

CHAPTER 2: TEXAS ASSESSMENT OF KNOWLEDGE AND SKILLS (TAKS)

Overview

History of TAKS Development

In 1999 the 76th Session of the Texas Legislature enacted Senate Bill 103, mandating implementation of a new statewide testing program. The new testing requirements, subsequently named the Texas Assessment of Knowledge and Skills, were implemented in spring 2003. By law, all eligible Texas public school students are assessed in mathematics in grades 3–10 and exit level; reading in grades 3–9; writing in grades 4 and 7; English language arts in grades 10 and exit level; science in grades 5, 8, 10, and exit level; and social studies in grades 8, 10, and exit level. Eligible students may meet testing requirements with Spanish versions of the TAKS assessments, available in mathematics at grades 3–6, in reading at grades 3–6, in writing at grade 4, and in science at grade 5.

Figure 1. 2006–2007 TAKS Assessments

Grade	Test Administration
Grade 3 (English and Spanish)	mathematics and reading
Grade 4 (English and Spanish)	writing, mathematics, and reading
Grade 5 (English and Spanish)	mathematics, reading, and science
Grade 6 (English and Spanish)	mathematics and reading
Grade 7	writing, mathematics, and reading
Grade 8	mathematics, reading, science, and social studies
Grade 9	mathematics and reading
Grades 3–8 and 10	LAT mathematics and reading/English language arts
Grade 10	English language arts, mathematics, science, and social studies
Exit Level	English language arts, mathematics, science, and social studies

The TAKS test is designed to measure the extent to which a student has learned and is able to apply the defined knowledge and skills at each tested grade level. Every TAKS test is directly aligned to the Texas Essential Knowledge and Skills (TEKS).

Specific Testing Requirements

The exit level assessment is a major component of the TAKS testing program. To be eligible to receive a diploma from a Texas public high school, a student is required to pass a total of four subject-area tests: English language arts, mathematics, science, and social studies.

The law further specifies that certain content must be assessed on the exit level tests.

- The English language arts test must include English III and writing.
- The mathematics test must include Algebra I and geometry.
- The science test must include biology and integrated chemistry and physics.
- The social studies test must include early American and U.S. history.

The 2003–2004 school year was the first for which TAKS was the graduation testing requirement for the majority of grade 11 students. Students who were in grade 9 or above on January 1, 2001, or who were accelerating and planned to meet their graduation requirements by September 1, 2004, were expected to meet their graduation testing requirements with the Texas Assessment of Academic Skills (TAAS).

The exit test assesses a student’s level of academic preparation for graduation from high school as well as his or her readiness to enroll in an institution of higher education. To address these requirements, the Texas Higher Education Coordinating Board established a Higher Education Readiness Standard for exit level TAKS mathematics and English language arts in spring 2004.

Another major component of the TAKS testing program is the grade advancement requirements of the Student Success Initiative (SSI), mandated by the 76th Texas Legislature in 1999. The SSI ties performance on TAKS to grade advancement at three grade levels: reading in grade 3 beginning in the 2002–2003 school year, reading and mathematics in grade 5 beginning in the 2004–2005 school year, and reading and mathematics in grade 8 beginning in the 2007–2008 school year. This initiative is designed to ensure that all students have the knowledge, skills, and support needed to perform on or above grade level. See Chapter 11: Student Success Initiative (SSI) for more information.

Development of Eligible Objectives

To implement Senate Bill 103, the Student Assessment Division and the Division of Curriculum at TEA requested the input of educators and the general public to create a new statewide assessment program. Committees of Texas educators met from January to March 2000 to review the TEKS. For each targeted subject area and each grade level, committee members identified those student expectations that should be assessed in the new statewide assessment. Based on feedback from these committees, TEA drafted preliminary assessment objectives for each targeted subject area for the exit level test. These objectives represented strands of learning under which the TEKS student expectations were grouped.

Surveys of draft objectives and their corresponding TEKS student expectations for exit level English language arts, mathematics, science, and social studies were distributed for educator review and public input in May 2000. A total of 27,350 survey responses were tallied, reviewed, and analyzed by TEA. Based on responses received from across the state, TEA revised the exit level draft objectives. TEA aligned the preliminary objectives for each tested subject at grades 3–10 with the corresponding exit level objectives.

Another survey was conducted in fall 2000 to solicit feedback on the proposed objectives for all subject areas and grades tested, including a second exit level survey. Each campus in the state received the appropriate grade-level surveys containing the proposed objectives and their corresponding TEKS student expectations for each tested subject. Surveys for the high school grades were also sent to more than 50 Texas public colleges and universities to gather input from college faculty and administrators regarding the proposed objectives.

Public school campuses were asked to conduct meetings in which teachers, administrators, parents, and other interested community members reviewed and discussed the surveys. After reaching a consensus, each campus review committee indicated which TEKS student expectations should be added to or deleted from the objectives and whether each objective was essential to measure on a statewide assessment. The reviewers were also asked whether students would have had enough instruction in the TEKS student expectations by the spring of a school year to be adequately prepared to demonstrate understanding of the knowledge and skills under each objective. TEA received 56,951 campus survey response forms. Results were tallied, and summaries of narrative comments were compiled.

In January and February 2001, the survey results were shared with educator committees for each grade level and subject area. Discussion at those meetings guided further refinement of the proposed objectives and student expectations. Additionally, a national panel of experts was convened under the auspices of Achieve, Inc., to review and make recommendations about the proposed objectives and student expectations. Achieve, Inc. is an independent, bipartisan, nonprofit organization created by the states' governors and corporate leaders to help states raise academic standards, improve assessments, and strengthen accountability. For a complete copy of Achieve's report, refer to the *2003–2004 Technical Digest*, which can be found online at <http://www.tea.state.tx.us/student.assessment/resources/techdig04/index.html>.

Booklets containing the final test objectives were published in April 2001. In June 2001 the new assessment was named the Texas Assessment of Knowledge and Skills.

Item Development and Review

Prototype TAKS items and item development guidelines for all the grade levels were developed in fall 2000 and shared with educator committees in January, February, and March 2001. In spring and summer 2001, test items for all TAKS subject areas were submitted to TEA by test contractors Harcourt Assessment and Pearson Educational Measurement. Committees made up of assessment and curriculum content-area specialists from TEA reviewed the items in preparation for external educator reviews. From September to December 2001, external educator review committees were convened in Austin to review TAKS items for all subject areas and grade levels. Overall, 583 educators from across the state attended 29 TAKS item-review meetings.

Initial Field Testing and Fall Study

The initial field tests for TAKS grades 4 and 7 writing were administered in January and February 2002. Field tests for TAKS mathematics, reading, English language arts, science, and

social studies were administered in April and May 2002. Approximately two million TAKS field-test booklets, including 407 distinct field-test forms, were distributed to districts and campuses across the state. Most students were asked to complete one subject-area field test during one of the two field-test administrations. In most TAKS subject areas, field-test booklet forms were spiraled, with multiple forms distributed to each classroom.

Information about the ongoing TAKS item development process, including field testing and data review activities, is included in Chapter 6: Annual Test Development Activities.

Standard-Setting Activities

A Technical Advisory Committee composed of nationally recognized educational testing experts was assembled in 2001 to advise TEA and the State Board of Education (SBOE) on the development of a plan for setting the performance standards for TAKS. In January 2002, the SBOE adopted a plan authorizing a series of research and training activities to ensure that the SBOE would be fully informed prior to establishing standards. In spring 2002 a standard-setting advisory committee of state policymakers and stakeholders was convened to recommend names and corresponding TAKS performance level descriptors.

Panels made up of stakeholders, including teachers, administrators, community and business leaders, parents, and others, attended 25 subject-area standard-setting meetings held in fall 2002. Each subject-area panel made recommendations to the SBOE regarding passing and performance standards.

At a work session in November 2002, SBOE members were provided information about the standard-setting plan. The materials reviewed included impact data from the 2002 spring field test, impact data from the 2002 fall study, and recommendations from the standard-setting advisory panels.

Phase-In of TAKS Standards

In November 2002 the SBOE adopted passing standards for TAKS that allowed for a two-year phase-in. The board approved passing standards for the TAKS tests in grades 3–10 and exit level as they were originally proposed by the standard-setting committees. The phase-in plan was adopted to ensure that schools and students had adequate time to prepare for the more rigorous performance standards. Three levels of performance were established for each test: Did Not Meet Standard, Met Standard, and Commended Performance, with two corresponding raw score cuts on each test. Although the board voted to phase in the panel recommendations at the Met Standard level, they recommended that there be no phase-in on the Commended Performance standard.

These adopted performance standards were reviewed again by the SBOE at the July and September 2003 SBOE meetings. At the September meeting the SBOE affirmed the phase-in plan for TAKS performance standards that was adopted in November 2002.

Detailed information about the standard-setting process for TAKS can be found in Chapter 14: Standards.

Grade 8 Science Assessment

The Texas Legislature enacted Senate Bill 1108 in June 2003, mandating the addition of a grade 8 (middle school) science test to the statewide assessment program. The test was to be implemented no later than the 2006–2007 school year. Following the adoption of Senate Bill 1108 in 2003 mandating the development of a grade 8 science assessment, science specialists from the Student Assessment Division and the Division of Curriculum at TEA compiled a list of proposed assessment objectives and TEKS student expectations using the eligible objectives on the existing TAKS science tests at grades 5 and 10 and at the exit level as a guideline. As is true for all TAKS assessments, these objectives represent strands of learning under which the TEKS student expectations are grouped.

In fall 2003, the draft objectives and corresponding student expectations were presented to Texas science educators at a number of professional meetings, including the Conference for the Advancement of Science Teaching and the annual meeting of the Texas Science Education Leadership Association. Feedback received from more than 500 conference attendees was incorporated into the proposed objectives.

In March 2004, a survey containing the assessment objectives and corresponding TEKS student expectations was sent to approximately 4,200 middle and junior high schools. The format of the survey was modeled after the educator consensus surveys distributed in 2000 during the initial development process of the current TAKS assessments. Science faculties on each campus were asked to review and respond collectively to the proposed assessment objectives outlined in the survey. A total of 1,432 grade 8 campus consensus science surveys were completed and returned to TEA by late April 2004. Based on comments received from the field, TEA science staff reviewed the survey responses and adjusted the list of accompanying TEKS for each learning objective.

The revised objectives were presented to a committee composed of Texas science educators who convened in Austin in summer 2004. This committee also reviewed approximately 50 grade 8 prototype test items developed by the testing contractor. Booklets containing the final test objectives were posted to the TEA Student Assessment Division website in August 2004 and were published with sample items in paper form in August 2005.

In spring 2006 grade 8 science was administered for the first time on paper as well as online and enabled Texas to meet federal testing requirements under the No Child Left Behind Act of 2001, which requires a science assessment at the middle school level.

Spanish TAKS

In 1994 the SBOE adopted a plan to develop Spanish-version assessments for grades 3–6 in order to evaluate the academic skills of ELLs, also referred to as LEP students, who receive academic instruction in Spanish while they learn English. These assessments were incorporated into the state testing program beginning in 1996. In 1999 the 76th Texas Legislature enacted legislation mandating the inclusion of Spanish-version tests for grades 3–6 in the new state assessment program.

The TAKS testing program includes Spanish versions of all TAKS tests administered at grades 3–6, including grades 3–6 reading, grades 3–6 mathematics, grade 4 writing, and grade 5 science. The English and Spanish versions of TAKS assess the same test objectives and TEKS student expectations.

Initial Development Activities

When the English and Spanish versions of TAKS were designed, TEA sought the input of educators from both general education and bilingual education to ensure that the tests would align with the academic standards of the TEKS curriculum. During the 2000–2001 school year, TEA held educator meetings and issued statewide campus consensus surveys. The input of Texas educators was crucial to the development of the TAKS test objectives and student expectations, as well as prototype test items and item development guidelines.

The prototype test items for Spanish TAKS reading, mathematics, and science were transadapted, that is, translated from the English prototypes and adapted as necessary to ensure linguistic and cultural appropriateness. The prototypes for the writing test were developed independently rather than translated. A transadaptation approach was not used for the writing assessment because the rules governing grammar and usage in Spanish differ from those in English.

Detailed information about standard-setting activities for the Spanish versions of TAKS can be found in Chapter 14: Standards.

Item Development Approach

The item development approach for Spanish TAKS was expanded in the 2004–2005 school year to allow both transadapted items and items not based on translations to be incorporated into the item banks for reading, science, and mathematics. Even though the item development transadaptation model used prior to the 2004–2005 school year yielded English and Spanish tests that were highly parallel, the ability to assess certain TEKS student expectations was sometimes restricted. For example, items assessing whether students can interpret figurative language were typically precluded. A modified approach to item development was necessary to allow the English and Spanish TAKS tests to assess the eligible body of knowledge and skills more fully and authentically.

The enhanced approach includes the development of passages and items written originally in Spanish as well as passages and items that are transadapted. Tri-Lin, a PEM subcontractor,

worked with PEM personnel, TEA staff members, and Texas educators to develop nontranslated passages and items in Spanish for reading and to a lesser extent for mathematics and science. Bilingual educators reviewed all transadapted and independently developed test items before and after field-testing in accordance with the educator item-review process used for other TAKS tests (see “Field Testing and Data Review” in Chapter 6: Annual Test Development Activities).

Beginning with the spring 2006 test administrations, the Spanish-version tests have included both transadapted and independently developed items. The shift to include independently developed items did not change the original test blueprints or performance standards. The tests are equated annually to ensure that the original performance standards are maintained.

Spanish-English TAKS Alignment

Although the item development approach for Spanish TAKS has been modified, the initial alignment between the Spanish TAKS and the TEKS, and between the Spanish and English versions of the TAKS, has been maintained.

Alignment between the Spanish and English TAKS tests was established initially through the development process in which Spanish TAKS items were translated from the English items and adapted as necessary to ensure linguistic and cultural appropriateness. The standard-setting panels for the Spanish versions reviewed both the English and Spanish tests when setting the performance standards in fall 2002 (see Chapter 14: Standards).

The 2007 Spanish tests, which were constructed with a combination of transadapted and nontransadapted items, were built to maintain the original performance standards. Other evidence of the alignment between the English and Spanish TAKS tests includes the following:

- The blueprints for the English and Spanish tests remain the same, including the number of items assessing each objective and the number of items on the tests as a whole.
- In selecting items for the English and Spanish tests, the test constructors collaborate and adhere to the same test construction guidelines for the range of item content and cognitive complexity.
- Spanish-speaking TEA and contractor staff participate in the item review meetings held for new English test items, which ensures continuous alignment in discussions related to how best to assess the TEKS.
- The development and review processes for the English and Spanish tests are parallel, including that
 - item reviews for English and Spanish include judgments related to each item’s alignment to specific content standards and TEKS student expectations, and
 - data reviews for English and Spanish items include technical training so that committees choose only psychometrically sound items to be added to the eligible item banks.

- English and Spanish test specifications are communicated in the same manner to educational communities and to the public at large through information booklets written for each grade and subject.

Spanish TAKS Publications

Spanish versions of various TAKS publications are available. For information about Spanish TAKS study guides and parent brochures, see Chapter 21: Resources.

Online Testing

The Online Test Delivery System

The online testing described in this chapter was delivered using Pearson Educational Measurement's eMeasurement system. This system provides secure online tools for authoring, delivering, and reporting results of tests, meets the stringent security requirements of the Texas Student Assessment Program, and protects the integrity of test items and student data.

Several key elements have been included in the system's design to meet key stakeholder needs. The system takes advantage of existing hardware and software already installed in schools. Access is controlled through user IDs and passwords. All transmissions are encrypted, and no test questions or responses are stored on the local workstation when testing concludes. Once a testing session has started, the software locks down the workstation to prevent items from being copied, printed, or e-mailed and to prohibit the use of unauthorized applications. Students can access formula charts, calculators, or other required aids, as determined for each test. When an item includes a reading passage or other stimulus, the passage or stimulus appears on the screen together with the item or it is displayed in a separate window. The system also allows test administrators to control which tests will be administered when and which students will be in each testing session. While the test is in progress, a student's current status can be monitored from the test administrator's workstation.

Further information about the eMeasurement system, including an overview of the system, information on delivery and reporting, and a list of frequently asked questions, can be found at <http://etesttx.com/Resources>.

TAKS: Grade 7, Grade 8, Grade 9, Grade 10, and Exit Level

The TAKS tests were offered as live administrations in reading, English language arts, mathematics, social studies, and science. Participation in the online administrations was voluntary and districts could register at the district, campus, grade, and subject levels. Figure 2 on the following page gives information about the scope of the live online TAKS administrations.

Figure 2. 2006–2007 TAKS Online Test Administrations

Grade	Subjects	Test Date(s)	Districts	Campuses	Tests Delivered
Grade 7	Reading	April 9–13, 2007	29	32	2,047
Grade 7	Mathematics	April 9–13, 2007	24	27	2,098
Grade 8	Reading	April 9–13, 2007	45	49	2,513
Grade 8	Mathematics	April 9–13, 2007	34	38	1,573
Grade 8	Science	April 9–13, 2007	73	91	8,685
Grade 8	Social Studies	April 9–13, 2007	69	82	7,763
Grade 9	Reading	February 20, 2007	52	61	2,950
Grade 9	Mathematics	April 9–13, 2007	49	57	5,168
Grade 10	English Language Arts	February 20, 2007	49	56	1,595
Grade 10	Mathematics	April 9–13, 2007	31	36	1,480
Grade 10	Science	April 9–13, 2007	34	39	1,745
Grade 10	Social Studies	April 9–13, 2007	41	46	2,559
Exit Level	English Language Arts	October 17, 2006	94	130	2,926
Exit Level	Mathematics	October 18, 2006	112	151	4,687
Exit Level	Science	October 19, 2006	114	162	5,078
Exit Level	Social Studies	October 20, 2006	102	145	2,457
Exit Level	English Language Arts	July 10, 2007	111	150	1,848
Exit Level	Mathematics	July 11, 2007	120	166	4,360
Exit Level	Science	July 12, 2007	128	175	4,800
Exit Level	Social Studies	July 13, 2007	116	157	1,164

For each live TAKS administration, the online and paper versions of the tests included identical items. Since the online tests were live and counted in the same manner as the results for students who took the paper versions, it was necessary to conduct research studies to ensure that the paper and online results were comparable and did not advantage or disadvantage students who tested in either mode.

The comparability analyses indicated mode-of-administration effects for several TAKS tests at all grade levels. In all cases where a mode effect was found, an alternate raw to scale score conversion was used for students testing online. The fairly consistent mode-of-administration effects suggest the need for additional comparability research. This research will include more in-depth analyses to investigate causes of mode differences as TAKS online testing continues into the future.

A TAKS English language arts fall study was administered online and on paper September 11–22, 2006, with 39 districts and 39 campuses (2,110 students) participating in the online administration. The results of this study were used to create a more authentic writing interface for students completing essays online.

Surveys were also administered to students and test administrators to gather information about the online testing experience.

Survey Results

Each student who took an online TAKS test was offered the opportunity to complete a survey about their online testing experience immediately after completion of the test. The survey automatically appeared as a separate section of the test following the last test question. Additionally, a survey was e-mailed to district coordinators shortly after the testing period requesting feedback on their online testing experience. The survey questions and tallies of responses for TAKS grade 7, grade 8, grade 9, grade 10, and exit level tests can be found in the “TAKS Assessments Post-Test Surveys” report in the 2007 Texas Education Agency Technical Report Series, which can be found at <http://www.tea.state.tx.us/student.assessment/resources/techdig07/index.html>.

Students’ responses to online testing were generally positive. Most students agreed that the questions were easy to view and work through on the computer. The majority of students rated themselves as having average computer skills and reported that they used computers in their coursework and outside of school. TEA has used student feedback collected through the surveys to help refine and make improvements to the user interface, tools, tutorials, background color, and item formatting.

Test administrators were also positive about online testing. The majority of test administrators responding to the survey reported that they had sufficient computers available for online testing and that test security was easy to maintain. They agreed that having fewer materials to manage was an advantage of online testing over paper testing.

As a result of feedback received in post-administration surveys from administrators involved in online testing, the resources page has been redesigned, a new manual for general online testing information has been developed, and earlier delivery of online materials is scheduled.