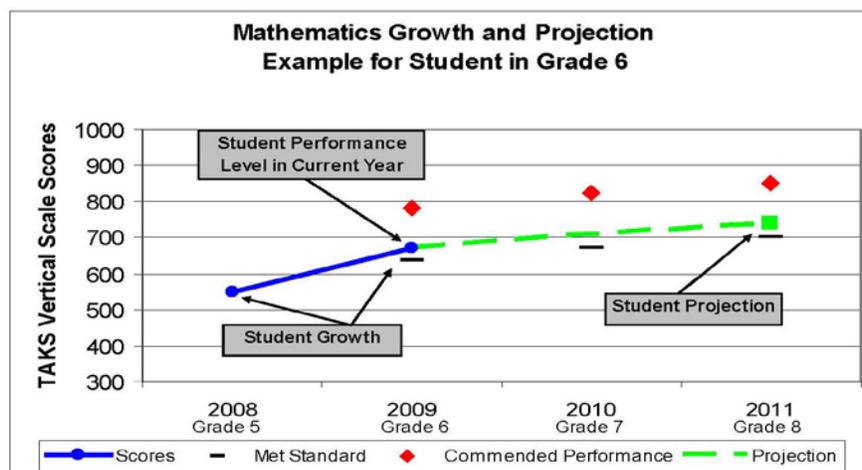


## Chapter 6

# Plan for Measures of Student Progress for the State of Texas Assessments of Academic Readiness (STAAR) Program

The Texas Education Agency (TEA) currently uses three types of measures to track student progress on the Texas Assessment of Knowledge and Skills (TAKS). These measures include scale-score gains on the vertical scale, the Texas Projection Measure (TPM), and the TAKS–Alternate (TAKS–Alt) growth model, which are reported on confidential student reports. With the implementation of the STAAR program, additional progress measures will be introduced for students, including reports of the likelihood that students will meet different performance standards in a subsequent year, readiness for advanced courses, projections to college and career readiness, and the cumulative scoring model for meeting the testing requirements for graduation with the end-of-course (EOC) assessments.

An important feature that differentiates progress measures from a single assessment result is the comparison of assessment results over time. Some progress measures, such as vertical scale-score gains, focus on students’ past performance. Vertical scale-score gains offer a direct measure of student progress from prior years to the current year. These gains can be used to compare the past performance of a student to the performance of others, such as all students in a district or in the state. Other progress measures, such as projection measures and the cumulative scoring model, focus on future performance. Projection measures focus on expected student performance in the future assuming students receive adequate grade-level instruction. Projections indicate whether past and current student performance place students on track to proficiency in the future. Both past progress measures and future progress measures can provide information about student progress over time. When used together, multiple progress measures provide more comprehensive information about student performance than any one measure used in isolation. See the following graph showing the combination of the vertical scale, the current TAKS score, and the projected score for an example student.



Progress measures can be beneficial in helping parents and schools better understand where students have progressed and the extent to which students need additional instruction and support to strengthen their educational progress, thus increasing their chances of passing in a future grade or course. By combining information from a variety of measures, students, parents, and educators will have information about student progress in the past, current performance, and likely future performance, offering a range of information for understanding students' learning as they move through the Texas education system in preparation for postsecondary success. See below for more detailed information about existing and planned student progress measures and how the use of progress measures is expected to change with the transition from TAKS to STAAR.

## **Legislative Requirements Related to Student Progress**

House Bill (HB) 1 from the 79th legislative session, Third Called Session, required the use of a progress measure with the TAKS assessments. It required that the commissioner of education determine a method for measuring annual improvement in student achievement that was tied to passing the exit level graduation tests. The agency was to provide reports to districts informing them of expected and actual levels of annual improvement for each student. The reports were to state whether students fell below, met, or exceeded improvement expectations.

The passage of Senate Bill (SB) 1031 in 2007 extended the requirements of student progress measures to EOC assessments. This bill required the agency to develop EOC assessment instruments to allow for the measurement of annual improvement. In addition, SB 1031 required that a substitute assessment for EOC assessments be used only if the measure is shown to be aligned to the content standards and allows for the measurement of annual improvement.

HB 3, enacted in 2009, continued to expand requirements around student progress measures. TEA must now determine the annual improvement required for students to be prepared to perform satisfactorily on the grade 5 assessments, on the grade 8 assessments, and on the EOC assessment instruments required for graduation. The agency will report the necessary improvement to school districts, indicating whether students fall below, meet, or exceed targets for improvement. Additional requirements for indicators of student achievement outlined in HB 3, are discussed in Chapter 2 .

## **Existing Student Progress Measures for TAKS**

### ***The Vertical Scale***

The vertical scale was developed in reading and mathematics for TAKS English grades 3–8 and TAKS Spanish grades 3–5. It was implemented in the 2009–2010 school year. The vertical scale tracks student progress from grade to grade within a content area. For example, the vertical scale would indicate progress for the same student in mathematics from grade 4 to grade 5, as opposed to comparing the current grade 4 cohort with last year's grade 4 students. The main advantage of having a vertical scale is that a student's vertical scale scores can be compared across different grades for the same subject and

language-version test. Changes in the vertical scale scores show the student's academic progress over time. For example, to meet the passing standard on the TAKS English grade 5 mathematics test, a student's vertical scale score would need to be at least 603. If a student's vertical scale score on this test was 595, he or she would not meet the grade 5 passing standard in mathematics. However, if in the next year, this same student's vertical scale score on the TAKS grade 6 mathematics test was 644, he or she would meet the passing standard since the vertical scale score needed to meet the standard in grade 6 is 637.

Although changes in vertical scale scores across years provide information about a student's progress, the amount of change a student needs to make depends on whether the student is currently passing the test. A student who is not passing needs to show more progress than a student who is passing or a student who has achieved an advanced performance level. The gain a student needs to make (e.g., vertical scale score increase) across one or more years depends on the student's initial vertical scale score. A student who starts in the Did Not Meet Standard performance level would need to make greater gains than a student who starts at the Met Standard level because that student needs to "catch up" to pass in a subsequent grade. A 50-point gain well below the Met Standard cut point does not mean the same as a 50-point gain around an advanced performance cut point. When evaluating a student's score gain, comparisons should be made to the difference in the performance standards and to other students' gains from one grade to the next.

Interpreting score changes in isolation provides limited information. It is best to interpret score change information as one of multiple measures. Vertical scale score information can be used to aid in forming a more comprehensive view based on the student's performance all year in the classroom. For more information about the TAKS vertical scale, see the TEA website at <http://www.tea.state.tx.us/student.assessment/taks/vertscales/>.

### ***The Texas Projection Measure (TPM)***

The TPM was developed to meet legislative mandates for measuring student progress and to determine whether schools, school districts, and the state are making Adequate Yearly Progress (AYP) under the Elementary and Secondary Education Act (ESEA). A model such as the TPM was recommended by the Growth Advisory Committee in summer 2008. Once the model was recommended, the procedure used to develop the initial TPM was recommended by the Texas Technical Advisory Committee (TTAC) later in summer 2008. The TTAC is composed of national assessment and psychometric experts who provide technical guidance for the Texas assessment program. The TPM was submitted to the United States Department of Education (USDE) in fall 2008 and received full approval in January 2009 for use in AYP calculations. The TPM was implemented for the first time in the 2008–2009 school year, satisfying both state and federal requirements.

The TPM was developed to estimate whether TAKS students were projected to meet the passing standard in grades 5, 8, and 11 after receiving adequate grade-level instruction. The TPM predicts future student performance from current and prior-year performance, but it does not specifically evaluate individual student score changes across years. The TPM projects scores based on students' current and

previous years' scores and campus average scores in each subject. The accuracy and validity of the TPM has been and will continue to be evaluated through yearly studies, and results will be communicated to parents, teachers, and administrators. As part of this evaluation process, the following changes were made to the TPM between the 2008–2009 school year and the 2009–2010 school year in order to increase accuracy and to provide a TPM for additional students.

- Projections using two years of data were implemented for reading/English language arts and mathematics for grades 4–10. These two-year projections used prior-year data as well as the current-year data in calculating the TPM. Using two-year projections increases the accuracy of the TPM.
- Projection formulas were developed for students who test in more than one language. Some students in grades 3–5 take the reading test in Spanish and the mathematics test in English. Before 2010, these students would not have received a TPM. With the development of the additional projection formulas, these students were able to receive a projection (to the English standard in grade 5 or 8) in spring 2010.

The TAKS grade 8 science assessment was first administered in 2006. Because it was implemented after the other TAKS assessments, projection formulas could not be developed until after the 2008–2009 school year (when eighth-grade students taking science in 2006 would have taken the exit level science assessment). Grade 8 science projection formulas were developed and implemented, and projections for TAKS grade 8 science were reported for the first time in spring 2010. For more information about the TPM, see Appendix C and the TEA website at <http://www.tea.state.tx.us/student.assessment/measures/>.

### ***Growth Measures for Alternate Assessments for Students Receiving Special Education Services***

Current legislation requires that TEA develop criterion-referenced assessment instruments appropriate for students in special education. Those assessment instruments must assess the content standards and student growth in tested content areas. There are two alternate assessments for students receiving special education services: TAKS–Modified (TAKS–M) and TAKS–Alternate (TAKS–Alt). Growth measures for these programs were also developed. For more information about alternate assessments for TAKS and the STAAR program, see Chapter 4.

#### **TPM for TAKS–M**

The TPM for TAKS–M is similar to the TPM for TAKS in that it is an estimate of whether a student is likely to meet the passing standard and/or achieve commended performance on the TAKS–M tests at a future grade. This measure is based on a student's current performance on TAKS–M and the TAKS–M scores of other students in the same enrolled grade in the student's school district. The TPM information for TAKS–M is reported for grades 4, 7, and 10 in reading/English language arts (ELA) and mathematics and for grade 10 in science. In 2011, a TPM for TAKS–M will be calculated for grades 3 and 6 as well as for grade 10 in social studies.

## **TAKS–Alt Growth Measure**

The TAKS–Alt growth measure is different from the TPM for TAKS and TAKS–M in that it describes a student’s score changes from one year to the next and is used to determine whether a student is on track to meet the passing standard and/or achieve commended performance on TAKS–Alt at a future grade. The model for the TAKS–Alt growth measure is based on a student continuing to make progress at the same rate from the current grade to future grades. The measure consists of a student’s stage change from the prior year to the current year and a determination of whether the progress made is sufficient to designate the student as on track to meet the state’s performance standards in the next growth target grade (grade 5, 8, or 11). A stage change is determined by representing the student’s scores from a previous school year and the current school year in terms of the stage of performance achieved each year. For more information about the TAKS–Alt growth measure, see the TEA website at <http://www.tea.state.tx.us/student.assessment/special-ed/taksalt/measure/>.

## **Planned Student Progress Measures**

As Texas transitions its assessment program from TAKS to STAAR, different measures of student progress will likely be implemented to replace the current TPM. Texas will implement a multi-step process to identify the student progress measures that will be used for the STAAR assessment program. The process that will be used is described on the following pages.

### ***Analysis of Student Progress Measures***

The first step in determining the new student progress measures for the STAAR program will be to identify the ways in which the progress measures will be used, such as to report whether students are on track toward proficiency by the next high-stakes grade or to evaluate the extent to which students are on track toward college and career readiness. The specifics for each use will be described, and the audience for the reported information will be identified.

After the uses have been identified, the student progress measures that are most appropriate for the particular use will be determined by examining measures approved by USDE as well as other available measures. Any measures used for calculating AYP must be approved by USDE. Measures used for federal accountability must meet the following criteria, as noted by the guidance for states from USDE issued on November 21, 2005:

- Set annual growth targets that
  - will lead to all students, by school year 2013–2014, meeting or exceeding the state’s proficient level of academic achievement on the state assessments;
  - are based on meeting the state’s proficient level of academic achievement on the state assessments and are not based on individual student background characteristics; and
  - measure student achievement separately in mathematics and reading/language arts.

- Ensure that all students enrolled in the grades tested are included in the state’s assessment and accountability systems.
- Hold all districts accountable for the performance of all students and student subgroups.
- Be based on state assessments that
  - produce comparable results from grade to grade and from year to year in mathematics and reading/language arts;
  - have been in use by the state for more than one year; and
  - have received full approval from USDE before the state determines AYP based on student academic growth.
- Track student progress through the state data system.
- Include, as separate factors in determining whether schools are making AYP for a particular year,
  - the rate of student participation in assessments; and
  - other academic indicators.

Measures approved by USDE as well as other possible measures TEA is considering to fulfill state legislation are described below.

### ***Student Progress Measures Approved by USDE***

The models described below represent the general types of growth models approved by USDE for states to use in AYP calculations. For more information regarding what progress measures other states are using, see Chapter 11.

- **Growth to Proficiency**—Using students’ initial performance, this model provides a yearly growth target for students so that they will reach proficiency in a set number of years (for example, three or four years). A comparison of students’ actual performance to target performance is determined each year to see whether they have progressed academically over the school year.
- **Value/Transition**—Student growth can be evaluated based on the changes in performance categories or performance subcategories, typically over two years. For a value table approach, values are determined for transitions across performance subcategories. The subcategories are determined by subdividing the main performance categories. The specific values awarded to students are typically set by an advisory panel using a process of ranking transitions, discussion of ranks, and averaging of ranks over multiple rounds, much like a standard-setting activity. For a transition table approach, performance categories are subdivided. Students are expected to make a set number of transitions across subcategories each year so that students reach proficiency at the end of a defined number of years (typically three or four years). This is the model that is currently used for the TAKS–Alternate program.

- **Growth Percentiles**—A normative measure of student growth is expressed as a percentile by comparing the growth of the student with the growth of other students who started with the same performance. When a growth percentile is calculated, it projects future test performance if the student’s growth continues at the same rate. This value indicates whether the student is on track to meet the proficiency performance level in the future.
- **Projection**—A prediction of student performance in a future year (up to three years in the future) is based on students’ past and current performance and the performance of prior cohorts in the target grades. By comparing projected values to the proficiency standard for the target grade, these models offer an indicator of the extent to which students are on track to meeting proficiency. This is the model that is currently used for the TAKS program.

### ***Other Possible Student Progress Measures for STAAR***

#### **Probabilities for Reaching Performance Levels at the Next Grade/Course**

As Texas develops the STAAR assessments, data will be collected on cohorts of students across two years. For example, approximately 300,000 grade 7 students will be followed to grade 8 to evaluate how student performance in grade 7 relates to student performance in grade 8. In addition, data from all students who take English I and English II in consecutive years will be used to estimate the relationship between performance on these assessments. These cross-year cohort data will continue to be collected each year, so that performance across grades is defined using the most recent data from Texas students. By following cohorts of students across years, the probabilities of students meeting each of the performance levels can be estimated for students who achieve each score point. For example, if a student answers 30 questions correctly out of 50, the probabilities of reaching the passing performance level and the advanced performance level can be reported for that student. For a student scoring 45 out of 50 questions correctly, different probabilities will be reported. It should be noted that there are specific course requirements for students depending on their graduation programs, but there is not a state-mandated course sequence. However, there is a typical course sequence that most students follow (i.e., English I, II, and III). For more information regarding a typical high school course sequence, see Chapter 7.

#### **Typical High School Course Sequence**

	English	Mathematics	Science	Social Studies
Grade 9	English I	Algebra I	Biology	World Geography
Grade 10	English II	Geometry	Chemistry	World History
Grade 11	English III	Algebra II	Physics	U.S. History

The probability data could be used in multiple ways. One use could be to report the probabilities in a way that students, parents, and educators can access them. Based on a student’s score on a given test

administration, the probability that the student will pass the next year or will reach an advanced level of performance could be made available to parents and educators in multiple locations, such as on confidential student reports, on data files, and in the data portal required under HB 3.

Another use of the probability data could be in setting performance standards on the new assessments. The probability of passing or of reaching the advanced level of performance the next year could be used as one source of information when setting the performance standards, or cut scores, on the new assessments. When standard-setting activities take place, there will be two years of assessment data (field-test data from 2011 and operational data from 2012), and probabilities can be established at that time for use in standard setting. See Chapter 2 for more information about how and when performance standards will be set for the STAAR program.

In addition, the probabilities could be used to provide information about a student's readiness for advanced courses. The probabilities could be used in defining the extent to which a student scoring at each score point on Algebra I is ready for Algebra II. Similarly, the probabilities for passing English II based on a student's English I score and for passing English III based on a student's English II score could be used in defining readiness for these advanced courses.

### **The Cumulative Scoring Model for Meeting the Testing Requirements for Graduation**

Under HB 3, a student is required to achieve a cumulative score that is "at least equal to the product of the number of end-of-course assessment instruments administered to the student in that subject and a scale score that indicates satisfactory performance." The cumulative score represents a student progress measure in that the accumulation of points demonstrates a student's progress toward meeting the assessment requirements for graduation. Because of the correlations established empirically from course to course in a content area, if a student has met satisfactory performance on English I, for example, he or she will be on track to meet satisfactory performance on English II with the pattern continuing to English III, all contributing to the cumulative score. If satisfactory performance is not met with the first EOC assessment taken for a content area, a student will need to demonstrate higher performance in that content area on future administrations in order to meet the cumulative score requirements.

### **Advanced High School Course Readiness**

Consistent with the requirements of HB 3, before the beginning of the 2011–2012 school year, TEA will substantiate the empirical relationship between satisfactory student performance for each performance standard on the English I, II, and III assessments and the empirical relationship between satisfactory student performance on the Algebra I and II assessments. By following cohorts of students who take these courses in sequence, study results can be used to identify an indicator of advanced high school course readiness on the Algebra I, English I, and English II assessments in relation to the college-readiness performance standards on the Algebra II and English III assessments. Because the knowledge in such sequential courses is generally considered to be cumulative, the indicator of advanced high school course readiness may be used to indicate whether a student is on track to meet the college- and career-readiness standards. HB 3 also requires the establishment of empirical links between the advanced high

school course readiness indicators and the college-readiness performance standards in English and algebra so that the link can be used as an indicator of any need for remedial courses to help ensure college and career readiness. Districts can use the readiness indicator to identify students in need of remediation and provide instructional intervention early in high school. The data collection for these studies began in spring 2009. Since these readiness indicators provide information about student progress toward achieving college and career readiness, these indicators could also serve as new progress measures for use with the STAAR program.

### **On Track to College and Career Readiness**

As Texas implements the STAAR program, a new measure of student progress will be introduced to indicate the extent to which students are on track to meet the college- and career-readiness standards in Algebra II and English III. According to HB 3, the performance standards on Algebra I and English II should be set so that they relate to the proficiency and college-readiness standards set on Algebra II and English III, respectively. In addition, performance standards will be set using empirical data gathered from studies that link performance from year to year, starting in high school and continuing down through grade 3 in reading and mathematics. Furthermore, students, parents, and educators will want to know as early as possible whether students are on track to achieve college and career readiness, even when a student is in elementary school. These on-track measures will be a prediction of student performance in a future year based on students' past and current performance and the performance of prior cohorts in the target grades or courses. The goal will be to develop an on-track measure for college and career readiness as early as possible to maximize the time available for intervention and remediation.

### ***Finalize STAAR Measures of Student Progress***

After student progress measures have been identified, TEA will empirically evaluate the measures for each specific application. Student data will be used to examine the measures in a pilot study, and the results will be summarized.

The final step will be to obtain advisory committee and expert advice on the recommended measures for use in both state and federal accountability. The uses for the measures, the options considered, the recommended measures, and the results from the empirical evaluation will be shared with technical, educator, and other advisory groups. The feedback from those groups will be used by the commissioner of education to make the final decision about the student progress measures that best meet the needs of the state to communicate to students and parents, as part of the state accountability system and in the calculation of AYP.

In order to provide a varied and informative series of progress measures, the implementation schedule for measures of progress in the STAAR program will be determined after plans are finalized, student assessment data are available, and advice is obtained from educators, other advisory groups, and experts. All of these components are important in determining a final implementation schedule, but the availability of student assessment data is particularly significant. For projection measures, a cohort of students must be followed over multiple years before a new measure of student progress can be validated and reported.

The availability of such cohort data for all grades and course assessments will dictate when these measures can be reported. For example, it will take three years to follow a cohort of students through a course sequence of Algebra I, geometry, and Algebra II before measures of student progress probabilities can be determined. Implementation of progress measures will be most rapid for those measures that span the shortest period of time. For example, measures such as predicting English II from English I can be implemented as soon as a cohort of students can be followed across these two courses. Since students will be taking the English I and English II assessments for graduation purposes in 2012 and 2013, a measure of student progress across these courses could be implemented as early as 2013.

The following table outlines the general steps and timeline for implementing and reporting measures of student progress for the STAAR program. For information regarding the timelines for when the STAAR assessments will be administered operationally, see Chapter 1.

**Timeline for Implementing and Reporting Measures of Student Progress for STAAR Assessments**

Steps	Timeline
Identify the most appropriate student progress measures for the STAAR program	November 2010–May 2011
Empirically evaluate the identified measures	June 2011–October 2011
Obtain advisory group and expert advice	November 2011–August 2012
Reevaluate plans for measures of student progress after spring 2012 STAAR administrations (review of proposed measures and empirical data; additional educator and expert advice may also be gathered at this time)	Summer 2012
Approval of the new measures of student progress	Fall 2012
Implement and report first new measures of student progress for the STAAR program	First implementation no later than 2012–2013