

## Course/Grade Level: Grade Six Math Curriculum

**Focus:** Students will perform the four operations on whole numbers, decimals, fractions, and mixed numbers; convert fractions to percents and percents to fractions; analyze, manipulate and create two- and three-dimensional shapes; interpret and manipulate data; and compute probability. They will apply these skills to determine the most reasonable solution to real-world problems.

**M.6.1** **Students will demonstrate number sense for whole numbers, fractions, decimals, and integers in a variety of situations.** Students will...

- M.6.1.1 ▲ compare and order integers. **(6.1.1.K2a)**
- M.6.1.2 ▲ compare and order fractions greater than or equal to zero. **(6.1.1.K2b)**
- M.6.1.3 ▲ compare and order decimals greater than or equal to zero through thousandths place. **(6.1.1.K2c)**
- M.6.1.4 plot rational numbers on a number line. (6.1.1.K2)
- M.6.1.5 identify place value from billions to hundred-thousandths place. (6.1.1.A2c)
- M.6.1.6 define the meaning of prime and composite numbers and identify prime and composite numbers from 0 to 100. (6.1.2.K2)
- M.6.1.7 find the prime factorization of whole numbers. (6.1.4.K4)
- M.6.1.8 classify subsets of the rational number system as integers. (6.1.2.K1)
- M.6.1.9 perform and explain procedures to find the root of perfect whole number squares. (6.1.4.K2)

**M.6.2 Students will demonstrate the relationships between fractions, decimals, and percents in a variety of situations. Students will...**

- M.6.2.1 ▲ show and explain numerical relationships between percents, decimals, and fractions between 0 and 1 by converting:
- a. fractions to decimals
  - b. decimals to percents
  - c. percents to decimals
  - d. decimals to fractions
- (6.1.1K4)**
- M.6.2.2 find a whole number percent (between 0 and 100) of a whole number. e.g., 25% of 16 equals 4; 12% of 40 is what number? (6.1.4.K6)

**M.6.3 Students will demonstrate the ability to calculate with whole numbers, fractions, mixed numbers, and decimals; using both conventional algorithms and mental math. Students will...**

- M.6.3.1 ▲ perform and explain division of whole numbers through a four-digit dividend and a two-digit divisor and express the remainder as a whole number, fraction, or decimal. **(6.1.4.K2a)**
- M.6.3.2 perform and explain computational procedures using basic order of operations with whole numbers. (6.1.4.K2)
- M.6.3.3 describe the distributive property and use it to perform calculations. (6.1.2.K3)
- M.6.3.4 multiply and divide using numbers from thousands place through thousandths place by 10; 100; 1,000; .1; .01; .001; or single-digit multiples of each e.g.,  $54.2 \div .002$  or  $54.3 \times 300$  (6.1.4.2Kd)
- M.6.3.5 ▲ perform and explain addition of fractions (including mixed numbers) with like and unlike denominators, expressing answers in simplest form. **(6.1.4.K2f)**
- M.6.3.6 ▲ perform and explain subtraction of fractions (including mixed numbers) with like and unlike denominators, expressing answers in simplest form. **(6.1.4.K2f)**
- M.6.3.7 ▲ perform and explain multiplication of fractions (including mixed numbers) with like and unlike denominators, expressing answers in simplest form. **(6.1.4.K2f)**
- M.6.3.8 perform and explain division of fractions, including mixed numbers.
- M.6.3.9 perform and explain computational procedures to add integers. (6.1.4.K2e)
- M.6.3.10 ▲ generate and/or solve one- and-two step real-world problems with rational numbers using the computational procedures addition, subtraction, multiplication, and division of decimals through hundredths place. **(6.1.4.A1b)**

**M.6.4 Students will determine the solution to real-world problems utilizing probability and the analysis and manipulation of data in various representations (graphs, tables, plots, etc.). Students will...**

- M.6.4.1 ▲ list all possible outcomes of an experiment or simulation with a compound event composed of two independent events in a clear and organized way. **(6.4.1.K2)**
- M.6.4.2 ▲ represent the probability of a simple event in an experiment or simulation using fractions and decimals. **(6.4.1.K4)**
- M.6.4.3 make predictions using box-and-whisker plot and scatter plot. (6.4.1.K1)

**M.6.5 Students will demonstrate the understanding of various algebraic concepts including: one-step equations, patterns, coordinate graphing, properties, and inequality symbols, in a variety of situations. Students will...**

- M.6.5.1 ▲ represent real-world problems using variables and symbols to write and/or solve one-step equations (addition, subtraction, multiplication, division). **(6.2.2.A1b)**
- M.6.5.2 ▲ state the rule to find the next number of a pattern with one operational change (addition, subtraction, multiplication, division) to move between consecutive terms. **(6.2.1.K4)**
- M.6.5.3 ▲ use all four quadrants of the coordinate plane to identify the ordered pairs of integer values on a given graph. **(6.3.4.K3a)**
- M.6.5.4 ▲ use all four quadrants of the coordinate plane to plot the ordered pairs of integer values. **(6.3.4.K3b)**
- M.6.5.5 explain and utilize the substitution property. (6.1.2.K.3)
- M.6.5.6 use equality and inequality symbols and corresponding meanings to represent mathematical relationships with positive rational numbers. (6.2.K.A)
- M.6.5.7 distinguish the relationship between ratios, proportions, and percents and find the missing term in simple proportions where the missing term is a whole number (6.2.2.K5)

**M.6.6 Students will demonstrate the ability to solve real-world problems using mental math, estimation, and rounding in a variety of situations.**

Students will ...

- M.6.6.1 determine the reasonableness of answers by estimation. (6.1.3.K4)
- M.6.6.2 round whole and decimal numbers from the billions to the hundred-thousandths place.
- M.6.6.3 ▲ estimate to check whether or not the result of a real-world problem using rational numbers and/or the irrational number  $\pi$  is reasonable and make predictions based on the information. **(6.1.3.A2)**
- M.6.6.4 determine whole number estimations for length, width, weight, volume, temperature, time, perimeter and area, using standard and nonstandard units of measure. (6.3.2.K1)
- M.6.6.5 perform mental math multiplication and division by powers of 10 up to one million [prerequisite to tested item on metric conversions]. (6.1.4.K2)

**M.6.7 Students will demonstrate various geometric concepts including angles, two- and three-dimensional shapes, transformations, and measurement; and will utilize standard and metric units.**

Students will ...

- M.6.7.1 ▲ classify angles at right, obtuse, acute, or straight. **(6.3.1.K7a)**
- M.6.7.2 ▲ classify triangles as right, obtuse, acute, scalene, isosceles, or equilateral. **(6.3.1.K7b)**
- M.6.7.3 identify the sum of interior angles of any triangle is 180 degrees. (6.3.1.K9)
- M.6.7.4 ▲ identify, describe, and perform one or two transformations (reflection, rotation, translation) on a two-dimensional figure. **(6.3.3.K1)**
- M.6.7.5 ▲ solve real-world problems by applying the formulas of areas of squares, rectangles, and triangles using the same unit of measurement. **(6.3.2.A1b)**
- M.6.7.6 ▲ solve real-world problems by applying the formulas for perimeter of regular and irregular polygons using the same unit of measurement. **(6.3.2.A1a)**
- M.6.7.7 classify regular/irregular polygons through 10 sides including all special quadrilaterals, emphasizing rhombus and trapezoids. (6.3.1.K1)
- M.6.7.8 demonstrate how to compose and decompose nets. (6.3.1.A2, 6.3.1.A3)
- M.6.7.9 demonstrate the ability to measure customary units of measure to the nearest sixteenth of an inch and metric units of measure to the nearest millimeter. (6.3.2.K4, 6.3.2.K6)
- M.6.7.10 perform calculations of the volume of rectangular prisms using concrete objects. (6.3.2.K.7)
- M.6.7.11 ▲ convert within the metric system using the prefixes kilo, hector, deka, deci, centi, and milli. **(6.3.2.K3b)**