# 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

# **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.
  - 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.

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**

**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

	Essential to measure, but not in its entirety – please comment below
	Additional comments:
<b>(B)</b>	<ul> <li>use place value to compare and order whole numbers through 9,999</li> <li>Essential to measure</li> <li>Do not measure</li> <li>Essential to measure, but not in its entirety – please comment below</li> </ul>
	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

**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 Exp	pectations:
<b>(A)</b>	construct concrete models of fractions
	Essential to measure
	O Do not measure
	• Essential to measure, but not in its entirety – please comment below
	Additional comments:
<b>(B)</b>	compare fractional parts of whole objects or sets of objects in a problem situation using concrete models
	<ul><li>Essential to measure</li></ul>
	O 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
	<ul><li>Do not measure</li></ul>
	● Essential to measure, but not in its entirety – please comment below
	Additional comments:
<b>(D)</b>	construct concrete models of equivalent fractions for fractional parts of whole objects  • Essential to measure
	O Do not measure
	● Essential to measure, but not in its entirety – please comment below
	Additional comments:

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

Student I	Expecta	tions
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<b>(A)</b>	model addition and subtraction using pictures, words, and numbers
	• Essential to measure
	<ul><li>Do not measure</li></ul>
	● Essential to measure, but not in its entirety – please comment below
	Additional comments:
<b>(B)</b>	select addition or subtraction and use the operation to solve problems involving whole numbers through 999
	• Essential to measure
	O Do not measure
	● Essential to measure, but not in its entirety – please comment below
	Additional comments:

# **Knowledge and Skills Statement**

**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>(B)</b>	solve and record multiplication problems (up to two digits times one digit)  • Essential to measure				
	<ul><li>Do not measure</li></ul>				
	• 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				
	<ul> <li>Essential to measure, but not in its entirety – please comment below</li> </ul>				
	Additional comments:				
3.5 Nu determine Student E	mber, operation, and quantitative reasoning. The student estimates to reasonable results. The student is expected to:  **Expectations:*  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:				

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**

**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:	

- (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  $2 \times 3 = 6$ ,  $3 \times 2 = 6$ ,  $6 \div 2 = 3$ ,  $6 \div 3 = 2$ 
  - Essential to measure
  - Do not measure
  - Essential to measure, but not in its entirety please comment below

Additional comments:	

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

Stud	lent	Ex	pec	tat	ions:
Dead			000		

nt Ex	pectations:
<b>(A)</b>	generate a table of paired numbers based on a real-life situation such as insects and legs
	e
	Essential to measure
	O Do not measure
	● Essential to measure, but not in its entirety – please comment below
	Additional comments:
<b>(B)</b>	identify and describe patterns in a table of related number pairs based on a meaningful problem and extend the table
	• Essential to measure
	O Do not measure
	<ul> <li>Essential to measure, but not in its entirety – please comment below</li> </ul>

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**

**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
  - O 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  O Essential to measure  O Do not measure  Essential to measure, but not in its entirety − please comment below	
	Additional comments:	
(C)	<ul> <li>identify lines of symmetry in two-dimensional geometric figures</li> <li>© Essential to measure</li> <li>O not measure</li> <li>O Essential to measure, but not in its entirety – please comment below</li> </ul>	
	Additional comments:	
3.10 Geor	ge and Skills Statement metry and spatial reasoning. The student recognizes that a line can be used numbers and fractions and their properties and relationships. The student is	
Student Exp	pectations:	
<b>(A)</b>	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:	

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**

**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

<b>1</b> )	use linear measurement tools to estimate and measure lengths using standa units
	Essential to measure
	Do not measure
	• Essential to measure, but not in its entirety – please comment below
	Additional comments:
<b>B</b> )	
3)	Additional comments:
<b>B</b> )	Additional comments: use standard units to find the perimeter of a shape

- (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:	

<b>(D)</b>	identify concrete models that approximate standard units of weight/mass and use them to measure weight/mass
	Essential to measure
	Do not measure
	<ul> <li>Essential to measure, but not in its entirety – please comment below</li> </ul>
	Additional comments:
<b>(E)</b>	identify concrete models that approximate standard units for capacity and use them to measure capacity
	• Essential to measure
	O 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 places comment below
	● Essential to measure, but not in its entirety – please comment below
	Additional comments:
Knowlede	ge and Skills Statement
	<b>surement.</b> The student reads and writes time and measures temperature in renheit to solve problems. The student is expected to:
Student Ex	
<b>(A)</b>	use a thermometer to measure temperature
	Essential to measure
	O Do not measure
	● Essential to measure, but not in its entirety – please comment below
	Additional comments:

<b>(B)</b>	tell and write time shown on analog and digital clocks
	• Essential to measure
	O Do not measure
	• Essential to measure, but not in its entirety – please comment below
	Additional comments:

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**

Do not measure

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

#### Studen

t Ex	pectations:
	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>(B)</b>	<ul> <li>interpret information from pictographs and bar graphs</li> <li>• Essential to measure</li> <li>• Do not measure</li> <li>• Essential to measure, but not in its entirety – please comment below</li> </ul>
	Additional comments:
(C)	use data to describe events as more likely than, less likely than, or equally likely as  • Essential to measure

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

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**

• Do not measure

**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:

#### Stude

	pectations: identify the mathematics in everyday situations
$(\mathbf{A})$	Essential to measure
	Do not measure
	<ul> <li>Essential to measure, but not in its entirety – please comment below</li> </ul>
	Additional comments:
<b>(B)</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
	<ul> <li>Essential to measure, but not in its entirety – please comment below</li> </ul>
	Additional comments:
( <b>C</b> )	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

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

(D)	use tools such as real objects, manipulatives, and technology to solve problems  O Essential to measure  Do not measure  Essential to measure, but not in its entirety – please comment below  Additional comments:
Knowledg	e and Skills Statement
3.15 Und	erlying processes and mathematical tools. The student communicates about hematics using informal language. The student is expected to:
Student Exp	pectations:
_	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>(B)</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:

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

Student Ex (A)	<ul> <li>pectations:</li> <li>make generalizations from patterns or sets of examples and nonexamples</li> <li>• Essential to measure</li> <li>• Do not measure</li> <li>• Essential to measure, but not in its entirety – please comment below</li> </ul>
	Additional comments:
<b>(B)</b>	justify why an answer is reasonable and explain the solution process  O Essential to measure  O Do not measure  O Essential to measure, but not in its entirety − please comment below
	Additional comments:

# **Survey of Additional Information**

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 u	se graph paper as a regular part of classroom mathematics instruction?
	⊙ Yes
	<ul><li>No</li><li>Not sure—please comment below</li></ul>
	Additional comments:
	sheet of graph paper be included in the back of the test booklet for TAKS nathematics?
	⊙ Yes
	<ul><li>No</li><li>Not sure—please comment below</li></ul>
	Additional comments:
Do you b	have any suggested changes to the TAKS grade 3 mathematics chart?
•	omment below: