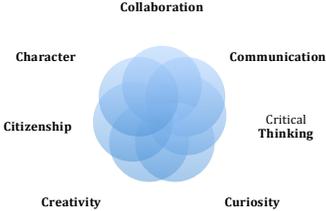


Content Area	Course: Math	Grade Level: 6
<p>Grade 6 Mathematics</p> 	<p>R14 The Seven Cs of Learning</p> 	
Unit Titles	Length of Unit	
Operating with Positive Rational Numbers	7 weeks	
Ratios and Proportions	7 weeks	
Extending the System of Rational Numbers	4 weeks	
Algebraic Reasoning	4 weeks	
Equations and Inequalities	5 weeks	
Geometry	7 weeks	
Statistical Reasoning	4 weeks	



Strands	Course Level Expectations
Ratios and Proportional Relationships	<ul style="list-style-type: none"> • Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities • Understand the concept of unit rate associated with a ratio • Use ratio and rate reasoning to solve real world and mathematical problems • Solve problems involving percent
The Number System	<ul style="list-style-type: none"> • Extend previous understanding of multiplication and division with fractions to divide a fraction by a fraction • Finalize fluency with multidigit addition, subtraction, multiplication, and division with whole numbers and decimals • Solve problems involving greatest common factor and least common multiple • Extend previous understanding of rational numbers to include negative quantities • Graph points in all four quadrants of the coordinate plane
Expressions & Equations	<ul style="list-style-type: none"> • Use variables to represent quantities • Analyze quantitative relationships between dependent and independent variables • Evaluate expressions containing exponents • Apply properties of operations to generate equivalent expressions • Represent, interpret, and solve simple algebraic equations and inequalities containing one variable
Geometry	<ul style="list-style-type: none"> • Solve real world and mathematical problems involving area, surface area, and volume • Represent three-dimensional figures using nets • Draw polygons in the coordinate plane
Statistics & Probability	<ul style="list-style-type: none"> • Develop understanding of statistical variability • Summarize and describe distributions both graphically and by computing quantitative measures

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Unit Title	Operating with Positive Rational Numbers	Length of Unit	7 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What is the relationship between multiplication and division of fractions? • How do we divide multi-digit whole numbers most efficiently? • What is the relationship between operating with whole numbers and decimals? • How can the least common multiple or greatest common factor be useful in solving problems?
Standards	The Number System: 6.NS.1, 6.NS.2, 6.NS.3, 6.NS.4
Unit Strands & Concepts	<ul style="list-style-type: none"> • Relationship between multiplication and division of whole numbers, fractions, and decimals • Unitizing • Base ten place value patterns • Relationship between factors and multiples
Key Vocabulary	Dividend, Divisor, Quotient, Greatest common factor, Least common multiple, Reciprocal

Unit Title	Operating with Positive Rational Numbers	Length of Unit	7 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> Numbers can be expressed in different base ten units (i.e. 120 ones=12 tens= 1 hundred and 2 tens or 3.48=3 ones and 48 hundredths, 34 tenths and eight hundredths, 348 hundredths, etc). Division problems with large numbers can be decomposed into several smaller problems. Why it is possible to have a least common multiple, but not a greatest common multiple The relationship between multiplication and division when dividing with fractional quantities. Division can produce quotients greater than, equal to, or less than one depending on the relationship between the dividend and divisor. 	<ul style="list-style-type: none"> Represent and apply both the quotative and partitive models of division when working with fractional amounts Fluently divide multi-digit whole numbers using the standard algorithm. Represent numbers in different units (i.e. 120 ones or 12 tens, 3.5 or 35 tenths). Decompose numbers in order to simplify larger division problems. Use various concrete and pictorial models to represent division with fractions and decimals. Assess the reasonableness of answers using mental computation and estimation strategies including rounding and using fractional and decimal benchmarks Fluently add, subtract, multiply and divide decimals using strategies and algorithms based on place value and the properties of operations. Find the greatest common factor or least common multiple of two whole numbers Justify why finding the greatest common factor or least common multiple of a set of numbers can be helpful in certain problem situations.

Assessments:	Performance task focused on strategies for dividing fractions, operating with decimals, composing and decomposing numbers efficiently, unitizing, equivalence, and application of greatest common factor and least common multiple
Teacher Resources:	Engage NY, 3 Act Task Bank, CCSS aligned anchor tasks, Illustrative Mathematics, Georgia Department of Education CCSS aligned tasks, North Carolina Department of Instruction, CCSS aligned tasks.

Unit Title	Ratios and Proportions	Length of Unit	7 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How are fractions, percents and ratios similar/different? • What is a proportional relationship? • How can a unit rate be useful in solving problems? • What strategies are most efficient for finding equivalent ratios?
Standards	Ratios and Proportional Relationships: 6.RP.1, 6.RP.2, 6.RP.3
Unit Strands & Concepts	<ul style="list-style-type: none"> • Multiplicative Comparisons • Equivalence • Proportional relationships • Relationship between percent and fractions, decimals, and ratios
Key Vocabulary	Ratio, Part-to-part ratio, part-to whole-ratio, Rate, Unit Rate, Percent, Proportional relationship, Equivalent ratios

Unit Title	Ratios and Proportions	Length of Unit	7 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • Understand percent as a specific type of rate (i.e. per 100). • The difference between a fraction and a ratio • The relationship between a percent, fraction, and decimal • All ratios have an associated unit rate (i.e. 3 ft for every 2 sec has the associated unit rate of $3/2$ feet per sec, or $2/3$ sec per foot). • Equivalent ratios represent examples of proportional relationships • Equivalent ratios have the same unit rate • The difference between equivalent ratios and equivalent fractions • Equivalent ratios represent a multiplicative relationship rather than an additive relationship. 	<ul style="list-style-type: none"> • Express ratios both in words as well as in different notations (i.e. using a colon or fraction bar) • Recognize and interpret ratios in context • Find a unit rate given a ratio • Use multiplication and division to find equivalent ratios • Represent equivalent ratios using models, double number line diagrams, and ratio tables • Justify the usefulness of finding the unit rate when solving certain types of problems • Solve problems which involve finding the percent of a given quantity, or the whole given a part and a percent • Apply understanding of ratios to solve problems in context

Assessments:	Performance task focused on proportional reasoning, part-whole relationships, and equivalence
Teacher Resources:	Engage NY, 3 Act Task Bank, CCSS aligned anchor tasks, Illustrative Mathematics, Georgia Department of Education CCSS aligned tasks, North Carolina Department of Instruction, CCSS aligned tasks.

Unit Title	Extending the System of Rational Numbers	Length of Unit	4 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What is the relationship between a number’s magnitude and its absolute value? • How are positive and negative numbers represented in real world contexts? • How is absolute value represented in real world contexts? • How is the coordinate grid helpful in representing data represented as an ordered pair?
Standards	The Number System: 6.NS.5, 6.NS.6, 6.NS.7, 6.NS.8
Unit Strands & Concepts	<ul style="list-style-type: none"> • Magnitude vs. Absolute Value • Rational numbers • Transformations • Numeric order
Key Vocabulary	Rational number, Opposite, Coordinate grid, Ordered pair, X axis, Y axis, Quadrant, Absolute value, Inequality, Integer

Unit Title	Extending the System of Rational Numbers	Length of Unit	4 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • Positive and negative numbers are used together to describe quantities having opposite directions or values • Understand a rational number as a point on the number line. • Opposite signs of numbers as indicating locations on opposite sides of 0 on the number line • The opposite of the opposite of a number is the number itself, and that 0 is its own opposite. • Statements of inequality refer to the relative position of two numbers on a number line diagram. • Absolute value of a rational number as its distance from 0 on the number line • When two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. 	<ul style="list-style-type: none"> • Use positive and negative numbers to represent quantities in real world contexts, explaining the meaning of 0 in each situation. • Order rational numbers on both vertical and horizontal number lines • Interpret statements of inequality • Write, interpret, and explain statements of order for rational numbers in real-world contexts. • Interpret absolute value as magnitude for a positive or negative quantity in a real-world situation • Distinguish comparisons of absolute value from statements about order. • Graph points in all four quadrants of the coordinate plane. • Find distances between points with the same first coordinate or the same second coordinate. • Recognize and graph the reflection of a given point over the X or Y axis

Assessments:	Performance task focused on graphing rational numbers and interpreting their meaning in context, applying absolute value to a real world context, and the similarities and differences between integers and their opposites
Teacher Resources:	Engage NY, 3 Act Task Bank, CCSS aligned anchor tasks, Illustrative Mathematics, Georgia Department of Education CCSS aligned tasks, North Carolina Department of Instruction, CCSS aligned tasks.

Unit Title	Algebraic Reasoning	Length of Unit	4 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How are variables useful when describing real life situations? • Why is it helpful to describe a problem situation algebraically? • How do the properties of operations helpful in representing and evaluating algebraic expressions?
Standards	Expressions and Equations: 6.EE.1, 6.EE.2, 6.EE.3, 6.EE.4
Unit Strands & Concepts	<ul style="list-style-type: none"> • Properties of operations • Exponential reasoning • The relationship between addition and subtraction and multiplication and division • Equivalence • Structure of equations and expressions
Key Vocabulary	Expression, Numeric expression, Algebraic Expression, variable, Equation, Equivalent expressions, Base, Exponent, Coefficient

Unit Title	Algebraic Reasoning	Length of Unit	4 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> Understand the structure of a given equation The order of operations tells us how to interpret expressions, but does not necessarily dictate how to calculate them. Understand the collecting of like terms (e.g. $5b + 3b = (5+3)b = 8b$) as an application of the distributive law, not as a separate method. When it is more efficient to hold numerical expressions unevaluated at intermediate steps in the problem solving process 	<ul style="list-style-type: none"> Write and evaluate numerical expressions involving whole-number exponents Write, read, and evaluate expressions in which letters stand for numbers. Abstract a pattern from a series of numeric expressions into a single algebraic expression. Represent problems algebraically and justify their choice of representation Interpret the structure of an equation in terms of a context Apply the properties of operations to generate equivalent expressions. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order Evaluate expressions at specific values of their variables Identify when two expressions are equivalent

Assessments:	Performance task focused on evaluating numeric and algebraic expressions, interpreting the structure of a given equation, applying the properties of operations and equivalence
Teacher Resources:	Engage NY, 3 Act Task Bank, CCSS aligned anchor tasks, Illustrative Mathematics, Georgia Department of Education CCSS aligned tasks, North Carolina Department of Instruction, CCSS aligned tasks.

Unit Title	Equations and Inequalities	Length of Unit	5 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • What strategies are most efficient when solving equations? • How can equations and inequalities be used to represent mathematical and real world contexts? • What is the relationship between variables in a two variable expression?
Standards	Expressions and Equations: 6.EE.5, 6.EE.6, 6.EE.7, 6.EE.8, 6.EE.9
Unit Strands & Concepts	<ul style="list-style-type: none"> • Inequalities • Proportionality • Quantitative relationships • Equivalence • Algebraic representation
Key Vocabulary	Expression, Numeric expression, Algebraic Expression, variable, Equation, Equivalent expressions, Base, Exponent, Coefficient, Inequality, Dependent variable, Independent variable

Unit Title	Equations and Inequalities	Length of Unit	5 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> Equation solving is a process of reasoning to find the numbers which make an equation true, which can include checking if a given number is a solution The relationship between the numeric and algebraic representations of a given problem Every occurrence of a given variable has the same value throughout the expression Inequalities of the form $x > c$ or $x < c$ have infinitely many solutions The relationship between an independent and dependent variable A variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. 	<ul style="list-style-type: none"> Use substitution to determine whether a given number in a specified set makes an equation or inequality true. Write, read, and evaluate expressions in which letters stand for numbers. Solve mathematical and real world problems using algebraic equations in which the variables represent nonnegative rational numbers Write an inequality to represent a constraint or condition in a real-world or mathematical problem. Represent solutions of inequalities on number line diagrams. Use equations in two variables to express relationships between two quantities that vary together. Write an equation to express one quantity in terms of the other in reference to two quantities that change in relationship to one another Analyze the relationship between the dependent and independent variables in an equation using graphs and tables

Assessments:	Performance task focused on representing and interpreting algebraic equations and inequalities, representing and interpreting independent and dependent relationships between variables, application and understanding of various algebraic and numeric representations for a problem
Teacher Resources:	Engage NY, 3 Act Task Bank, CCSS aligned anchor tasks, Illustrative Mathematics, Georgia Department of Education CCSS aligned tasks, North Carolina Department of Instruction, CCSS aligned tasks.

Unit Title	Geometry	Length of Unit	7 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How do we find the area of non-rectangular figures? • How are three-dimensional shapes composed? • How are surface area and volume useful in certain problem situations?
Standards	Geometry: 6.G.1, 6.G.2, 6.G.3, 6.G.4
Unit Strands & Concepts	<ul style="list-style-type: none"> • Spatial Structuring • Geometric composition/decomposition • Geometric attributes • Part-whole relationships
Key Vocabulary	Area, Surface area, Volume, Edges, Dimensions, Net, Vertices, Face, Base, Height, Trapezoid, Isosceles, Right i triangle, Parallelogram, Rhombus, Kites, Rlght rectangular prism, diagonal

Unit Title	Geometry	Length of Unit	7 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> Any side of a triangle can be considered as a base and the choice of base determines the height The justification for the formula for area of a triangle based on their prior understanding of the properties of area and quadrilaterals. Solid shapes have an outer surface area as well as an interior Parallel lines on a net are congruent. 	<ul style="list-style-type: none"> Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes Solve problems involving area of triangles, special quadrilaterals, and polygons in context Find the volume of a right rectangular prism with fractional edges by packing it with unit cubes and relating to the formula for finding volume Apply the formula to find the volume of a right rectangular prisms in context Find and justify relationships among the formulas for the areas of different polygons Decompose rectilinear figures and special quadrilaterals into familiar shapes in calculating their area Compose and decompose polyhedral solids in order to describe the shapes of the faces, as well as the number of faces, edges, and vertices Visualize, components of three-dimensional shapes that are not visible from a given viewpoint Solve problems in which one must distinguish between units used to measure volume and units used to measure area or length. Represent three-dimensional figures using models and nets Use the nets of a given figure to find its surface area Describe and justify the types of faces needed to create a three-dimensional figure Solve real world and mathematical problems involving the surface area of three dimensional figures Draw polygons in the coordinate plane given coordinates for the vertices Use coordinates to find the length of a polygons side by joining points with the same first coordinate or the same second coordinate

Assessments:	Performance task focused on calculation and application of the area of triangles and other polygons in context, geometric composition/decomposition, calculation and application of surface area and volume of three-dimensional figures in context, identifying and describing characteristics of three dimensional figures, and representing polygons on the coordinate grid.
Teacher Resources:	Engage NY, 3 Act Task Bank, CCSS aligned anchor tasks, Illustrative Mathematics, Georgia Department of Education CCSS aligned tasks, North Carolina Department of Instruction, CCSS aligned tasks.

Unit Title	Statistical Reasoning	Length of Unit	4 weeks
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Inquiry Questions (Engaging & Debatable)	<ul style="list-style-type: none"> • How can a set of data be accurately represented and summarized? • What information can a statistical analysis yield about a given population? • How can context influence what the best measure of center or variability most accurately represents a given set of data?
Standards	Statistics and Probability: 6.SP.1, 6.SP.2, 6.SP.3, 6.SP.4, 6.SP.5
Unit Strands & Concepts	<ul style="list-style-type: none"> • Variability • Central Tendency • Statistical Inferencing • Statistical Analysis
Vocabulary	Statistics, Data, Variability, Distribution, Dot plot, Histograms, Box plots, Median, Mean, quartiles, interquartile range, Mean absolute deviation (MAD), Outlier, Frequency table, Cluster, Peak, Interquartile range, Symmetrical, Skewed

Unit Title	Statistical Reasoning	Length of Unit	4 weeks
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Critical Content: My students will Know ...	Key Skills: My students will be able to (Do) ...
<ul style="list-style-type: none"> • A statistical question as one that anticipates variability in the data • A given set of data can be described by its center, spread, or overall shape • Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. • Which types of data sets are better described by the mean and which are better described by the median • The total distance of the data values above the mean is equal to the total distance of the data values below the mean 	<ul style="list-style-type: none"> • Calculate and interpret the mean, median, quartiles, interquartile range, and mean absolute deviation (MAD) of a given data set • Recognize outliers when analyzing a set of data • Summarize data sets in relation to their context • Display and interpret data plotted on a number line, dot plot, histogram, and box plot • Relate the choice of the measure of center and variability for a given data set to the overall shape of its distribution

Assessments:	Performance task focused on calculating and interpreting measures of central tendency and variability, accurately summarizing a set of data and justifying why certain measures of center and variability were chosen over others, displaying and interpreting statistical data
Teacher Resources:	Engage NY, 3 Act Task Bank, CCSS aligned anchor tasks, Illustrative Mathematics, Georgia Department of Education CCSS aligned tasks, North Carolina Department of Instruction, CCSS aligned tasks.