Texas Assessment of Knowledge and Skills

Mathematics Survey — Grade 3
Fall 2006

Survey of Content Proposed To Be Assessed

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

TAKS
Mathematics
Grade 3
TAKS Mathematics Survey — Grade 3

IMPORTANT!

This survey includes the knowledge and skills statements and student expectations from the grade 3 mathematics TEKS, the state-mandated curriculum, that are proposed for assessment on TAKS. Also included are the TAKS objectives for grade 3 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 3 mathematics.

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

  o The student expectations provide a detailed picture of each objective. Students will be tested on skills described in the student expectations.
Objective 1
The student will demonstrate an understanding of numbers, operations, and quantitative reasoning.

Knowledge and Skills Statement
3.1 Number, operation, and quantitative reasoning. The student uses place value to communicate about increasingly large whole numbers in verbal and written form, including money. The student is expected to:

Student Expectations:
(A) use place value to read, write (in symbols and words), and describe the value of whole numbers through 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 compare and order whole numbers through 9,999
   ⭕ Essential to measure
   ⭭ Do not measure
   ⭭ Essential to measure, but not in its entirety – please comment below

   Additional comments: ______________________________________________________
                         ______________________________________________________

(C) determine the value of a collection of coins and bills
   ⭕ Essential to measure
   ⭭ Do not measure
   ⭭ Essential to measure, but not in its entirety – please comment below

   Additional comments: ______________________________________________________
                         ______________________________________________________
Knowledge and Skills Statement

3.2 Number, operation, and quantitative reasoning. The student uses fraction names and symbols (with denominators of 12 or less) to describe fractional parts of whole objects or sets of objects. The student is expected to:

Student Expectations:
(A) construct concrete models of fractions
   ☑ Essential to measure
   ☐ Do not measure
   ☐ Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________

(B) compare fractional parts of whole objects or sets of objects in a problem situation using concrete models
   ☑ Essential to measure
   ☐ Do not measure
   ☐ Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________

(C) use fraction names and symbols to describe fractional parts of whole objects or sets of objects
   ☑ Essential to measure
   ☐ Do not measure
   ☐ Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________

(D) construct concrete models of equivalent fractions for fractional parts of whole objects
   ☑ Essential to measure
   ☐ Do not measure
   ☐ Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
**Knowledge and Skills Statement**

**3.3 Number, operation, and quantitative reasoning.** The student adds and subtracts to solve meaningful problems involving whole numbers. The student is expected to:

**Student Expectations:**

(A) model addition and subtraction using pictures, words, and numbers
   - Essential to measure
   - Do not measure
   - Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
_________________________________________________________

(B) select addition or subtraction and use the operation to solve problems involving whole numbers through 999
   - Essential to measure
   - Do not measure
   - Essential to measure, but not in its entirety – please comment below

Additional comments: ________________________________
_________________________________________________________

**Knowledge and Skills Statement**

**3.4 Number, operation, and quantitative reasoning.** The student recognizes and solves problems in multiplication and division situations. The student is expected to:

**Student Expectations:**

(A) learn and apply multiplication facts through 12 by 12 using concrete models and objects
   - Essential to measure
   - Do not measure
   - Essential to measure, but not in its entirety – please comment below

Additional comments: ________________________________
_________________________________________________________
(B) solve and record multiplication problems (up to two digits times one digit)
   ☐ Essential to measure
   ☐ Do not measure
   ☐ Essential to measure, but not in its entirety – please comment below

   Additional comments: ______________________________________
   __________________________________________________________

(C) use models to solve division problems and use number sentences to record
   the solutions
   ☐ Essential to measure
   ☐ Do not measure
   ☐ Essential to measure, but not in its entirety – please comment below

   Additional comments: ______________________________________
   __________________________________________________________

Knowledge and Skills Statement

3.5 Number, operation, and quantitative reasoning. The student estimates to
determine reasonable results. The student is expected to:

Student Expectations:
(A) round whole numbers to the nearest ten or hundred to approximate
   reasonable results in problem situations
   ☐ Essential to measure
   ☐ Do not measure
   ☐ Essential to measure, but not in its entirety – please comment below

   Additional comments: ______________________________________
   __________________________________________________________

(B) use strategies including rounding and compatible numbers to estimate
   solutions to addition and subtraction problems
   ☐ Essential to measure
   ☐ Do not measure
   ☐ Essential to measure, but not in its entirety – please comment below

   Additional comments: ______________________________________
   __________________________________________________________
TAKS Mathematics Survey — Grade 3

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

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Objective 2
The student will demonstrate an understanding of patterns, relationships, and algebraic reasoning.

Knowledge and Skills Statement

3.6 Patterns, relationships, and algebraic thinking. The student uses patterns to solve problems. The student is expected to:

Student Expectations:

(A) identify and extend whole-number and geometric patterns to make predictions and 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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(B) identify patterns in multiplication facts using concrete objects, pictorial models, or technology
   ☑ Essential to measure
   ☐ Do not measure
   ☐ Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________

____________________________

(C) identify patterns in related multiplication and division sentences (fact families) such as 2 x 3 = 6, 3 x 2 = 6, 6 ÷ 2 = 3, 6 ÷ 3 = 2
   ☑ Essential to measure
   ☐ Do not measure
   ☐ Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
Knowledge and Skills Statement

3.7 Patterns, relationships, and algebraic thinking. The student uses lists, tables, and charts to express patterns and relationships. The student is expected to:

**Student Expectations:**

(A) generate a table of paired numbers based on a real-life situation such as insects and legs
- Essential to measure
- Do not measure
- Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
_________________________________________________________

(B) identify and describe patterns in a table of related number pairs based on a meaningful problem and extend the table
- Essential to measure
- Do not measure
- Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
_________________________________________________________
Objective 3
The student will demonstrate an understanding of geometry and spatial reasoning.

Knowledge and Skills Statement
3.8 Geometry and spatial reasoning. The student uses formal geometric vocabulary. The student is expected to:

Student Expectations:
(A) identify, classify, and describe two- and three-dimensional geometric figures by their attributes. The student compares two-dimensional figures, three-dimensional figures, or both by their attributes using formal geometry vocabulary
   ☑ Essential to measure
   ☐ Do not measure
   ☐ Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
_________________________________________________________

Knowledge and Skills Statement
3.9 Geometry and spatial reasoning. The student recognizes congruence and symmetry. The student is expected to:

Student Expectations:
(A) identify congruent two-dimensional figures
   ☑ Essential to measure
   ☐ Do not measure
   ☐ Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
_________________________________________________________
(B) create two-dimensional figures with lines of symmetry using concrete models and technology
- Essential to measure
- Do not measure
- Essential to measure, but not in its entirety – please comment below

Additional comments: ____________________________________________

(C) identify lines of symmetry in two-dimensional geometric figures
- Essential to measure
- Do not measure
- Essential to measure, but not in its entirety – please comment below

Additional comments: ____________________________________________

Knowledge and Skills Statement
3.10 Geometry and spatial reasoning. The student recognizes that a line can be used to represent numbers and fractions and their properties and relationships. The student is expected to:

Student Expectations:
(A) locate and name points on a number line using whole numbers and fractions, including halves and fourths
- Essential to measure
- Do not measure
- Essential to measure, but not in its entirety – please comment below

Additional comments: ____________________________________________
TAKS Mathematics Survey — Grade 3

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**

3.11 Measurement. The student directly compares the attributes of length, area, weight/mass, and capacity, and uses comparative language to solve problems and answer questions. The student selects and uses standard units to describe length, area, capacity/volume, and weight/mass. The student is expected to:

**Student Expectations:**

(A) use linear measurement tools to estimate and measure lengths using standard units
   - Essential to measure
   - Do not measure
   - Essential to measure, but not in its entirety – please comment below

   Additional comments: __________________________________________________________________________
________________________________________________________________________________________

(B) use standard units to find the perimeter of a shape
   - Essential to measure
   - Do not measure
   - Essential to measure, but not in its entirety – please comment below

   Additional comments: __________________________________________________________________________
________________________________________________________________________________________

(C) use concrete and pictorial models of square units to determine the area of two-dimensional surfaces
   - Essential to measure
   - Do not measure
   - Essential to measure, but not in its entirety – please comment below

   Additional comments: __________________________________________________________________________
________________________________________________________________________________________
(D) identify concrete models that approximate standard units of weight/mass and use them to measure weight/mass
- Essential to measure
- Do not measure
- Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
_________________________________________________________

(E) identify concrete models that approximate standard units for capacity and use them to measure capacity
- Essential to measure
- Do not measure
- Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
_________________________________________________________

(F) use concrete models that approximate cubic units to determine the volume of a given container or other three-dimensional geometric figure
- Essential to measure
- Do not measure
- Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
_________________________________________________________

Knowledge and Skills Statement

3.12 Measurement. The student reads and writes time and measures temperature in degrees Fahrenheit to solve problems. The student is expected to:

Student Expectations:
(A) use a thermometer to measure temperature
- Essential to measure
- Do not measure
- Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
_________________________________________________________
(B) tell and write time shown on analog and digital clocks

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

Additional comments: __________________________________________________________
__________________________________________________________________________
Objective 5
The student will demonstrate an understanding of probability and statistics.

Knowledge and Skills Statement
3.13 Probability and statistics. The student solves problems by collecting, organizing, displaying, and interpreting sets of data. The student is expected to:

Student Expectations:

(A) collect, organize, record, and display data in pictographs and bar graphs where each picture or cell might represent more than one piece of data
- Essential to measure
- Do not measure
- Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
________________________________________________________________

(B) interpret information from pictographs and bar graphs
- Essential to measure
- Do not measure
- Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
________________________________________________________________

(C) use data to describe events as more likely than, less likely than, or equally likely as
- Essential to measure
- Do not measure
- Essential to measure, but not in its entirety – please comment below

Additional comments: ______________________________________
________________________________________________________________
TAKS Mathematics Survey — Grade 3

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

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**Objective 6**
The student will demonstrate an understanding of the mathematical processes and tools used in problem solving.

**Knowledge and Skills Statement**

3.14 **Underlying processes and mathematical tools.** The student applies Grade 3 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: ______________________________________
_________________________________________________________

Knowledge and Skills Statement

3.15 Underlying processes and mathematical tools. The student communicates about Grade 3 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: ______________________________________
_________________________________________________________
Knowledge and Skills Statement

3.16  **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: __________________________________________
   __________________________________________________________
The Texas Education Agency is exploring several issues related to the TAKS mathematics test at grade 3. 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 3 mathematics?

☐ Yes
☐ No
☐ Not sure—please comment below

Additional comments: ______________________________________
_________________________________________________________

Do you have any suggested changes to the TAKS grade 3 mathematics chart?

Please comment below: