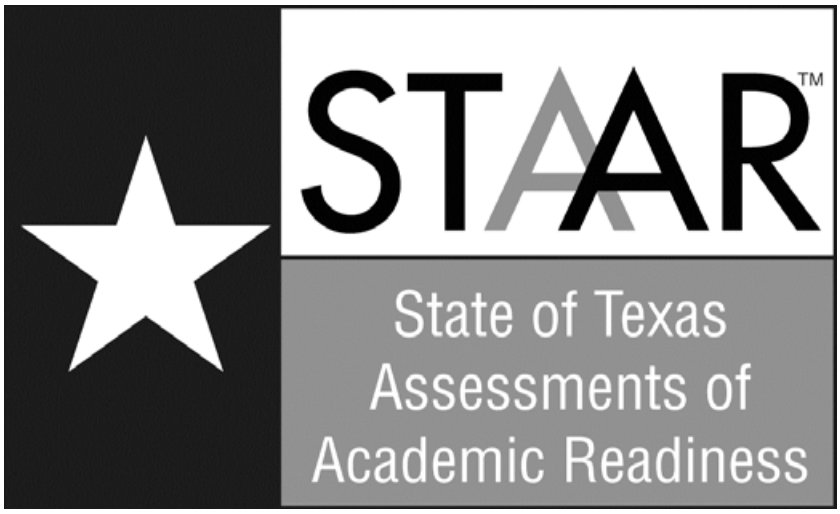

Grade 6 Mathematics Assessment

Eligible Texas Essential Knowledge and Skills

Texas Education Agency
Student Assessment Division
Fall 2010

STAAR Grade 6 Mathematics Assessment

Reporting Category 1: Numbers, Operations, and Quantitative Reasoning

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

(6.1) **Number, operation, and quantitative reasoning.** The student represents and uses rational numbers in a variety of equivalent forms. The student is expected to

(A) compare and order non-negative rational numbers; ***Supporting Standard***

(B) generate equivalent forms of rational numbers including whole numbers, fractions, and decimals; ***Readiness Standard***

(C) use integers to represent real-life situations; ***Supporting Standard***

(D) write prime factorizations using exponents; ***Supporting Standard***

(E) identify factors of a positive integer, common factors, and the greatest common factor of a set of positive integers; and ***Supporting Standard***

(F) identify multiples of a positive integer and common multiples and the least common multiple of a set of positive integers. ***Supporting Standard***

(6.2) **Number, operation, and quantitative reasoning.** The student adds, subtracts, multiplies, and divides to solve problems and justify solutions. The student is expected to

(A) model addition and subtraction situations involving fractions with [objects,] pictures, words, and numbers; ***Supporting Standard***

(B) use addition and subtraction to solve problems involving fractions and decimals; ***Readiness Standard***

(C) use multiplication and division of whole numbers to solve problems including situations involving equivalent ratios and rates; ***Readiness Standard***

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(D) estimate and round to approximate reasonable results and to solve problems where exact answers are not required; and
Supporting Standard

(E) use order of operations to simplify whole number expressions (without exponents) in problem solving situations.
Readiness 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.

(6.3) **Patterns, relationships, and algebraic thinking.** The student solves problems involving direct proportional relationships. The student is expected to

(A) use ratios to describe proportional situations; ***Supporting Standard***

(B) represent ratios and percents with [concrete] models, fractions, and decimals; and ***Supporting Standard***

(C) use ratios to make predictions in proportional situations. ***Readiness Standard***

(6.4) **Patterns, relationships, and algebraic thinking.** The student uses letters as variables in mathematical expressions to describe how one quantity changes when a related quantity changes. The student is expected to

(A) use tables and symbols to represent and describe proportional and other relationships such as those involving conversions, arithmetic sequences (with a constant rate of change), perimeter and area; and ***Readiness Standard***

(B) use tables of data to generate formulas representing relationships involving perimeter, area, volume of a rectangular prism, etc. ***Supporting Standard***

(6.5) **Patterns, relationships, and algebraic thinking.** The student uses letters to represent an unknown in an equation. The student is expected to

(A) formulate equations from problem situations described by linear relationships. ***Readiness Standard***

Reporting Category 3:
Geometry and Spatial Reasoning

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

(6.6) **Geometry and spatial reasoning.** The student uses geometric vocabulary to describe angles, polygons, and circles. The student is expected to

(A) use angle measurements to classify angles as acute, obtuse, or right; ***Supporting Standard***

(B) identify relationships involving angles in triangles and quadrilaterals; and ***Supporting Standard***

(C) describe the relationship between radius, diameter, and circumference of a circle. ***Readiness Standard***

(6.7) **Geometry and spatial reasoning.** The student uses coordinate geometry to identify location in two dimensions. The student is expected to

(A) locate and name points on a coordinate plane using ordered pairs of non-negative rational numbers. ***Supporting Standard***

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Reporting Category 4: Measurement

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

(6.8) **Measurement.** The student solves application problems involving estimation and measurement of length, area, time, temperature, volume, weight, and angles. The student is expected to

(A) estimate measurements (including circumference) and evaluate reasonableness of results; ***Supporting Standard***

(B) select and use appropriate units, tools, or formulas to measure and to solve problems involving length (including perimeter), area, time, temperature, volume, and weight; ***Readiness Standard***

(C) measure angles; and ***Supporting Standard***

(D) convert measures within the same measurement system (customary and metric) based on relationships between units. ***Supporting Standard***

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Reporting Category 5:
Probability and Statistics

The student will demonstrate an understanding of probability and statistics.

(6.9) **Probability and statistics.** The student uses experimental and theoretical probability to make predictions. The student is expected to

(A) construct sample spaces using lists and tree diagrams; and ***Supporting Standard***

(B) find the probabilities of a simple event and its complement and describe the relationship between the two. ***Supporting Standard***

(6.10) **Probability and statistics.** The student uses statistical representations to analyze data. The student is expected to

(A) select and use an appropriate representation for presenting and displaying different graphical representations of the same data including line plot, line graph, bar graph, and stem and leaf plot; ***Supporting Standard***

(B) identify mean (using [concrete objects and] pictorial models), median, mode, and range of a set of data; ***Supporting Standard***

(C) sketch circle graphs to display data; and ***Supporting Standard***

(D) solve problems by collecting, organizing, displaying, and interpreting data. ***Readiness Standard***

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Underlying Processes and Mathematical Tools

These skills will not be listed under a separate recording 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.

(6.11) **Underlying processes and mathematical tools.** The student applies Grade 6 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to

(A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;

(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 from a variety of different types, 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) select tools such as real objects, manipulatives, paper/pencil, and technology or techniques such as mental math, estimation, and number sense to solve problems.

(6.12) **Underlying processes and mathematical tools.** The student communicates about Grade 6 mathematics through informal and mathematical language, representations, and models. The student is expected to

(A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.

(6.13) **Underlying processes and mathematical tools.** The student uses logical reasoning to make conjectures and verify conclusions. The student is expected to

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

(B) validate his/her conclusions using mathematical properties and relationships.