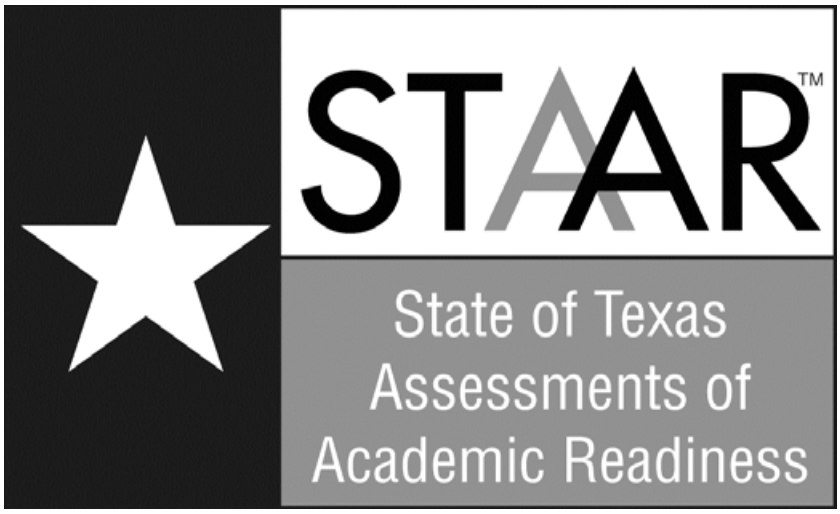

Grade 4 Mathematics Assessment

Eligible Texas Essential Knowledge and Skills

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STAAR Grade 4 Mathematics Assessment

Reporting Category 1: Numbers, Operations, and Quantitative Reasoning

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

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

(A) use place value to read, write, compare, and order whole numbers through 999,999,999; and ***Supporting Standard***

(B) use place value to read, write, compare, and order decimals involving tenths and hundredths, including money, using [concrete objects and] pictorial models. ***Readiness Standard***

(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

(A) use [concrete objects and] pictorial models to generate equivalent fractions; ***Supporting Standard***

(B) model fraction quantities greater than one using [concrete objects and] pictorial models; ***Supporting Standard***

(C) compare and order fractions using [concrete objects and] pictorial models; and ***Supporting Standard***

(D) relate decimals to fractions that name tenths and hundredths using [concrete objects and] pictorial models. ***Readiness Standard***

(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

(A) use addition and subtraction to solve problems involving whole numbers; and ***Supporting Standard***

(B) add and subtract decimals to the hundredths place using [concrete objects and] pictorial models. ***Supporting Standard***

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

(A) model factors and products using arrays and area models; ***Supporting Standard***

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(B) represent multiplication and division situations in picture, word, and number form; ***Supporting Standard***

(C) recall and apply multiplication facts through 12 × 12; ***Supporting Standard***

(D) use multiplication to solve problems (no more than two digits times two digits without technology); and ***Readiness Standard***

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

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

(A) round whole numbers to the nearest ten, hundred, or thousand to approximate reasonable results in problem situations; and ***Supporting Standard***

(B) use strategies including rounding and compatible numbers to estimate solutions to multiplication and division problems. ***Supporting Standard***

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Reporting Category 2:
Patterns, Relationships, and Algebraic Reasoning

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

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

(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 $9 \times 9 = 81$ and $81 \div 9 = 9$); and ***Supporting Standard***

(B) use patterns to multiply by 10 and 100. ***Supporting Standard***

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

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

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Reporting Category 3:
Geometry and Spatial Reasoning

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

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

(A) identify and describe right, acute, and obtuse angles; ***Supporting Standard***

(B) identify and describe parallel and intersecting (including perpendicular) lines using [concrete objects and] pictorial models; and ***Supporting Standard***

(C) use essential attributes to define two- and three-dimensional geometric figures. ***Readiness Standard***

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

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

(C) use reflections to verify that a shape has symmetry. ***Supporting Standard***

(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

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

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Reporting Category 4: Measurement

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

(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

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

(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; ***Supporting Standard***

(C) use [concrete] models of standard cubic units to measure volume; ***Supporting Standard***

(D) estimate volume in cubic units; and ***Supporting Standard***

(E) explain the difference between weight and mass. ***Supporting Standard***

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

(A) use a thermometer to measure temperature and changes in temperature; and ***Supporting Standard***

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

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Reporting Category 5:
Probability and Statistics

The student will demonstrate an understanding of probability and statistics.

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

(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; and ***Supporting Standard***

(B) interpret bar graphs. ***Readiness Standard***

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Underlying Processes and Mathematical Tools

These skills will not be listed under a separate reporting category. Instead, they will be incorporated into at least 75% of the test questions in reporting categories 1–5 and will be identified along with content standards.

(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

(A) identify the mathematics in everyday situations;

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

(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; and

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

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

(4.16) **Underlying processes and mathematical tools.** The student uses logical reasoning. 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.

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