

Texas Essential Knowledge & Skills Mathematics, Grade 3.

(a) Introduction.

(1) Within a well-balanced mathematics curriculum, the primary focal points at Grade 3 are multiplying and dividing whole numbers, connecting fraction symbols to fractional quantities, and standardizing language and procedures in geometry and measurement.

(2) Throughout mathematics in Grades 3-5, students build a foundation of basic understandings in number, operation, and quantitative reasoning; patterns, relationships, and algebraic thinking; geometry and spatial reasoning; measurement; and probability and statistics. Students use algorithms for addition, subtraction, multiplication, and division as generalizations connected to concrete experiences; and they concretely develop basic concepts of fractions and decimals. Students use appropriate language and organizational structures such as tables and charts to represent and communicate relationships, make predictions, and solve problems. Students select and use formal language to describe their reasoning as they identify, compare, and classify shapes and solids; and they use numbers, standard units, and measurement tools to describe and compare objects, make estimates, and solve application problems. Students organize data, choose an appropriate method to display the data, and interpret the data to make decisions and predictions and solve problems.

(3) Problem solving, language and communication, connections within and outside mathematics, and formal and informal reasoning underlie all content areas in mathematics. Throughout mathematics in Grades 3-5, students use these processes together with technology and other mathematical tools such as manipulative materials to develop conceptual understanding and solve problems as they do mathematics.

(b) Knowledge and skills.

(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:

(A) use place value to read, write (in symbols and words), and describe the value of whole numbers through 999,999;

(B) use place value to compare and order whole numbers through 9,999; and

(C) determine the value of a collection of coins and bills.

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

(A) construct concrete models of fractions;

(B) compare fractional parts of whole objects or sets of objects in a problem situation using concrete models;

(C) use fraction names and symbols to describe fractional parts of whole objects or sets of objects with denominators of 12 or less; and

(D) construct concrete models of equivalent fractions for fractional parts of whole objects.

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

(A) model addition and subtraction using pictures, words, and numbers; and

(B) select addition or subtraction and use the operation to solve problems involving whole numbers through 999.

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

(A) learn and apply multiplication facts through the tens using concrete models;

(B) solve and record multiplication problems (one-digit multiplier); and

(C) use models to solve division problems and use number sentences to record the solutions.

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

(A) round two-digit numbers to the nearest ten and three-digit numbers to the nearest hundred; and

(B) estimate sums and differences beyond basic facts.

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

(A) identify and extend whole-number and geometric patterns to make predictions and solve problems;

(B) identify patterns in multiplication facts using concrete objects, pictorial models, or technology; and

(C) identify patterns in related multiplication and division sentences (fact families) such as $2 \times 3 = 6$, $3 \times 2 = 6$, $6 \div 2 = 3$, $6 \div 3 = 2$.

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

(A) generate a table of paired numbers based on a real-life situation such as insects and legs; and

(B) identify patterns in a table of related number pairs based on a real-life situation and extend the table.

(8) Geometry and spatial reasoning. The student uses formal geometric vocabulary. The student is expected to name, describe, and compare shapes and solids using formal geometric vocabulary.

(9) Geometry and spatial reasoning. The student recognizes congruence and symmetry. The student is expected to:

(A) identify congruent shapes;

(B) create shapes with lines of symmetry using concrete models and technology; and

(C) identify lines of symmetry in shapes.

(10) Geometry and spatial reasoning. The student recognizes that numbers can be represented by points on a line. The student is expected to locate and name points on a line using whole numbers and fractions such as halves.

(11) Measurement. The student selects and uses appropriate units and procedures to measure length and area. The student is expected to:

(A) estimate and measure lengths using standard units such as inch, foot, yard, centimeter, decimeter, and meter;

(B) use linear measure to find the perimeter of a shape; and

(C) use concrete models of square units to determine the area of shapes.

(12) Measurement. The student measures time and temperature. The student is expected to:

(A) tell and write time shown on traditional and digital clocks; and

(B) use a thermometer to measure temperature.

(13) Measurement. The student applies measurement concepts. The student is expected to measure to solve problems involving length, area, temperature, and time.

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

(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;

(B) interpret information from pictographs and bar graphs; and

(C) use data to describe events as more likely, less likely, or equally likely.

(15) 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:

(A) identify the mathematics in everyday situations;

(B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness;

(C) select or develop an appropriate problem-solving 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; and

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

(16) Underlying processes and mathematical tools. The student communicates about Grade 3 mathematics using informal language. The student is expected to:

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

(B) relate informal language to mathematical language and symbols.

(17) Underlying processes and mathematical tools. The student uses logical reasoning to make sense of his or her world. The student is expected to:

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

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

Source: The provisions of this §111.15 adopted to be effective September 1, 1998, 22 TexReg 7623.