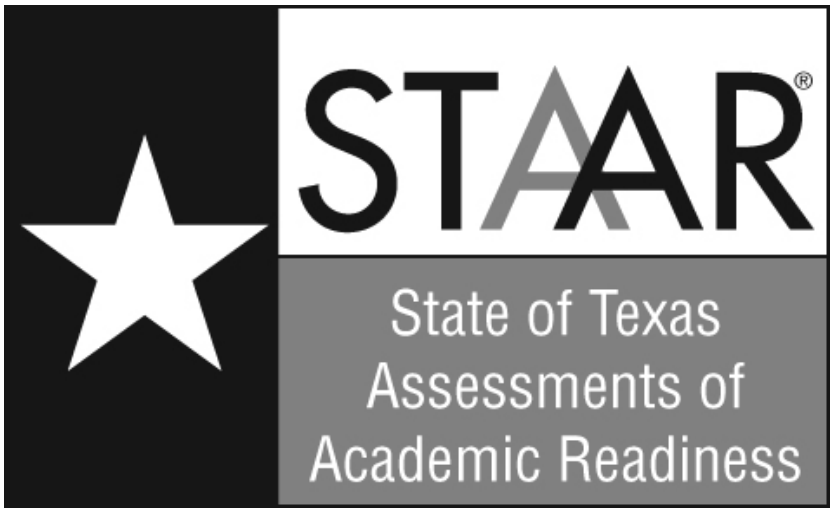

Grade 5 Mathematics Assessment

Eligible Texas Essential Knowledge and Skills

Texas Education Agency
Student Assessment Division
January 2014

STAAR Grade 5 Mathematics Assessment

Mathematical Process Standards

These student expectations will not be listed under a separate reporting category. Instead, they will be incorporated into test questions across reporting categories since the application of mathematical process standards is part of each knowledge statement.

(5.1) **Mathematical process standards.** The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to

(A) apply mathematics to problems arising in everyday life, society, and the workplace;

(B) use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution;

(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems;

(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate;

(E) create and use representations to organize, record, and communicate mathematical ideas;

(F) analyze mathematical relationships to connect and communicate mathematical ideas; and

(G) display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.

Texas Education Agency
Student Assessment Division
January 2014

Reporting Category 1:
Numerical Representations and Relationships

The student will demonstrate an understanding of how to represent and manipulate numbers and expressions.

(5.2) **Number and operations.** The student applies mathematical process standards to represent, compare, and order positive rational numbers and understand relationships as related to place value. The student is expected to

(A) represent the value of the digit in decimals through the thousandths using expanded notation and numerals; ***Supporting Standard***

(B) compare and order two decimals to thousandths and represent comparisons using the symbols >, <, or =; and ***Readiness Standard***

(C) round decimals to tenths or hundredths. ***Supporting Standard***

(5.4) **Algebraic reasoning.** The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to

(A) identify prime and composite numbers; ***Supporting Standard***

(E) describe the meaning of parentheses and brackets in a numeric expression; and ***Supporting Standard***

(F) simplify numerical expressions that do not involve exponents, including up to two levels of grouping. ***Readiness Standard***

Reporting Category 2:
Computations and Algebraic Relationships

The student will demonstrate an understanding of how to perform operations and represent algebraic relationships.

(5.3) **Number and operations.** The student applies mathematical process standards to develop and use strategies and methods for positive rational number computations in order to solve problems with efficiency and accuracy. The student is expected to

(A) estimate to determine solutions to mathematical and real-world problems involving addition, subtraction, multiplication, or division; ***Supporting Standard***

(B) multiply with fluency a three-digit number by a two-digit number using the standard algorithm; ***Supporting Standard***

(C) solve with proficiency for quotients of up to a four-digit dividend by a two-digit divisor using strategies and the standard algorithm; ***Supporting Standard***

(D) represent multiplication of decimals with products to the hundredths using objects and pictorial models, including area models; ***Supporting Standard***

(E) solve for products of decimals to the hundredths, including situations involving money, using strategies based on place-value understandings, properties of operations, and the relationship to the multiplication of whole numbers; ***Readiness Standard***

(F) represent quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using objects and pictorial models, including area models; ***Supporting Standard***

(G) solve for quotients of decimals to the hundredths, up to four-digit dividends and two-digit whole number divisors, using strategies and algorithms, including the standard algorithm; ***Readiness Standard***

(H) represent and solve addition and subtraction of fractions with unequal denominators referring to the same whole using objects and pictorial models and properties of operations; ***Supporting Standard***

(I) represent and solve multiplication of a whole number and a fraction that refers to the same whole using objects and pictorial models, including area models; ***Supporting Standard***

(J) represent division of a unit fraction by a whole number and the division of a whole number by a unit fraction such as 1/3 ÷ 7 and 7 ÷ 1/3 using objects and pictorial models, including area models; ***Supporting Standard***

(K) add and subtract positive rational numbers fluently; and ***Readiness Standard***

(L) divide whole numbers by unit fractions and unit fractions by whole numbers. ***Readiness Standard***

(5.4) **Algebraic reasoning.** The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to

(B) represent and solve multi-step problems involving the four operations with whole numbers using equations with a letter standing for the unknown quantity; ***Readiness Standard***

(C) generate a numerical pattern when given a rule in the form $y = ax$ or $y = x + a$ and graph; and ***Readiness Standard***

(D) recognize the difference between additive and multiplicative numerical patterns given in a table or graph. ***Supporting Standard***

Reporting Category 3:
Geometry and Measurement

The student will demonstrate an understanding of how to represent and apply geometry and measurement concepts.

(5.4) **Algebraic reasoning.** The student applies mathematical process standards to develop concepts of expressions and equations. The student is expected to

(H) represent and solve problems related to perimeter and/or area and related to volume. ***Readiness Standard***

(5.5) **Geometry and measurement.** The student applies mathematical process standards to classify two-dimensional figures by attributes and properties. The student is expected to

(A) classify two-dimensional figures in a hierarchy of sets and subsets using graphic organizers based on their attributes and properties. ***Readiness Standard***

(5.6) **Geometry and measurement.** The student applies mathematical process standards to understand, recognize, and quantify volume. The student is expected to

(A) recognize a cube with side length of one unit as a unit cube having one cubic unit of volume and the volume of a three-dimensional figure as the number of unit cubes (*n* cubic units) needed to fill it with no gaps or overlaps if possible; and ***Supporting Standard***

(B) determine the volume of a rectangular prism with whole number side lengths in problems related to the number of layers times the number of unit cubes in the area of the base. ***Supporting Standard***

(5.7) **Geometry and measurement.** The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving measurement. The student is expected to

(A) solve problems by calculating conversions within a measurement system, customary or metric. ***Supporting Standard***

(5.8) **Geometry and measurement.** The student applies mathematical process standards to identify locations on a coordinate plane. The student is expected to

(A) describe the key attributes of the coordinate plane, including perpendicular number lines (axes) where the intersection (origin) of the two lines coincides with zero on each number line and the given point (0, 0); the *x*-coordinate, the first number in an ordered pair, indicates movement parallel to the *x*-axis starting at the origin; and the *y*-coordinate, the second number, indicates movement parallel to the *y*-axis starting at the origin; ***Supporting Standard***

(B) describe the process for graphing ordered pairs of numbers in the first quadrant of the coordinate plane; and ***Supporting Standard***

(C) graph in the first quadrant of the coordinate plane ordered pairs of numbers arising from mathematical and real-world problems, including those generated by number patterns or found in an input-output table. ***Readiness Standard***

Texas Education Agency
Student Assessment Division
January 2014

Reporting Category 4:
Data Analysis and Personal Financial Literacy

The student will demonstrate an understanding of how to represent and analyze data and how to describe and apply personal financial concepts.

(5.9) **Data analysis.** The student applies mathematical process standards to solve problems by collecting, organizing, displaying, and interpreting data. The student is expected to

(A) represent categorical data with bar graphs or frequency tables and numerical data, including data sets of measurements in fractions or decimals, with dot plots or stem-and-leaf plots;
Supporting Standard

(B) represent discrete paired data on a scatterplot; and
Supporting Standard

(C) solve one- and two-step problems using data from a frequency table, dot plot, bar graph, stem-and-leaf plot, or scatterplot.
Readiness Standard

(5.10) **Personal financial literacy.** The student applies mathematical process standards to manage one's financial resources effectively for lifetime financial security. The student is expected to

(A) define income tax, payroll tax, sales tax, and property tax;
Supporting Standard

(B) explain the difference between gross income and net income;
Supporting Standard

(E) describe actions that might be taken to balance a budget when expenses exceed income; and ***Supporting Standard***

(F) balance a simple budget. ***Supporting Standard***

Texas Education Agency
Student Assessment Division
January 2014