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Overview

Students in the United States continue to lag behind their peers across the world in mathematics and science. State standards established in accordance with *No Child Left Behind* (NCLB) are frequently cited as inconsistent and representing lower levels of knowledge taxonomies. Today, the global market is putting more pressure than ever on the American economy; if our students are to compete in this new world, they will have to be better prepared than they currently are.

Numerous studies report that the level of reading demanded of high school seniors is generally lower than that of entry level career positions and introductory college courses. Many students are not ready for their local economy and/or higher education, let alone a global marketplace. The pressure on schools to address this situation is enormous.

American schools are facing a fundamental change in the way teaching and learning take place. Most states have accepted the new Common Core State Standards, written by the Council of Chief State School Officers and the National Governors Association Center for Best Practices. These standards are fewer, clearer, and more rigorous than most state standards. With so many states adopting these standards, the United States is closer than ever to having a national curriculum.

These standards demand very high levels of performance from all students, which in turn has significant implications for teaching. Differentiated instruction, integrated instruction, Learning by Design, and other strategies will need to become commonplace in all classrooms. There is no excuse for at-risk populations failing to achieve along with the rest of the students in school. Whereas typically state standards have fallen into Quadrant A (Acquisition), these new standards are found in Quadrant C (Assimilation) of the Rigor/Relevance Framework®.

A new, next generation assessment program will accompany the Common Core State Standards. These assessments range far beyond the usual

multiple-choice and short-answer questions. Instead, students will have to apply their knowledge to real-world situations through performance events. They will have to work in interdisciplinary situations. They will have to be able to use technology with facility. Some performance events will take weeks to complete. These performance events will move instruction and assessment from Quadrants A (Acquisition) and B (Application) to Quadrant D (Adaptation).

For teachers, this new form of evaluation means developing a full understanding of performance events, how to construct them, and how to evaluate student work. In order to prepare students for such assessments, teachers will have to give students ample practice in this style of evaluation. In addition, the new assessments require teachers to make substantial use of formative assessment techniques. Final results for each student will comprise a combination of performance events, in-course assessments, and more conventional standardized tests.

Another new skill for teachers will be to determine text complexity. The new standards develop a comprehensive system of defining and evaluating text complexity. This will allow teachers to match text to specific students with respect to actual structural complexity of the text, along with other factors such as student interest and prior knowledge.

The implications of these changes are nothing short of a retooling of American education. The new demands on students translate into new demands on teachers. These next generation assessments will begin in 2014, so there are only three years for preparation. A key message of this resource kit is to start the transition process now. Much work needs to be done, with little time to do it. This kit, and the International Center for Leadership in Education, can provide invaluable guidance, support, and leadership in the process of moving from the current system of teaching, learning, and assessment to the more demanding requirements of the Common Core State Standards and next generation assessments.

The resource kit is organized as follows:

Chapter 1: The Challenge sets the stage. What is happening that has caused the need for new standards? Many American students are poorly prepared for the workplace or college, and they are not as competitive as they should be internationally. What has already been done about the situation, and what do schools still need to do? Chapter 1 describes the current landscape and the challenges that lie ahead.

Chapter 2: Early State Steps and Resources begins with the stories of Tennessee and a school district in Maine that each made fundamental changes, illustrating that change can happen. Next, a series of change strategies is suggested from the work of Willard R. Daggett. The chapter ends with descriptions of numerous resources available for schools and districts to help make the transition to the new standards and assessments.

Chapter 3: The Transition Plan: National Scope takes a broad look at the changes coming. Text complexity, college and career readiness, new content, research, and argument are a few of the English language arts topics examined. Changes in the mathematics standards are discussed in light of their new qualities of being narrower and deeper than most current standards.

Chapter 4: Moving Toward Implementation offers strategies for actually making the transition, such as using the International Center's Curriculum Matrix to align curriculum and standards, as well as incorporating curriculum maps and the National Essential Skills Study. Discussion topics include strategies for instruction and assessment. The chapter also contains extensive information about the Rigor/Relevance Framework.

Chapter 5: The Transition Plan: Local Scope develops specific illustrations of the kinds of changes that teachers and school systems will have to make. These changes include learning about text complexity,

comprehensive writing requirements, and the standards for mathematical practice. The chapter examines the depth and breadth of the professional development that teachers and administrators will need in order to make a successful transition to the new standards and assessment.

Other resources provided include a glossary, references, and appendices containing the complete Common Core State Standards in English language arts and mathematics from kindergarten through high school plus sample next generation assessment items.

A CD provides all the tools presented in the resource kit, along with PowerPoints and activities for professional development.

The assessments must reflect and support good instruction, and include all students from the outset — English learners, economically disadvantaged students, and students with disabilities.

Other criteria for these new assessments make challenging demands on the types of development and delivery. Part of the assessment process also includes documenting that students are on track to becoming college-and career-ready by the time they graduate from high school. This aspect of the assessments means that higher education institutions will be partners in the development of the new high school tests to ensure that the assessment system is anchored to success in college and careers. The assessments must reflect and support good instruction, and include all students from the outset — English learners, economically disadvantaged students, and students with disabilities. Therefore, not only will students learn from a more rigorous and relevant set of standards, students will also be introduced to a new type of assessment that is significantly different from the types of state assessment items in most current state tests.

Why Do We Need New Standards?

Why are we going through these changes? Why do we need new standards? There are three reasons: technology, college/workforce readiness changes, and globalization. While these are three issues, they are intimately interrelated. Nearly a decade ago, NCLB presented states with a daunting mix of challenges that supported the creation of statewide standards and assessments, and rigorous AYP. Yet, it is clear that as a nation the United States still lags behind other countries in student academic achievement and in preparing its young people to succeed beyond the classroom.

Education Trust.
Ensuring Equity
and Access for
All High School
Students: Lessons
from Schools
and Districts on
the Performance
Frontier

A Sweep of Recent Comparative Achievement Data

Major indicators of education success confirm that the U.S. system is indeed lagging behind other countries:

 While gains have been made in grades 4 and 8 on the National Assessment of Educational Progress (NAEP) reading and mathematics assessments, U.S. high school students' performance has remained flat for decades, with large score gaps persisting between white students and black and Latino students.

National Center for Education Statistics. Fast Facts

• The Programme for International Student Assessment (PISA), which uses real-world tasks and complex problems to measure the performance of 15-year-old students in reading, mathematics, and science, continues to reflect U.S. students' performance dropping, to ranking 22nd in mathematics and 19th in science in 2006, out of 26 member countries of the Organization for Economic Cooperation and Development (OECD).

PISA 2006 Results www.oecd.org

• In 2007, U.S. 8th graders trailed those in Singapore, Chinese Taipei, Japan, England, Korea, and Hungary in mathematics and science performance on the *Trends in International Mathematics and Science Study* (TIMSS).

National Center for Education Statistics http://nces.ed.gov/ pubs2009/2009001. pdf

• Grouping practices and tracking systems continue to create withinschool segregation and discrimination at every level: elementary, middle, and high school. Tracking, in its various forms, creates racially imbalanced classes in which African-American and Latino students are overrepresented in basic level and special education groups, while they are underrepresented in gifted/talented, honors, and Advanced Placement (AP) courses. Blanchett, W.J., Mumford, V., & Beachum, F. "Urban School Failure and Disproportionality in a Post-Brown Era"

• In the rate of college completion for 25- to 34-year-olds, only 38% of whom have attained an Associate's or Bachelor's degree, the United States ranks 10th in the world.

Oakes, J. Keeping Track: How Schools Structure Inequality

Secretary Arne Duncan's Testimony www2.ed.gov/ news/es/2010/03/ 03172010.html

Grade 4 Reading and Mathematics Proficiency Compared to NAEP Equivalents

Mapping State Proficiency Standards Onto NAEP Scales: 2005-2007

State	% Proficient Reading Grade 4	Required NAEP Score	% Proficient Mathematics Grade 4	Required NAEP Score
Tennessee	88%	170	87	200
North Carolina	82%	183	91	203
Iowa	77%	197	80	219
Florida	71%	202	63	230
California	48%	210	51	231

With reading levels insufficient, the tremendous variation in standards and assessment from state to state, and the promise of NCLB falling short, the federal government stepped in again.

Independent of this situation, the International Center conducted a study of reading levels in 75 high schools across the nation. As discussed in Chapter 1, the Lexile reading level demands of many careers, daily activities, and college work were higher than those of graduating high school students. Standards were low. With reading levels insufficient, the tremendous variation in standards and assessment from state to state, and the promise of NCLB falling short, the federal government stepped in again.

The Case of Tennessee

Fortuitously, but not accidentally, several years after NCLB was implemented in Tennessee — and with a foresight that anticipated Race to the Top (RTTT — the U.S. Department of Education program designed to spur reforms in state and local K-12 programs) and the Common Core State Standards (CCSS — designed to ensure that students graduating from America's high schools would be college- and career-ready), an undeniable conclusion became apparent to Tennessee Governor Phil Bredesen, Education Commissioner Tim Webb, and other state and local officials and educators: Compared to Tennessee's stated goal of proficiency for all its students by 2014, as well as in relation to the standards and proficiency levels of other states, Tennessee's standards were simply not high enough.

ratio of fiction to informational text. In grade 4, fiction and informational text each take up 50% of the readings. By 8th grade, the ratio is 45% fiction and 55% informational. Finally, reflecting the need to read informational texts in the workplace and in college, the ratio becomes 30% fiction and 70% informational text in high school.

See Chapter 1.

Text Complexity in the Common Core State Standards

While introduced earlier, text complexity bears additional reviewing. The Lexile reading levels of most high school texts are lower than those required for beginning college work or career entry positions. Consequently, the new standards for reading complexity are considerably higher than those that have been required generally in the current standards. In fact, the difference (which closely parallels the NAEP levels) is causing educators to consider moving present grade 4 materials to grade 2, and present grade 8 materials to grade 4. This shift will require new and more intense strategies in the teaching of reading.

This shift will require new and more intense strategies in the teaching of reading.

Three Aspects of Text Complexity

The new standards actually describe three aspects of text complexity, which expand on the aspects of text complexity described earlier in this chapter:

- 1. Qualitative dimensions of text complexity. In the new standards, qualitative dimensions and qualitative factors refer to those aspects of text complexity best measured or only measurable by an attentive human reader, such as levels of meaning or purpose, structure, language conventionality and clarity, and knowledge demands.
- **2. Quantitative dimensions of text complexity**. The terms quantitative dimensions and quantitative factors refer to those aspects of text complexity, such as word length or frequency, sentence length, and

system by using self-administered assessments and viewing reports, which show how their performance compares to expectations.

Integration of Instruction, Curriculum, and Assessment

The SBAC grant also sees the crucial integration of instruction, curriculum, and assessment:

Our approach is rooted in the belief that stronger learning will result from high-quality assessments that support ongoing improvements in instruction and learning, and that are educative for students, parents, teachers, school administrators, members of the public, and policymakers.

PARCC Race to the Top Assessment Program Application The PARCC proposal claims that the state partnership will "offer [teachers] an array of teaching tools to use the assessment results to inform instructional planning." This partnership will constitute part of the implementation plan, helping teachers understand how to use these new resources. Linking assessment closely in time with instruction gives teachers "actionable information about student learning on a more frequent basis." Teachers will be able to make targeted interventions for students who are struggling with the material or challenge those students who need more difficult work. The SBAC grant concurs.

The grant proposes three benchmark, or interim assessment each year, one at the end of 25%, 50%, and 90% of the teaching year. These assessments will "reflect the best kind of classroom instruction and student work and that can contribute to decisions about student, educator, school, and state performance against the Common Core State Standards." In mathematics, the assessments will measure the topics necessary for future learning, and in literacy, students will conduct research leading to the writing of essays, which will eventually be presented to classmates.

The crucial factor is that the formative assessment results will, with the assistance of technology, be rapidly returned in a manner easily understood. This will set the stage for "continuous improvement in classrooms and schools." Educators will be adjusting instruction continuously in response to student performance, thus maximizing student learning and keeping learners on track to meet college- and career-ready standards by the end of their high school years.

In addition, patterns that appear in the formative information can also define professional development topics for individual teachers, grade levels or subjects, or entire schools. The state of continuous learning incorporates all levels and aspects of the education system. As the SBAC grant states, "Teachers can follow up with targeted instruction, students can better target their own efforts, and administrators and policymakers can more fully understand what students know and can do, in order to guide curriculum and professional development decisions."

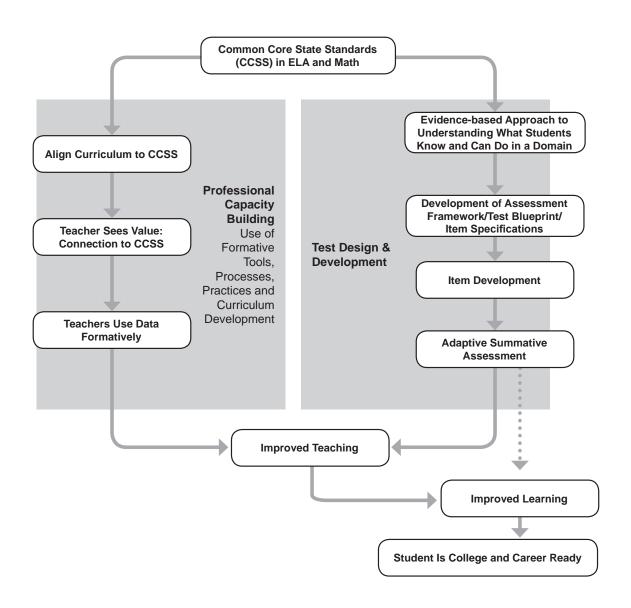
SBAC Race to the Top Assessment Program Application

Truly Useful Assessments

Assessment is not a one-time event. Besides summative and formative assessment, there can also be in-course or benchmark assessment. All three can work together to help give a complete picture of where a student is and where that student is headed on the learning progressions.

The SMARTER Balanced Assessment Consortium is committed to developing an assessment system that purposefully balances summative, interim/benchmark (I/B), and formative components and uses the information available from each component in a manner consistent with its design and purposes. We believe that this balance of assessment components will provide for a fully integrated system of learning and assessment that yields the necessary and actionable information to support quality instruction. The system will further support quality instruction

Process to Achieve College and Career Readiness

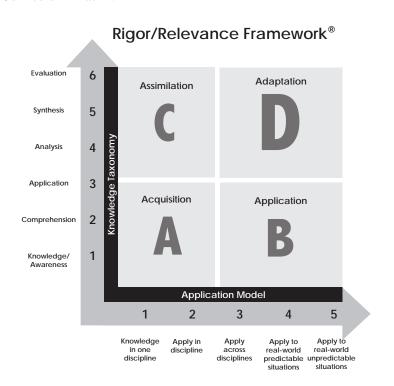


The Curriculum Matrix provides opportunities for educators to extend and enhance curriculum and instructional improvement efforts. It gives form and substance to the alignment of standards with assessments and community expectations. As a tool to guide instruction and instructional decisions, the Curriculum Matrix assists educators in raising student performance.

As a tool to guide instruction and instructional decisions, the Curriculum Matrix assists educators in raising student performance.

Complete Alignment in the Era of the Common Core

An excellent way to understand what is involved in moving to new Common Core State Standards and their related assessments is to use two of the International Center's tools: the Rigor/Relevance Framework and the Curriculum Matrix.



Quadrant A = low rigor/ low relevance

Quadrant B = low rigor/ high relevance

Quadrant C = high rigor/ low relevance

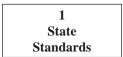
Quadrant D = high rigor/ high relevance

A more detailed discussion of the Rigor/ Relevance Framework is presented later in this chapter.

4 Moving Toward Implementation

The columns in the following Curriculum Matrix schematic have been re-ordered to simplify the description.

Column 1 lists the current state English language arts or mathematics standards/performance indicators for grades 3-12. (Science will be added in 2011.)



Column 2 indicates the priority ranking (high, medium, or low) of each performance indicator in Column 1 relative to the state test.

1	2
State	State
Standards	Test

Column 3 shows the priority ranking (high, medium, or low) of each performance indicator relative to the National Essential Skills Study (NESS).

1	2	3
State	State	NESS
Standards	Test	Ranking

A performance indicator that is ranked high in both Column 2 (on the test) and Column 3 (needed for success in the world beyond school) should always be taught. Performance indicators that are not tested and not considered essential to know can probably be eliminated from the already overcrowded curriculum.

Column 4 crosswalks the performance indicators to the Common Core State Standards.

1	2	3	4
State	State	NESS	Common Core
Standards	Test	Ranking	State Standards

Column 5 will list items in the new national assessments that align to each Common Core State Standard, when these tests are ready.

			4	
1	2	3	Common	5
State	State	NESS	Core	New
Standards	Test	Ranking	State	Assessments
			Standards	

To understand how the new standards and assessments differ from what is now taught and tested, each column has been labeled below with the related quadrant of the Rigor/Relevance Framework.

A		C		\mathbf{D}
			4	
1	2	3	Common	5
State	State	NESS	Core	New
Standards	Test	Ranking	State	Assessments
			Standards	

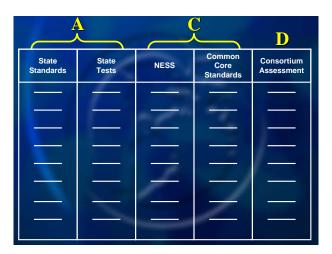
Columns 1 and 2 (existing state standards and tests) are low rigor/little relevance: Quadrant A.

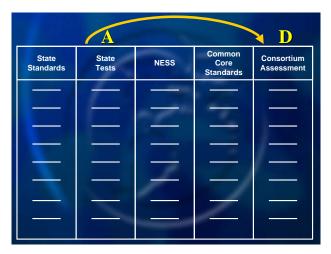
NESS and the Common Core State Standards are high rigor, but typically lack the requirement for students to apply their knowledge beyond the subject: Quadrant C.

4 Moving Toward Implementation

As schools move from their state standards/tests (Quadrant A) to the Common Core State Standards (Quadrant C) and to the related assessments (Quadrant D), instructional practices will need to change.

The new assessments will be both rigorous and relevant: Quadrant D.





Chapter 5



The Transition Plan: Local Scope

The Plan

ny credible district or school transition plan for the new Common Core State Standards and next generation assessments should include at minimum the following outcomes and goals, and a program outline:

Outcomes and Goals

- Facilitate a three-year transition from current state standards and assessments to the Common Core State Standards and next generation assessments
- Build deep understanding of and commitment to the new Common Core State Standards and assessments
- Support leadership in planning, goal setting, deep professional development, and implementation
- Correlate current standards and assessments to the Common Core State Standards and assessments to identify gaps
- Adjust curriculum to address the new requirements
- Enhance current instructional and assessment practices to increase capacity from the district to the classroom level
- Develop and implement a process to monitor ongoing adherence to plans and goals

Year 1 Program of Work Strategic Review and Planning

- **Initial Meetings with LEA** to define purpose, mission, process, needs, and project leadership. (Months 1-2)
- Awareness Building and Communication Presentations to staff and stakeholders to explain: the Common Core State Standards (and their relationship to existing state standards), the components of the next generation assessments, and the impact both will have on existing curriculum and instruction.

A one- or twoyear plan may also suit local needs.

Math 3

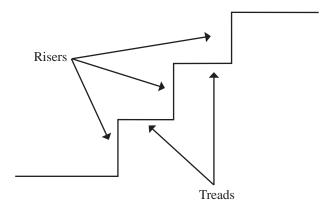
High School

Example 1

The mathematical concepts in *Example 1* are indicative of the mathematics that might be required in a performance task; however, to further enhance this item, the Partnership might require students to take measurements of actual staircases, wheelchair ramps, etc; record and analyze their results; and make recommendations for building code guidelines. The item would still introduce the algebraic components of the item below and might include a graphing component as well.

All states have building codes. Many such codes can be interpreted as mathematical inequalities, since they establish limits on what can be done.

Most states have codes related to staircase construction.



The most basic dimensions of a set of stairs are *riser height* and *tread depth*. A *riser* is the vertical front of a stair. The surface that you step on is called a *tread*. (See the diagram.)

(a) The Massachusetts State Building Code includes this statement:

Maximum riser height shall be seven inches (178 mm) and minimum riser height shall be four inches (102 mm).

This statement contains two requirements for riser height. Write these requirements in two ways: as a pair of simple inequalities and also as a compound inequality.

Source: Contributed by Jason Zimba, Professor of Physics and Mathematics, Bennington College; Council of Chief State School Officers; and the National Governors Association - original source unknown