



SREB

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Using the *HSTW* Assessment to
Improve Student Achievement
and Readiness for College and
Careers:

*A Guide and Workbook for
HSTW Sites*

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Regional
Education
Board

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HSTW Assessment Guide

The *High Schools That Work (HSTW)* Assessment has been an integral tool in the school improvement efforts of *HSTW*, *Technology Centers That Work (TCTW)*, and participating states, districts, schools and centers since its first administration in 1988. This assessment has provided comprehensive school-level data that disaggregate students' achievement by their perceptions of school and classroom experiences. These results have given schools, centers, districts and states a unique opportunity to determine what is and is not working to increase student achievement and readiness for college and careers.

The assessment consists of three subject tests (reading, mathematics and science), a student survey and a teacher survey. The content for each subject test is based on the 2009 National Assessment of Educational Progress (NAEP)¹ frameworks, which SREB has modified to reflect the goals of *HSTW/TCTW*. In addition to measuring continuous school improvement, the *HSTW* Assessment measures readiness for postsecondary education and the workplace.

The *HSTW* Assessment is unique in that it is designed for school improvement purposes and provides achievement scores disaggregated by a variety of school and classroom practices as perceived by students. This assessment shows schools what practices are and are not working and what their students say they have and have not experienced. The combination of data from the student survey and the subject tests allows schools to identify and focus on specific areas for improvement and benchmark progress over time.

Content of the *HSTW* Assessment

The **student survey** collects information about students' course-taking patterns and their perceptions of school and classroom practices. In addition to recording the English/language arts, mathematics and science courses they completed in high school, students respond to approximately 175 questions related to several aspects of their high school education, including their postsecondary aspirations; experiences in English/language arts, mathematics, science and career/technical classrooms; perceptions of what is expected of them; experiences with extra help, guidance and work-based learning programs; and their perceptions of the importance of high school.

The **teacher survey** is designed to provide teachers with an opportunity to share their insights into school and classroom practices. After identifying the subjects and grade levels they teach, participants answer a variety of questions regarding the school mission, high expectations and extra help, guiding and supporting students, curriculum content and engaging students in learning, student transitions, leadership and professional growth, and teacher background. All teachers (grades nine through 12), including academic and career/technical teachers, participate in the teacher survey. While *HSTW* and *TCTW* schools utilize the same subject tests and student survey, they participate in separate teacher surveys, tailored to their unique experiences.

The **reading, mathematics and science tests** are designed to measure students' readiness for college and careers. New subject tests, developed to serve this purpose were administered for the first time in 2008. The frameworks for these subject tests were based on the 2009 NAEP frameworks and then adjusted to align with *HSTW*'s college- and career-readiness goals. Additional details regarding the test development process, content of the subject tests and performance level descriptors can be found in the Appendix.

Administering the *HSTW* Assessment

The *HSTW* Assessment is administered to seniors at *HSTW* schools and *TCTW* centers in even-numbered years. It is administered toward the beginning of the last semester of high school so results can reflect almost the entire high school career of the cohort while still allowing for the results to be available in time for schools and students to make use of them. Some schools administer the assessment to all of their seniors; however, most schools administer the assessment to a random sample of all seniors or career/technical seniors. Experts in survey sampling methods have determined that a sample of students, if the sampling is truly random, can yield group results that are representative of how the total group of seniors would have performed.

The *HSTW* Assessment is administered by the participating schools, which are responsible for selecting administration dates within the approved window, communicating with participating students, preparing materials and conducting the administration. Participating schools are provided with administration materials and assistance in this process.

¹ For additional information on the NAEP, please visit <http://nces.ed.gov/nationsreportcard/>.

The student survey is untimed and typically takes about one and a half hours to an hour and 45 minutes to complete. Because the first section of the survey requires students to record the courses they have taken, counselors and teachers at many schools complete this part of the survey for the students. This labor performed before the administration reduces administration time as well as student angst and results in much more accurate transcript data. If a school does not complete the first portion for the students, students typically will need 30 to 45 minutes to complete that section. The remainder of the survey takes about one hour. The three subject tests are timed. The reading test takes 90 minutes, the mathematics test takes 70 minutes and the science test takes 70 minutes. This means that the total administration time for the entire assessment is approximately five and a half hours, but may approach six hours when administrative tasks and breaks are included. In order to prevent fatigue and ensure that students do their best, schools should plan on at least two assessment administration sessions.

Results

Three types of results are provided: *HSTW* Award of Educational Achievement certificates, student readiness reports and school reports.

Students earn the *HSTW* Award of Educational Achievement² by completing a college-preparatory course of study in at least two of three subject areas (English, mathematics and science); completing a concentration in a career/technical area, mathematics/science or the humanities; and meeting all three readiness goals on the *HSTW* Assessment. Qualifying students receive an award certificate.

Each student participating in the assessment will receive an individual student report detailing his or her performance on the assessment. This report will include the student's performance level for each subject, how much of the *HSTW*-recommended curriculum and concentration he or she completed, and whether he or she earned the *HSTW* Award of Educational Achievement. The student report will contain detailed information on the *HSTW* Assessment such that the student can take this report to placement officers at a community college or to potential employers, and they will be able to interpret that student's performance with regard to college and workplace readiness.

School Reports

The *HSTW* Assessment Report includes four major sections: an executive summary that provides schools with a snapshot of their implementation of the *HSTW/TCTW* design and of their performance on the assessment; an overview section that provides more detailed information on the school's performance on the subject tests and progress in implementing the *HSTW/TCTW* design; detailed tables disaggregating student achievement by survey results; and *HSTW* teacher survey results.³

The two-page executive summary provides information on the school's performance on the *HSTW/TCTW* indices; the percentage of students meeting the *HSTW* readiness goals with a comparison to the network and high-scoring sites; the percentage of students in each performance level for each subject test; a placeholder for the school to fill in its AYP status, graduation rate and state assessment results; and a list of key student and teacher survey results. This section is intended to give administrators and others a quick look at the school's overall performance on the assessment. This section also could be replicated for parent meetings, board meetings or other meetings.

The overview section contains more detailed information on the school's performance on the *HSTW/TCTW* indices and subject tests. More detailed tables on mean scores, the percentage of students meeting readiness goals and the percentage of students within each performance level will be provided. Additionally, the percentage of students experiencing a low, moderate and intensive emphasis on each of the *HSTW/TCTW* indices will be provided, along with the percentage of students meeting readiness goals within each level of emphasis. This section can be used for focus teams and data walks.

The full report is divided into three sections: Selected Indices of Curriculum and Instructional Practices Associated with Student Achievement, which allows schools to look at related practices together and not in isolation; Summary of Results on Indicators for High School Improvement, which provides companion data for the SREB document *Establishing Benchmarks for New and Maturing HSTW Sites*; and Report Summary for All Students and Career/Technical Completers, which provides a series of student survey questions and achievement data. This section also provides comparative data to all sites that administered the assessment and high-scoring sites in the school's category, as well as the school's previous assessment results. This section is intended for those wanting to deeply examine the experiences of students and how they impact achievement.

² For more information about the *HSTW* Award of Educational Achievement, download the award brochure from the SREB website at http://www.sreb.org/page/1316/hstw_award_of_educational_achievement.html

³ *TCTW* Teacher Survey results are not included in *HSTW* Assessment Reports. Instead, *TCTW* sites receive a separate teacher survey report.

The *HSTW* teacher survey results are presented at the conclusion of the assessment report. The tables in this section provide data on teachers' responses to the survey. This section also includes additional indices related to teacher experiences, provided in a similar format to the student indices. This section will be blank for *TCTW* sites; instead, *TCTW* sites should refer to their separate *TCTW* Teacher Survey Report for teacher survey results.

While the report is lengthy, it is designed in such a way that an overview of the entire report and the key points can be found within the first few pages, which will present information graphically. These pages can also serve as a stand-alone summary of the entire report. The more detailed information remains in the full report so that schools can engage in more detailed analyses of their results.

Indices of Curriculum and Instructional Practices Associated with Student Achievement

Promoting high academic achievement for high school students requires monitoring complex school and classroom practices that affect student learning. Schools are unlikely to improve the achievement of their students if they focus on only one or a just a few of the *HSTW* or *TCTW* Key Practices.⁴ School leaders should focus on a combination of practices that work together to increase student learning and lead to higher achievement among all groups of students.

To support schools in looking at these combinations of related variables, SREB has developed 11 indices related to instructional effectiveness and student achievement. These indices, listed below, provide an overview of how well the school is implementing a framework based on the *HSTW/TCTW* Key Practices associated with high student achievement.

- Emphasis on high expectations
- Emphasis on literacy across the curriculum
- Emphasis on numeracy across the curriculum
- Emphasis on challenging and engaging science curriculum and instruction
- Completion of the *HSTW*-recommended curriculum
- Emphasis on integrating academic content and skills into career/technical courses
- Emphasis on career/technical studies
- Emphasis on providing quality work-based learning experiences
- Emphasis on providing timely guidance to students
- Perceived importance of high school studies
- Emphasis on providing quality extra help

Each index includes a list of practices that are predictive of high student achievement. These practices have been combined to produce the 11 composite indices. Student achievement data reported is based on the level of emphasis (intensive, moderate or low) experienced by students. This level of emphasis is based on the number of identified practices that students experience. For example, the high expectations index includes 10 practices. Students who experience nine to 10 of them experience an *intensive* emphasis on high expectations. Students who experience five to eight of them experience a *moderate* emphasis, and students who experience zero to four of them experience a *low* emphasis.

In 2010, Educational Testing Service (ETS) assisted SREB in revising these indices to improve their reliability (consistency of measurement) and validity (accuracy of measurement). As a result, these new indices will measure *HSTW/TCTW* implementation more consistently and will be better predictors of student achievement. The revision process included:

- a content review of the questions used in each index, including consideration of new questions and elimination of questions that were off-topic, not asked of all students or used in more than one index;
- a statistical review of the indices, including analyses to ensure that all questions were aspects of the same topic (factor analysis) and that each index contained a sufficient number of questions to be stable (reliability) over time and across sites, an important characteristic for making comparisons; and
- a comparison of the indices with test scores to ensure each index scale was related to an external outcome — in this case, student achievement — (validity) and that the intensive, moderate and low emphasis levels were set correctly.

⁴ See *High Schools That Work: An Enhanced Design to Get All Students to Standards* and *Technology Centers That Work: An Enhanced Design to Get All Students to Standards* to learn more about the Key Practices.

These revised indices are presented in 2010 *HSTW* Assessment reports. Due to these changes, 2010 index data are not comparable to index data presented in previous assessment reports (e.g., 2008 *HSTW* Assessment reports). However, the 2010 reports provide comparative index data for 2008 on page 1. Therefore, schools may compare their performance on the indices from 2008 to 2010 using the data presented on page 1 in 2010 reports.

Summary of Results on Indicators for High School Improvement

The SREB publication, *Establishing Benchmarks and Measuring Progress at HSTW Sites*, has been developed to assist schools in their school improvement efforts by setting goals and documenting progress. This document provides tables of indicators based on the *HSTW* Key Practices and Key Conditions. These tables, in large part, include the indices presented in the report. Additional non-index items are included in this document because they provide additional value in documenting school improvement efforts. Schools can dig deeper into the indices by reviewing student perceptions on the items that compose the indices. It is important to note that these indicators are predictive of student achievement in the *HSTW* network as a whole. Some of these items may not be predictive at the school level.

Schools will use their first assessment report to fill in the tables with baseline data (percentage of students experiencing various practices). They will then set intermediate goals for each assessment period between the baseline data and the goal. The assessment report provides the information schools need to complete this document in the second section of the full report, “Summary of Results on Indicators for High School Improvement.”

It is important to note that there are tables and indicators in the benchmarks document that do not come from the assessment report. Data for those items will come from school-based data, the Ninth-Grade Student Survey Report or other sources.

Report Summary for All Students and Career/Technical Completers

The largest section of the assessment report is comprised of tables of data with results from the student assessment and survey. The first tables provide a summary of results, including student participation, mean scores, percentage of students meeting readiness goals, percentage of students completing the recommended curriculum, percentage of students completing a concentration, percentage of students performing within each performance level, and a demographic report. Data are provided for the school’s most recent prior assessment, all sites and high-scoring sites in the school’s category. (See Appendix D.)

The numbers in parentheses are standard errors. Standard error is an estimate of uncertainty. Small standard errors mean we can have more confidence in a value. The standard errors can also be used to determine whether a statistically significant difference exists between two means. For additional information on standard errors and calculations, see Appendix E.

Additional sections of data include:

- reading achievement, curriculum and engaging students in learning.
- mathematics achievement, curriculum and engaging students in learning.
- science achievement, curriculum and engaging students in learning.
- career/technical curriculum and engaging students in learning.
- raising expectations and student achievement.
- availability of extra help for student.
- guiding and supporting students.
- transition to and beyond high school
- work-based learning experiences.

Tables in these sections disaggregate student results by completed courses and responses to survey questions.

Teacher Survey Results

The final section of the *HSTW* Assessment Report consists of the *HSTW* teacher survey results. This section groups *HSTW* teacher survey results into various themes related to the *HSTW* framework. Indices similar to those in the student results have been created. *HSTW* teacher survey data is divided into the following sections:

- Having a Functional Mission
- Raising Expectations and Providing Extra Help
- Teaching Challenging Academic and Career/Technical Content
 - Teaching Challenging Mathematics Content
 - Teaching Challenging Science Content
 - Teaching Challenging English/Language Arts Content
 - Teaching Challenging Career/Technical Content
 - Using Assessment Techniques to Improve Learning
- Engaging High School Students in Learning
 - Improving Students' Literacy
- Guiding and Supporting Students
- Helping Students Make Successful Transitions
 - From High School to Further Learning
- Supporting Teachers in Continuous School Improvement
- Teachers' Perceptions on Continuous School Improvement

TCTW sites receive a separate *TCTW* Teacher Survey Report. This report is grouped into various themes related to the *TCTW* framework, including:

- Technology Center Mission
- High Expectations and Extra Help
- Guiding and Supporting Students
- Integrating Academic and Career/Technical Content
 - Integrating Mathematics Skills and Content
 - Integrating Science Skills and Content
 - Integrating Reading and English/Language Arts Skills and Content
 - Teaching Challenging Career/Technical Content
- Using Assessment Techniques to Improve Learning
- Helping Students Make Successful Transitions
 - Transitions from Middle Grades and High Schools to Technology Centers
 - Transitions from the Technology Center to College and Careers
- Strong Leadership
- Teachers' Perceptions on Continuous School Improvement

Workbook

Schools can use this workbook to explore their 2010 *HSTW* Assessment Reports and use the data to guide their actions to improve student achievement. Complete this document as a school team and discuss actions that your school can take to increase student achievement.

Executive Summary — How did we do?

Use the executive summary of your assessment report to answer the following questions:

Who participated in the assessment from your school: a random sample, CT students, all seniors? How many completed the survey and the subject tests (pg. 62)?

What is your “high-scoring sites” school category, and what does that represent?

For which three categories of indicators did the highest percentages of your students report an intensive emphasis?

For which three categories of indicators did the lowest percentages of your students report an intensive emphasis?

What are two or three positive things that stand out?

What are two or three challenges that stand out?

For which indicators do the results strike you as surprising? Why?

For which indicators are the results what you expected? Why?

What value does this data provide?

How can we use the Executive Summary in our school/district/state?

Analyzing Differences

Use pages 3 to 5 of the report to complete the following tables regarding mean test scores.

Change in Mean Test Scores From 2008 to 2010			
	Your Site 2008	Your Site 2010	Change
Reading			
Mathematics			
Science			

Source: 2010 *HSTW* Assessment Report, pages 3 – 5

How has reading, mathematics and science achievement for your site changed from 2008 to 2010?

What are possible reasons for these changes?

Difference in Mean Test Scores Between Your Site and High-Scoring Sites

	Your Site 2010	High-Scoring Sites 2010	Difference
Reading			
Mathematics			
Science			

Source: 2010 *HSTW* Assessment Report, pages 3 – 5

How does your site's reading, mathematics and science achievement compare with high-scoring sites?

What are possible reasons for these differences?

Use pages 6 to 8 of the report to complete the following tables regarding the percentage of students meeting readiness goals.

Change in Percentage of Students Meeting Readiness Goals From 2008 to 2010

	Your Site 2008	Your Site 2010	Change
Reading			
Mathematics			
Science			

Source: 2010 *HSTW* Assessment Report, pages 6 – 8

How has the percentage of students meeting reading, mathematics and science readiness goals for your site changed from 2008 to 2010?

What are possible reasons for these changes?

Difference in Percentage of Students Meeting Readiness Goals Between Your Site and High-Scoring Sites

	Your Site 2010	High-Scoring Sites 2010	Difference
Reading			
Mathematics			
Science			

Source: 2010 *HSTW* Assessment Report, pages 6 – 8

How does your site's percentage of students meeting reading, mathematics and science readiness goals compare with high-scoring sites?

What are possible reasons for these differences?

Use page 9 of the report to complete the following table regarding performance levels.

Percentage of Students Performing within Each Performance Level

	Reading	Mathematics	Science
Below Basic			
Basic			
Proficient			
Advanced			

Source: 2010 *HSTW* Assessment Report, page 9

What actions can your school take to increase the percentages of students meeting the readiness goals and performing at the proficient and advanced levels in:

reading?

mathematics?

science?

Use pages 10 to 12 of the report to complete the following table regarding the recommended curriculum.

Change in Percentage of Students Completing the <i>HSTW</i> -Recommended Curriculum from 2008 to 2010			
	Your Site 2008	Your Site 2010	Change
English/Language Arts			
Mathematics			
Science			

Source: 2010 *HSTW* Assessment Report, pages 10 – 12

Difference in the Percentage of Students Completing the <i>HSTW</i> -Recommended Curriculum Between Your Site and High-Scoring Sites			
	Your Site 2010	High-Scoring Sites 2010	Difference
English/Language Arts			
Mathematics			
Science			

Source: 2010 *HSTW* Assessment Report, pages 10 – 12

What actions can your school take to increase the percentages of students completing the recommended curriculum in:

English/language arts?

mathematics?

science?

Use page 1 of the report to complete the following tables regarding the indices.

Change in Percentage of Students Experiencing an Intensive Emphasis on the <i>HSTW</i> Indices from 2008 to 2010			
	Your Site 2008	Your Site 2010	Change
High Expectations			
Literacy			
Numeracy			
Engaging Science			
Integrating Academics into CT			
Quality Career/Technical Studies			
Quality Work-Based Learning			
Guidance			
Importance of HS Studies			
Extra Help			
Continuous Improvement (Teacher Survey)			

Source: 2010 *HSTW* Assessment Report, page 1

Which three indices have been most improved?

What actions has your school taken that may account for this change?

On which three indices has the least progress been made?

What actions can your school take to improve the percentage experiencing an intensive emphasis?

**Difference in Percentage of Students Experiencing an Intensive Emphasis on the
HSTW Indices Between Your Site and High-Scoring Sites**

	Your Site 2010	High-Scoring 2010	Difference
High Expectations			
Literacy			
Numeracy			
Engaging Science			
Integrating Academics into CT			
Quality Career/Technical Studies			
Quality Work-Based Learning			
Guidance			
Importance of HS Studies			
Extra Help			
Continuous Improvement (Teacher Survey)			

Source: 2010 *HSTW* Assessment Report, page 1

For which three indices are the differences greatest (where high-scoring sites have more students experiencing an intensive emphasis)?

What actions do you think high-scoring sites have taken to achieve these results?

If you could increase the percentages of students experiencing an intensive emphasis on one or two indices by 20 or 30 percent over the next two years, which ones would have the greatest impact on student achievement and the other indices?

Copy the following percentages from page 17 of this workbook:

Percentage of students meeting the readiness goal (2010) in:

reading:

mathematics:

science:

Use pages 13 to 23 of the report to write down the percentage of students meeting the readiness goals when they experience an intensive emphasis on the *HSTW* indices.

Percentage of Students Meeting Readiness Goals When Experiencing an Intensive Emphasis on the <i>HSTW</i> Indices			
	Your Site 2008	Your Site 2010	Change
High Expectations			
Literacy			
Numeracy			
Engaging Science			
<i>HSTW</i> -Recommended Curriculum			
Integrating Academics into CT			
Quality Career/Technical Studies			
Quality Work-Based Learning			
Guidance			
Importance of HS Studies			
Extra Help			
Continuous Improvement (Teacher Survey)			

Source: 2010 *HSTW* Assessment Report, pages 13 – 23

Why might an intensive emphasis on the *HSTW* indices result in more students meeting the readiness goals?

Exploring Achievement Gaps

Use pages 71 to 72 of the report to complete the following table regarding reading achievement.

Reading Achievement by Group at Your School			
	Percentage of Population	Mean Reading Score	Percentage Meeting Readiness Goal
All Students	100%		
Female			
Male			
American Indian/Alaskan Native			
Asian			
Black or African-American			
Hispanic or Latino			
Native Hawaiian or Pacific Islander			
White			
Multiracial			

Source: 2010 *HSTW* Assessment Report, page 71 (for columns 1 and 2)
 2010 *HSTW* Assessment Report, page 72 (for column 3)

Circle the group with the highest mean score and percentage of students meeting the readiness goal.

Which two groups have the largest gap between them and the circled group?

What actions has your school taken to close these gaps? What actions can your school take?

Use pages 86 to 87 of the report to complete the following table regarding mathematics achievement.

Mathematics Achievement by Group at Your School			
	Percentage of Population	Mean Mathematics Score	Percentage Meeting Readiness Goal
All Students	100%		
Female			
Male			
American Indian/Alaskan Native			
Asian			
Black or African-American			
Hispanic or Latino			
Native Hawaiian or Pacific Islander			
White			
Multiracial			

Source: 2010 *HSTW* Assessment Report, page 86 (for columns 1 and 2)
 2010 *HSTW* Assessment Report, page 87 (for column 3)

Circle the group with the highest mean score and percentage of students meeting the readiness goal.

Which two groups have the largest gap between them and the circled group?

What actions has your school taken to close these gaps? What actions can your school take?

Use pages 97 to 98 of the report to complete the following table regarding science achievement.

Science Achievement by Group at Your School			
	Percentage of Population	Mean Science Score	Percentage Meeting Readiness Goal
All Students	100%		
Female			
Male			
American Indian/Alaskan Native			
Asian			
Black or African-American			
Hispanic or Latino			
Native Hawaiian or Pacific Islander			
White			
Multiracial			

Source: 2010 *HSTW* Assessment Report, page 97 (for columns 1 and 2)
 2010 *HSTW* Assessment Report, page 98 (for column 3)

Circle the group with the highest mean score and percentage of students meeting the readiness goal.

Which two groups have the largest gap between them and the circled group?

What actions has your school taken to close these gaps? What actions can your school take?

Rigorous Curriculum

Use page 30 of the report to complete the following table regarding the recommended curriculum.

Completion of <i>HSTW</i> -Recommended Curriculum								
	Your Site 2010				High-Scoring Sites 2010			
	Percentage of Students	Mean Reading Score	Mean Math Score	Mean Science Score	Percentage of Students	Mean Reading Score	Mean Math Score	Mean Science Score
Completed All 3								
Completed 1 – 2								
Completed 0								

Source: 2010 *HSTW* Assessment Report, page 30

Use pages 64 to 65 of the report to complete the following table regarding the recommended curriculum.

Completion of <i>HSTW</i> -Recommended Curriculum					
		Your Site 2008		Your Site 2010	
		Percentage of Students	Mean Score	Percentage of Students	Mean Score
Completed 4 CP English Courses	Yes				
	No				
Completed 4 CP Math Courses	Yes				
	No				
Completed 3 Science Courses (2 CP)	Yes				
	No				
Complete 3 CP Social Studies Courses	Yes				
	No				

Source: 2010 *HSTW* Assessment Report, pages 64 – 65

Use page 68 of the report to complete the following table regarding concentrations.

Completion of a Concentration					
		Percentage Completing	Mean Reading Score	Mean Mathematics Score	Mean Science Score
Career/Technical Concentration	Yes				
	No				
Mathematics/Science Concentration	Yes				
	No				
Humanities Concentration	Yes				
	No				

Source: 2010 *HSTW* Assessment Report, page 68

Use the report to complete the following table regarding additional curriculum indicators.

Completion of Additional <i>HSTW</i> Curriculum Indicators					
		Your Site 2008		Your Site 2010	
		Percentage of Students	Mean Score	Percentage of Students	Mean Score
Completed Algebra I in 6th, 7th or 8th Grade	Yes				
	No				
Took a Math Course During Senior Year	Yes				
	No				
Took a Science Course During Senior Year	Yes				
	No				

Source: 2010 *HSTW* Assessment Report, page 92

My teachers or counselors have encouraged me to take more challenging...

		Your Site 2008		Your Site 2010	
		Percentage of Students	Mean Score	Percentage of Students	Mean Score
English Courses	Often				
	Never				
Mathematics Courses	Often				
	Never				
Science Courses	Often				
	Never				

Source: 2010 *HSTW* Assessment Report, pages 144 – 146

English/Language Arts

Are 85 percent or more of your students completing four college-preparatory English/language arts courses? Has your school made gains from 2008 to 2010? What actions can your school take to increase or continue increasing the percentage of students completing the *HSTW*-recommended curriculum in English/language arts?

Compare the percentages of students completing CP English 9, CP English 10, CP English 11/AP English and CP English 12/AP English (pages 75 to 76). Are the percentages consistent, or are fewer students taking college-preparatory English as they advance through high school? What actions can your school take to increase the percentages of students taking college-preparatory English/language arts throughout high school?

Mathematics

Are 85 percent or more of your students completing four college-preparatory mathematics courses? Has your school made gains from 2008 to 2010? What actions can your school take to increase or continue increasing the percentage of students completing the *HSTW*-recommended curriculum in mathematics?

Are 50 percent or more of your students taking Algebra I in the middle grades? How can your school work with your sending middle grades schools to increase the percentage of students completing Algebra I in the middle grades?

Are 85 percent or more of your students taking a mathematics course during their senior year? What actions can your school take to increase the percentage?

Science

Are 85 percent or more of your students completing three science courses (with at least two at the college-prep level)? Has your school made gains from 2008 to 2010? What actions can your school take to increase or continue increasing the percentage of students completing the *HSTW*-recommended curriculum in science?

Are 85 percent or more of your students taking a science course during their senior year? What actions can your school take to increase the percentage?

Are 85 percent or more of your students taking four or more science courses (page 103)? What actions can your school take to increase the percentage?

Quality Career/Technical Studies and Work-Based Learning

These charts will help to identify which programs of study have the highest student achievement.

Review page 110 in your *HSTW* Assessment Report. Identify the top five mean reading scores and their related program of study. Rank those scores in descending order to complete the table below.

Reading Performance by Career/Technical Program of Study				
Type of Program	Percentage of Students Participating	Mean Reading Score	<i>HSTW</i> Goal	Difference +/-
			250	
			250	
			250	
			250	
			250	

Scan page 111 in your *HSTW* Assessment Report. Identify the top five mean mathematics scores and their related program of study. Rank those scores in descending order to complete the table below.

Mathematics Performance by Career/Technical Program of Study				
Type of Program	Percentage of Students Participating	Mean Math Score	<i>HSTW</i> Goal	Difference +/-
			257	
			257	
			257	
			257	
			257	

Scan page 112 in your *HSTW* Assessment Report. Identify the top 5 mean science scores and their related program of study. Rank those scores in descending order to complete the table below.

Science Performance by Career/Technical Program of Study				
Type of Program	Percentage of Students Participating	Mean Science Score	<i>HSTW</i> Goal	Difference +/-
			258	
			258	
			258	
			258	
			258	

Use the report to complete the following tables regarding career/technical studies.

Quality Career/Technical Studies			
Career/technical students reported:	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Experiencing an intensive emphasis on quality career/technical studies			
They took a mathematics course during their senior year.			
They took a science course during their senior year.			
They were encouraged to take a combination of academic and career/technical courses.			
They completed a senior project that included researching a topic, creating a product or performing a service and presenting it to the class or others.			
They had challenging assignments in their career/technical classes at least monthly .			
They completed a project that first required some research and a written plan before completing the task in their career/technical classes at least once a semester .			
They used computer software or other technology related to their career/technical area to complete assignments at least weekly .			
They made journal or lab manual entries that recorded their class work in their career/technical classes at least weekly .			

Source: 2010 *HSTW* Assessment Report, pages 44 – 45, 92, 103, 132, 154, 116 – 120

Integrating Academic Content and Skills into Career/Technical Courses

Career/technical students reported:	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Experiencing an intensive emphasis on integrating academic content and skills into career/technical courses			
They read and interpreted technical books and manuals to complete assignments in their career/technical classes at least weekly .			
They read a career-related article and demonstrated understanding of the content in their career/technical classes at least monthly .			
They used computer skills to complete an assignment or project in their career/technical classes at least weekly .			
They used mathematics to complete challenging assignments in their career/technical classes at least weekly .			
Their career/technical teachers sometimes or often stressed reading.			
Their career/technical teachers sometimes or often stressed writing.			
Their career/technical teachers often stressed mathematics.			
Their career/technical teachers often stressed science.			

Source: 2010 *HSTW* Assessment Report, pages 53 – 54, 115 – 120

Quality Career/Technical Studies and Integrating Academic Content and Skills into Career/Technical Courses

What indicators do more students at your school experience than students at high-scoring sites? Which indicators have increased at your school from 2008 to 2010? What action(s) has your school taken that might account for this?

What indicators do fewer students at your school experience than students at high-scoring sites? What actions do you think higher-achieving schools have taken to give their students a higher-quality learning experience? What action(s) has your school not taken that might account for this? What actions can your school take to increase the percentages of students experiencing these indicators?

If your school was to focus on three indicators, what three do you think would most improve student achievement in your school? What actions can your school take to focus on these items?

What actions have you taken and what actions can you take to work with regional business groups to upgrade the quality of your school's career/technical programs?

Which career/technical programs in your school allow for postsecondary credit or state/national career/technical certifications?

Use the report to complete the following table regarding work-based learning.

The work-based learning index and related items are based on students who reported having a job as part of a formal work or training program in the past 12 months.

Quality Work-Based Learning Experiences			
Work-based learning students reported:	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Experiencing an intensive emphasis on quality work-based learning experiences	----		
They observed veteran workers performing certain jobs.	----		
They had someone teach them how to do the work.	----		
They received school credit for their work experience.	----		
Their employers encouraged them to develop good work habits at least monthly .	----		
Their employers encouraged them in their academic studies at school at least monthly .	----		
Their employers encouraged them to develop good customer relations skills at least monthly .	----		
Their employers encouraged them to develop good teamwork skills at least monthly .	----		
Their employers showed them how to use communication skills (reading, writing, speaking) in job-related activities at least monthly .	----		
Their employers showed them how to use mathematics in job-related activities at least monthly .	----		

Source: 2010 *HSTW* Assessment Report, pages 45 – 46, 176 – 183

Note: Due to changes in the survey, the 2010 work-based learning index and related items are not comparable to previous years. Caution should be taken when interpreting results as data presented may be based on a very small number of students.

Work-Based Learning

Describe your school's current work-based learning programs? What essential skills do these programs provide students?

What indicators do more students at your school experience than students at high-scoring sites? What action(s) has your school taken that might account for this?

What indicators do fewer students at your school experience than students at high-scoring sites? What actions do you think higher-achieving schools have taken to give their students a higher-quality learning experience? What action(s) has your school not taken that might account for this? What actions can your school take to increase the percentages of students experiencing these indicators?

If your school was to focus on three indicators, what three do you think would most improve student achievement in your school? What actions can your school take to focus on these items?

High Expectations and Extra Help

Use the report to complete the following table regarding high expectations.

High Expectations			
Students reported:	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Experiencing an intensive emphasis on high expectations			
Their teachers often knew their subject and made it interesting and useful.			
Their teachers often set high standards for them and were willing to help them meet them.			
Their teachers often clearly indicated the amount and quality of work that were necessary to earn a grade of A or B at the beginning of a project or unit.			
Their teachers often cared about them enough that they would not let them get by without doing the work.			
Most of their teachers often encouraged them to do well in school.			
Their courses sometimes or often were exciting and challenging.			
They often worked hard to meet high standards on assignments.			
They somewhat or strongly agreed that with hard work, they could understand the material being taught in their classes.			
They somewhat or strongly agreed that the grades they received were the result of the amount of effort that they put forth in their classes.			
They usually spent one or more hours on homework each day.			

Source: 2010 *HSTW* Assessment Report, pages 38 – 39, 122 – 127, 133

High Expectations

What indicators do more students at your school experience than students at high-scoring sites? On which indicators has your school made gains on from 2008 to 2010?

What action(s) has your school taken that might account for this?

What indicators do fewer students at your school experience than students at high-scoring sites?

What action(s) has your school not taken that might account for this? What actions can your school take to increase the percentages of students experiencing these indicators?

If your school was to focus on three indicators, what three do you think would most improve students' perceptions of high expectations?

What actions can your school take to focus on these items? What actions can classroom teachers take to focus on these items?

Please complete the following chart regarding extra help opportunities at your school.

What extra help options are available for <u>voluntary</u> participation?	What extra help options are available for <u>required</u> participation?

Use the report to complete the following table regarding extra help.

Quality Extra Help			
Students reported:	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Experiencing an intensive emphasis on quality extra help			
Their teachers often encouraged students to help each other and to learn from each other.			
They often were able to get extra help from their teachers when they needed it without much difficulty.			
Their teachers frequently were available before, during or after school to help them with their studies.			
Extra help they received often helped them to understand their schoolwork better.			
Extra help they received often helped them to make a greater effort to meet expectations.			
Extra help they received often helped them to get better grades.			

Source: 2010 *HSTW* Assessment Report, pages 40 – 41, 138 – 142

Extra Help

What indicators do more students at your school experience than students at high-scoring sites? Which indicators have improved from 2008 to 2010?

What action(s) has your school taken that might account for this?

What indicators do fewer students at your school experience than students at high-scoring sites or all sites?

What action(s) has your school not taken that might account for this? What actions can your school take to increase the percentages of students experiencing these indicators?

If your school was to focus on three indicators, what three do you think would most improve student access to extra help and achievement?

What actions can your school take to focus on these items? What actions can classroom teachers take to focus on these items?

Engaging Instruction

Literacy Across the Curriculum

Use the report to complete the following table.

Literacy Across the Curriculum			
Students reported:	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Experiencing an intensive emphasis on literacy across the curriculum			
They often revised their essays or other written work several times to improve their quality.			
They sometimes or often were asked to write in-depth explanations about a class project or activity.			
They completed short-writing assignments of one to three pages for which they received a grade in their English classes at least monthly .			
They completed short-writing assignments of one to three pages for which they received a grade in their science classes at least monthly .			
They completed short-writing assignments of one to three pages for which they received a grade in their social studies classes at least monthly .			
They read an assigned book and demonstrated understanding of the significance of the main ideas at least monthly .			
They analyzed works of literature in class at least weekly .			
They discussed or debated topics with other students about what they read in English or language arts classes at least monthly .			
They drafted, rewrote and edited writing assignments before being given a grade at least monthly .			
They stood before the class and made an oral presentation on a project or assignment to meet specific quality requirements at least once a semester .			

Source: 2010 *HSTW* Assessment Report, pages 47 – 48, 77 – 84, 104, 132

What indicators do more students at your school experience than students at high-scoring sites? Which indicators have increased at your school from 2008 to 2010?

What action(s) has your school taken that might account for this?

What indicators do fewer students at your school experience than students at high-scoring sites?

What action(s) has your school not taken that might account for this? What actions can your school take to increase the percentages of students experiencing these indicators?

If your school was to focus on three indicators, what three do you think would most improve student achievement in your school? What actions can your school take to focus on these items?

What additional data do you need to thoroughly evaluate student literacy and English/language arts experiences in your school?

Numeracy Across the Curriculum

Use the report to complete the following table.

Numeracy Across the Curriculum			
Students reported:	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Experiencing an intensive emphasis on numeracy across the curriculum			
They used math in classes other than mathematics at least monthly .			
Their mathematics teachers sometimes or often showed how mathematics concepts are used to solve problems in real-life situations.			
They often developed and analyzed tables, charts and graphs in their school work.			
They solved mathematics problems with more than one possible answer at least monthly .			
They solved mathematics problems other than those found in the textbook at least monthly .			
They were assigned word problems in mathematics at least monthly .			
They used a graphing calculator to complete mathematics assignments at least weekly .			
They worked in a group to brainstorm how to solve a mathematics problem at least monthly .			

Source: 2010 *HSTW* Assessment Report, pages 48 – 49, 92 – 95, 131

What indicators do more students at your school experience than students at high-scoring sites? Which indicators have increased at your school from 2008 to 2010?

What action(s) has your school taken that might account for this?

What indicators do fewer students at your school experience than students at high-scoring sites?

What action(s) has your school not taken that might account for this? What actions can your school take to increase the percentages of students experiencing these indicators?

If your school was to focus on three indicators, what three do you think would most improve student achievement in your school? What actions can your school take to focus on these items?

What additional data do you need to thoroughly evaluate student numeracy and mathematics experiences in your school?

Engaging Science Experiences

Use the report to complete the following table.

Engaging Science Experiences			
Students reported:	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Experiencing an intensive emphasis on challenging and engaging science curriculum and instruction.			
Their science teachers often showed how scientific concepts are used to solve problems in real-life situations.			
They read an assigned article or book (other than a textbook) dealing with science at least monthly .			
They used science equipment to do science activities in a classroom or laboratory at least weekly .			
They used computers or technology to do science activities at least monthly .			
They used graphs, charts and diagrams to interpret and explain scientific phenomena at least monthly .			
They used formulas and equations to solve questions in science at least weekly .			
They collected data from experiments and created graphic representations of the results at least monthly .			
They prepared a written report of their lab results at least monthly .			
They participated in a classroom discussion relating science to everyday life at least monthly .			
They worked with other students in their class on a challenging science assignment or project at least monthly .			

Source: 2010 *HSTW* Assessment Report, pages 49 – 50, 104 – 108

What indicators do more students at your school experience than students at high-scoring sites? Which indicators have increased at your school from 2008 to 2010?

What action(s) has your school taken that might account for this?

What indicators do fewer students at your school experience than students at high-scoring sites?

What action(s) has your school not taken that might account for this? What actions can your school take to increase the percentages of students experiencing these indicators?

If your school was to focus on three indicators, what three do you think would most improve student achievement in your school? What actions can your school take to focus on these items?

What additional data do you need to thoroughly evaluate student science experiences in your school?

Guidance and Transitions

Use the table below to provide a brief description of current guidance and advisement opportunities at your school.

Guidance and Advisement Opportunities		
Advisory Description:	Registration Procedure:	Actions to Increase Parental Involvement:

Use the table below to describe your school's middle school to high school transition efforts.

Emphasis on Middle School to High School Transition		
Does your school require students below the readiness level to:	Yes	No
Attend summer school?		
Take a double dose of English/reading?		
Take a double dose of mathematics?		
Attend support classes (e.g., Summer Bridge Enhancement Classes)?		

Use the table below to describe your school's high school to postsecondary transition.

Emphasis on High School to Postsecondary Transition		
Does your school:	Yes	No
Have a procedure to identify students who are not ready for postsecondary studies (ACT/SAT scores, local postsecondary entrance exams, etc.)?		
Provide students with a remedial or developmental postsecondary course on your campus?		
Require students not meeting ACT/SAT goals to take additional mathematics and English courses?		
Offer credit recovery options to help students graduate on time?		

Use the report to complete the following table.

Guidance			
Students reported:	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Experiencing an intensive emphasis on guidance			
Their teachers or counselors often encouraged them to take more challenging English courses.			
Their teachers or counselors often encouraged them to take more challenging mathematics courses.			
Their teachers or counselors often encouraged them to take more challenging science courses.			
When planning and reviewing their high school four-year education plan, they talked with their parents, step-parents or other adults with whom they lived at least once a year .			
They reviewed the sequence of courses they planned to take throughout high school at least once a year .			
They were very satisfied with the help they received at school in the selection of high school courses.			
A teacher or counselor talked to them individually about their plans for a career or further education after high school.			
They and/or their parents (or step-parents/guardians) received information or assistance from someone at their school in selecting or applying to college.			
Someone from a college talked to them about going to college.			
They spoke with or visited someone in a career that they aspire to.			

Source: 2010 *HSTW* Assessment Report, pages 41 – 42, 144 – 159, 166 – 171

Use the report to complete the following table.

Perceived Importance of High School Studies			
Students reported:	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Experiencing an intensive emphasis on perceived importance of high school studies			
They often tried to do their best work in school.			
They often knew when projects were due.			
They often actively managed their time in order to complete assignments.			
They often kept their notes and handouts for each class separate.			
It is very important to attend all of their classes.			
It is very important to participate actively in class.			
It is very important to study hard to get good grades.			
It is very important to take a lot of college-preparatory classes.			
It is very important to graduate from high school.			
It is very important to continue their education beyond high school.			

Source: 2010 *HSTW* Assessment Report, pages 39 – 40, 125, 134 – 136, 156 – 159

Use the report to complete the following table.

Emphasis on Transitions			
	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Middle Grades to High School			
Students reported that when they entered high school, they were very well prepared with the necessary knowledge and skills in reading to succeed in college-preparatory courses.			
Students reported that when they entered high school, they were very well prepared with the necessary knowledge and skills in writing to succeed in college-preparatory courses.			
Students reported that when they entered high school, they were very well prepared with the necessary knowledge and skills in mathematics to succeed in college-preparatory courses.			
Students reported that when they entered high school, they were very well prepared with the necessary knowledge and skills in science to succeed in college-preparatory courses.			

Perceived Importance of High School Studies (continued)

	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Teachers reported meeting with teachers from feeder middle grades or junior high schools to discuss expectations, content knowledge and performance standards for students entering their high school at least annually .			
High School to Post-High School			
Students reported that they attended a meeting at school with their parents (step-parents or guardians) to talk about plans for after high school.	----		
Students strongly agreed that the courses they took in high school successfully prepared them for a career or further education.			
Students reported that they earned or attempted to earn college credit in high school by taking classes at a community, technical or four-year college or by taking a dual-enrollment, joint-enrollment or concurrent-enrollment course at their high school.	----		----
Eleventh- and 12th-grade teachers reported meeting with employers and postsecondary faculty to discuss expectations, content knowledge and performance standards for students graduating from their high school at least annually .			

Source: 2010 *HSTW* Assessment Report, pages 55 – 56, 164 – 165, 168 – 169, 205, 207

Compare your school's advisement opportunities to the percentage of students experiencing the guidance indicators. Does it appear that students are fully benefiting from guidance opportunities? What actions can your school take to maximize guidance and advisement opportunities and student awareness of them?

What guidance indicators do few students at your school experience? What action(s) has your school not taken that might account for this? What actions can your school take to increase the percentages of students experiencing these indicators?

If your school was to focus on three indicators, what three do you think would most improve student achievement in your school? What actions can your school take to focus on these items?

How does the percentage of students planning to complete at least some education beyond high school (pg. 161) compare to the percentage of students completing the *HSTW*-recommended curriculum in English/language arts, mathematics and science?

How does the percentage of students who think it is very important to take college-preparatory courses compare to the percentages of students being encouraged to take more challenging courses?

Leadership and Continuous Improvement

Use the teacher survey section of the report to complete the following table regarding the faculty.

Percentage of Faculty Members Identifying an Intensive Emphasis			
	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Percentage of teachers who said the school has an intensive emphasis on the mission to prepare students for further learning			
Percentage of teachers who said the school has an intensive emphasis on using assessment techniques to improve student learning			
Percentage of teachers who said the school has an intensive emphasis on improving students' literacy skills			
Percentage of teachers who said the school has an intensive emphasis on supporting teachers in continuous improvement			
Percentage of teachers who said the school has an intensive emphasis on teachers' perceptions of continuous improvement			

Source: 2010 *HSTW* Assessment, pages 187, 198, 201, 210, 213

Use pages 212 to 213 of the report to complete the following table regarding continuous school improvement.

Continuous School Improvement			
	Your Site 2008	Your Site 2010	High-Scoring Sites 2010
Teachers strongly agree that the goals and priorities for their school are clear.			
Teachers strongly agree that teachers in this school maintain a demanding yet supportive environment that pushes students to do their best.			
The principal stresses monthly that all students should be taught to the same high standards.			
Teachers strongly agree that teachers in this school are continually learning and seeking new ideas on how to improve students' achievement.			
Teachers strongly agree that teachers and school administrators work as a team to improve student achievement in their school.			
Teachers strongly agree that teachers use data continuously to evaluate the school's academic and technical programs and activities.			

Source: 2010 *HSTW* Assessment, pages 212 – 213

For what indices does your school have a greater percentage of faculty perceiving an intensive experience than all sites or high-scoring sites?

What actions might account for this difference?

What actions can be taken to improve faculty perceptions?

Review the indicators in the continuous school improvement table. Do the majority of teachers strongly agree with these items? What actions can school leaders take to gain faculty support for continuous school improvement?

Developing an Action Plan

What we need to work on...

Consider what you have learned about your school, district or state during this analysis. List all areas in need of improvement at your school that have been identified.

In the short term...

Select one or two short-term goals (one year) each focus team can work on that would most increase student achievement. What actions would you need to take to reach those goals? How will you measure your progress?

In the long term...

Select one or two long-term goals (two to three years) each focus team can work on that would most increase student achievement? What actions would you need to take to reach those goals? How will you measure your progress?

Review your list of areas for improvement. Select the three areas that are highest priority and will have the greatest impact on student achievement. What are your goals for the next one to three years?

Goal One:

Goal Two:

Goal Three:

Identify the specific actions your school will need to take to reach your goals.

Goal One:

Specific actions:			
Steps to Implement	Responsible Party	Target Date	Evidence of Success

Additional Notes/Summary:

Goal Two:

Specific actions:			
Steps to Implement	Responsible Party	Target Date	Evidence of Success

Additional Notes/Summary:

Goal Three:

Specific actions:			
Steps to Implement	Responsible Party	Target Date	Evidence of Success

Additional Notes/Summary:

Share Your Results

Develop a plan for engaging faculty, staff and other stakeholders in analyzing your school's assessment results and using the data to make change.

Who will you share results with?

How will you present the results?

How will you engage others in analyzing the data?

How will you engage others in using data to take action to advance student achievement?

Appendix A: Developing the *HSTW* Assessment

The three subject tests — reading, mathematics and science — are newly developed and were first used in the 2008 *HSTW* Assessment. SREB, in conjunction with ETS, undertook a process of test development to refresh the *HSTW* Assessment and add more value for schools and participating students. The new *HSTW* Assessment is different from the other tests seniors typically take. It is not a high school exit test or an admissions test for higher education. It is not a licensure test or a certification test for a particular job or profession. Rather, it seeks to measure a students' overall readiness for college and for the workplace while also serving as a measure of continuous school improvement in terms of group performance from one year to the next.

The entire test development process was guided by members of the *HSTW* network — state superintendents, legislators, state directors of career/technical education, state coordinators, community college representatives, workforce representatives, local superintendents, principals, and teachers.

In fall 2006, a panel of school, district and state leaders from *HSTW* states was convened to develop the framework for the new tests. Panel members used the 2009 National Assessment of Educational Progress (NAEP) frameworks in reading, mathematics and science as the basis for establishing the content specifications for the new *HSTW* tests. In doing so, they tailored the frameworks to the curricular goals of the *HSTW* initiative and to the knowledge and skills they judged relevant to college and career readiness. They determined that the basic set of knowledge and skills critical to a successful high school outcome and to college and career readiness is one and the same. They judged that, by focusing on stimuli in each of the subject areas that access higher-order, critical-thinking skills (e.g., informational passages for reading or critical-thinking problems in mathematics and science), the new tests may be predictors of a student's chance of successfully entering a postsecondary institution or workplace with the ability to continue learning.

After this panel developed the general framework for the revised assessment, panels of content area specialists were convened to define the specific elements of subject matter that each test would cover. The panel of leaders and the panels of specialists also decided that it was essential to have open-ended questions, for which students construct their own answers, as well as multiple-choice questions, for which students choose the best answer from a number of options. The result was a set of detailed blueprints for the test.

Using these blueprints, test development specialists at ETS wrote test questions. All the questions were first reviewed at ETS for content quality, correctness and the embodiment of best practices in the writing of test questions. They also were professionally edited and reviewed for fairness and sensitivity and the elimination of any bias. The questions then were reviewed and revised by a panel of specialists as well as by subject matter experts at SREB.

After review and revision, the open-ended questions were field-tested at high schools in five different states. The field test ensured that the questions were accessible to students and that they would yield responses that are clearly distinguishable according to the five-point scoring scale of 0 to 4 that is used to rate student responses in the operational test.

In spring 2007, more content specialists assisted in refining the performance level descriptors. The Basic level was set at a level indicating students are likely ready for college without needing remediation or for entry-level positions. The Proficient level was set at a level indicating readiness for more rigorous college coursework or more specialized entry-level positions. These specialists helped determine the knowledge and skills students should have at the Basic, Proficient and Advanced levels. In summer 2007, a panel of community college representatives helped review the performance level descriptors with this definition of college-readiness in mind.

The new assessment was administered for the first time in January of 2008. In May 2008, a standard setting workshop was held. The purpose of the workshop was to make recommendations to SREB on setting cut scores for the *HSTW* subject tests: reading, mathematics and science. Those recommendations should be consistent with expectations stated in the performance level descriptors, based on the *HSTW* Assessment frameworks. The workshop included 71 educators with content area expertise from across the *HSTW* network, such as teachers, career/technical educators, state curriculum specialists, community college professors and workplace representatives.

Appendix B: Test Content

Reading Test

The reading test consists of three separately timed sections. To accommodate the length of the reading passages, the test is 90 minutes long, containing two 25-minute sections and one 40-minute section. It is composed of multiple-choice and open-ended questions.

Text Types

The reading test will assess students' understanding of two types of texts: informational texts and literary nonfiction texts.

- **Informational texts:** The diverse number and types of informational texts explain, in part, why a large percentage of this text type will be found in the assessment. Students read informational text for many purposes. For example, they read textbooks, newspaper articles and essays to obtain general or specific information. Editorials, speeches and advertisements are examples of informational texts that are meant to persuade or inform students of a specific point of view. Trade manuals, product support materials and instructions for filling out forms are examples of informational text that explain procedures and provide instructions or directions. Each of the informational text types mentioned here can be presented in different formats or combinations of formats. For example, a newspaper article might be presented as continuous prose and also include charts, tables, maps or other graphical representations that require readers to synthesize meaning across the texts.
- **Literary Nonfiction texts:** These types of texts not only present information and ideas but also may employ distinctly literary elements and devices to communicate their message and to make their content more accessible to readers. Biographies and autobiographies, for example, usually follow a structure that in many ways mirrors the story structure of fictional works, and they may employ literary devices, but they also present information. Literary essays and speeches may be structured differently but also draw on literary devices.

Cognitive Targets

Questions in the reading test also measure the kinds of thinking that underlie reading comprehension:

- **Locate/Recall:** Responses to these questions provide information about the most basic comprehension skills, those that ultimately form the foundation for a more elaborated understanding of what is read.
- **Integrate/Interpret:** Responses to these questions move beyond the discrete information, ideas, details and themes presented in text and extend initial impressions by processing information logically and completely.
- **Critique/Evaluate:** Responses to these questions consider the text critically by assessing it from numerous perspectives and synthesizing what is read with other texts and other experiences.

Mathematics Test

The mathematics test consists of three separately timed sections. The test is 70 minutes long, containing one 27-minute section, one 28-minute section and one 15-minute section. Calculator use is permitted for two of the sections. The test is composed of multiple-choice and open-ended questions.

The content areas assessed in the mathematics test are number properties and operations; measurement/geometry; data analysis, statistics and probability; and algebra.

Content Areas

- **Number properties and operations** focuses on student understanding of numbers (whole numbers, fractions, decimals, integers) and their applications. Understanding numerical relationships as expressed in ratios, proportions and percentages is also included here.
- **Measurement/geometry** focuses on student ability to describe real-world objects using numbers. Students are asked to identify attributes, select appropriate units, apply measurement concepts and communicate measurement-related ideas to others. Questions require an ability to read instruments using metric, customary or nonstandard units, with emphasis on precision and accuracy. This area also focuses on students' knowledge of geometric figures and relationships and on their skills in working with this knowledge. It also focuses on the use of precise geometric terms and understanding how to prove statements deductively.

- Data analysis, statistics and probability focuses on data representation and analysis across all disciplines and reflects the importance and prevalence of these activities in our society. Questions emphasize appropriate methods for gathering data, the visual exploration of data and the development and evaluation of arguments based on data analysis.
- Algebra focuses on topics that are based on content covered by two full years of high school algebra. In addition to questions about linear functions, questions about nonlinear functions — such as quadratic, proportional (k/x), exponential and trigonometric — may be presented in problem situations. Students should be able to analyze the defining properties of each function type. This area also focuses on translating verbal descriptions of problem situations into symbolic form. Expressions involving several variables, systems of linear equations and solving inequalities are also a part of this content area.

Mathematical Complexity

In addition to assessing students' understanding of mathematical content, the questions in the mathematics test also assess at what level (high, moderate or low) students can solve mathematics problems.

- High-complexity questions make heavy demands on students, who are expected to use reasoning, planning, analysis and judgment. Students may be expected to justify mathematical statements or develop a mathematical argument. These items might require students to generalize from specific examples.
- Moderate-complexity questions are those in which students might be asked to interpret a representation or to bring multiple ideas together. In addition, they might be asked to show or explain their work, but would not be expected to justify it.
- Low-complexity questions expect students to recall or recognize concepts or procedures. These questions typically specify what the student is to do, which is often to carry out a procedure that can be performed mechanically.

Science Test

The science test consists of three separately timed sections. The test is 70 minutes long, containing one 28-minute section, one 27-minute section and one 15-minute section. It is composed of multiple-choice and open-ended questions.

The content areas assessed in the science test are life sciences, physical sciences, and earth and space sciences.

Content Areas

- Life sciences: Major categories of topics in this assessment area include structures and functions of living organisms (organization and development, matter and energy transformations, interdependence) and changes in living systems (heredity and reproduction, evolution and diversity).
- Physical sciences: This area focuses on properties of matter and changes in matter; forms of energy; energy transfer, conservation and motion at the macroscopic level; and forces affecting motion.
- Earth and space sciences: Questions in this area include topics that pertain to the earth's history, materials, atmosphere and weather, oceans, the solar system, galaxies and the universe. Questions on matters related to the environment are included.

Science Practices

In addition to assessing students' understanding of the three content areas listed above, the science test will also assess how well students can engage in the following four science practices:

- Identify science principles: Students will be assessed on their ability to describe, measure, or classify observations; state or recognize principles included in the content statements; connect closely related content statements; and relate different representations of science knowledge.
- Use science principles: This includes explaining observations of phenomena; predicting observations of phenomena; suggesting examples of observations that illustrate a science principle; and proposing, analyzing and/or evaluating alternative explanations or predictions.
- Use scientific inquiry: This includes designing or critiquing aspects of scientific investigations; conducting scientific investigations using appropriate tools and techniques; identifying patterns in data and/or relate patterns in data to theoretical models and using empirical evidence to validate or criticize conclusions about explanations and predictions.
- Use technological design: This includes proposing or critiquing solutions to problems, given criteria and scientific constraints; identifying scientific trade-offs in design decisions and choosing among alternative solutions; and applying science principles or data to anticipate effects of technological design decisions.

Appendix C: Performance Level Descriptors

All three subject tests are scored on a scale of 0 to 500; however, scores are not comparable across subjects. Because new subject tests were administered in 2008, test data from 2008 and later are not comparable to years prior to 2008.

Reading

Basic (250-271): Students performing at the Basic level are able to enter postsecondary studies without needing additional preparation and/or are able to pass the reading portion of most employer exams for entry-level jobs. They demonstrate understanding of grade-level texts by being able to identify relevant information, identify purpose, differentiate between fact and opinion, and connect ideas across a text to make inferences. They recognize how interpretations can be sustained or refuted on the basis of examples and specific information presented in a text. They recognize the appropriate meaning of words and phrases within the context of a passage. They demonstrate understanding of the way organizational patterns, language and graphical features are used to present information.

Proficient (272-301): Students performing at the Proficient level are able to enter reading-intensive postsecondary studies and/or are able to pass the reading portion of most employer exams for specialized jobs. They demonstrate in-depth understanding of grade-level texts by being able to infer main ideas, compare and contrast information in different parts of a text, provide overall interpretations of a text's meaning, and extend ideas presented in the text. They recognize connections between ideas within a text, between ideas across different texts, and between texts and real-life experiences. They make inferences and represent, recognize or determine central themes and ideas based on an understanding of how organizational patterns, language and graphical features are used.

Advanced (302-500): Students performing at the Advanced level are able to enter advanced postsecondary studies requiring intensive reading and comprehension of complex materials and/or are able to pass the reading portion of most employer exams for specialized career paths. They are able to integrate ideas in a text, explain causal relationships, and evaluate information and organizational features. They use context to determine the most appropriate meaning of words, phrases and technical language. They analyze abstract text ideas to provide specific and extensive support for generalizations, evaluations and interpretations of the text. They analyze how authors develop themes and central ideas.

Mathematics

Basic (257-291): Students performing at the Basic level are able to enter non-mathematics-intensive postsecondary studies without needing additional preparation and/or are able to pass the mathematics portion of most employer exams for entry-level jobs. They have factual and conceptual mathematical knowledge and are able to solve problems that require direct application of learned concepts and procedures. They can perform procedures and computations involving the real number system, algebra, descriptive statistics and probability. They can recall and use basic geometric properties and measurement conventions.

Proficient (292-318): Students performing at the Proficient level are able to enter mathematics-intensive postsecondary studies and/or are able to pass the mathematics portion of most employer exams for specialized jobs. They are able to use multiple mathematical ideas or strategies and apply, integrate and connect skills across the various strands of mathematics. They demonstrate an understanding of complex mathematical concepts. They are able to use analysis techniques and critical thinking to solve mathematical problems.

Advanced (319-500): Students performing at the Advanced level are able to enter advanced postsecondary studies requiring significant applications of mathematical concepts and principles and/or are able to pass the mathematics portion of most employer exams for specialized career paths. They demonstrate a strong conceptual understanding of numbers and algebra. They are able to apply algebra, geometry and advanced mathematics skills to such tasks as formulating mathematical models, providing mathematical justifications, analyzing similarities and differences, producing deductive arguments and performing multiple-step procedures having multiple decision points. These students have the knowledge and skills necessary to make important connections across mathematical strands and between mathematics and other content applications in problem-solving and prediction-formulation.

Science

Basic (258-285): Students performing at the Basic level are able to enter non-science-intensive postsecondary studies without needing additional preparation and/or are able to pass the science portion of most employer exams for entry-level jobs. They demonstrate a fundamental understanding of terms and concepts within the biological, chemical, physical, and earth and space sciences. They understand factual and conceptual scientific knowledge; recognize processes of the scientific method, demonstrate use of the method and/or explain how this method is used in problem-solving; collect and organize data; and read and interpret graphs, diagrams and maps.

Proficient (286-310): Students performing at the Proficient level are able to enter science-intensive postsecondary studies and/or are able to pass the science portion of most employer exams for specialized jobs. They demonstrate understanding of terms and concepts within the biological, chemical, physical, and earth and space sciences. They apply their knowledge of the scientific method to new situations and can design and evaluate scientific investigations. They can analyze data and create graphs, diagrams and tables.

Advanced (311-500): Students performing at the Advanced level are able to enter advanced postsecondary studies requiring understanding of complex concepts and processes and/or are able to pass the science portion of most employer exams for specialized career paths. They demonstrate an advanced understanding of terms and concepts within the biological, chemical, physical, and earth and space sciences. They have the ability to use their knowledge in complex practical situations. They use the scientific method to design and conduct multiple-variable investigations. They can apply statistics to analyze and interpret data and represent these data in multiple ways.

Appendix D: High-Scoring Sites

The report provides comparative data to high-scoring sites in a school's category. Four categories have been developed using student-reported data related to race/ethnicity and parents' educational attainment. This allows schools to compare their scores to high-scoring sites that have a similar student composition. Schools ranking in the top 15 percent in two or more subjects are identified as high-scoring.

- **Category A:** Schools with a minority enrollment of greater than or equal to 30 percent and with at least 60 percent of the students reporting that one or both of their parents had some education after high school
- **Category B:** Schools with a minority enrollment of greater than or equal to 30 percent and with less than 60 percent of the students reporting that one or both of their parents had some education after high school
- **Category C:** Schools with a minority enrollment of less than 30 percent and with at least 60 percent of the students reporting that one or both of their parents had some education after high school
- **Category D:** Schools with a minority enrollment of less than 30 percent and with less than 60 percent of the students reporting that one or both of their parents had some education after high school

Appendix E: Calculating Standard Errors

Standard errors are important when comparing the means of different groups. If we want to know if the mean score for one group of students is statistically different from the mean score for another group of students, we would need to compute the standard error of the difference. To do this, we would calculate the square root of the sum of each mean's standard error squared.

This formula is:

$$SED = \sqrt{(SE_A)^2 + (SE_B)^2}$$

For example, assume we want to compare the mean reading scores of all students at one school to the mean reading score of all students at another school. Assume the mean score for the first school is 218 with a standard error of 0.9 and the mean score for the second school is 216 with a standard error of 1.1.

This formula would be:

$$SED = \sqrt{(0.9)^2 + (1.1)^2} = 1.4$$

This is the measure of uncertainty for the difference between the means ($218 - 216 = 2$). This standard error is used to create a confidence interval around the difference. This confidence interval tells us the range in which the "true" difference is most likely to occur. The confidence interval for this difference is $(218 - 216) \pm 2(1.4) = 2 \pm 2.8$ or $(-0.8, 4.8)$. This tells us that the true difference is between -0.8 and 4.8 points. Since zero is included in this range, this difference is not statistically significant. In other words, there is not sufficient statistical evidence that the mean reading score for the first school is in fact different, in this case higher, than for the second school. If zero was not included in the confidence interval, we would be able to statistically say that there is a difference between the means.

