for inclusion in SBAC item pool<br>Conduct gap analysis to determine procurement needs<br>Conduct small-scale trials and cognitive labs |
| July 2012–Feb. 2013 | Conduct content and bias/sensitivity reviews |
| Feb. 2013 | Conduct pilot test of items and tasks |
| March 2013–March 2014 | Conduct additional item/task writing, editing, review, and pilot testing<br>Prepare items for field testing |
| March 2014 | Conduct field test of items and tasks |
| August 2014 | Conduct preliminary standard setting |
| 2015 | Administer fully operational summative assessments<br>Verify and adopt final achievement level standards |
| **FORMATIVE TOOLS, PROCESSES, SUPPORTS** | |
| 2011–2012 | Develop, procure, and review materials to populate the digital library |
| 2012–2013 | Develop exemplar modules of formative assessment tasks and tools and professional development training modules<br>Conduct teacher training on the use of formative and professional development modules across the Consortium |
| 2013–2014 | Plan and execute communication of formative and professional development modules and use of the digital library |

* Timeline should be considered a draft as of June 2011 and is subject to change.



For more information about SBAC, visit **www.k12.wa.us/smarter**

# THE SBAC SUPPLEMENTAL GRANT FOR TRANSITION SUPPORTS

SBAC was awarded a four-year supplemental grant of $15.8 million to support the implementation of the CCSS at the local, state and Consortium levels. Activities within the following areas are included:[7]

A. Support to states and districts for **transition to common core standards**, including support for state transition planning, development of formative processes and tools to support instruction, professional development, and communication tools ($11.7 M);

B. Alignment of assessments to **college and career readiness** ($2.2 M); and

C. Support for state and local **technology transitions** ($0.66 M).

The activities funded by this grant are designed to complement the work on the development of the SBAC assessment system in order to create **an integrated learning and assessment system**.

## A. Support to States and Districts for Transition to Common Core Standards

Four types of direct support will be provided to member states and their districts.

- **Multistate Collaborative Supporting Implementation of Common Core Systems**

The Council of Chief State School Officers established a multistate collaborative, Implementing the Common Core System (ICCS), to support states' efforts to transition to the CCSS. Members of this collaborative will meet two or three times per year to share and discuss policies and practices that connect the sub-systems of the K–12 educational delivery system (curriculum, instruction, professional development, accommodations, assessment, etc.).

SBAC will support the membership fees in ICCS for each Governing state for two years and for each Advisory state for one year. It will seek to secure additional funding to support all states for a total of four years. A portion of the membership fees will support an additional one-day meeting for the SBAC delegates, on a day that is adjacent to each ICCS meeting.

- **Instructional Materials**

SBAC will identify and adapt high-quality instructional materials to be placed in the Consortium's Digital Clearinghouse for voluntary use by teachers, districts and states as they develop their curricula. Three categories of products are expected, all of which are to be tightly aligned to the CCSS: learning progressions for each Common Core State Standard; model curriculum frameworks; and model instructional units.

Two full-time content experts — one in mathematics and one in ELA — will be hired to lead groups of teachers from member states in the review of materials (see the FPT/PD section on this page). The developers of selected materials will then work as contractors to "adapt or extend" their materials for placement in the Digital Clearinghouse.

- **Formative Processes and Tools/Professional Development (FPT/PD)**

The SBAC plan states, "The most effective professional development to build assessment literacy and improve the rigor and relevance of the curriculum occurs when teachers participate in identifying and evaluating the quality of formative processes, tasks, and tools with accompanying scoring guides, examples of student work, and suggested next steps in instruction based on student responses."

Ninety teachers from each member state will be trained to evaluate and select existing formative tasks and tools for inclusion in the Digital Clearinghouse. The training sessions will be facilitated by the SBAC content-area experts in collaboration with state and regional chapters of content-area professional organizations and will involve the discussion of exemplar instructional modules. Six exemplar instructional modules will be developed for each grade level, three in math and three in ELA, for grades 3–11. Each module will address one or two learning progressions and will include formative tasks, scoring rubrics and samples of student work at multiple performance levels.

The training materials will be developed by a vendor, working with a panel of national experts and the SBAC content experts. Both web-based and face-to-face delivery will be supported.

[7] In addition, this grant contains funding to support state attendance at the six two-day technical assistance meetings to be hosted by USED, as well as project management support for these activities. For more details, see the complete Supplemental Budget at **www.k12.wa.us/smarter/rtttapplication.aspx**.

The FPT/PD Work Group and the SBAC content experts also will assist states in the development of state-specific plans and communications tools to roll out training to their teachers in the use of the Digital Clearinghouse resources.

- **Communications**

With these funds, the SBAC will hire a part-time Policy Coordinator and will contract with a communications firm for the development of a customer needs assessment and web- and print-based communication tools that states and local districts can use.

## B. Alignment of Assessments to College and Career Readiness

The overarching goal of SBAC is to ensure that "all students leave high school prepared for postsecondary success in college or a career."[8] Supplemental grant funding will augment the work of the SBAC assessment grant through three activities:

- Validity studies to establish the connection between indicators of college and career readiness from the Consortium's assessment system and evidence of success in college or a career;
- Development of common achievement standards for SBAC and the PARCC Consortium that create the foundation for comparability of student scores both within the Consortium and across the two Consortia; and
- An enhancement to the interim assessment system to make it possible for states to build high school end-of-course assessments aligned to the CCSS in ELA and mathematics.[9]

## C. Support for Technology Transitions

Many states and districts in each Consortium are concerned that they will not have adequate technology infrastructure to implement the new online Consortia assessment systems in 2014–15. The two Consortia will collaborate on the development of an online interactive tool to help states and local districts evaluate their current level of technology readiness, identify strategies to address gaps and monitor progress.

In addition, because the assessment system designs of both Consortia rely heavily on the use of AI scoring engines to score complex items quickly and cost efficiently, the two Consortia will collaborate on the development of standardized AI scoring protocols. They also will explore a possible collaboration on the procurement of an AI engine.

### Coordination between SBAC and PARCC

Through a combination of funds within the primary and supplemental grants, SBAC and PARCC will work together in the following areas that both Consortia are pursuing:

- Development of common achievement standards that create the foundation for **comparability of student scores** both within each Consortium of states and across the two Consortia;
- Anchoring of high school assessments with the skills and knowledge needed for **college and career readiness**;
- **Artificial intelligence scoring engines**;
- **Support for state and local technology transitions**;
- Joint **Technical Advisory Committee meetings**; and
- **State participation** in USED-sponsored assistance meetings.

[8] SBAC Race to the Top Assessment Program Application, June 24, 2010, p. 31.

[9] End-of-course assessments are currently being used by six SBAC states and another five are planning to implement them. The application warns states that these assessments will be appropriate only for state-defined purposes, not federal accountability purposes.



For a copy of the SBAC Supplemental Application, visit **www.k12.wa.us/smarter**

# FINDING SOLUTIONS, MOVING FORWARD

*By Nancy Doorey*

At the core of the new Consortia assessment designs is a contention: In order to *accelerate the learning of American students*, more powerful assessment systems are needed that support improved instruction and yield more timely, useful information to students, educators, parents, and policymakers.

The 44 states and the District of Columbia that currently comprise the two assessment Consortia are seeking to leverage federal and state resources, as well as recent innovations in assessment design and cutting-edge technologies, in order to overcome many of the limitations of current state tests. They are pressing for more inclusion of complex tasks to assess the types of skills called for in the CCSS, for faster results, and for cost efficiencies. Both PARCC and SBAC plan to transition rapidly to computer-based testing (CBT). This large-scale shift to digital delivery will stimulate major advances — just as it has in music, publishing, retail, and many other industries — in testing formats, item types, delivery options, scoring methodologies, and data analysis and reporting tools.

New assessment formats and design features, however, particularly when used within high-stakes assessments, create new measurement challenges. While educational improvement is the preeminent goal, states also must have confidence that their summative assessment systems are of sufficient technical quality to produce results that can withstand legal challenges when used for their designated high-stakes purposes. In many ways, technological innovation has outpaced the measurement sciences in recent years. If the educational benefits of these new designs are to be realized, the measurement community must become an enthusiastic, solutions-oriented partner.

ETS, a nonprofit organization, created the Center in 2009 to support and drive advances in student assessment by:

- anticipating critical measurement issues that are at the heart of the current education reform agenda;
- organizing the best thinking on these issues and their potential solutions; and
- engaging national and state constituents in order to promote advances in design and technical quality.

In early 2011, we focused on the topic of through-course summative assessments, an exciting and challenging new design option. In 2012, we will bring forward current and emerging advances in technology-enhanced assessment. Future topics will likely include learning progressions, science assessment, and the use of assessment data in determinations of educator effectiveness.

## Hot Off the Press: Innovative Opportunities and Measurement Challenges in Through-Course Summative Assessments

One of the most innovative new design features contained in the assessment Consortia proposals is through-course summative assessment. This past winter, the Center convened a group of about 120 measurement professionals from across the country to explore the measurement issues inherent in this design option and their potential solutions.

Through-course summative assessments are described in, but not required by, the RTTT Assessment Program application. This format, in which an assessment system component or set of assessment system components is administered periodically during the academic year, has several potentially significant educational benefits. These include:

- Assessing key skills and competencies closer to the time of instruction;
- Providing data that can be used for instructional and programmatic improvements throughout the school year rather than solely at the end of the year; and
- Making it easier for states to administer extended performance tasks (which may be necessary to measure aspects of the CCSS).

*Papers and a summary report that describes the measurement challenges, as well as potential solutions and the overarching themes and lessons that emerged from the conference discussions, are on the Center's website at* **www.k12center.org** *under the "Publications" tab.*

In its initial application, PARCC embraced through-course summative assessment as a major feature of its proposed testing system, proposing a sequence of four summative assessment components distributed across the school year.[10] In June 2011, however, the

[10] For a description of this initial design, visit **www.k12center.org** and look for the February 2011 version of this guide.

PARCC Governing Board voted to refine the design to require just two summative components per year, with a third summative component to be potentially added in the future (see PARCC illustration on page 8). SBAC's planned assessment system does not incorporate a through-course design (see SBAC illustration on page 14), but the SBAC proposal notes that it will investigate whether to provide member states with the flexibility to administer an alternative summative system that would rely on distributed computer-adaptive, through-course components.

The Center commissioned nationally prominent assessment experts to explore key measurement issues raised by this design option. How can the most essential or "keystone" skills for each grade level be identified for prioritization in the through-course assessments? How can reliability, scaling, and equating be addressed in this design, and what are the options and considerations for weighting and "rolling up" the results? How can this design be used to draw inferences about individual student growth? These questions and others were explored at the February 2011 research symposium.

The primary takeaway from the symposium was a deeper understanding of the set of studies that will need to be conducted within a robust research agenda to support the Consortia as they develop, pilot, and refine their assessment programs. Working collaboratively as Consortia will enable states to accomplish much more than they could tackle as individual states, and the symposium served to "prime the pump" among leaders in the measurement community to assist them. As John Easton, Director of the federal Institute of Educational Sciences, noted, a comprehensive, robust, and integrated research and evaluation agenda is essential if we are to learn as much as possible about system and school improvement from this "major education intervention" of new assessment systems and related tools and resources.

## Coming Soon: Symposium on Technology-Enhanced Assessments and Automated Scoring

The demand for the transition from paper-and-pencil to CBT has grown as parents and teachers demand faster results and states seek to reduce the costs — in dollars and personnel time — associated with printing, shipping, and securing millions of printed test booklets.

But the benefits of CBT go far beyond speed and cost. The digital format opens new doors for enhancing the fairness and quality of assessments, the range of skills and constructs that can be assessed, and the educational utility of the results. Consider the following:

- CBT creates the opportunity to improve the fairness and validity of assessments for students with disabilities and English-language learners by expanding the set of available accommodations. Text-to-speech utilities, text enlargement, and language translations are just a few of the currently available options and, given the scale of the transition to online testing, more will likely be developed.
- Many skills and competencies that are fundamental to college and career readiness, and are called for within the CCSS, cannot be assessed on paper, such as online searching (in contained digital libraries of resources created for the assessment) and the use of word processing and data analysis software.
- Computer-adaptive delivery engines allow for both improved score precision and reduced testing time.
- Computer-based assessments have been shown to improve student motivation, a serious threat to validity that currently confounds our assessment results to an unknown degree.
- New interactive computer tasks and simulations allow us to gain information about both the *content knowledge* of the student and the *processes* used by the student to solve complex problems. The more challenging electronic and online games can provide some insight into what may be possible to incorporate into engaging and complex simulations that require the application of knowledge and skills to real-world problems and novel situations. In addition, indicators of student effort also may be captured to assist in interpreting the results.
- New data-mining methodologies are being developed to analyze the logs of student actions taken during one or more computer-based assessments (and/or instructional activities) to produce much more detailed diagnostic feedback and personalized instructional plans.

*Next spring, the Center will host a research symposium on the topic of technology-enhanced assessment. We will look at advances in the assessment of complex and 21st-century skills, automated scoring, and personalized learning systems. Resources from that symposium will be available on our website.*

There are clearly new frontiers to be reached in the area of automated scoring as well. Existing AI engines score the large majority of student essays at least as reliably as humans and "send back" those essays that are so unique or creative as to require human scoring. However, as we look to assess writing in the context of science, English literature, or history, as called for in the CCSS, new advances are needed to produce reliable sub-scores for both writing and the content area constructs assessed.

Next spring, the Center will host a research symposium on the topic of technology-enhanced assessment. We will look at advances in the assessment of complex and 21st-century skills, automated scoring, and personalized learning systems. Resources from that symposium will be available on our website.

## Looking Beyond 2015

Some of the challenges discussed earlier may be solved within the next two or three years, in time for application within the initial roll-out of PARCC and/or SBAC. Others will require more time to develop prototypes, pilot, and prepare for use within high-stakes assessments, perhaps deploying within interim or formative assessments initially. New technologies will be developed, that will impact the technical and financial feasibility of some approaches and open the doors to new ones.

This, then, points out the need to think of the next four years as only the beginning — the development of a strong foundation — for a new, robust data and research platform from which we can leverage technologies to accelerate advances in K–12 education and enhance learning for all children. The CCSS and aligned common assessments create the opportunity to shift from norm-based educational decision making (identification of what works for most students, most of the time) to more nuanced and personalized educational decision making (what would work best for a student based on accumulated information from large numbers of students with similar prior achievement patterns, as well as what are the most effective professional development activities for the unique needs of a particular teacher as identified by the progress of the teacher's students).

The ambitious plans laid out by the Consortia will undoubtedly drive innovation and improvements in the field of assessment. But it will take a rare combination of pragmatism, humility, optimism, resourcefulness, and persistence — as well as broad cooperation from a wide variety of experts and stakeholders — to fully achieve their visions. The Center will continue to identify measurement challenges to be overcome, organize thoughtful exploration of options, and broadly share the best thinking in order to assist the Consortia and states in their pursuit of excellence and equity for all of America's children.

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## Let's Animate the Discussion!

The Center has developed and regularly updates an animated slide presentation that walks viewers through each element of the Consortia designs for their assessment systems and related support materials. We hope you will find it useful.

Visit **www.k12center.org/publications.html** to download it, and be sure to view it in slideshow mode.

You can sign up to receive future updates and materials from the Center by sending an email to **mail@k12center.org**.

# Center for K–12 Assessment & Performance Management at ETS

*A catalyst and resource for the improvement of measurement and data systems to enhance student achievement.*

The Center will work with nationally recognized measurement experts from across the country to explore possible solutions to the measurement challenges inherent in the designs of the new assessments and will share the resulting ideas and recommendations through webinars and our website. To sign up for notices as these resources are made available, visit

**www.k12center.org**

*Created by Educational Testing Service (ETS) to forward a larger social mission, the Center for K–12 Assessment & Performance Management at ETS has been given the directive to serve as a catalyst and resource for the improvement of measurement and data systems to enhance student achievement.*