

# Math: Grade 6 Advanced

| UNIT/Weeks (not consecutive) | Timeline/Topics   | Essential Questions   |
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| 4                            | <p><b><u>Numbers</u></b></p> <ul style="list-style-type: none"> <li>• Identifying Integers and Their Opposites</li> <li>• Comparing and Ordering Integers</li> <li>• Absolute Value</li> <li>• Greatest Common Factor</li> <li>• Least Common Factor</li> <li>• Least Common Multiple</li> <li>• Identifying Opposites and Absolute Value of Rational Numbers</li> <li>• Comparing and Ordering Rational Numbers</li> </ul>   | <ul style="list-style-type: none"> <li>• How do you identify an integer and its opposite?</li> <li>• How do you compare and order integers?</li> <li>• How do you find and use absolute value?</li> <li>• How do you find and use the greatest common factor of two whole numbers?</li> <li>• How do you find and use the least common multiple of two whole numbers?</li> <li>• How can you classify rational numbers?</li> <li>• How can you identify opposites and absolute values of rational numbers?</li> <li>• How do you compare and order rational numbers?</li> </ul>         |
| 5.6                          | <p><b><u>Number Operations</u></b></p> <ul style="list-style-type: none"> <li>• Applying GCF and LCM to Fraction Operations</li> <li>• Dividing Fractions</li> <li>• Dividing Mixed Numbers</li> <li>• Solving Multi-step Problems with Fractions and Mixed Numbers</li> <li>• Dividing Whole Numbers</li> <li>• Adding and Subtracting Decimals</li> <li>• Multiplying Decimals</li> <li>• Dividing Decimals</li> <li>• Applying Operations with Rational Numbers</li> </ul> | <ul style="list-style-type: none"> <li>• How do you use the GCF and LCM when adding, subtracting, and multiplying fractions?</li> <li>• How do you divide fractions?</li> <li>• How do you divide mixed numbers?</li> <li>• How can you solve word problems involving more than one fraction operation?</li> <li>• How do you divide multi-digit whole numbers?</li> <li>• How do you add and subtract decimals?</li> <li>• How do you multiply decimals?</li> <li>• How do you divide decimals?</li> <li>• How can you solve problems involving multiplication and division</li> </ul> |

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|     |  | of fractions and decimals?   |
| 4.4 | <p><b><u>Proportionality: Ratios and Rates</u></b></p> <ul style="list-style-type: none"> <li>• Ratios</li> <li>• Rates</li> <li>• Using Ratios and Rates to Solve Problems</li> <li>• Rations, Rates, Tables and Graphs</li> <li>• Solving Problems with Proportions</li> <li>• Converting Within Measurement Systems</li> <li>• Converting Between Measurement Systems</li> <li>• Understanding Percent</li> <li>• Percents, Fractions and Decimals</li> <li>• Solving Percent Problems</li> </ul> | <ul style="list-style-type: none"> <li>• How do you use ratios to compare two quantities?</li> <li>• How do you use rates to compare quantities?</li> <li>• How can you use ratios and rates to make comparisons and predictions?</li> <li>• How can you represent real-world problems involving ratios and rates with tables and graphs?</li> <li>• How can you solve problems with proportions?</li> <li>• How do you convert units within a measurement system?</li> <li>• How do you use ratios and proportions to convert measurements?</li> <li>• How can you write a ratio as a percent?</li> <li>• How can you write equivalent percents, fractions and decimals?</li> <li>• How do you use percents to solve problems?</li> </ul> |
| 3.8 | <p><b><u>Equivalent Expressions</u></b></p> <ul style="list-style-type: none"> <li>• Exponents</li> <li>• Prime Factorization</li> <li>• Order of Operations</li> <li>• Modeling and Writing Expressions</li> <li>• Evaluating Expressions</li> <li>• Generating Equivalent Expressions</li> </ul>   | <ul style="list-style-type: none"> <li>• How do you use exponents to represent numbers?</li> <li>• How do you write the prime factorization of a number?</li> <li>• How do you use the order of operations to simplify expressions with exponents?</li> <li>• How do you write algebraic expressions</li> </ul>  |

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|   |  | <p>and use models to decide if expressions are equivalent?</p> <ul style="list-style-type: none"> <li>• How can you use the order of operations to evaluate algebraic expressions?</li> <li>• How can you identify and write equivalent expressions?</li> </ul>   |
| 4 | <p><b><u>Equations and Inequalities</u></b></p> <ul style="list-style-type: none"> <li>• Writing Equations to Represent Situations</li> <li>• Addition and Subtraction Equations</li> <li>• Multiplication and Division Equations</li> <li>• Writing Inequalities</li> <li>• Graphing in the Coordinate Plane</li> <li>• Independent and Dependent Variables in Tables and Graphs</li> <li>• Writing Equations from Tables</li> <li>• Representing Algebraic Relationships in Tables and Graphs</li> </ul> | <ul style="list-style-type: none"> <li>• How do you write equations and determine whether a number is a solution of an equation?</li> <li>• How do you solve equations that contain addition and subtraction?</li> <li>• How do you solve equations that contain multiplication or division?</li> <li>• How can you use inequalities to represent real-world constraints or conditions?</li> <li>• How do you locate and name points in the coordinate plane?</li> <li>• How can you identify independent and dependent quantities from tables and graphs?</li> <li>• How can you use an equation to show a relationship between two variables?</li> <li>• How can you use verbal descriptions, tables, and graphs to represent algebraic relationships?</li> </ul> |
| 4 | <p><b><u>Relationships in Geometry</u></b></p> <ul style="list-style-type: none"> <li>• Area of Quadrilaterals</li> <li>• Area of Triangles</li> <li>• Solving Area Equations</li> </ul>   | <ul style="list-style-type: none"> <li>• How can you find the areas of parallelograms, rhombuses, and trapezoids?</li> <li>• How do you find the area of a triangle?</li> </ul>   |

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|  | <ul style="list-style-type: none"> <li>• Area of Polygons</li> <li>• Distance in the Coordinate Plane</li> <li>• Polygons in the Coordinate Plane</li> <li>• Nets and Surface Area</li> <li>• Volume of Rectangular Prisms</li> <li>• Solving Volume Equations</li> </ul>  | <ul style="list-style-type: none"> <li>• How do you use equations to solve problems about area of rectangles, parallelograms, trapezoids, and triangles?</li> <li>• How can you find the area of a polygon by breaking it into simpler shapes?</li> <li>• How can you use absolute value to find the distance between two points with the same x or y coordinates?</li> <li>• How can you solve problems by drawing polygons in the coordinate plane?</li> <li>• How can you use nets to find surface area?</li> <li>• How do you find the volume of a rectangular prism?</li> <li>• How do you write equations to solve problems involving volume of rectangular prisms?</li> </ul> |
| <p style="text-align: center;">2.5</p> | <p style="text-align: center;"><b><u>Measurement and Data</u></b></p> <ul style="list-style-type: none"> <li>• Measure of Center</li> <li>• Mean Absolute Deviation</li> <li>• Box Plots</li> <li>• Dot Plots and Data Distribution</li> <li>• Histograms</li> <li>• Random Samples and Populations</li> <li>• Analyzing and Comparing Data</li> </ul> | <ul style="list-style-type: none"> <li>• How can you use measures of center to describe a data set?</li> <li>• How can you determine and use the mean absolute deviation of a set of data points?</li> <li>• How can you use a box plot and measures of spread to describe a data set?</li> <li>• How can you summarize and display numeric data?</li> <li>• How do you display data in a histogram?</li> <li>• How can you use random samples and populations to solve real-world problems?</li> </ul>  |

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|     |  | <ul style="list-style-type: none"> <li>• How can you solve real-world problems by analyzing and comparing data?</li> </ul>  |
| 2.5 | <p><b><u>The Number System</u></b></p> <ul style="list-style-type: none"> <li>• Adding Integers with the same sign</li> <li>• Adding Integers with different signs</li> <li>• Subtracting Integers</li> <li>• Applying Addition and Subtraction of Integers</li> <li>• Multiplying Integers</li> <li>• Dividing Integers</li> <li>• Applying Integer Operations</li> <li>• Rational Numbers and Decimals</li> <li>• Adding, Subtracting, Multiplying and Dividing Rational Numbers</li> <li>• Applying Rational Number Operations</li> </ul> | <ul style="list-style-type: none"> <li>• How can you use addition and subtraction of integers to solve real world problems?</li> <li>• How can you use multiplication and division of integers to solve real world problems?</li> <li>• How can you use rational numbers to solve real world problems?</li> </ul> |
| 2   | <p><b><u>Real Numbers</u></b></p> <ul style="list-style-type: none"> <li>• Real Numbers</li> </ul>   | <ul style="list-style-type: none"> <li>• How can you use real numbers to solve real-world problems?</li> <li>• How can you describe relationships between sets of real numbers?</li> </ul>  |
| 2.2 | <p><b><u>Integers</u></b></p> <ul style="list-style-type: none"> <li>• Areas of Parallelograms and Triangles</li> <li>• Adding Integers</li> <li>• Subtracting Integers</li> <li>• Multiplying Integers</li> <li>• Dividing Integers</li> </ul>  | <ul style="list-style-type: none"> <li>• How do you add integers?</li> <li>• How do you subtract integers?</li> <li>• How do you multiply integers?</li> <li>• How do you divide integers?</li> </ul>   |