Appendix F

TAKS Mathematics Survey for Grades 3, 4, and 5

TAKS Mathematics Survey
Grades 3, 4, and 5

As you may remember, in October 2000 your district participated in a survey that provided feedback on the skills proposed for inclusion in the new Texas Assessment of Knowledge and Skills (TAKS) program for all subjects and grade levels tested. Your input, as well as that of other educators across the state, was vital to the development of a high-quality assessment program. We are once again asking for your help.

The Texas Education Agency is currently evaluating all the content eligible to be assessed on the TAKS mathematics tests at grades 3, 4, and 5 because of the refinements recently made to the elementary mathematics Texas Essential Knowledge and Skills (TEKS). These refinements, which were adopted by the State Board of Education in October 2005, include some TEKS student expectations that have been slightly modified or reworded for clarification and some TEKS student expectations that have been shifted within and among grades. However, many TEKS student expectations have not changed in any way.

This online survey has been developed to obtain input as to whether the refined TEKS content should be assessed on TAKS mathematics tests at grades 3, 4, and 5. We are asking each campus to conduct at least one meeting with teachers, administrators, parents, and other interested community members to review and discuss this refined content. All elementary mathematics teachers as well as bilingual/ELL and special education teachers who work with students in mathematics at grades 3 through 5 should be involved in these meetings. Members of the campus-level planning committee required by Texas Education Code §11.251 should also be included. This review and discussion will serve as the basis for a campus recommendation on the proposed content. Finally, we ask that you complete the online survey by May 31, 2006.

The survey should reflect the consensus of all educators and other stakeholders who attend the meeting(s) about the proposed additional content. If consensus is not reached, participants will need to vote on whether the content should be included on TAKS in whole or in part. If the consensus of the meeting participants is that the content is essential to measure but not in its entirety, please provide comments specifying the restrictions the participants recommend.

Additionally, this online survey addresses several other aspects of the TAKS mathematics tests at grades 3, 4, and 5. We are gathering input on the proposed inclusion of graph paper on the mathematics tests at grades 3, 4, and 5. We would also like input on suggested changes to the TAKS mathematics charts for grades 3, 4, and 5.

Districts are being asked to do the following:

- Organize a campus meeting at each of your elementary schools.
- Determine who should facilitate the meeting(s). Remember that the facilitator is responsible for reflecting the consensus of the meeting participants and ensuring that the survey reflects this consensus.
- Print a copy of the survey for each meeting participant.

- After participants have reached consensus, transfer the campus recommendations to this online survey.
- Ensure that the survey is submitted by the May 31, 2006, deadline.

Feedback from Texas educators on these refined TEKS student expectations is crucial to the continued development of reliable, accurate, and fair mathematics tests that are closely linked to the curriculum and reflect sound classroom instruction. We very much appreciate your important contribution to this worthwhile goal.

If you have any questions, please contact the Student Assessment Division at (512) 463-9536.

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.

    - 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 3

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

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.

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: _____

_____

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: _____

_____

TAKS Mathematics Survey — Grade 3

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
- ⦿ 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: _____

_____

TAKS Mathematics Survey — Grade 3

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

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.

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: _____

_____

TAKS Mathematics Survey — Grade 3

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 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:

Texas Assessment of Knowledge and Skills

Mathematics Survey — Grade 4

Fall 2006

Survey of Content Proposed To Be Assessed

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

TAKS

Mathematics

Grade 4

TAKS Mathematics Survey — Grade 4

IMPORTANT!

This survey includes the knowledge and skills statements and student expectations from the grade 4 mathematics TEKS, the state-mandated curriculum, that are proposed for assessment on TAKS. Also included are the TAKS objectives for grade 4 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 4 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 4

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

4.1 **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 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 involving tenths and hundredths, including money, using concrete objects and pictorial models

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

Additional comments: _____

_____

Knowledge and Skills Statement

4.2 **Number, operation, and quantitative reasoning.** The student describes and compares fractional parts of whole objects or sets of objects. The student is expected to:

Student Expectations:

(A) use concrete objects and pictorial models to generate equivalent fractions

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

Additional comments: _____
_____

(B) model fraction quantities greater than one using concrete objects and pictorial models

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

Additional comments: _____
_____

(C) compare and order fractions using concrete objects and pictorial models

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

Additional comments: _____
_____

(D) relate decimals to fractions that name tenths and hundredths using concrete objects and pictorial models

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

Additional comments: _____
_____

Knowledge and Skills Statement

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

Student Expectations:

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

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

Additional comments: _____

_____

(B) add and subtract decimals to the hundredths place using concrete objects and pictorial models

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

Additional comments: _____

_____

Knowledge and Skills Statement

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

Student Expectations:

(A) model factors and products using arrays and area models

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

Additional comments: _____

_____

(B) represent multiplication and division situations in picture, word, and number form

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

Additional comments: _____

_____

(C) recall and apply multiplication facts through 12 x 12

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

Additional comments: _____
_____

(D) use multiplication to solve problems (no more than two 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: _____
_____

(E) use division to solve problems (no more than one-digit divisors and three-digit dividends without technology)

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

Additional comments: _____
_____

Knowledge and Skills Statement

4.5 **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, hundred, or thousand 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 multiplication and division problems

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

Additional comments: _____

_____

TAKS Mathematics Survey — Grade 4

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

4.6 **Patterns, relationships, and algebraic thinking.** The student uses patterns in multiplication and division. The student is expected to:

Student Expectations:

(A) use patterns and relationships to develop strategies to remember basic multiplication and division facts (such as the patterns in related multiplication and division number sentences (fact families) such as 9 x 9 = 81 and 81 ÷ 9 = 9)

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

Additional comments: _____

_____

(B) use patterns to multiply by 10 and 100

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

Additional comments: _____

_____

Knowledge and Skills Statement

4.7 Patterns, relationships, and algebraic thinking. The student uses organizational structures to analyze and describe patterns and relationships. The student is expected to:

Student Expectations:

(A) describe the relationship between two sets of related data such as ordered pairs in a table

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

Additional comments: _____

_____

TAKS Mathematics Survey — Grade 4

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

4.8 **Geometry and spatial reasoning.** The student identifies and describes attributes of geometric figures using formal geometric language. The student is expected to:

Student Expectations:

(A) identify and describe right, acute, and obtuse angles

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

Additional comments: _____

_____

(B) identify and describe parallel and intersecting (including perpendicular) lines using concrete objects and pictorial models

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

Additional comments: _____

_____

(C) use essential attributes to define 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: _____

_____

Knowledge and Skills Statement

4.9 **Geometry and spatial reasoning.** The student connects transformations to congruence and symmetry. The student is expected to:

Student Expectations:

(A) demonstrate translations, reflections, and rotations using concrete models

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

Additional comments: _____
_____

(B) use translations, reflections, and rotations to verify that two shapes are congruent

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

Additional comments: _____
_____

(C) use reflections to verify that a shape has symmetry

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

Additional comments: _____
_____

Knowledge and Skills Statement

4.10 **Geometry and spatial reasoning.** The student recognizes the connection between numbers and their properties and points on a line. The student is expected to:

Student Expectations:

(A) locate and name points on a number line using whole numbers, fractions such as halves and fourths, and decimals such as tenths

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

Additional comments: _____

_____

TAKS Mathematics Survey — Grade 4

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

4.11 **Measurement.** The student applies measurement concepts. The student is expected to estimate and measure to solve problems involving length (including perimeter) and area. The student uses measurement tools to measure capacity/volume and weight/mass. The student is expected to:

Student Expectations:

(A) estimate and use measurement tools to determine length (including perimeter), area, capacity and weight/mass using standard units SI (metric) and customary

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

Additional comments: _____

_____

(B) perform simple conversions between different units of length, between different units of capacity, and between different units of weight within the customary measurement system

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

Additional comments: _____

_____

(C) use concrete models of standard cubic units to measure volume

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

Additional comments: _____

_____

(D) estimate volume in cubic units

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

Additional comments: _____

_____

(E) explain the difference between weight and mass

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

Additional comments: _____

_____

Knowledge and Skills Statement

4.12 **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) use a thermometer to measure temperature and changes in temperature

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

Additional comments: _____

_____

(B) use tools such as a clock with gears or a stopwatch to solve problems involving elapsed time

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

Additional comments: _____

_____

TAKS Mathematics Survey — Grade 4

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

4.13 **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 concrete objects or pictures to make generalizations about determining all possible combinations of a given set of data or of objects in a problem situation

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

Additional comments: _____

_____

(B) interpret bar graphs

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

Additional comments: _____

_____

TAKS Mathematics Survey — Grade 4

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

4.14 Underlying processes and mathematical tools. The student applies Grade 4 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

4.15 Underlying processes and mathematical tools. The student communicates about Grade 4 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

4.16 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: _____

_____

TAKS Mathematics Survey — Grade 4

Survey of Additional Information

The Texas Education Agency is exploring several issues related to the TAKS mathematics test at grade 4. 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 4 mathematics?

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

Additional comments: _____

_____

Do you have any suggested changes to the TAKS grade 4 mathematics chart?

Please comment below:

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: _____

_____

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: _____
_____

(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: _____
_____

(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: _____
_____

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: _____
_____

(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: _____

_____

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: _____

_____

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: _____

_____

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: _____

_____

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: _____

_____

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: _____

_____

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: _____

_____

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: _____
_____

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: _____
_____

(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: _____
_____

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: _____

_____

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: _____
_____

(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: _____
_____

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: _____
_____

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: _____
_____

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: _____

_____

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: