

Newburyport Grade 6 Math Curriculum Map 25-26

	Grade Level: 6 Team Members: Myles Johnston and Josh Hickey Number of Days of Unit: 15 days	
	UNIT NAME: Use Positive Rational Numbers	
Essential Questions	- How can you fluently add, subtract, multiply and divide decimals? - How can you multiply and divide fractions?	
Content Standards	6.NS.A.1 Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. 6.NS.B.2 Fluently divide multi-digit numbers using the standard algorithm. 6.NS.B.3 Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation. 6.NS.B.4 Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.	
Concepts and subskills	Students complete their understanding of the four operations as they study division of whole numbers, division by a fraction, and operations on multi-digit decimals.	Mathematical Practices 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.
Content Objectives "I Can Statements"	- Write equations to represent real-world decimal and fraction problem situations. - Use estimation to determine whether the answer to decimal problems are reasonable. - Use algorithms to compute with decimals and with fractions. - Use number lines and area models to represent fraction multiplication and division problems. - Use the relationship between multiplying and dividing fractions to explore reciprocals.	

	• Apply the skill of multiplying fractions to divide fractions. • Use place value when adding and subtracting decimals. • Use the division algorithm for whole numbers to divide decimals. • Use structure and reasoning to place the decimal point in a decimal sum, difference, product or quotient. • Use the relationship between multiplying and dividing fractions to discover reciprocals of fractions. • Use structure to multiply fractions by multiplying the numerators and then the denominators. • Use structure to divide fractions by multiplying the dividend by the reciprocal of the divisor.
Content Vocabulary	• Divisor • Dividend • Factor • Product • Reciprocal • Decimal • Greatest Common Factor (GCF) • Least Common Multiple (LCM)
Text, Materials, and Resources	enVision Mathematics
Assessments, Products, Projects	Practice & Problem Solving Additional Practice Lesson Quiz Topic 1 Assessment

	Grade Level: 6 Team Members: Myles Johnston and Josh Hickey Number of Days of Unit: 10 days
	UNIT NAME: Integers and Rational Numbers
Essential Questions	• Which methods can we use to compare rational numbers? • How can we assess the reasonableness of answers using estimation? • How are fractions, decimals, and percents that represent the same quantity related?

Content Standards	6.NS.C.5 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real world contexts, explaining the meaning of 0 in each situation. 6.NS.C.6 Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. 6.NS.C.7 Understand ordering and absolute value of rational numbers. 6.NS.C.8 Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	
Concepts and subskills	Students extend the number line to include the opposites of whole numbers, using it to relate numbers to statements of order in real-world contexts.	Mathematical Practices 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.
Content Objectives "I Can Statements"	• Consider scale when naming or placing points on the number line or coordinate plane. • Use estimation and reasoning when placing points that lie between tick marks or grid lines. • Use the structure of the coordinate plane to plot and name points in all four quadrants • Look for structure when using absolute value to find distances between points on the coordinate plane. • Count units on the coordinate plane to verify the accuracy of procedures for finding distance and perimeter. • Critique the strategies of others as they compare and order rational numbers. • Construct arguments to defend the application of formulas to new situations. • Construct arguments using accurate definitions and terminology related to rational numbers and coordinate planes. • Justify and support mathematical reasoning by using prior knowledge of the structure of number lines to coordinate planes. • Ask questions to clarify others' reasoning to decide whether arguments make sense or to improve the arguments.	
Content Vocabulary	• Integer • absolute value • Opposite • negative number • ordered pair	

	• Coordinates • X-axis • Y-axis • Quadrant • rational number • Irrational number • Origin
Text, Materials, and Resources	enVision Mathematics
Assessments, Products, Projects	Practice & Problem Solving Additional Practice Lesson Quiz Topic 2 Assessment

	Grade Level: 6 Team Members: Myles Johnston and Josh Hickey Number of Days of Unit: 15 days
	UNIT NAME: Numeric and Algebraic Expressions
Essential Questions	• How do you use patterns to understand mathematics and model situations? • What are expressions and how can they be written and evaluated?
Content Standards	6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents. 6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers. 6.EE.A.3 Apply the properties of operations to generate equivalent expressions. 6.EE.A.4 Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).

Concepts and subskills	Students learn to use letters to represent numbers, ultimately extending arithmetic properties from manipulating numbers to manipulating expressions and solving equations.	Mathematical Practices 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.
Content Objectives "I Can Statements"	• Write numeric expressions to represent real-world situations. • Use mathematical models when writing algebraic expressions to represent patterns. • Write algebraic expressions to describe real-world situations. • Use the greatest common factor or least common multiple to represent and understand the relationship between numbers in real-world contexts. • Consider which elements of a situation should be represented by variables when writing expressions. • Look for relationships in tables to help establish an understanding of exponents. • Use the order of operations to evaluate numerical and algebraic expressions. • Place parentheses and other grouping symbols into expressions to create expressions with specific value. • Use properties of operations to determine the equivalency of expressions. • Recognize the characteristics of a simplified expression.	
Content Vocabulary	• Variable • Equation • Numerical Expression • Algebraic Expression • Exponent • Term • Constant • Coefficient • Inequalities • Base • Evaluate • Power • Composite Number • Factor Tree • Greatest Common Factor (GCF) • Least Common Multiple (LCM)	

	• Prime Factorization • Prime Number • Substitution • Equivalent Expressions • Like Terms • Simplify
Text, Materials, and Resources	enVision Mathematics
Assessments, Products, Projects	Practice & Problem Solving Additional Practice Lesson Quiz Topic 3 Assessment

	Grade Level: 6 Team Members: Myles Johnston and Josh Hickey Number of Days of Unit: 20 days
	UNIT NAME: Represent and Solve Equations and Inequalities
Essential Questions	What procedures can be used to write and solve equations and inequalities.
Content Standards	6.EE.A.1 Write and evaluate numerical expressions involving whole-number exponents. 6.EE.A.2 Write, read, and evaluate expressions in which letters stand for numbers. 6.EE.A.3 Apply the properties of operations to generate equivalent expressions. 6.EE.A.4 Identify when two expressions are equivalent 6.EE.B.5 Understand solving an equation or inequality as a process of answering a question: Which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or

	inequality true. 6.EE.B.6 Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. 6.EE.B.7 Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q, and x are all nonnegative rational numbers. 6.EE.B.8 Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams. 6.EE.C.9 Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	
Concepts and subskills	Understand Equations and properties of Equations: Students develop an understanding of how to ensure that one side of an equation balances with the other side. • Solve Equations: Students apply their understanding of equations to solve equations that involve addition and subtraction, multiplication and division, and positive rational numbers. • Inequalities: Students extend their prior work with expressions and equations to include writing and solving inequalities. • Independent and Dependent Variables: Students learn to identify dependent and independent variables in various situations.	Mathematical Practices 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.
Content Objectives "I Can Statements"	• Understand how quantities are related while determining whether a value is or is not a solution of an equation. • Use abstract and quantitative reasoning to solve equations and inequalities. • Use reasoning to find possible values of a variable given an inequality. • Determine how quantities in a table are related and write an equation to represent the relationship. • Determine dependent and independent variables and identify patterns that describe the relationship between the variables. • Use a pan balance to model the relationship between two quantities. • Use a pan balance and construct bar diagrams to model equations. • Write equations to represent problems. • Write inequalities to represent problems. • Use tables, graphs, and equations to show relationships.	

Content Vocabulary	• Equation • Solution of an equation • Addition Property of Equality • Subtraction Property of Equality • Multiplication Property of Equality • Division Property of Equality • Inverse Relationship • Inequality • Dependent Variable • Independent Variable
Text, Materials, and Resources	enVision Mathematics
Assessments, Products, Projects	Practice & Problem Solving Additional Practice Lesson Quiz Topic 4 Assessment

	Grade Level: 6 Team Members: Myles Johnston and Josh Hickey Number of Days of Unit: 20 days
	UNIT NAME: Understand and Use Unit Rate
Essential Questions	• How can we represent a relationship between two quantities? • How can we write a ratio to represent a situation? • How are unit rates used in the real-world? • How can proportional relationships be used to solve real world problems?
Content Standards	6.RP.A.1 Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. 6.RP.A.2 Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship, including the use of units.

	6.RP.A.3 Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.	
Concepts and subskills	Students investigate and relate ratios, rates, and percents, applying reasoning when solving problems in real world contexts using various tools.	Mathematical Practices 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.
Content Objectives "I Can Statements"	• Attend to the meaning of the quantities in the problems and determine what needs to be done to solve the problems. • Explain how quantities are related as they solve problems involving constant speed and unit pricing. • Make sense of quantities when determining what number is needed to multiply or divide to create an equivalent ratio in which one of the terms has been specified. • Reason about quantities when comparing unit rates. • Consider the meanings of symbols and units when choosing conversion factors. • Use ratio tables and graphs to model real-life situations. • Use unit rates to model the relationships between quantities presented in real-world problems. • Identify important quantities and use them to create bar diagrams and double number line diagrams to model ratio relationships. • Apply the understanding of equivalent rates to represent real-world problems. • Write equations to model constant rate problems.	
Content Vocabulary	• equivalent ratio • Percent • Quantity • rate • Ratio • unit rate • value of a ratio	
Text, Materials, and Resources	enVision Mathematics	

Assessments, Products, Projects	Practice & Problem Solving Additional Practice Lesson Quiz Topic 5 Assessment
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	Grade Level: 6 Team Members: Myles Johnston and Josh Hickey Number of Days of Unit: 10 days	
	UNIT NAME: Understand and Use Percent	
Essential Questions	What is the meaning of percent?	
Content Standards	6.RP.A.3. c.Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.	
Concepts and subskills	• Concept of Percent: Students learn percent is a special type of rate in which the first term compares to 100. • Find the Percent, the Whole or a Part of a quantity and make comparisons.	Mathematical Practices 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.
Content Objectives "I Can Statements"	• Use a hundredths grid, number line, and other models to represent percent. • Use a number line to represent a percent greater than 100. • Write equivalent fractions to find percents. • Use a double number line diagram to show the relationship between quantities when finding the percent, a part or the whole. • Write and solve an equation to find the percent, a part, or the whole.	

	• Use reasoning to write quantities as fractions, decimals, and percents. • Describe relationships between equivalent fractions and percents. • Write fractions such as $\frac{1}{2}$ and $\frac{3}{4}$ as percents without dividing the numerator by the denominator. • Express percents that are greater than 100 or less than 1 as fractions and decimals. • Use rounding and compatible numbers when estimating to find the percent of a number.
Content Vocabulary	• Percent • Fraction • Decimal • Equivalent
Text, Materials, and Resources	enVision Mathematics
Assessments, Products, Projects	Practice & Problem Solving Additional Practice Lesson Quiz Topic 6 Assessment

	Grade Level: 6 Team Members: Myles Johnston and Josh Hickey Number of Days of Unit: 15 days
	UNIT NAME: Solve Area, Surface Area and Volume Problems
Essential Questions	• What are the properties of two and three-dimensional figures? • How do geometric relationships and the application of measurements help us to solve authentic problems? • How is geometry part of our world?
Content Standards	6.G.A.1 Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. 6.G.A.2 Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply

	the formulas $V = lwh$ and $V = Bh$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. 6.G.A.3 Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems. 6.G.A.4 Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface areas of these figures. Apply these techniques in the context of solving real-world and mathematical problems.	
Concepts and subskills	Students use composition and decomposition to determine the area of triangles, quadrilaterals, and other polygons. Students determine distance, perimeter, and area on the coordinate plane in real-world contexts. Students apply volume formulas and use their previous experience with solving equations to find missing volumes and missing dimensions. Students deconstruct the faces of solid figures to determine surface area. Students apply the surface area formula to real-life contexts and distinguish between the need to find surface area or volume within contextual situations.	Mathematical Practices 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.
Content Objectives "I Can Statements"	• Construct arguments using accurate definitions and terminology related to the areas of parallelograms and triangles. • Explain how to find the area of a trapezoid and justify their solution using formulas and equations. • Critique conjectures of others as they identify the nets of solid figures. • Construct arguments to explain how to use the number of fractional cubes in a rectangular prism to find the volume. • Construct arguments to defend the application of formulas to new situations. • Determine how the areas of a parallelogram and a rectangle are related by decomposing the parallelogram and using the parts to compose a rectangle. • Analyze the structure of trapezoids and kites to determine how to decompose them into shapes for which the area formulas are known. • Look for and make use of structure when deciding how to decompose and compose polygons to find their areas. • Look for structure in solid figures to classify the figures, to identify nets of the figures, and to draw nets of the figures. • Identify relationships in the area of the faces of rectangular and triangular pyramids.	
Content Vocabulary	• Base • Height • Perpendicular • Parallel • Net • Angle	

	• Cube • Area • Perimeter • Volume • Prism • pyramid
Text, Materials, and Resources	enVision Mathematics
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	Grade Level: 6 Team Members: Myles Johnston and Josh Hickey Number of Days of Unit: 15 days
	UNIT NAME: Display, Describe and Summarize Data
Essential Questions	• Why is data collected and analyzed? • How can we describe patterns in data? • How can patterns be used to make predictions? • What does it mean to properly analyze and describe data using graphical and numerical summaries?
Content Standards	6.SP.A.1 Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers. 6.SP.A.2 Understand that a set of data collected to answer a statistical question has a distribution, which can be described by its center (median, mean, and/or mode), spread (range, interquartile range), and overall shape. 6.SP.A.3 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. 6.SP.B.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots. 6.SP.B.5 Summarize numerical data sets in relation to their context.	
Concepts and subskills	Students move into analyzing data, reasoning statistically, and exploring data distributions and studying quantitative ways to summarize numerical data sets	Mathematical Practices 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning.
Content Objectives "I Can Statements"	• Display real-world data that were collected in response to statistical questions. • Use the median and quartiles of a data set to show the distribution of data in a box plot. • Consider the advantages and limitations of using different data displays to show real-world data. • Analyze relationships mathematically and identify a single number that can be used to describe a data set. • Identify equal ranges for numerical data sets and organize data in frequency tables and histograms. • Consider scale when creating a dot plot, histogram, or box plot • Look at the shape of data, including gaps, clusters, or outliers, when choosing measures of center to summarize the data. • Use the relationships between certain measures of center and measures of variability to choose appropriate statistical measures.	
Content Vocabulary	• Mean • Median • Mode • Range • Deviation • Variability • visual representation	

Text, Materials, and Resources	enVision Mathematics
Assessments, Products, Projects	Practice & Problem Solving Additional Practice Lesson Quiz Topic 8 Assessment