



SUMMER SCHOOL OVERVIEW

Grades 3-8 TEKS-Based Lessons

Implementation of Lessons

Implementing these lessons requires a different way of teaching. The traditional teacher roles of authority figure and information disseminator must change to learning facilitator and instructional decision maker.

Knowledge about students and how they learn mathematics can contribute to establishing an environment that is conducive for learning. The lessons are designed to meet the requirements of the Revised Texas Essential Knowledge and Skills for grade level mathematics.

The design of each lesson is consistent and includes a format for delivery of instruction, assessment, and homework. Where appropriate, the use of manipulatives and technology is included in the lesson. Cooperative learning as a learning setting is utilized in each lesson.

The Role of Assessment

Making changes in the content and methods of mathematics instruction also requires making changes in why and how students' work is assessed. Evaluation should be an integral part of instruction and not be limited to grading and testing.

There are at least four reasons for collecting evaluation information:

- to make decisions about the content and methods of mathematics instruction
- to make decisions about classroom climate
- to help in communicating what is important
- to assign grades

Assessment includes much more than marking right and wrong answers. It "must be more than testing; it must be a continuous, dynamic, and often informal process" (NCTM 1989, p. 203). The *Curriculum and Evaluation Standards* recommends that teachers use a variety of types of evaluation: (1) *observing and questioning students* (2) *using assessment data reported by students*; (3) *assessing students' written mathematics work*; and (4) *using multiple-choice or short-answer items*. Use of these methods of collecting assessment data will contribute to a thorough evaluation of students' work.

Implementing the assessment process in the TEKSING TOWARD STAAR Lessons may require significant changes in how teachers view and use assessment in the classroom. Teachers will assess frequently to monitor individual performance and guide instruction.

Intent of the TEKSING TOWARD STAAR Lessons is to provide teachers with structure for instruction and assessment for the REVISED TEKS that incorporates characteristics of a good mathematics learning environment and the role of assessment.

LESSON COMPONENTS

Lesson Focus

Each lesson begins with the Lesson Focus. The TEKS expectations, focus for the lesson, and STAAR expectations for the Reporting Category are stated for the teacher. If the entire TEKS is not covered in this lesson, only the part taught will be given here.

Process Standards Incorporated Into Lesson

Following the **Lesson Focus**, the teacher is provided with a list of the **Process Standards** student expectations that are incorporated into the lesson.

Materials Needed for Lesson

Following the **Process Standards Incorporated Into Lesson**, the teacher is provided with a list of **Materials Needed for Lesson** to prepare prior to beginning a lesson.

Math Background

The Background Information contains the information that will be taught in this lesson. It will give only the information that is covered in this lesson for TEKS that have multiple pieces, and are taught in more than one lesson.

Instructional Activity

The Math Background is in enlarged print for an Instructional Activity. The Activity is named appropriately for the information contained. Each Instructional Activity is specific to a TEKS or major piece of a TEKS. Instructional Activities in each lesson provide a format for projection for whole class instruction. The teacher should project the Instructional Activity and lead an informational session designed to provide students with mathematics skills and vocabulary necessary for students to complete any Student Activity or Problem-Solving problem. Vocabulary words are bolded in the Instructional Activity.

Prior to projecting an Instructional Activity, students should be provided with grade level Math Notes pages to records the critical information from the Instructional Activity on their individual Math Notes pages. Students record as much information as they choose. The information should be recorded in the student's own "words," "symbols," and pictures or diagrams.

Only minor discussion should occur during the Instructional Activity. This portion of the lesson is designed as an information-giving time. Students should be asked to hold

most questions until the Student Activity portion of the lesson so that the teacher can meet needs on a partner-pair basis. Some have open ended questions for you to ask the class to give correct answers for or thoughts about.

The teacher should leave the Instructional Activity Projection Masters in a place where students can view them later if they need to take additional notes.

Problem-Solving

A **Problem-Solving Model** is located in Lesson 1 for use throughout the entire school year. This model addresses the Process Standards TEKS in each grade level. This model should be discussed during this lesson and a copy should be given to each student to keep in a math notebook.

Each **Problem-Solving** activity is provided in a large print version for projection and will follow the **Math Background** projection version in each part of a lesson. A general set of **Problem-Solving Questions** should be addressed by students as they solve the problems and during class discussion of the solution process. Teachers should make a copy of the **Problem-Solving Questions** for each student and distribute prior to beginning **Problem-Solving 1** in this lesson. Teachers should discuss the questions and let students know they will be answering these questions for problem-solving activities during the entire school year. Each student should keep a copy of the questions in a math notebook.

Prior to some Problem-Solving activities a **Teacher Notes: Problem-Solving** page is included with instructions for the teacher - most often this is instructions for pages teachers need to print for students prior to beginning the Problem-Solving.

Students work in partner pairs to complete all **Problem-Solving** activities throughout the entire school year. Students record answers on notebook paper or plain white paper. The teacher projects the problem, then sets a time limit prior to students beginning their work. Partner pairs are given specific "share" questions from 1-10 on the **Problem-Solving Questions** page. The process that should be followed by students for all **Problem-Solving** activities is to answer questions 1-3, then complete the solution to the problem, and finally answer questions 4-10.

The teacher calls time and the partner pairs guide class discussion on their "share" assignments. Students who did not complete the solution to the problem prior to the time limit must complete recording in a different color.

A Problem-Solving activity is **not** designed to be recorded as a grade, but may be recorded as a holistic score. A scale of 1-5 is appropriate as follows:

- 1 = little if any attempt
- 2 = no understanding evident
- 3 = minimal understanding evident
- 4 = mostly understood or slight mathematical errors
- 5 = complete understanding evident and no mathematical errors

Student Activity

A Student Activity follows the Problem-Solving Activity. Students work in pairs to complete a Student Activity, however, each student completes their own activity page(s). Math Notes are utilized to enable students to successfully complete the activity. If students did not take notes on material they need to complete the activity, the teacher should invite them to view the Instructional Activity Projection Masters and to take more detailed notes.

Various Partner Pairs should be assigned portions of the Student Activity for whole-class discussion. Before students begin the activity, the teacher should inform the class of the time allotted for completion of the activity. Time should be called even if all Partner Pairs have not completed the activity. Whole class discussion should begin with the Partner Pairs that had assignments leading the discussion. Partner Pairs who did not complete the activity may complete the activity at this time by recording in a different color pencil or pen.

A Student Activity is **not** designed to be recorded as a grade, but may be recorded as a holistic score. A scale of 1-5 is appropriate as follows:

- 1 = little if any attempt
- 2 = no understanding evident
- 3 = minimal understanding evident
- 4 = mostly understood or slight mathematical errors
- 5 = complete understanding evident and no mathematical errors

Hands-On Activity/Student Activity

A variation of an Instructional Activity is included in some lessons. The Instructional Activity is labeled Teacher Notes for Activity. The information regarding preparation for the activity, as well as questions to pose before and during the activity, as well as student responses to look for and listen for during the activity. The Student Activity tied to this Instructional Activity is designed as an active, involved, hands-on activity for all students.

Homework

Homework is provided for each lesson. More than one homework is provided if a lesson is more than one instructional period in duration.

Each homework assignment includes 5 open-ended questions. The teacher should choose two or three questions to be scored by the teacher. The teacher should make written feedback comments for each student and should return the homework assignments within two days.

Partial credit should be given if a student's work exhibits partial understanding, or if the student makes a minor mathematical error. Only $\frac{1}{2}$ credit should be given for a correct answer if student work is not shown on the homework. The score on each Homework may be recorded for each student. Periodically these scores may be combined and recorded as a grade.

Mini-Assessment

The mini-assessment is completed by individual students and scored by the teacher. No assistance should be given during this time. Allow about 20 minutes for completion of the Mini-Assessment. The amount of time may vary for some assessments.

The teacher should score the Mini-Assessment with a score of 1-10. Partial credit may be given for each question if the student shows evidence of understanding but did not choose the correct answer due to minor mathematical error. Only ½ credit should be given for a correct answer if student work is not shown on the assessment. Scores may be periodically combined and recorded as a grade.

The teacher should record class data for this assessment in the Class Profile book. Students may record individual data in their Student Profile book.

OVERVIEW

Spiraled Practice Including Class and Student Profiles

These materials provide both multiple choice and answer grid formats. The questions are spiraled through all TEKS and pieces of TEKS that are eligible for assessment on STAAR. Twenty spirals are provided for a custom designed summer program.

NOTE: There is no answer key provided for this document, as the authors' philosophy is that each teacher should create a personalized Solutions Manual so the teacher becomes more familiar with the Revised TEKS and assessment of the Revised TEKS, as well as formulates various solution strategies for each question. Teachers are encouraged to communicate with the authors regarding discussion of any question in this document.

AUTHORS' VISION FOR IMPLEMENTATION – SPIRALED PRACTICE

- Students work in Partner Pairs.
- Students should first identify the **MAIN IDEA** and **SUPPORTING DETAILS** for each problem, and then work each problem – they must show all work they do to help them choose their answer – the objective would be that anyone who looks at their paper should be able to understand how they chose their answer.
- After students begin working, quietly assign three different Partner Pairs as **SHARE PAIRS** for the 3 problems. If you have an opaque projection device, the share pairs will share their work from their paper. If you do not, then prior to class label 3 different transparencies as 1, 2, and 3 (small numbers in the top left corner of each transparency) and distribute the blank transparencies and overhead pens to the **SHARE PAIRS** so they will be able to show their work utilizing an overhead projector.
- The **SHARE PAIRS** are assigned to work on their assigned problem **FIRST**, then complete the other questions if they have time – they must **SHOW** all work – the teacher should monitor the share pairs closely and answer any questions they have about the problem.

- **ALL** students should work in pairs to complete a Spiraled Practice in 6 minutes – each student recording on their individual page(s). Call **TIME** after 6 minutes.
- Immediately **SHARE PAIR 1** places their paper or paper or transparency on the projection device and shares how they solved the problem. First, they say “The main idea of the problem is...”; next they say “The supporting details in the problem are...”. Finally they share the process they used to answer the problem. After sharing, they ask the class: “Did anyone get a different answer?” and “Did anyone solve the problem differently?” If someone did, they share and discussion follows. If the **SHARE PAIR** could not complete the problem (however, ever share pair/student should be expected to find the main idea and supporting details in each problem, even if they cannot answer the problem), they ask the class if anyone could complete the problem – if so, a pair that completed the problem is asked to come up and share their work with discussion following.
- If no student could answer the problem correctly, the teacher makes a decision whether to continue discussion of the problem at this point, or to delay discussion until a more appropriate time (if the decision is made to delay discussion, tell the students that they will be working on this problem in a major lesson later and discussion will continue then).

Summer Program Final Assessment

The **Summer Program Final Assessment** is designed to focus on the TEKS addressed in the lessons, however this assessments will assess as many TEKS as possible in the grade level.

Parent Guide for Grades 6-8 Summer Program Lessons

The **Parent Guide** was written with the goals of giving parents, guardians and other adults an overview of the mathematics lessons the students will be completing during the summer program and assisting parents in helping students to understand the mathematics they are learning. The guide was designed for use by parents and other caring individuals who are interested in helping students progress in comprehension of the Texas Essential Knowledge and Skills.

The Parent Guide includes an Overview of *TEKSING TOWARD STAAR* Lessons philosophy, Parental Roles and Common Questions, Student Activity Sample, Problem-Solving Sample, Homework Sample, Mini-Assessment Sample, Problem-Solving Plan, Summer Program Scope and Sequence, and Background Information for all lessons.

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