Texas Assessment of Knowledge and Skills

Mathematics Survey — Grade 5

Fall 2006

Survey of Content Proposed To Be Assessed

- **TAKS Objectives**
- **TEKS Knowledge and Skills Statements**
- **TEKS Student Expectations**

TAKS

Mathematics

Grade 5

TAKS Mathematics Survey — Grade 5

IMPORTANT!

This survey includes the knowledge and skills statements and student expectations from the grade 5 mathematics TEKS, the state-mandated curriculum, that are proposed for assessment on TAKS. Also included are the TAKS objectives for grade 5 mathematics.

- Each **objective** represents knowledge and skills measured on the statewide assessment for mathematics. These objectives have been in place for TAKS since 2003 and are unchanged. No input is sought regarding these objectives.

- Below each objective are **knowledge and skills statements**, broad statements describing what students should know and be able to do in mathematics. Each knowledge and skills statement has been taken verbatim from the recently refined TEKS. The number preceding each statement indicates its location in the TEKS. No input is sought regarding these statements.

- Listed below the objectives and knowledge and skills statements are the **student expectations** addressing the content proposed for assessment. Each student expectation has also been taken verbatim from the recently refined TEKS. The letter preceding each statement indicates its location in the TEKS. Input is sought regarding the inclusion of each student expectation in TAKS grade 5 mathematics.

    - The student expectations describe what students should know or be able to do to demonstrate proficiency in the objective.

    - The student expectations provide a detailed picture of each objective. Students will be tested on skills described in the student expectations.

TAKS Mathematics Survey — Grade 5

Please review the content described below and respond to the statements following each student expectation.

Objective 1

The student will demonstrate an understanding of numbers, operations, and quantitative reasoning.

Knowledge and Skills Statement

5.1 **Number, operation, and quantitative reasoning**. The student uses place value to represent whole numbers and decimals. The student is expected to:

Student Expectations:

(A) use place value to read, write, compare, and order whole numbers through the 999,999,999,999

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(B) use place value to read, write, compare, and order decimals through the thousandths place

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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Knowledge and Skills Statement

5.2 **Number, operation, and quantitative reasoning.** The student uses fractions in problem-solving situations. The student is expected to:

Student Expectations:

(A) generate a fraction equivalent to a given fraction such as 1/2 and 3/6 or 4/12 and 1/3

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(B) generate a mixed number equivalent to a given improper fraction or generate an improper fraction equivalent to a given mixed number

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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(C) compare two fractional quantities in problem-solving situations using a variety of methods, including common denominators

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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(D) use models to relate decimals to fractions that name tenths, hundredths, and thousandths

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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Knowledge and Skills Statement

(5.3) **Number, operation, and quantitative reasoning.** The student adds, subtracts, multiplies, and divides to solve meaningful problems. The student is expected to:

Student Expectations:

(A) use addition and subtraction to solve problems involving whole numbers and decimals

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(B) use multiplication to solve problems involving whole numbers (no more than three digits times two digits without technology)

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(C) use division to solve problems involving whole numbers (no more than two-digit divisors and three-digit dividends without technology), including interpreting the remainder within a given context

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(D) identify common factors of a set of whole numbers

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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(E) model situations using addition and/or subtraction involving fractions with like denominators using concrete objects, pictures, words, and numbers

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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Knowledge and Skills Statement

(5.4) **Number, operation, and quantitative reasoning.** The student estimates to determine reasonable results. The student is expected to:

Student Expectations:

(A) use strategies, including rounding and compatible numbers to estimate solutions to addition, subtraction, multiplication, and division problems

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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TAKS Mathematics Survey — Grade 5

Please review the content described below and respond to the statements following each student expectation.

Objective 2

The student will demonstrate an understanding of patterns, relationships, and algebraic reasoning.

Knowledge and Skills Statement

5.5 **Patterns, relationships, and algebraic thinking.** The student makes generalizations based on observed patterns and relationships. The student is expected to:

Student Expectations:

(A) describe the relationship between sets of data in graphic organizers such as lists, tables, charts, and diagrams

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(B) identify prime and composite numbers using concrete objects, pictorial models, and patterns in factor pairs

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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Knowledge and Skills Statement

5.6 **Patterns, relationships, and algebraic thinking.** The student describes relationships mathematically. The student is expected to:

Student Expectations:

(A) select from and use diagrams and equations such as $y = 5 + 3$ to represent meaningful problem situations

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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TAKS Mathematics Survey — Grade 5

Please review the content described below and respond to the statements following each student expectation.

Objective 3

The student will demonstrate an understanding of geometry and spatial reasoning.

Knowledge and Skills Statement

5.7 **Geometry and spatial reasoning.** The student generates geometric definitions using critical attributes. The student is expected to:

Student Expectations:

(A) identify essential attributes including parallel, perpendicular, and congruent parts of two- and three-dimensional geometric figures

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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Knowledge and Skills Statement

5.8 **Geometry and spatial reasoning.** The student models transformations. The student is expected to:

Student Expectations:

(A) sketch the results of translations, rotations, and reflections on a Quadrant I coordinate grid

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(B) identify the transformation that generates one figure from the other when given two congruent figures on a Quadrant I coordinate grid

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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Knowledge and Skills Statement

5.9 **Geometry and spatial reasoning.** The student recognizes the connection between ordered pairs of numbers and locations of points on a plane. The student is expected to:

Student Expectations:

(A) locate and name points on a coordinate grid using ordered pairs of whole numbers

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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TAKS Mathematics Survey — Grade 5

Please review the content described below and respond to the statements following each student expectation.

Objective 4

The student will demonstrate an understanding of the concepts and uses of measurement.

Knowledge and Skills Statement

5.10 **Measurement.** The student applies measurement concepts involving length (including perimeter), area, capacity/volume, and weight/mass to solve problems. The student is expected to:

Student Expectations:

(A) perform simple conversions within the same measurement system (SI (metric) or customary)

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(B) connect models for perimeter, area, and volume with their respective formulas

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(C) select and use appropriate units and formulas to measure length, perimeter, area, and volume

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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Knowledge and Skills Statement

5.11 **Measurement.** The student applies measurement concepts. The student measures time and temperature (in degrees Fahrenheit and Celsius). The student is expected to:

Student Expectations:

(A) solve problems involving changes in temperature

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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(B) solve problems involving elapsed time

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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TAKS Mathematics Survey — Grade 5

Please review the content described below and respond to the statements following each student expectation.

Objective 5

The student will demonstrate an understanding of probability and statistics.

Knowledge and Skills Statement

5.12 **Probability and statistics.** The student describes and predicts the results of a probability experiment. The student is expected to:

Student Expectations:

(A) use fractions to describe the results of an experiment

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(B) use experimental results to make predictions

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(C) list all possible outcomes of a probability experiment such as tossing a coin

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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Knowledge and Skills Statement

5.13 **Probability and statistics.** The student solves problems by collecting, organizing, displaying, and interpreting sets of data. The student is expected to:

Student Expectations:

(A) use tables of related number pairs to make line graphs

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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(B) describe characteristics of data presented in tables and graphs including median, mode, and range

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(C) graph a given set of data using an appropriate graphical representation such as a picture or line graph

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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TAKS Mathematics Survey — Grade 5

Please review the content described below and respond to the statements following each student expectation.

Objective 6

The student will demonstrate an understanding of the mathematical processes and tools used in problem solving.

Knowledge and Skills Statement

5.14 **Underlying processes and mathematical tools.** The student applies Grade 5 mathematics to solve problems connected to everyday experiences and activities in and outside of school. The student is expected to:

Student Expectations:

(A) identify the mathematics in everyday situations

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(B) solve problems that incorporate understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(C) select or develop an appropriate problem-solving plan or strategy, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(D) use tools such as real objects, manipulatives, and technology to solve problems

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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Knowledge and Skills Statement

5.15 **Underlying processes and mathematical tools.** The student communicates about Grade 5 mathematics using informal language. The student is expected to:

Student Expectations:

(A) explain and record observations using objects, words, pictures, numbers, and technology

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(B) relate informal language to mathematical language and symbols

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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Knowledge and Skills Statement

5.16 **Underlying processes and mathematical tools.** The student uses logical reasoning. The student is expected to:

Student Expectations:

(A) make generalizations from patterns or sets of examples and nonexamples

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
_____

(B) justify why an answer is reasonable and explain the solution process

- ⊙ Essential to measure
- ⊙ Do not measure
- ⊙ Essential to measure, but not in its entirety – please comment below

Additional comments: _____
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TAKS Mathematics Survey — Grade 5

Survey of Additional Information

The Texas Education Agency is exploring several issues related to the TAKS mathematics test at grade 5. We would appreciate your response to the following questions.

Do you use graph paper as a regular part of classroom mathematics instruction?

- ⊙ Yes
- ⊙ No
- ⊙ Not sure—please comment below

Additional comments: _____
_____

Should 1 sheet of graph paper be included in the back of the test booklet for TAKS grade 5 mathematics?

- ⊙ Yes
- ⊙ No
- ⊙ Not sure—please comment below

Additional comments: _____
_____

Do you have any suggested changes to the TAKS grade 5 mathematics chart?

Please comment below: