Mathematics MA.6.

Big Idea 1: Develop an understanding of and fluency with multiplication and division of fractions and decimals

____ A.1.1 Explain and justify procedures for multiplying and dividing fractions and decimals.
____ A.1.2 Multiply & divide fractions and decimals efficiently.
____ A.1.3 Develop an understanding of and fluency with multiplication and division of fractions and decimals

Big Idea 2: Connect ratio/ rates to multiplication & division

____ A.2.1 Use reasoning about multiplication and division to solve ratio and rate problems
____ A.2.2 Interpret and compare ratios and rates

Big Idea 3: Write, interpret, and use mathematical expressions and equations.

____ G.3.1 Write and evaluate mathematical expressions that correspond to given situations.
____ G.3.2 Write, solve, and graph one- and two- step linear equations and inequalities.
____ G.3.3 Work backward with two-step function rules to undo expressions.
____ G.3.4 Solve problems given a formula
____ G.3.5 Apply the Commutative, Associative, Distributive Properties to show that two expressions are equivalent
____ G.3.6Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation

Supporting Idea 4: Geometry and Measurement

____ A.4.1Understand the concept of Pi, know common estimates of Pi (3.14 22/7) and use these values to estimate and calculate the circumference and the area of circles.
____ A.4.2Find the perimeters and areas of composite two-dimensional figures, including non-rectangular figures (such as semicircles) using various strategies.
____ A.4.3Determine a missing dimension of a plane figure or prism given its area or volume and some of the dimensions, or determine the area or volume given the dimensions.

Supporting Idea 5: Numbers and Operations

____ G.5.1 Use equivalent forms of fractions, decimals, and percents to solve problems
____ G.5.2 Compare and order fractions, decimals, and percents, including finding their approximate location on a number line
____ G.5.3 Estimate the results of computations with fractions, decimals, and percents, and judge the reasonableness of the results

Supporting Idea 6: Data Analysis

____ A.6.1 Determine measures of central tendency (mean, median, mode) & variability (range) for given set of data
____ A.6.2 Select and analyze the measures of central tendency or variability to represent, describe, analyze, and/or summarize a data set for the purposes of answering questions appropriately

Mathematics MA.7.

Big Idea 1: Develop an understanding of and apply proportionality, including similarity.

____ A.1.1 Distinguish between situations that are proportional or not proportional, and use proportions to solve problems
____ A.1.2 Solve percent problems, involving discounts, simple interest, taxes, tips, and percents of increase or decrease
____ A.1.3 Solve problems involving similar figures
____ A.1.4Graph proportional relationships and identify the unit rate as the slope of the related linear function
____ A.1.5Distinguish direct variation from other relationships, including inverse variation
____ A.1.6Apply proportionality to measurement in multiple contexts, including scale drawings and constant speed

Big Idea 2: Develop understanding, formulas to determine surface areas /volumes three-dimensional shapes

____ A.2.1 Justify and apply formulas for surface area and volume of pyramids, prisms, cylinders, and cones
____ A.2.2 Use formulas to find surface areas and volume of three-dimensional composite shapes

Big Idea 3: Develop an understanding of operations on all rational numbers and solving linear equations.

____ G.3.1 Use and justify the rules for adding, subtracting, multiplying, dividing, and finding the absolute value of integers.
____ G.3.2 Add, subtract, multiply, and divide integers, fractions, and terminating decimals, and perform exponential operations with rational bases and whole number exponents including solving problems in everyday contexts.
____ G.3.3 Formulate and use different strategies to solve one-step and two-step linear equations, including equations with rational coefficients
____ G.3.4 Use the properties of equality to represent an equation in a different way and to show that two equations are equivalent in a given context

Supporting Idea 4: Geometry and Measurement

____ A.4.1Determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures, and apply these relationships to solve problems
____ A.4.2Predict the results of transformations, and draw transformed figures with and without the coordinate plane
____ A.4.3Identify and plot ordered pairs in all four quadrants of the coordinate plane.
____ A.4.4Compare, contrast, and convert units of measure between different measurement systems (US customary or metric (SI)), dimensions, and derived units to solve problems

Supporting Idea 5: Numbers and Operations

____ G.5.1 Express rational numbers as terminating or repeating decimals
____ G.5.2 Solve non-routine problems by working backwards

Supporting Idea 6: Data Analysis

____ A.6.1 Evaluate the reasonableness of a sample to determine the appropriateness of generalizations made about the population
____ A.6.2 Construct and analyze histograms, stem-and-leaf plots, and circle graphs.

Supporting Idea 7: Probability

____ A.7.1 Determine the outcome of an experiment and predict which events are likely or unlikely, and if the experiment is fair or unfair
____ A.7.2 Determine, compare, make predictions based on experimental / theoretical probability of (in)dependent events

Mathematics MA.8.

Big Idea 1: Analyze and represent linear functions, and solve linear equations and systems of linear equations.

____ A.1.1 Create and interpret tables, graphs, and models to represent, analyze, and solve problems related to linear equations, including analysis of domain, range, and the difference between discrete and continuous data.

____ A.1.2 Interpret the slope and the x- and y-intercepts when graphing a linear equation for a real-world problem

____ A.1.3 Use tables, graphs, and models to represent, analyze, and solve real-world problems related to systems of linear equations

____ A.1.4 Identify the solution to a system of linear equations using graphs

____ A.1.5Translate among verbal, tabular, graphical and algebraic representations of linear functions

____ A.1.6Compare the graphs of linear and non-linear functions for real-world situations

Big Idea 2: Analyze two- and three-dimensional figures by using distance and angle.

____ A.2.1 Use similar triangles to solve problems that include height and distances

____ A.2.2 Classify and determine the measure of angles, including angles created when parallel lines are cut by transversals

____ A.2.3 Demonstrate that the sum of the angles in a triangle is 180-degrees and apply this fact to find unknown measure of angles, and the sum of angles in polygons

____ A.2.4Validate and apply Pythagorean Theorem to find distances in real world situations or between points in the coordinate plane

Big Idea 3: Develop an understanding of operations on all rational numbers and solving linear equations.

____ G.3.1 Select, organize and construct appropriate data displays, including box and whisker plots, scatter plots, and lines of best fit to convey information and make conjectures about possible relationships.

____ G.3.2 Determine and describe how changes in data values impact measures of central tendency.

Supporting Idea 4: Algebra

____ A.4.1Solve literal equations for a specified variable

____ A.4.2Solve and graph one- and two-step inequalities in one variable

Supporting Idea 5: Geometry and Measurement

____ G.5.1 Compare, contrast, and convert units of measure between different measurement systems (US customary or metric (SI)) and dimensions including temperature, area, volume, and derived units to solve problems

Supporting Idea 6: Numbers and Operations

____ A.6.1 Use exponents and scientific notation to write large and small numbers and vice versa and to solve problems

____ A.6.2 Make reasonable approximations of square roots and mathematical expressions that include square roots, and use them to estimate solutions to problems and to compare mathematical expressions involving real numbers and radical expressions

____ A.6.3 Simplify real number expressions using the laws of exponents

____ A.6.24Perform operations on real numbers (including integer exponents, radicals, percents, scientific notation, absolute value, rational numbers, and irrational numbers) using multi-step and real world problems