

Next Generation Sunshine State Mathematics Standards	Boardworks Middle School Math Presentations
Grade 6	
Big Idea 1: Develop an understanding of and fluency with multiplication and division of fractions and decimals.	
MA.6.A.1.1 Explain and justify procedures for multiplying and dividing fractions and decimals.	Multiplying fractions Dividing by fractions Finding a fraction of an amount Multiplying and dividing by 0.1 and 0.01 Multiplying by numbers between 0 and 1 Written methods for multiplication Written methods for division Mental multiplication Mental division
MA.6.A.1.2 Multiply and divide fractions and decimals efficiently.	Multiplying fractions Dividing by fractions Finding a fraction of an amount Multiplying and dividing by 0.1 and 0.01 Multiplying by numbers between 0 and 1 Written methods for multiplication Written methods for division Mental multiplication Mental division
MA.6.A.1.3 Solve real-world problems involving multiplication and division of fractions and decimals.	Finding a fraction of an amount
Big Idea 2: Connect ratio and rates to multiplication and division.	
MA.6.A.2.1 Use reasoning about multiplication and division to solve ratio and rate problems.	Dividing in a given ratio Direct proportion Ratio and rate

MA.6.A.2.2 Interpret and compare ratios and rates.	Ratio and rate
Big Idea 3: Write, interpret, and use mathematical expressions and equations.	
MA.6.A.3.1 Write and evaluate mathematical expressions that correspond to given situations.	Writing expressions Introducing formulas Substitution
MA.6.A.3.2 Write, solve, and graph one- and two- step linear equations and inequalities.	Writing expressions Solving simple equations Function machines Mapping functions Graphs of functions Direct variations Inequalities Inequalities on a number line Integer solutions for inequalities Solving linear inequalities
MA.6.A.3.3 Work backward with two-step function rules to undo expressions.	Inverse functions
MA.6.A.3.4 Solve problems given a formula.	Introducing formulas Using formulas Transforming formulas Area Area of irregular shapes Area problems Volume
MA.6.A.3.5 Apply the Commutative, Associative, and Distributive Properties to show that two expressions are equivalent.	Properties of numbers Writing expressions Multiplying algebraic terms Dividing algebraic terms
MA.6.A.3.6 Construct and analyze tables, graphs, and equations to describe linear functions and other simple relations using both common language and algebraic notation.	Mapping functions Graphs of functions Direct variations

Supporting Idea 4: Geometry and Measurement	
MA.6.G.4.1 Understand 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.	Circumference of a circle Area of a circle
MA.6.G.4.2 Find the perimeters and areas of composite two-dimensional figures, including non-rectangular figures (such as semicircles) using various strategies.	Perimeter Area Area of irregular shapes Area problems Circumference of a circle Area of a circle
MA.6.G.4.3 Determine 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.	Area Area of irregular shapes Area problems Area of a circle Volume Using formulas
Supporting Idea 5: Number and Operations	
MA.6.A.5.1 Use equivalent forms of fractions, decimals, and percents to solve problems.	Equivalent fractions, decimals and percentages Fractions and decimals Equivalent fractions Introducing percentages Multiplying and dividing by 0.1 and 0.01 Methods for adding and subtracting fractions
MA.6.A.5.2 Compare and order fractions, decimals, and percents, including finding their approximate location on a number line.	Equivalent fractions, decimals and percentages Fractions and decimals Equivalent fractions Ordering fractions Ordering decimals

MA.6.A.5.3 Estimate the results of computations with fractions, decimals, and percents, and judge the reasonableness of the results.	Estimation and approximation Mental math and place value Mental math puzzles
Supporting Idea 6: Data Analysis	
MA.6.S.6.1 Determine the measures of central tendency (mean, median, mode) and variability (range) for a given set of data.	Calculating the mean Finding the median Finding the mode Finding the range
MA.6.S.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.	Calculating the mean Finding the median Finding the mode Finding the range Calculating statistics
Grade 7	
Big Idea 1: Develop an understanding of and apply proportionality, including similarity.	
MA.7.A.1.1 Distinguish between situations that are proportional or not proportional, and use proportions to solve problems.	Direct proportion Ratio and proportion problems Dividing in a given ratio Using scale factors
MA.7.A.1.2 Solve percent problems, including problems involving discounts, simple interest, taxes, tips, and percents of increase or decrease.	Calculating percentages mentally Calculating percentages on paper Calculating percentages with a calculator Percentage change Percentages and inverse operations

MA.7.A.1.3 Solve problems involving similar figures.	Congruence Finding missing lengths
MA.7.A.1.4 Graph proportional relationships and identify the unit rate as the slope of the related linear function.	Direct variations
MA.7.A.1.5 Distinguish direct variation from other relationships, including inverse variation.	Direct variations
MA.7.A.1.6 Apply proportionality to measurement in multiple contexts, including scale drawings and constant speed.	Scale drawings Using scale factors
Big Idea 2: Develop an understanding of and use formulas to determine surface areas and volumes of three-dimensional shapes.	
MA.7.G.2.1 Justify and apply formulas for surface area and volume of pyramids, prisms, cylinders, and cones.	Surface area Volume Using formulas Cylinders, cones and spheres Formulas for shapes
MA.7.G.2.2 Use formulas to find surface areas and volume of three-dimensional composite shapes.	Surface area Volume
Big Idea 3: Develop an understanding of operations on all rational numbers and solving linear equations.	
MA.7.A.3.1 Use and justify the rules for adding, subtracting, multiplying, dividing, and finding the absolute value of integers.	Absolute value Adding and subtracting integers Adding and subtracting integers activities Multiplying and dividing integers

<p>MA.7.A.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.</p>	<p>Adding and subtracting integers Adding and subtracting integers activities Multiplying and dividing integers Adding and subtracting simple fractions Methods for adding and subtracting fractions Multiplying fractions Dividing by fractions Finding a fraction of an amount Multiplying and dividing by 0.1 and 0.01 Multiplying by numbers between 0 and 1 Mental math puzzles Mental multiplication Mental division Mental math and place value Written methods for addition and subtraction Written methods for multiplication Written methods for division Powers</p>
<p>MA.7.A.3.3 Formulate and use different strategies to solve one-step and two-step linear equations, including equations with rational coefficients.</p>	<p>Solving simple equations Writing expressions</p>
<p>MA.7.A.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.</p>	<p>-</p>
<p>Supporting Idea 4: Geometry and Measurement</p>	
<p>MA.7.G.4.1 Determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures, and apply these relationships to solve problems.</p>	<p>-</p>
<p>MA.7.G.4.2 Predict the results of transformations, and draw transformed figures with and without the coordinate plane.</p>	<p>Reflection Rotation Translation Dilation Combining transformations</p>

MA.7.G.4.3 Identify and plot ordered pairs in all four quadrants of the coordinate plane.	Introducing coordinates Quadrilaterals on a coordinate grid Reading and plotting graphs Graphs of functions
MA.7.G.4.4 Compare, contrast, and convert units of measure between different measurement systems (US customary or metric (SI)), dimensions, and derived units to solve problems.	Customary unit conversions Converting metric units Ratio and proportion problems
Supporting Idea 5: Number and Operations	
MA.7.A.5.1 Express rational numbers as terminating or repeating decimals.	Rational and irrational numbers Fractions and decimals Equivalent fractions, decimals and percentages
MA.7.A.5.2 Solve non-routine problems by working backwards.	-
Supporting Idea 6: Data Analysis	
MA.7.S.6.1 Evaluate the reasonableness of a sample to determine the appropriateness of generalizations made about the population.	Population and sampling
MA.7.S.6.2 Construct and analyze histograms, stem-and-leaf plots, and circle graphs.	Histograms Appropriate graphs Calculating statistics Circle graphs
Supporting Idea 7: Probability	
MA.7.P.7.1 Determine the outcome of an experiment and predict which events are likely or unlikely, and if the experiment is fair or unfair.	Experimental probability The probability scale The language of probability
MA.7.P.7.2 Determine, compare, and make predictions based on experimental or theoretical probability of independent or dependent events.	Experimental probability Calculating probability part 1 Calculating probability part 2

Grade 8	
Big Idea 1: Analyze and represent linear functions, and solve linear equations and systems of linear equations.	
	Function notation and relations Histograms Organizing data Bar graphs Mapping functions Graphs of functions Reading and plotting graphs
MA.8.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.	
MA.8.A.1.2 Interpret the slope and the x- and y-intercepts when graphing a linear equation for a real-world problem.	Direct variations
MA.8.A.1.3 Use tables, graphs, and models to represent, analyze, and solve real-world problems related to systems of linear equations.	-
MA.8.A.1.4 Identify the solution to a system of linear equations using graphs.	Systems of linear equations
	Graphs of functions The equation of a straight line Direct variations
MA.8.A.1.5 Translate among verbal, tabular, graphical, and algebraic representations of linear functions.	
MA.8.A.1.6 Compare the graphs of linear and non-linear functions for real-world situations.	Direct variations
Big Idea 2: Analyze two- and three-dimensional figures by using distance and angle.	
MA.8.G.2.1 Use similar triangles to solve problems that include height and distances.	Finding missing lengths
MA.8.G.2.2 Classify and determine the measure of angles, including angles created when parallel lines are cut by transversals.	Calculating angles Angles made with parallel lines
MA.8.G.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.	Angles in a triangle Angles in polygons The sum of interior and exterior angles

MA.8.G.2.4 Validate and apply Pythagorean Theorem to find distances in real world situations or between points in the coordinate plane.	Pythagorean Theorem Calculating sides of right triangles
Big Idea 3: Analyze and summarize data sets.	
MA.8.S.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.	Quartiles and box plots Scatter plots
MA.8.S.3.2 Determine and describe how changes in data values impact measures of central tendency.	Calculating statistics
Supporting Idea 4: Algebra	
MA.8.A.4.1 Solve literal equations for a specified variable.	Transforming formulas
MA.8.A.4.2 Solve and graph one- and two-step inequalities in one variable.	Solving linear inequalities Inequalities on a number line
Supporting Idea 5: Geometry and Measurement	
MA.8.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.	Customary unit conversions Converting metric units
Supporting Idea 6: Number and Operations	
MA.8.A.6.1 Use exponents and scientific notation to write large and small numbers and vice versa and to solve problems.	Scientific notation Powers
MA.8.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.	Square roots Estimation and approximation
MA.8.A.6.3 Simplify real number expressions using the laws of exponents.	Powers

<p>MA.8.A.6.4 Perform 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.</p>	<p>Powers Calculating percentages mentally Calculating percentages on paper Calculating percentages with a calculator Comparing proportions Percentage change Percentages and inverse operations Scientific notation Absolute value Rational and irrational numbers Circumference of a circle Area of a circle Cylinders, cones and spheres Sequences from practical contexts</p>
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