

## Middle School Mathematics

Level/Course	Quarter 1	Quarter 2	Quarter 3	Quarter 4
<b>Grade 6</b>	<p><b>Content:</b> Patterns and Number Sense, Decimal Operations, Data and Statistics</p> <p><b>Skills:</b> describing patterns using whole number operations, evaluating expressions containing variables, using decimals, reading and writing scientific notation, creating and interpreting graphs (bar, line, histograms), choosing appropriate methods to display data, comparing and ordering fractions with mixed numbers, writing fractions as decimals and vice versa, completing calculations</p>	<p><b>Content:</b> Fraction Operations, Integers, Equations, Inequalities and Functions</p> <p><b>Skills:</b> adding, subtracting, multiplying, and dividing fractions and mixed numbers; solving problems with all operations using rational numbers; using and understanding the properties of rational numbers; using the Cartesian Coordinate Plane; solving two-step linear equations and inequalities; using linear sequences, graphs, and equations to solve problems; solving linear functions</p>	<p><b>Content:</b> Ratio and Proportions, Percents, Geometric Figures</p> <p><b>Skills:</b> solving proportions using rates, ratios, and cross products; solving problems with scale models and drawings using ratios or cross products; draw a line given one point and the slope; writing decimals and fractions as percentages; solving equations using percents; classifying angles, triangles, quadrilaterals, and polygons; identifying similar and congruent figures</p>	<p><b>Content:</b> Measurement and Area, Surface Area and Volume, Probability</p> <p><b>Skills:</b> solving for unknown lengths of a triangle using the Pythagorean theorem, comparing and contrasting two- and three-dimensional figures, finding area and surface area for three-dimensional figures, calculating permutations and combinations, calculating probability of events (dependent and independent)</p>
<b>Grade 7 (Pre-Algebra)</b>	<p><b>Content:</b> Variables, Expressions, and Integers; Solving Equations; Factors, Fractions, and Exponents</p> <p><b>Skills:</b> evaluating and writing variable expressions; using order of operations to evaluate expressions; adding, subtracting, multiplying, and dividing integers; solving equations using basic operations with variables; finding prime factorization, greatest common factor, and least common multiple; writing equivalent fractions; using negative and zero exponents; reading and writing scientific notation</p>	<p><b>Content:</b> Rational Numbers and Equations; Ratio, Proportion, and Probability; Percents</p> <p><b>Skills:</b> converting fractions and decimals; performing basic operations using fractions and mixed numbers; solving equations and inequalities using the least common denominator; determining proportions using equivalent ratios, algebra, and the cross product property; finding unknown side lengths of similar figures; calculating distances using scale drawings; determining probability and odds for an event; solving percent problems using proportions and equations</p>	<p><b>Content:</b> Linear Functions, Measurement (Area, Volume), Real Numbers, Right Triangles</p> <p><b>Skills:</b> representing relations and functions using graphs; graphing linear equations (slope-intercept); graphing inequalities; solving problems with triangles; calculating the area of parallelograms; finding area and circumference of circles; finding surface area and volume of prisms, cylinders, cones, and pyramids; simplifying radical expressions; using distance, midpoint, and slope formulas; applying the Pythagorean theorem; using tangent, sine, and cosine to find triangle side lengths</p>	<p><b>Content:</b> Data Analysis and Probability, Angle Relationships, Transformations</p> <p><b>Skills:</b> making and interpreting stem-and-leaf plots, histograms, and box-and-whisker plots; identifying populations and sampling methods; drawing conclusions about populations using surveys; counting possibilities using permutations and combinations; finding probability of events; classifying angles; finding measures of interior and exterior angles; translating, reflecting, rotating, and dilating figures</p>

<p><b>Grade 8 (Algebra)</b></p>	<p><b>Content:</b> Expressions, Equations, and Functions; Properties of Real Numbers; Solving Linear Equations; Graphing Linear Equations and Functions</p> <p><b>Skills:</b> writing and evaluating expressions, equations, and inequalities; using a problem solving plan for real-world applications; graphing functions given a rule or table of values; applying properties to evaluate and simplify expressions; using conditional statements and logical reasoning with real numbers; solving one-step, two-step, and multi-step equations by using properties; solving proportions using cross products; solving percent problems; solving formulas and literal equations with one variable; writing and graphing direct variation equations to solve real world problems</p>	<p><b>Content:</b> Writing Linear Equations, Solving and Graphing Linear Equations, Systems of Equations and Inequalities</p> <p><b>Skills:</b> writing and graphing equations of lines; using equations to solve real-world problems; performing linear regression; solving one-step, two-step, and multi-step inequalities using basic operations; solving and graphing compound inequalities; solving and graphing absolute value inequalities; solving systems of linear inequalities using graphing, substitution and elimination</p>	<p><b>Content:</b> Exponents and Exponential Functions; Polynomials and Factoring; Quadratic Equations</p> <p><b>Skills:</b> applying powers properties; graphing and writing rules for exponential functions; identifying, classifying, adding, subtracting, and multiplying polynomials; using a variety of methods (including FOIL and patterns) to find products; writing and factoring polynomials to solve real-world problems</p>	<p><b>Content:</b> Quadratic Functions, Radicals and Geometry Connections, Rational Equations and Functions</p> <p><b>Skills:</b> solving quadratic equations using a variety of methods; determining whether a linear, exponential, or quadratic function best models a set of data; simplifying radical expressions using properties; adding, subtracting, and multiplying radicals; applying the Pythagorean theorem and its converse to analyze triangles; graphing rational functions; simplifying, adding, subtracting, multiplying, and dividing radical expressions</p>
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