

Eureka Math² Level 6 Correlation to Connecticut Model Curriculum

Level 6: Ratios and Rates			
Model Unit Name	Model Unit Standards	Lessons	Pacing <small>Lessons that address concepts in more than one unit are only counted once</small>
Operating with Positive Rational Numbers	6.NS.A.1	Module 2: Operations with Fractions and Multi-Digit Numbers Topic B: Dividing Fractions Lesson 6: Dividing a Whole Number by a Fraction Lesson 7: Dividing a Fraction by a Whole Number Lesson 8: Dividing Fractions by Making Common Denominators Topic C: Dividing Fractions Fluently Lesson 9: Dividing Fractions by Using Tape Diagrams Lesson 10: Dividing Fractions by Using the Invert and Multiply Strategy Lesson 11: Applications of Fraction Division Lesson 12: Fraction Operations in a Real-World Situation	28 days
	6.NS.B.2	Module 2: Operations with Fractions and Multi-Digit Numbers Topic E: Division of Multi-Digit Numbers Lesson 17: Partial Quotients Lesson 18: The Standard Division Algorithm Lesson 19: Expressing Quotients as Decimals	
	6.NS.B.3	Module 2: Operations with Fractions and Multi-Digit Numbers Topic D: Decimal Addition, Subtraction, and Multiplication Lesson 13: Decimal Addition and Subtraction Lesson 14: Patterns in Multiplying Decimals Lesson 15: Decimal Multiplication	

Operating with Positive Rational Numbers (cont.)		Topic F: Decimal Division Lesson 21: Dividing a Decimal by a Whole Number Lesson 22: Dividing a Decimal by a Decimal Greater Than 1 Lesson 23: Dividing a Decimal by a Decimal Less Than 1 Lesson 24: Living on Mars	
	6.NS.B.4	Module 2: Operations with Fractions and Multi-Digit Numbers Topic A: Factors, Multiples, and Divisibility Lesson 1: Factors and Multiples Lesson 2: Divisibility Lesson 3: The Greatest Common Factor Lesson 4: The Least Common Multiple Lesson 5: The Euclidean Algorithm (Optional)	
	6.G.A.2	Module 5: Area, Surface Area, and Volume Topic D: Volumes of Right Rectangular Prisms Lesson 15: Exploring Volume Lesson 16: Applying Volume Formulas Lesson 17: Problem Solving with Volume Lesson 18: Volumes of Composite Solids Lesson 19: Volume and Surface Area in Real-World Situations	
Understanding Positive and Negative Numbers	6.NS.C.5	Module 3: Rational Numbers Topic A: Integers and Rational Numbers Lesson 1: Positive and Negative Numbers Lesson 4: Rational Numbers in Real-World Situations	17 days
	6.NS.C.6	Module 3: Rational Numbers Topic A: Integers and Rational Numbers Lesson 2: Integers Lesson 3: Rational Numbers Lesson 4: Rational Numbers in Real-World Situations Topic C: The Coordinate Plane Lesson 10: The Four Quadrants of the Coordinate Plane Lesson 11: Plotting Points in the Coordinate Plane	

Understanding Positive and Negative Numbers (cont.)		<p>Lesson 12: Reflections in the Coordinate Plane Lesson 13: Constructing the Coordinate Plane</p> <p>Topic D: Solving Problems in the Coordinate Plane</p> <p>Lesson 15: Distance in the Coordinate Plane Lesson 16: Figures in the Coordinate Plane Lesson 17: Problem Solving with the Coordinate Plane</p>	
	6.NS.C.7	<p>Module 3: Rational Numbers</p> <p>Topic B: Ordering and Magnitude</p> <p>Lesson 5: Comparing Rational Numbers Lesson 6: Ordering Rational Numbers Lesson 7: Absolute Value Lesson 8: Absolute Value and Order Lesson 9: Interpreting Order and Distance in Real-World Situations</p>	
	6.NS.C.8	<p>Module 3: Rational Numbers</p> <p>Topic C: The Coordinate Plane</p> <p>Lesson 14: Modeling with the Coordinate Plane</p> <p>Topic D: Solving Problems in the Coordinate Plane</p> <p>Lesson 15: Distance in the Coordinate Plane Lesson 16: Figures in the Coordinate Plane Lesson 17: Problem Solving with the Coordinate Plane</p>	
Using Expressions and Equations	6.EE.A.1	<p>Module 4: Expressions and One-Step Equations</p> <p>Topic A: Numerical Expressions</p> <p>Lesson 1: Expressions with Addition and Subtraction Lesson 2: Expressions with Multiplication and Division Lesson 3: Exploring Exponents Lesson 4: Evaluating Expressions with Exponents Lesson 5: Exploring Order of Operations Lesson 6: Order of Operations</p>	23 days

Using Expressions and Equations (cont.)	6.EE.A.2	Module 4: Expressions and One-Step Equations Topic B: Expressions and Real-World Problems Lesson 7: Algebraic Expressions with Addition and Subtraction Lesson 8: Algebraic Expressions with Addition, Subtraction, Multiplication, and Division Lesson 9: Addition and Subtraction Expressions from Real-World Situations Lesson 11: Modeling Real-World Situations with Expressions Topic C: Equivalent Expressions Using the Properties of Operations Lesson 12: Applying Properties to Multiplication and Division Expressions Topic D: Equations and Inequalities Lesson 17: Equations and Solutions	
	6.EE.A.3	Module 4: Expressions and One-Step Equations Topic C: Equivalent Expressions Using the Properties of Operations Lesson 12: Applying Properties to Multiplication and Division Expressions Lesson 13: The Distributive Property Lesson 14: Using the Distributive Property to Factor Expressions Lesson 15: Combining Like Terms by Using the Distributive Property Lesson 16: Equivalent Algebraic Expressions	
	6.EE.A.4	Module 4: Expressions and One-Step Equations Topic C: Equivalent Expressions Using the Properties of Operations Lesson 12: Applying Properties to Multiplication and Division Expressions Lesson 13: The Distributive Property Lesson 14: Using the Distributive Property to Factor Expressions Lesson 15: Combining Like Terms by Using the Distributive Property Lesson 16: Equivalent Algebraic Expressions	
	6.EE.B.5	Module 4: Expressions and One-Step Equations Topic D: Equations and Inequalities Lesson 17: Equations and Solutions Lesson 19: Solving Equations with Addition and Subtraction Lesson 20: Solving Equations with Multiplication and Division	

Using Expressions and Equations (cont.)	6.EE.B.6	Module 4: Expressions and One-Step Equations Topic B: Expressions and Real-World Problems Lesson 9: Addition and Subtraction Expressions from Real-World Situations Lesson 10: Multiplication and Division Expressions from Real-World Situations Lesson 11: Modeling Real-World Situations with Expressions Topic C: Equivalent Expressions Using the Properties of Operations Lesson 16: Equivalent Algebraic Expressions	
	6.EE.B.7	Module 4: Expressions and One-Step Equations Topic D: Equational and Inequalities Lesson 17: Equations and Solutions Lesson 19: Solving Equations with Addition and Subtraction Lesson 20: Solving Equations with Multiplication and Division Lesson 21: Solving Problems with Equations	
	6.EE.B.8	Module 4: Expressions and One-Step Equations Topic D: Equations and Inequalities Lesson 18: Inequalities and Solutions	
Applications of Geometry	6.G.A.1	Module 5: Area, Surface Area, and Volume Topic A: Areas of Polygons Lesson 1: The Area of a Parallelogram Lesson 2: The Area of a Right Triangle Lesson 3: The Area of a Triangle Lesson 4: Areas of Triangles in Real-World Situations Topic B: Problem Solving with Area Lesson 5: Perimeter and Area in the Coordinate Plane Lesson 6: Problem Solving with Area in the Coordinate Plane Lesson 7: Area of Trapezoids and Other Polygons Lesson 8: Areas of Composite Figures in Real-World Situations	13 days

Applications of Geometry (cont.)	6.G.A.3	Module 5: Area, Surface Area, and Volume Topic B: Problem Solving with Area Lesson 5: Perimeter and Area in the Coordinate Plane Lesson 6: Problem Solving with Area in the Coordinate Plane	
	6.G.A.4	Module 5: Area, Surface Area, and Volume Topic C: Nets and Surface Area Lesson 9: Properties of Solids Lesson 10: Discovering Nets of Solids Lesson 11: Constructing Nets of Solids Lesson 12: From Nets to Surface Area Topic D: Volumes of Right Rectangular Prisms Lesson 19: Volume and Surface Area in Real-World Situations	
Ratios and Rates	6.RP.A.1	Module 1: Ratios, Rates, and Percents Topic A: Ratios Lesson 2: Introduction to Ratios Lesson 3: Introduction to Ratios Lesson 4: Exploring Ratios by Making Batches Lesson 5: Equivalent Ratios Topic B: Collections of Equivalent Ratios Lesson 8: Addition Patterns in Ratio Relationships Lesson 10: Multiplicative Reasoning in Ratio Relationships Lesson 11: Applications of Ratio Reasoning	26 days
	6.RP.A.2	Module 5: Area, Surface Area, and Volume Topic C: Comparing Ratio Relationships Lesson 15: The Value of the Ratio Topic D: Rates Lesson 16: Speed Lesson 17: Rates	

Ratios and Rates (cont.)		Lesson 18: Comparing Rates Lesson 19: Using Rates to Convert Units Lesson 20: Solving Rate Problems	
	6.RP.A.3	Module 5: Area, Surface Area, and Volume Topic A: Ratios Lesson 2: Introduction to Ratios Lesson 3: Introduction to Ratios Lesson 4: Exploring Ratios by Making Batches Lesson 5: Equivalent Ratios Topic B: Collections of Equivalent Ratios Lesson 6: Ratio Tables and Double Number Lines Lesson 7: Graphs of Ratio Relationships Lesson 8: Addition Patterns in Ratio Relationships Lesson 9: Multiplication Patterns in Ratio Relationships Lesson 10: Multiplicative Reasoning in Ratio Relationships Lesson 11: Applications of Ratio Reasoning Topic C: Comparing Ratio Relationships Lesson 12: Multiple Ratio Relationships Lesson 13: Comparing Ratio Relationships, Part 1 Lesson 14: Comparing Ratio Relationships, Part 2 Lesson 15: The Value of the Ratio Topic D: Rates Lesson 16: Speed Lesson 17: Rates Lesson 18: Comparing Rates Lesson 19: Using Rates to Convert Units Lesson 20: Solving Rate Problems Topic E: Percents Lesson 22: Introduction to Percents Lesson 23: Finding the Percent	

Ratios and Rates (cont.)		Lesson 24: Finding a Part Lesson 25: Finding the Whole Lesson 26: Solving Percent Problems	
Algebraic Reasoning	6.EE.B.6	Module 4: Expressions and One-Step Equations Topic B: Expressions and Real-World Problems Lesson 9: Addition and Subtraction Expressions from Real-World Situations Lesson 10: Multiplication and Division Expressions from Real-World Situations Lesson 11: Modeling Real-World Situations with Expressions Topic C: Equivalent Expressions Using the Properties of Operations Lesson 16: Equivalent Algebraic Expressions	4 days
	6.EE.B.7	Module 4: Expressions and One-Step Equations Topic D: Equations and Inequalities Lesson 17: Equations and Solutions Lesson 19: Solving Equations with Addition and Subtraction Lesson 20: Solving Equations with Multiplication and Division Lesson 21: Solving Problems with Equations	
	6.EE.C.9	Module 4: Expressions and One-Step Equations Topic E: Relating Variables by Using Tables, Graphs, and Equations Lesson 22: Relationship Between Two Variables Lesson 23: Graphs of Ratio Relationships Lesson 24: Graphs of Non–Ratio Relationships Lesson 25: The Statue of Liberty	
Statistics and Distributions	6.SP.A.1	Module 6: Statistics Topic A: Understanding Distributions Lesson 1: Posing Statistical Questions Lesson 6: Selecting a Data Display Topic D: Answering Statistical Questions by Analyzing Data Lesson 17: Developing a Statistical Project	22 days

Statistics and Distributions (cont.)	6.SP.A.2	Module 6: Statistics Topic A: Understanding Distributions Lesson 2: Describing a Data Distribution Lesson 3: Creating a Dot Plot Lesson 4: Creating a Histogram Topic B: Mean and Mean Absolute Deviation Lesson 9: Variability in a Data Distribution Topic C: Median, Interquartile Range, and Box Plots Lesson 14: Using a Box Plot to Summarize a Distribution Topic D: Answering Statistical Questions by Analyzing Data Lesson 18: Connecting Graphical Representations and Summary Measures	
	6.SP.A.3	Module 6: Statistics Topic B: Mean and Mean Absolute Deviation Lesson 7: Using the Mean to Describe the Center Lesson 8: The Mean as a Balance Point Lesson 9: Variability in a Data Distribution Lesson 10: The Mean Absolute Deviation Lesson 11: Using the Mean and Mean Absolute Deviation Topic C: Median, Interquartile Range, and Box Plots Lesson 12: Using the Median to Describe the Center Lesson 13: Using the Interquartile Range to Describe Variability Lesson 15: More Practice with Box Plots Lesson 16: Interpreting Box Plots Topic D: Answering Statistical Questions by Analyzing Data Lesson 19: Comparing Data Distributions Lesson 22: Presenting Statistical Projects	
	6.SP.B.4	Module 6: Statistics Topic A: Understanding Distributions Lesson 3: Creating a Dot Plot	

Statistics and Distributions (cont.)		<p>Lesson 4: Creating a Histogram Lesson 5: Comparing Data Displays Lesson 6: Selecting a Data Display</p> <p>Topic C: Median, Interquartile Range, and Box Plots Lesson 14: Using a Box Plot to Summarize a Distribution Lesson 15: More Practice with Box Plots Lesson 16: Interpreting Box Plots</p> <p>Topic D: Answering Statistical Questions by Analyzing Data Lesson 19: Comparing Data Distributions Lesson 22: Presenting Statistical Projects</p>	
	6.SP.B.5	<p>Module 6: Statistics Topic A: Understanding Distributions Lesson 2: Describing a Data Distribution</p>	
	6.SP.B.6	<p>Module 6: Statistics Topic A: Understanding Distributions Lesson 1: Posing Statistical Questions Lesson 5: Comparing Data Displays</p> <p>Topic D: Answering Statistical Questions by Analyzing Data Lesson 17: Developing a Statistical Project Lesson 21: Comparing Data Distributions</p>	
	6.SP.B.7	<p>Module 6: Statistics Topic B: Mean and Mean Absolute Deviation Lesson 7: Using the Mean to Describe the Center Lesson 8: The Mean as a Balance Point Lesson 9: Variability in a Data Distribution Lesson 10: The Mean Absolute Deviation Lesson 11: Using the Mean and Mean Absolute Deviation</p>	
	6.SP.B.8	<p>Module 6: Statistics Topic D: Answering Statistical Questions by Analyzing Data Lesson 19: Comparing Data Distributions</p>	

Eureka Math² Scope and Sequence: Year at a Glance

Level 6: Ratios and Rates

If a district uses this resource to implement the state model curriculum for grade 6, the following scope and sequence should be followed to ensure alignment and attention to the progressions of mathematics.

Module 1 Ratios, Rates, and Percents	Module 2 Operations with Fractions and Multi-Digit Numbers	Module 3 Rational Numbers	Module 4 Expressions and One-Step Equations	Module 5 Area, Surface Area, and Volume	Module 6 Statistics
<p>Topic A: Ratios</p> <p>Lesson 1: Jars of Jelly Beans</p> <ul style="list-style-type: none"> Use multiplicative reasoning to estimate the solution to a real-world problem. <p>6.RP.A.3, MP3, 6.Mod1.AD3</p> <p>Lesson 2: Introduction to Ratios</p> <ul style="list-style-type: none"> Write ratios that relate two quantities as an ordered pair of numbers. Use ratio language to compare two quantities. <p>6.RP.A.1, MP2, 6.Mod1.AD1</p> <p>Lesson 3: Ratios and Tape Diagrams</p> <ul style="list-style-type: none"> Write multiple ratios to describe the same situation. Represent ratios with tape diagrams. <p>6.RP.A.1, 6.RP.A.3, MP6, 6.Mod1.AD1, 6.Mod1.AD3</p>	<p>Topic A: Factors, Multiples, and Divisibility</p> <p>Lesson 1: Factors and Multiples</p> <ul style="list-style-type: none"> Use visual models to determine common factors and common multiples of pairs of numbers. <p>6.NS.B.4, MP8, 6.Mod2.AD12, 6.Mod2.AD13</p> <p>Lesson 2: Divisibility</p> <ul style="list-style-type: none"> Determine whether numbers are divisible by other numbers. <p>6.NS.B.4, MP3, 6.Mod2.AD12, 6.Mod2.AD13</p> <p>Lesson 3: The Greatest Common Factor</p> <ul style="list-style-type: none"> Determine the greatest common factor of two whole numbers less than or equal to 100. <p>6.NS.B.4, MP7, 6.Mod2.AD12</p>	<p>Topic A: Integers and Rational Numbers</p> <p>Lesson 1: Positive and Negative Numbers</p> <ul style="list-style-type: none"> Represent quantities in real-world situations by using positive and negative numbers. Plot positive numbers, negative numbers, and 0 on horizontal and vertical number lines. <p>6.NS.C.5, MP2, 6.Mod3.AD1</p> <p>Lesson 2: Integers</p> <ul style="list-style-type: none"> Plot integers and their opposites on horizontal and vertical number lines and identify 0 as its own opposite. Identify the opposite of the opposite of a number. <p>6.NS.C.6.a, MP7, 6.Mod3.AD2, 6.Mod3.AD3</p>	<p>Topic A: Numerical Expressions</p> <p>Lesson 1: Expressions with Addition and Subtraction</p> <ul style="list-style-type: none"> Evaluate expressions with addition and subtraction. <p>6.EE.A.1, MP6, 6.Mod4.AD3</p> <p>Lesson 2: Expressions with Multiplication and Division</p> <ul style="list-style-type: none"> Evaluate expressions with multiplication and division. <p>6.EE.A.1, MP7, 6.Mod4.AD3</p> <p>Lesson 3: Exploring Exponents</p> <ul style="list-style-type: none"> Write numerical expressions by using exponential notation. <p>6.EE.A.1, MP3, 6.Mod4.AD3</p>	<p>Topic A: Areas of Polygons</p> <p>Lesson 1: The Area of a Parallelogram</p> <ul style="list-style-type: none"> Compose parallelograms into rectangles to derive the formula for the area of a parallelogram. Compute the area of a parallelogram by using the formula $A = bh$. <p>6.EE.A.2.c, 6.G.A.1, MP8, 6.Mod4.AD6, 6.Mod5.AD1</p> <p>Lesson 2: The Area of a Right Triangle</p> <ul style="list-style-type: none"> Compose two identical right triangles into a rectangle to derive the formula for the area of a right triangle. Compute the area of a right triangle by using the formula $A = \frac{1}{2}bh$. <p>6.EE.B.7, 6.G.A.1, MP3, 6.Mod4.AD13, 6.Mod5.AD1, 6.Mod5.AD2</p>	<p>Topic A: Understanding Distributions</p> <p>Lesson 1: Posing Statistical Questions</p> <ul style="list-style-type: none"> Identify and write statistical questions. Identify the types of data that can be collected to answer a statistical question. <p>6.SP.A.1, 6.SP.B.5.b, MP6, 6.Mod6.AD1, 6.Mod6.AD6</p> <p>Lesson 2: Describing a Data Distribution</p> <ul style="list-style-type: none"> Given a dot plot, describe the center, spread, and other characteristics of the data distribution. <p>6.SP.A.2, 6.SP.B.5.a, MP2, 6.Mod6.AD2, 6.Mod6.AD5</p> <p>Lesson 3: Creating a Dot Plot</p> <ul style="list-style-type: none"> Create a dot plot and describe a data distribution. <p>6.SP.A.2, 6.SP.B.4, MP1, 6.Mod6.AD2, 6.Mod6.AD4</p>


Module 1	Module 2	Module 3	Module 4	Module 5	Module 6
<p>Lesson 4: Exploring Ratios by Making Batches</p> <ul style="list-style-type: none"> • Create ratios by making batches of different quantities. • Use tape diagrams to determine unknown quantities in ratios. <p>6.RP.A.1, 6.RP.A.3, MP8, 6.Mod1.AD1, 6.Mod1.AD3</p> <hr/> <p>Lesson 5: Equivalent Ratios</p> <ul style="list-style-type: none"> • Find equivalent ratios by multiplying both numbers in a given ratio by the same nonzero number. • Use equivalent ratios to find unknown quantities. <p>6.RP.A.1, 6.RP.A.3, MP2, 6.Mod1.AD1, 6.Mod1.AD3</p> <hr/> <p>Topic B: Collections of Equivalent Ratios</p> <hr/> <p>Lesson 6: Ratio Tables and Double Number Lines</p> <ul style="list-style-type: none"> • Represent equivalent ratios by using ratio tables and double number lines. • Use representations of ratio relationships to solve problems. <p>6.RP.A.3, 6.RP.A.3.a, MP7, 6.Mod1.AD3, 6.Mod1.AD4</p> <hr/> <p>Lesson 7: Graphs of Ratio Relationships</p> <ul style="list-style-type: none"> • Plot points in the coordinate plane that each represent a ratio. • Identify characteristics of graphs, tables, and double number lines representing ratio relationships. <p>6.RP.A.3.a, MP2, 6.Mod1.AD4</p>	<p>Lesson 4: The Least Common Multiple</p> <ul style="list-style-type: none"> • Find the least common multiple of two whole numbers less than or equal to 12. <p>6.NS.B.4, MP6, 6.Mod2.AD13</p> <hr/> <p>Lesson 5: The Euclidean Algorithm (Optional)</p> <ul style="list-style-type: none"> • Find the greatest common factor of large numbers by using the Euclidean algorithm. • Find the least common multiple of large numbers by using the greatest common factor. <p>6.NS.B.4, MP7, 6.Mod2.AD12, 6.Mod2.AD13</p> <hr/> <p>Topic B: Dividing Fractions</p> <hr/> <p>Lesson 6: Dividing a Whole Number by a Fraction</p> <ul style="list-style-type: none"> • Divide a whole number by a fraction by using tape diagrams and reasoning about division. <p>6.NS.A.1, MP2, 6.Mod2.AD4, 6.Mod2.AD5, 6.Mod2.AD6</p> <hr/> <p>Lesson 7: Dividing a Fraction by a Whole Number</p> <ul style="list-style-type: none"> • Divide a fraction by a whole number. • Divide a mixed number by a whole number. <p>6.NS.A.1, MP1, 6.Mod2.AD4, 6.Mod2.AD5, 6.Mod2.AD6</p>	<p>Lesson 3: Rational Numbers</p> <ul style="list-style-type: none"> • Plot rational numbers on horizontal and vertical number lines. • Identify the locations of rational numbers plotted on horizontal and vertical number lines. <p>6.NS.C.6.a, 6.NS.C.6.c, MP3, 6.Mod3.AD3, 6.Mod3.AD6</p> <hr/> <p>Lesson 4: Rational Numbers in Real-World Situations</p> <ul style="list-style-type: none"> • Represent opposite quantities in real-world situations by using rational numbers. <p>6.NS.C.5, 6.NS.C.6.a, MP6, 6.Mod3.AD1, 6.Mod3.AD2</p> <hr/> <p>Topic B: Ordering and Magnitude</p> <hr/> <p>Lesson 5: Comparing Rational Numbers</p> <ul style="list-style-type: none"> • Write and interpret statements of comparison about rational numbers. • Compare rational numbers in real-world situations. <p>6.NS.C.7, 6.NS.C.7.a, 6.NS.C.7.b, MP3, 6.Mod3.AD8, 6.Mod3.AD9, 6.Mod3.AD10</p> <hr/> <p>Lesson 6: Ordering Rational Numbers</p> <ul style="list-style-type: none"> • Order rational numbers. • Write, interpret, and explain statements of order for rational numbers in real-world situations. <p>6.NS.C.7, 6.NS.C.7.a, 6.NS.C.7.b, MP1, 6.Mod3.AD8, 6.Mod3.AD9, 6.Mod3.AD10</p>	<p>Lesson 4: Evaluating Expressions with Exponents</p> <ul style="list-style-type: none"> • Evaluate numerical expressions written in exponential notation. <p>6.EE.A.1, MP7, 6.Mod4.AD3</p> <hr/> <p>Lesson 5: Exploring Order of Operations</p> <ul style="list-style-type: none"> • Identify the relationships between operations and apply those relationships when evaluating expressions. <p>6.EE.A.1, MP6, 6.Mod4.AD3</p> <hr/> <p>Lesson 6: Order of Operations</p> <ul style="list-style-type: none"> • Evaluate numerical expressions with exponents by using the conventional order of operations. <p>6.EE.A.1, MP1, 6.Mod4.AD3</p> <hr/> <p>Topic B: Expressions and Real-World Problems</p> <hr/> <p>Lesson 7: Algebraic Expressions with Addition and Subtraction</p> <ul style="list-style-type: none"> • Write algebraic expressions to represent descriptions involving addition and subtraction. • Write descriptions of algebraic expressions involving addition and subtraction. <p>6.EE.A.2.a, 6.EE.A.2.b, MP8, 6.Mod4.AD4, 6.Mod4.AD5</p>	<p>Lesson 3: The Area of a Triangle</p> <ul style="list-style-type: none"> • Compose two identical triangles into a parallelogram to derive the formula for the area of a triangle. • Compute the area of any triangle by using the formula $A = \frac{1}{2}bh$. <p>6.EE.A.2.c, 6.G.A.1, MP7, 6.Mod4.AD6, 6.Mod5.AD1</p> <hr/> <p>Lesson 4: Areas of Triangles in Real-World Situations</p> <ul style="list-style-type: none"> • Use composition or decomposition to write equivalent expressions that represent the area of a triangle. • Solve real-world and mathematical problems involving the areas of triangles. <p>6.EE.A.3, 6.G.A.1, MP2, 6.Mod4.AD7, 6.Mod5.AD1, 6.Mod5.AD2</p> <hr/> <p>Topic B: Problem Solving with Area</p> <hr/> <p>Lesson 5: Perimeter and Area in the Coordinate Plane</p> <ul style="list-style-type: none"> • Determine the perimeters of rectangles and polygons graphed in the coordinate plane. • Determine the areas of parallelograms, rectangles, and polygons graphed in the coordinate plane. <p>6.NS.C.8, 6.G.A.1, 6.G.A.3, MP7, 6.Mod3.AD14, 6.Mod5.AD1, 6.Mod5.AD5</p>	<p>Lesson 4: Creating a Histogram</p> <ul style="list-style-type: none"> • Use a frequency table to construct a frequency histogram for a data distribution. <p>6.SP.A.2, 6.SP.B.4, MP2, 6.Mod6.AD2, 6.Mod6.AD4</p> <hr/> <p>Lesson 5: Comparing Data Displays</p> <ul style="list-style-type: none"> • Identify the differences between bar graphs and histograms. • Construct relative frequency histograms. <p>6.SP.B.4, 6.SP.B.5.b, MP5, 6.Mod6.AD4, 6.Mod6.AD6</p> <hr/> <p>Lesson 6: Selecting a Data Display</p> <ul style="list-style-type: none"> • Display data by using a dot plot or a histogram and describe the data distribution. <p>6.SP.A.1, 6.SP.B.4, MP5, 6.Mod6.AD1, 6.Mod6.AD4</p> <hr/> <p>Topic B: Mean and Mean Absolute Deviation</p> <hr/> <p>Lesson 7: Using the Mean to Describe the Center</p> <ul style="list-style-type: none"> • Describe the center of a data distribution by using an equal share value called the mean. • Connect the concept of equal shares with the mathematical formula for finding the mean. <p>6.SP.A.3, 6.SP.B.5.c, MP2, 6.Mod6.AD3, 6.Mod6.AD7</p>

Module 1	Module 2	Module 3	Module 4	Module 5	Module 6
<p>Lesson 8: Addition Patterns in Ratio Relationships</p> <ul style="list-style-type: none"> Use addition patterns in tables and graphs of equivalent ratios to describe ratio relationships and find unknown quantities. <p>6.RP.A.1, 6.RP.A.3, 6.RP.A.3.a, MP7, 6.Mod1.AD1, 6.Mod1.AD3, 6.Mod1.AD4</p> <p>Lesson 9: Multiplication Patterns in Ratio Relationships</p> <ul style="list-style-type: none"> Use graphs and tables to explore multiplication patterns in ratio relationships. Use multiplication to complete ratio tables. <p>6.RP.A.3, 6.RP.A.3.a, MP7, 6.Mod1.AD3, 6.Mod1.AD4</p> <p>Lesson 10: Multiplicative Reasoning in Ratio Relationships</p> <ul style="list-style-type: none"> Write and use equivalent ratios when one of the numbers in the ratio is 1. <p>6.RP.A.1, 6.RP.A.3, 6.RP.A.3.a, MP8, 6.Mod1.AD1, 6.Mod1.AD3, 6.Mod1.AD4</p> <p>Lesson 11: Applications of Ratio Reasoning</p> <ul style="list-style-type: none"> Solve multi-step ratio problems by reasoning about equivalent ratios. <p>6.RP.A.1, 6.RP.A.3, 6.RP.A.3.a, MP1, 6.Mod1.AD1, 6.Mod1.AD3, 6.Mod1.AD4</p>	<p>Lesson 8: Dividing Fractions by Making Common Denominators</p> <ul style="list-style-type: none"> Divide a fraction by a fraction by using a common denominator. Divide a mixed number by a fraction by using a common denominator. <p>6.NS.A.1, MP7, 6.Mod2.AD3, 6.Mod2.AD4, 6.Mod2.AD6</p> <hr/> <p>Topic C: Dividing Fractions Fluently</p> <p>Lesson 9: Dividing Fractions by Using Tape Diagrams</p> <ul style="list-style-type: none"> Use a tape diagram to divide a fraction by a fraction. Relate division of a fraction by a fraction to an unknown factor problem. <p>6.NS.A.1, MP8, 6.Mod2.AD4, 6.Mod2.AD5, 6.Mod2.AD6</p> <p>Lesson 10: Dividing Fractions by Using the Invert and Multiply Strategy</p> <ul style="list-style-type: none"> Use the invert and multiply strategy to divide a fraction by a fraction. <p>6.NS.A.1, MP7, 6.Mod2.AD4, 6.Mod2.AD6</p> <p>Lesson 11: Applications of Fraction Division</p> <ul style="list-style-type: none"> Solve real-world problems by dividing fractions and mixed numbers. <p>6.NS.A.1, MP1, 6.Mod2.AD5</p> <p>Lesson 12: Fraction Operations in a Real-World Situation</p> <ul style="list-style-type: none"> Add, subtract, multiply, and divide fractions and mixed numbers to solve real-world problems. <p>6.NS.A.1, MP2, 6.Mod2.AD5</p>	<p>Lesson 7: Absolute Value</p> <ul style="list-style-type: none"> Determine the absolute values of rational numbers. <p>6.NS.C.7.c, MP8, 6.Mod3.AD11, 6.Mod3.AD12</p> <p>Lesson 8: Absolute Value and Order</p> <ul style="list-style-type: none"> Explain the relationship between the order of rational numbers and the order of their absolute values. Order and compare the absolute values of rational numbers and the magnitudes of real-world quantities. <p>6.NS.C.7, 6.NS.C.7.d, MP2, 6.Mod3.AD8, 6.Mod3.AD13</p> <p>Lesson 9: Interpreting Order and Distance in Real-World Situations</p> <ul style="list-style-type: none"> Distinguish between comparisons of absolute value and statements of order in real-world situations. Determine and interpret distance between rational numbers. <p>6.NS.C.7.d, MP1, 6.Mod3.AD13</p> <hr/> <p>Topic C: The Coordinate Plane</p> <p>Lesson 10: The Four Quadrants of the Coordinate Plane</p> <ul style="list-style-type: none"> Use ordered pairs to identify the locations of points in the coordinate plane. Relate the signs of x- and y-coordinates to each of the four quadrants of the coordinate plane. <p>6.NS.C.6.b, MP7, 6.Mod3.AD4</p>	<p>Lesson 8: Algebraic Expressions with Addition, Subtraction, Multiplication, and Division</p> <ul style="list-style-type: none"> Write algebraic expressions to represent descriptions involving addition, subtraction, multiplication, and division. Write descriptions of algebraic expressions involving addition, subtraction, multiplication, and division. <p>6.EE.A.2.a, 6.EE.A.2.b, 6.EE.A.2.c, MP6, 6.Mod4.AD4, 6.Mod4.AD5, 6.Mod4.AD6</p> <p>Lesson 9: Addition and Subtraction Expressions from Real-World Situations</p> <ul style="list-style-type: none"> Define variables precisely. Write algebraic expressions involving addition and subtraction to represent real-world situations. <p>6.EE.A.2.a, 6.EE.A.2.b, 6.EE.B.6, MP6, 6.Mod4.AD4, 6.Mod4.AD5, 6.Mod4.AD11</p> <p>Lesson 10: Multiplication and Division Expressions from Real-World Situations</p> <ul style="list-style-type: none"> Write and interpret algebraic expressions involving multiplication and division that represent real-world situations. <p>6.EE.B.6, MP2, 6.Mod4.AD11</p> <p>Lesson 11: Modeling Real-World Situations with Expressions</p> <ul style="list-style-type: none"> Write algebraic expressions with two terms to represent real-world situations involving addition and multiplication. <p>6.EE.A.2.b, 6.EE.A.2.c, 6.EE.B.6, MP2, 6.Mod4.AD5, 6.Mod4.AD6, 6.Mod4.AD11</p>	<p>Lesson 6: Problem Solving with Area in the Coordinate Plane</p> <ul style="list-style-type: none"> Determine the areas of triangles graphed in the coordinate plane. Determine the areas of polygons composed of triangles and parallelograms graphed in the coordinate plane. <p>6.EE.A.3, 6.G.A.1, 6.G.A.3, MP1, 6.Mod4.AD7, 6.Mod5.AD1, 6.Mod5.AD5</p> <p>Lesson 7: Areas of Trapezoids and Other Polygons</p> <ul style="list-style-type: none"> Calculate the areas of trapezoids and other polygons by using composition and decomposition. Use composition or decomposition to write equivalent expressions for the areas of polygons. <p>6.EE.A.3, 6.EE.A.4, 6.G.A.1, MP3, 6.Mod4.AD7, 6.Mod4.AD8, 6.Mod5.AD1</p> <p>Lesson 8: Areas of Composite Figures in Real-World Situations</p> <ul style="list-style-type: none"> Determine the areas of real-world composite figures. Solve problems in real-world situations involving rates and areas. <p>6.RP.A.3.b, 6.G.A.1, MP4, 6.Mod1.AD6, 6.Mod5.AD1, 6.Mod5.AD2</p> <hr/> <p>Topic C: Nets and Surface Area</p> <p>Lesson 9: Properties of Solids</p> <ul style="list-style-type: none"> Identify the shapes of the faces of right prisms and pyramids. Name parallel and perpendicular edges and faces of solids. <p>6.G.A.4, MP6, 6.Mod5.AD6</p>	<p>Lesson 8: The Mean as a Balance Point</p> <ul style="list-style-type: none"> Describe the center of a distribution by using the mean and interpret the mean as a balance point. <p>6.SP.A.3, 6.SP.B.5.c, MP2, 6.Mod6.AD3, 6.Mod6.AD7</p> <p>Lesson 9: Variability in a Data Distribution</p> <ul style="list-style-type: none"> Describe a data distribution by using the mean and variability. <p>6.SP.A.2, 6.SP.A.3, MP2, 6.Mod6.AD2, 6.Mod6.AD3</p> <p>Lesson 10: The Mean Absolute Deviation</p> <ul style="list-style-type: none"> Calculate and interpret the mean absolute deviation for a data distribution. <p>6.SP.A.3, 6.SP.B.5.c, MP8, 6.Mod6.AD3, 6.Mod6.AD7</p> <p>Lesson 11: Using the Mean and Mean Absolute Deviation</p> <ul style="list-style-type: none"> Use the mean and mean absolute deviation to describe a data distribution. <p>6.SP.A.3, 6.SP.B.5.c, MP6, 6.Mod6.AD3, 6.Mod6.AD7</p> <hr/> <p>Topic C: Median, Interquartile Range, and Box Plots</p> <p>Lesson 12: Using the Median to Describe the Center</p> <ul style="list-style-type: none"> Calculate and interpret the median of a data distribution. <p>6.SP.A.3, 6.SP.B.5.c, MP6, 6.Mod6.AD3, 6.Mod6.AD7</p>

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<p>Topic C: Comparing Ratio Relationships</p> <p>Lesson 12: Multiple Ratio Relationships</p> <ul style="list-style-type: none"> Compare ratio relationships by using graphs, tables, and double number lines. <p>6.RP.A.3.a, MP5, 6.Mod1.AD4, 6.Mod1.AD5</p> <p>Lesson 13: Comparing Ratio Relationships, Part 1</p> <ul style="list-style-type: none"> Compare ratio relationships by using ratio tables. <p>6.RP.A.3.a, MP7, 6.Mod1.AD5</p> <p>Lesson 14: Comparing Ratio Relationships, Part 2</p> <ul style="list-style-type: none"> Compare ratio relationships by creating equivalent ratios. <p>6.RP.A.3.a, MP3, 6.Mod1.AD5</p> <p>Lesson 15: The Value of the Ratio</p> <ul style="list-style-type: none"> Compare ratio relationships by using the value of the ratio. <p>6.RP.A.2, 6.RP.A.3.a, MP6, 6.Mod1.AD2, 6.Mod1.AD5</p> <hr/> <p>Topic D: Rates</p> <p>Lesson 16: Speed</p> <ul style="list-style-type: none"> Find distance and time corresponding to a given speed. Identify real-world examples of rates and interpret their meanings in context. <p>6.RP.A.2, 6.RP.A.3.a, 6.RP.A.3.b, MP2, 6.Mod1.AD2, 6.Mod1.AD4, 6.Mod1.AD6</p>	<p>Topic D: Decimal Addition, Subtraction, and Multiplication</p> <p>Lesson 13: Decimal Addition and Subtraction</p> <ul style="list-style-type: none"> Add and subtract decimals by using the standard algorithms for each operation. <p>6.NS, 6.NS.B.3, MP5, 6.Mod2.AD2, 6.Mod2.AD9</p> <p>Lesson 14: Patterns in Multiplying Decimals</p> <ul style="list-style-type: none"> Recognize and apply patterns in factors when multiplying whole numbers and decimals. <p>6.NS.B.3, MP8, 6.Mod2.AD10</p> <p>Lesson 15: Decimal Multiplication</p> <ul style="list-style-type: none"> Multiply decimals by using the standard algorithm. <p>6.NS, 6.NS.B.3, MP6, 6.Mod2.AD2, 6.Mod2.AD10</p> <p>Lesson 16: Applications of Decimal Operations</p> <ul style="list-style-type: none"> Create a model of a building and use decimal operations to calculate cost, revenue, and profit or loss. <p>6.NS, MP4, 6.Mod2.AD2</p>	<p>Lesson 11: Plotting Points in the Coordinate Plane</p> <ul style="list-style-type: none"> Use ordered pairs to plot points in the coordinate plane. <p>6.NS.C.6.b, 6.NS.C.6.c, MP6, 6.Mod3.AD4, 6.Mod3.AD7</p> <p>Lesson 12: Reflections in the Coordinate Plane</p> <ul style="list-style-type: none"> Graph points and their reflections in the coordinate plane. Recognize that when two ordered pairs differ only by the sign of one or both coordinates, the locations of the points are related by reflections across one or both axes. <p>6.NS.C.6.b, 6.NS.C.6.c, MP8, 6.Mod3.AD4, 6.Mod3.AD5, 6.Mod3.AD7</p> <p>Lesson 13: Constructing the Coordinate Plane</p> <ul style="list-style-type: none"> Draw and label a coordinate plane, choosing a reasonable scale for a given set of points. Plot points and describe how a graph changes when the scale changes. <p>6.NS.C.6.b, 6.NS.C.6.c, MP5, 6.Mod3.AD4, 6.Mod3.AD7</p> <p>Lesson 14: Modeling with the Coordinate Plane</p> <ul style="list-style-type: none"> Create time graphs in the coordinate plane. Solve real-world problems by using time graphs. <p>6.NS.C.8, MP4, 6.Mod3.AD14</p>	<p>Topic C: Equivalent Expressions Using the Properties of Operations</p> <p>Lesson 12: Applying Properties to Multiplication and Division Expressions</p> <ul style="list-style-type: none"> Write and identify equivalent algebraic expressions involving multiplication and division by using the properties of operations. Write algebraic expressions that represent real-world situations. <p>6.EE.A.2.c, 6.EE.A.3, 6.EE.A.4, MP3, 6.Mod4.AD6, 6.Mod4.AD7, 6.Mod4.AD8</p> <p>Lesson 13: The Distributive Property</p> <ul style="list-style-type: none"> Use the distributive property to write the product of two factors as a sum or difference. <p>6.NS.B.4, 6.EE.A.3, 6.EE.A.4, MP7, 6.Mod4.AD2, 6.Mod4.AD7, 6.Mod4.AD8</p> <p>Lesson 14: Using the Distributive Property to Factor Expressions</p> <ul style="list-style-type: none"> Use the distributive property to write a sum or difference as the product of two factors. <p>6.NS.B.4, 6.EE.A.3, 6.EE.A.4, MP7, 6.Mod4.AD2, 6.Mod4.AD7, 6.Mod4.AD8</p>	<p>Lesson 10: Discovering Nets of Solids</p> <ul style="list-style-type: none"> Represent solids by using nets composed of triangles and rectangles. <p>6.G.A.4, MP6, 6.Mod5.AD6</p> <p>Lesson 11: Constructing Nets of Solids</p> <ul style="list-style-type: none"> Draw and label nets for three-dimensional objects. Determine the surface area of a solid by using its net. <p>6.G.A.4, MP7, 6.Mod5.AD6, 6.Mod5.AD7</p> <p>Lesson 12: From Nets to Surface Area</p> <ul style="list-style-type: none"> Determine the surface area of a solid. Develop the surface area formula for right rectangular prisms and use it to calculate surface area. <p>6.EE.A.2.c, 6.EE.A.4, 6.G.A.4, MP8, 6.Mod4.AD6, 6.Mod4.AD8, 6.Mod5.AD6</p> <p>Lesson 13: Surface Area in Real-World Situations</p> <ul style="list-style-type: none"> Solve real-world problems involving rates and surface area of right prisms and pyramids. <p>6.RP.A.3.b, 6.EE.A.2.c, 6.G.A.4, MP1, 6.Mod1.AD6, 6.Mod4.AD6, 6.Mod5.AD7</p> <p>Lesson 14: Designing a Box</p> <ul style="list-style-type: none"> Design different boxes for a product and calculate each box's surface area. <p>6.EE.A.2.c, 6.G.A.4, MP4, 6.Mod4.AD6, 6.Mod5.AD7</p>	<p>Lesson 13: Using the Interquartile Range to Describe Variability</p> <ul style="list-style-type: none"> Calculate quartiles of a data distribution and describe the variability by using the interquartile range. <p>6.SP.A.3, 6.SP.B.5.c, MP6, 6.Mod6.AD3, 6.Mod6.AD7</p> <p>Lesson 14: Using a Box Plot to Summarize a Distribution</p> <ul style="list-style-type: none"> Describe a data distribution by using the five-number summary and the interquartile range. Construct and interpret a box plot from a five-number summary. <p>6.SP.A.2, 6.SP.B.4, MP7, 6.Mod6.AD2, 6.Mod6.AD4</p> <p>Lesson 15: More Practice with Box Plots</p> <ul style="list-style-type: none"> Construct and use box plots to analyze data distributions. <p>6.SP.A.3, 6.SP.B.4, MP7, 6.Mod6.AD3, 6.Mod6.AD4</p> <p>Lesson 16: Interpreting Box Plots</p> <ul style="list-style-type: none"> Summarize a data distribution by using a box plot, the median, and the interquartile range. Use box plots to compare two data distributions. <p>6.SP.A.3, 6.SP.B.4, MP7, 6.Mod6.AD3, 6.Mod6.AD4</p>

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<p>Lesson 17: Rates</p> <ul style="list-style-type: none"> Identify rates and unit rates. Calculate one quantity when given another quantity and a constant rate. <p>6.RP.A.2, 6.RP.A.3.b, MP2, 6.Mod1.AD2, 6.Mod1.AD6</p> <p>Lesson 18: Comparing Rates</p> <ul style="list-style-type: none"> Compare rates with like units of measurement by using unit rate. <p>6.RP.A.2, 6.RP.A.3.a, 6.RP.A.3.b, MP2, 6.Mod1.AD2, 6.Mod1.AD5, 6.Mod1.AD6</p> <p>Lesson 19: Using Rates to Convert Units</p> <ul style="list-style-type: none"> Convert units of measurement by applying rate reasoning. <p>6.RP.A.2, 6.RP.A.3.b, 6.RP.A.3.d, MP6, 6.Mod1.AD2, 6.Mod1.AD6, 6.Mod1.AD9</p> <p>Lesson 20: Solving Rate Problems</p> <ul style="list-style-type: none"> Apply rate reasoning to solve real-world ratio problems involving speed, unit pricing, and unit conversions. Find an unknown quantity when given a rate and a known quantity. <p>6.RP.A.2, 6.RP.A.3.b, 6.RP.A.3.d, MP1, 6.Mod1.AD2, 6.Mod1.AD6, 6.Mod1.AD9</p> <hr/> <p>Topic E: Percents</p> <p>Lesson 21: Solving Multi-Step Rate Problems</p> <ul style="list-style-type: none"> Solve problems involving multiple constant rates. <p>6.RP.A.3.b, 6.RP.A.3.d, MP4, 6.Mod1.AD6, 6.Mod1.AD9</p>	<p>Topic E: Division of Multi-Digit Numbers</p> <p>Lesson 17: Partial Quotients</p> <ul style="list-style-type: none"> Divide multi-digit whole numbers by using the partial quotients method, and express quotients as mixed numbers. <p>6.NS.B, 6.NS.B.2 MP8, 6.Mod2.AD7, 6.Mod2.AD8</p> <p>Lesson 18: The Standard Division Algorithm</p> <ul style="list-style-type: none"> Divide multi-digit whole numbers by using the standard algorithm. <p>6.NS.B.2, MP7, 6.Mod2.AD8</p> <p>Lesson 19: Expressing Quotients as Decimals</p> <ul style="list-style-type: none"> Divide multi-digit whole numbers by using the standard algorithm, and express quotients as decimals. <p>6.NS.B.2, MP6, 6.Mod2.AD8</p> <hr/> <p>Lesson 20: Real-World Division Problems</p> <ul style="list-style-type: none"> Create and solve real-world division problems. <p>6.NS, MP2, 6.Mod2.AD1</p> <hr/> <p>Topic F: Decimal Division</p> <p>Lesson 21: Dividing a Decimal by a Whole Number</p> <ul style="list-style-type: none"> Divide a decimal by a multi-digit whole number by using the standard division algorithm. <p>6.NS.B.3, MP6, 6.Mod2.AD11</p>	<p>Topic D: Solving Problems in the Coordinate Plane</p> <p>Lesson 15: Distance in the Coordinate Plane</p> <ul style="list-style-type: none"> Find the lengths of horizontal and vertical line segments with rational number coordinates as endpoints in the coordinate plane by counting the number of units between endpoints and by using absolute value. <p>6.NS.C.6.c, 6.NS.C.8, MP8, 6.Mod3.AD7, 6.Mod3.AD14</p> <p>Lesson 16: Figures in the Coordinate Plane</p> <ul style="list-style-type: none"> Graph geometric figures in all four quadrants of the coordinate plane. Use distance and symmetry to solve geometric problems in the coordinate plane. <p>6.NS.C.6.c, 6.NS.C.8, MP7, 6.Mod3.AD7, 6.Mod3.AD14</p> <p>Lesson 17: Problem Solving with the Coordinate Plane</p> <ul style="list-style-type: none"> Solve geometric and real-world problems by using the coordinate plane. <p>6.NS.C.6.c, 6.NS.C.8, MP1, 6.Mod3.AD7, 6.Mod3.AD14</p> <hr/> <p>Lesson 18: Inequalities and Solutions</p> <ul style="list-style-type: none"> Represent solutions to inequalities on number lines. Identify whether a number is a solution to an inequality by using substitution. <p>6.EE.B.5, 6.EE.B.8, MP2, 6.Mod4.AD10, 6.Mod4.AD14, 6.Mod4.AD15</p>	<p>Lesson 15: Combining Like Terms by Using the Distributive Property</p> <ul style="list-style-type: none"> Add and subtract like terms by using the distributive property. Write an algebraic expression that represents a geometric situation. <p>6.EE.A.3, 6.EE.A.4, MP7, 6.Mod4.AD7, 6.Mod4.AD8</p> <p>Lesson 16: Equivalent Algebraic Expressions</p> <ul style="list-style-type: none"> Write equivalent expressions by using the properties of operations and combining like terms. Write algebraic expressions that represent real-world situations. <p>6.EE.A.3, 6.EE.A.4, 6.EE.B.6, MP2, 6.Mod4.AD7, 6.Mod4.AD8, 6.Mod4.AD11</p> <hr/> <p>Topic D: Equations and Inequalities</p> <p>Lesson 17: Equations and Solutions</p> <ul style="list-style-type: none"> Determine whether a number sentence is true. Determine whether a number is a solution to an equation by using substitution. <p>6.EE.A.2.c, 6.EE.B.5, 6.EE.B.7, MP2, 6.Mod4.AD6, 6.Mod4.AD9, 6.Mod4.AD13</p> <p>Lesson 18: Inequalities and Solutions</p> <ul style="list-style-type: none"> Represent solutions to inequalities on number lines. Identify whether a number is a solution to an inequality by using substitution. <p>6.EE.B.5, 6.EE.B.8, MP2, 6.Mod4.AD10, 6.Mod4.AD14, 6.Mod4.AD15</p>	<p>Topic D: Volumes of Right Rectangular Prisms</p> <p>Lesson 15: Exploring Volume</p> <ul style="list-style-type: none"> Find the volumes of right rectangular prisms that have fractional edge lengths by packing with cubes that have fractional edge lengths. <p>6.G.A.2, MP7, 6.Mod5.AD3</p> <p>Lesson 16: Applying Volume Formulas</p> <ul style="list-style-type: none"> Solve real-world and mathematical problems by applying the formulas $V = lwh$ and $V = Bh$ to find volumes of right rectangular prisms with fractional edge lengths. <p>6.EE.A.2.c, 6.G.A.2, MP3, 6.Mod4.AD6, 6.Mod5.AD3, 6.Mod5.AD4</p> <p>Lesson 17: Problem Solving with Volume</p> <ul style="list-style-type: none"> Solve real-world and mathematical problems by applying ratio reasoning to find volumes of right rectangular prisms. <p>6.EE.A.4, 6.G.A.2, MP8, 6.Mod4.AD8, 6.Mod5.AD4</p> <p>Lesson 18: Volumes of Composite Solids</p> <ul style="list-style-type: none"> Determine the volumes of solids composed of right rectangular prisms. <p>6.G.A.2, MP5, 6.Mod5.AD4</p>	<p>Topic D: Answering Statistical Questions by Analyzing Data</p> <p>Lesson 17: Developing a Statistical Project</p> <ul style="list-style-type: none"> Develop a statistical question to guide data collection. Develop a plan to collect a data set to answer a proposed statistical question. <p>6.SP.A.1, 6.SP.B.5.b, MP4, 6.Mod6.AD1, 6.Mod6.AD6</p> <p>Lesson 18: Connecting Graphical Representations and Summary Measures</p> <ul style="list-style-type: none"> Find exact and approximate features of data distributions from data displays. Compare the effectiveness of data displays at communicating different features of data distributions. <p>6.SP.A.2, 6.SP.B.5.c, MP3, 6.Mod6.AD2, 6.Mod6.AD7</p> <p>Lesson 19: Comparing Data Distributions</p> <ul style="list-style-type: none"> Compare data distributions by using relative frequency histograms and box plots. <p>6.SP.A.3, 6.SP.B.4, MP7, 6.Mod6.AD3, 6.Mod6.AD4</p> <p>Lesson 20: Choosing a Measure of Center</p> <ul style="list-style-type: none"> Choose a measure of center for a data distribution. Justify the choice of a measure of center based on the shape of the distribution and the context. <p>6.SP.B.5.d, MD7, 6.Mod6.AD8</p>

Module 1	Module 2	Module 3	Module 4	Module 5	Module 6
<p>Lesson 22: Introduction to Percents</p> <ul style="list-style-type: none"> • Relate percents to a part-to-whole relationship where the whole is 100. • Model percents and write percents in fraction and decimal forms. <p>6.RP.A.3.c, MP8, 6.Mod1.AD7</p> <p>Lesson 23: Finding the Percent</p> <ul style="list-style-type: none"> • Calculate a percent when given a part and the whole. • Discover that if multiple parts make a whole, then the percent representing each of the parts should total 100%. <p>6.RP.A.3.c, MP8, 6.Mod1.AD7, 6.Mod1.AD8</p> <p>Lesson 24: Finding a Part</p> <ul style="list-style-type: none"> • Calculate a part when given the whole and a percent. <p>6.RP.A.3.c, MP3, 6.Mod1.AD8</p> <p>Lesson 25: Finding the Whole</p> <ul style="list-style-type: none"> • Calculate the whole when given a part and a percent. <p>6.RP.A.3.c, MP1, 6.Mod1.AD8</p> <p>Lesson 26: Solving Percent Problems</p> <ul style="list-style-type: none"> • Solve multi-step percent problems. <p>6.RP.A.3.c, MP1, 6.Mod1.AD7, 6.Mod1.AD8</p> <p>■</p>	<p>Lesson 22: Dividing a Decimal by a Decimal Greater Than 1</p> <ul style="list-style-type: none"> • Divide a decimal by a decimal greater than 1 by using the standard algorithm. <p>6.NS.B.3, MP3, 6.Mod2.AD11</p> <p>Lesson 23: Dividing a Decimal by a Decimal Less Than 1</p> <ul style="list-style-type: none"> • Divide a decimal by a decimal less than 1 by using the standard algorithm. • Solve real-world problems by dividing a decimal by a decimal. <p>6.NS.B.3, MP1, 6.Mod2.AD11</p> <p>Lesson 24: Living on Mars</p> <ul style="list-style-type: none"> • Solve real-world problems by performing operations with decimals. <p>6.NS.B.3, MP1, 6.Mod2.AD2, 6.Mod2.AD11</p> <p>■</p>		<p>Lesson 19: Solving Equations with Addition and Subtraction</p> <ul style="list-style-type: none"> • Solve addition and subtraction equations by using tape diagrams and algebraic reasoning. <p>6.EE.B.5, 6.EE.B.7, MP7, 6.Mod4.AD9, 6.Mod4.AD12</p> <p>Lesson 20: Solving Equations with Multiplication and Division</p> <ul style="list-style-type: none"> • Solve multiplication and division equations by using tape diagrams and algebraic reasoning. <p>6.EE.B.5, 6.EE.B.7, MP6, 6.Mod4.AD9, 6.Mod4.AD12</p> <p>Lesson 21: Solving Problems with Equations</p> <ul style="list-style-type: none"> • Solve problems by writing and solving equations. <p>6.EE.B.7, MP1, 6.Mod4.AD12, 6.Mod4.AD13</p> <hr/> <p>Topic E: Relating Variables by Using Tables, Graphs, and Equations</p> <p>Lesson 22: Relationship Between Two Variables</p> <ul style="list-style-type: none"> • Represent a ratio relationship with a table and two-variable equation. • Identify the independent and dependent variables in a real-world or mathematical situation. <p>6.RP.A.3, 6.EE.C.9, MP3, 6.Mod4.AD1, 6.Mod4.AD16, 6.Mod4.AD17</p>	<p>Lesson 19: Volume and Surface Area in Real-World Situations</p> <ul style="list-style-type: none"> • Solve real-world problems that involve surface area and volume. <p>6.G.A.2, 6.G.A.4, MP2, 6.Mod5.AD4, 6.Mod5.AD7</p> <p>■</p>	<p>Lesson 21: Comparing Measures of Variability</p> <ul style="list-style-type: none"> • Recognize measurement variability and its causes. • Assess variability visually and by using the range, mean absolute deviation, and interquartile range. <p>6.SP.B.5.b, 6.SP.B.5.c, MP6, 6.Mod6.AD6, 6.Mod6.AD7</p> <p>Lesson 22: Presenting Statistical Projects</p> <ul style="list-style-type: none"> • Present statistical projects that use the investigative process and critique the work of others by using the tools learned in this module. <p>6.SP.A.3, 6.SP.B.4, MP4, 6.Mod6.AD3, 6.Mod6.AD4</p> <p>■</p>
▼	▼	▼	▼	▼	▼

Module 1	Module 2	Module 3	Module 4	Module 5	Module 6
			<p>Lesson 23: Graphs of Ratio Relationships</p> <ul style="list-style-type: none">• Analyze the relationship between the independent and dependent variables in the graph of a ratio relationship.• Represent a ratio relationship with a table, graph, and two-variable equation. <p>6.RP.A.3, 6.EE.C.9, MP5, 6.Mod4.AD1, 6.Mod4.AD16, 6.Mod4.AD17</p> <p>Lesson 24: Graphs of Non–Ratio Relationships</p> <ul style="list-style-type: none">• Represent a real-world situation with a table, graph, and two-variable equation.• Analyze the relationship between the variables in a real-world situation. <p>6.EE.C.9, MP2, 6.Mod4.AD16, 6.Mod4.AD17</p> <p>Lesson 25: The Statue of Liberty</p> <ul style="list-style-type: none">• Use tables, graphs, and equations to estimate the solution to a real-world problem. <p>6.EE.C.9, MP4, 6.Mod1.AD16</p> 		

Year-Long Curriculum Overview: Levels 6–8

Trimester and quarter indicators are provided as a guide for pacing. A few optional lessons in each grade level are included in total number of lessons. About thirty additional days are allotted at each level for assessment and responsive teaching.

		STORY OF RATIOS		
		Level 6 Ratios and Rates	Level 7 Ratios and Proportionality	Level 8 Ratios and Linearity
Trimester 1	Quarter 1	Module 1: Ratios, Rates, and Percents 5 Topics 26 Lessons	Module 1: Ratios and Proportional Relationships 3 Topics 20 Lessons	Module 1: Scientific Notation, Exponents, and Irrational Numbers 5 Topics 24 Lessons
		Module 2: Operations with Fractions and Multi-Digit Numbers 6 Topics 24 Lessons	Module 2: Operations with Rational Numbers 5 Topics 26 Lessons	Module 2: Rigid Motions and Congruent Figures 4 Topics 22 Lessons
Trimester 2	Quarter 2	Module 3: Rational Numbers 4 Topics 17 Lessons	Module 3: Expressions, Equations, and Inequalities 4 Topics 23 Lessons	Module 3: Dilations and Similar Figures 4 Topics 17 Lessons
		Module 4: Expressions and One-Step Equations 5 Topics 25 Lessons	Module 4: Geometry 5 Topics 26 Lessons	Module 4: Linear Equations in One and Two Variables 6 Topics 27 Lessons
Trimester 3	Quarter 3	Module 5: Area, Surface Area, and Volume 4 Topics 19 Lessons	Module 5: Percent and Applications of Percent 5 Topics 24 Lessons	Module 5: Systems of Linear Equations 3 Topics 14 Lessons
		Module 6: Statistics 4 Topics 22 Lessons	Module 6: Probability and Populations 4 Topics 19 Lessons	Module 6: Functions and Bivariate Statistics 5 Topics 25 Lessons
		TOTAL: 28 Topics 133 Lessons	TOTAL: 26 Topics 138 Lessons	TOTAL: 27 Topics 129 Lessons

Supports of Diversity, Equity and Inclusion

Providing Culturally Responsive Instruction

*Eureka Math*² values the funds of knowledge that students bring into the classroom and acknowledges that deep learning happens when all students are able to leverage their diverse life experiences while learning mathematics.

One of the ways *Eureka Math*² invites students into mathematics and celebrates the diversity present in every classroom is by highlighting for teachers those specific lesson moments that can be tailored to bring students’ experiences from their home and communities into the classroom. For example, a strategically placed Universal Design for Learning (UDL) margin note in grade 7 module 5 lesson 15 highlights that providing students with a restaurant menu allows them to choose the meal they would like to order and promotes relevance because students can draw on their own experiences to understand the problem.

In grade 6 module 6 lesson 6, students work in pairs to choose a statistical question and decide how to display their data set. They create a poster and participate in a gallery walk to provide feedback to their peers. This UDL margin note suggests that teachers promote relevance by leveraging students’ life experiences and allowing them to choose the context for the statistical question.

In grade 6 module 1 lesson 4, students complete a digital lesson in which they use tape diagrams to understand how to make specific color batches of paint. This content provides the teacher with the opportunity to connect to students’ home lives and learn more about the experiences they’ve had with painting.

Students are diverse, and any one classroom can have students from either an individualist frame of reference or a collectivist frame of reference. The teacher-writers of *Eureka Math*² considered both frames of reference in intentionally balancing activities that build off individualism as well as collectivism.

UDL: Engagement

Including a variety of data set contexts provides an opportunity for student choice. Allowing students to select a statistical question they find interesting and challenging puts them in charge of their learning and promotes relevance.

Invite the identified students to show their strategy and explain their thinking for parts (g) and (h). Emphasize that the whole bill amount is 100%, and that if guest 1 should pay 49% of the bill, then guest 2 should pay the remaining 51%. Then ask the following question.

Do you think people typically divide a bill by calculating the percent each guest should pay? What are other ways people divide bills?

Sample:
I do not think people usually divide a bill by calculating percent. I think most people divide the bill by the number of people, or they estimate their subtotal and then their tip and tax from their subtotal.

Meal Selection

Students calculate subtotal, tax, tip, and the total amount of the bill.

Direct students to the Meal Selection segment and have students remove the Vic’s Diner menu from their books.

Divide students into groups of three. Have groups complete problems 2 and 3. Circulate and verify that students are finding the tax and tip from the subtotal.

2. Pretend your group members are ordering lunch from Vic’s Diner. Complete the chart by stating what each group member orders and the price for each item.

Sample:

Guest 1	Guest 2	Guest 3
Veggie pizza: \$8.50 Lemonade: \$1.75	Chicago hot dog combo: \$5.50	Roast beef sandwich: \$5.25 Pasta salad: \$1.25

Vic's Diner
Menu

Appetizers	Entrées	Drinks
Bruschetta \$4.99	Roast Beef \$12.99	Coke \$2.49
Salad \$4.99	Chicken \$10.99	Orange Juice \$2.49
Pasta \$4.99	Steak \$14.99	Water \$1.99
Soup \$3.99	Vegetarian \$11.99	Soft Drinks \$2.49
Side Salad \$2.99		
Hot Fudge \$2.99		
Ice Cream \$2.99		
Shakes \$4.99		
Smoothies \$4.99		
Smoothie Bowls \$5.99		
Smoothie Boxes \$6.99		
Smoothie Jars \$7.99		
Smoothie Blends \$8.99		
Smoothie Shots \$9.99		
Smoothie Sprays \$10.99		
Smoothie Smoothies \$11.99		
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UDL: Engagement

Providing a menu and allowing students to choose the meal they would like to purchase puts students in charge of their learning and promotes relevance.

Example of placed UDL margin note

In her book *Culturally Responsive Teaching and the Brain*, Zaretta Hammond references collectivism as emphasizing relationships, interdependence within a community, and cooperative learning (page 25). In *Eureka Math*², a collectivist approach to learning mathematics is present in the embedded cooperative learning structures in open-middle and open-ended tasks. Specifically, the instructional routines Numbered Heads and Co-construction are rooted in students working cooperatively in groups to deepen their mathematical conceptual understanding. See grade 6 module 6 lesson 16 for an example of how students use the Co-construction routine to write statistical questions.

Beyond the instructional routines, *Eureka Math*² leverages the power of student relationships and interdependence through frequent partner and group work. For any partner or group work referenced in the instructional materials, teachers may make use of strategic, flexible groupings that build off students’ strengths, including home language. A Language Support margin note in the first lesson of every module serves to remind teachers to leverage students’ cultural perspectives when strategically placing students in partners.

Hammond references individualism as emphasizing individual achievement and independence (page 25). In *Eureka Math*², an individualist approach to learning mathematics may be seen in the embedded systems for independent practice in every lesson, such as Exit Tickets and Practice Sets. Additionally, the instructional routines Critique a Flawed Response and Take a Stand both start with students working on a math problem individually before engaging in student discourse. See grade 7 module 1 lesson 4 for an example of students engaging in the Take a Stand routine to discuss whether the statement “Graphed lines represent proportional relationships” is always, sometimes, or never true.

Beyond balancing individualism and collectivism, *Eureka Math*² activities and problems provide students with mirrors in which to see their own cultural perspectives reflected, as well as windows through which to view others’ cultural perspectives.

*Eureka Math*² is an inclusive mathematics curriculum that represents diverse doers of math. The curriculum’s images, fine art, and pictures of people represent diversity through problems and exercises related to real-life experiences, perspectives, and contributions of people from various cultures, ethnicities, and gender identities. These representations affirm student identities while rejecting the stereotypes and biases that have excluded many students from mathematical learning in favor of a more robust and inclusive perspective. Representing a diverse array of doers of mathematics in the curriculum inspires all students to think of themselves as mathematicians.

For example, *Eureka Math*² includes various mathematical activities that involve counting on hands or simulating a number line with one’s fingers. In images throughout the curriculum, care was taken to include a variety of body types and skin tones.

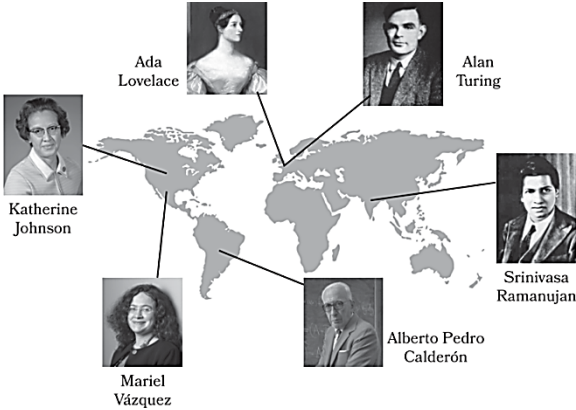
The names used in word problems and for sample students in the lesson vignettes are intentionally diverse to represent the wide variety of students who use the curriculum. The names in student-facing word problems are also designed for readability to ensure that they are not a barrier to accessing the math.

Story of Ratios® and Story of Functions®

Logan, Ava, Noor, Nora, So-chee, Tiah, Zara, Fin,
Huan, Kadir, Lucas, Riku, Bahar, Maya, Ali, Haru,
Pia, Yooni, Amir, Ji-ho, Kota, Marco, Preet, Theo

According to CAST, “individuals are engaged by information and activities that are relevant and valuable to their interests and goals.” ([UDL Guidelines, Engagement, Checkpoint 7.2](#)) *Eureka Math*² also leverages students’ experiences, goals, and interests through Math Pasts (described below), art connections, and wordless context videos.

To honor the diverse contributions to the development of the field of mathematics, to build knowledge about our shared math history, and to empower every child to see themselves as able to do mathematics, nearly every module in *Eureka Math*² includes a feature called Math Past. Each Math Past tells the history of some big ideas in the module, recounting the story of the mathematics through artifacts, discoveries, and other contributions from cultures around the world. Math Past also provides ideas about how to engage students in the history of mathematics. Math Past counters the traditional Eurocentric perspective and celebrates the many contributions of Black, Indigenous, and People of Color communities to the history of mathematics.



Lovelace – “Portrait of Ada Lovelace, 1836/Wikimedia Commons”
Turing – “famouspeople/Alamy Stock Photo”
Vazquez – “University of California Davis. Photo by Gregory Urquialaga”
Calderon – “Photograph Courtesy of the University of Chicago”

For example, in grade 6 module 5, students are highly engaged in studying area by examining a sketch from the Codex Vergara, a document written around 1540 CE to show the landholdings of families in Aztec villages. Students decode the symbols to determine the side lengths, perimeters, and areas

of the fields. Students then work in pairs to draw polygons composed of rectangles in the coordinate plane. Partners find more than one way to determine the area of various polygons shown in the grid. When students determine the area of a polygon by decomposing it into rectangles and apply their knowledge of the area of a rectangle, they look for and make use of structure, addressing a mathematical habit of mind. The Math Past Teacher Resource includes information about how the Aztecs recorded the perimeters and areas of fields. It also includes other ancient area problems for students to engage in and solve.

Later, in grade 8 module 5, students learn to write and solve systems of equations for problems that use ancient Chinese numbers. The problems in the lessons were translated from one of the most influential mathematical texts of all time: *Jiuzhang Suanshu*, translated as *Nine Chapters on the Mathematical Art*. The chapter titled “Fangcheng,” or “Rectangular Arrays,” contains 18 problems that address issues of trade, crop yield, number of animals, and other situations that can be solved with systems of linear equations. When students use systems of equations to represent real-world contexts involving comparison of weights and the trading of livestock, they reason abstractly and quantitatively (another mathematical habit of mind). The Math Past Teacher Resource guides teachers to prompt students to explore answers to questions such as the following: Are the techniques used today for solving systems of linear equations like those used in the past? What are some alternative ways to represent a system of linear equations? Are there alternative ways to solve systems of linear equations?

In a similar vein, *Eureka Math*² connects works of fine art to the standards of each grade level. Each *Teach* book opens with a stunning work of fine art that has a connection to the math learned in the grade. There is also a wide variety of additional pieces of art embedded in each grade's lessons. For example, in grade 8 module 3 lesson 13 (pages 248–270), students examine *Composition 8*, a piece by Wassily Kandinsky. Students hypothesize whether the figures in the painting are similar figures, and then use what they know about rigid motions and dilations to justify their thinking.

Wordless context-building videos highlight how we use math to solve problems in our everyday lives and make sense of the world around us. *Eureka Math*² lessons include more than 190 videos. The curriculum offers three types of highly engaging, wordless math context videos: character animation, collage animation, and live action.

Students can identify with the diverse set of actors and characters in the videos, which helps them visualize how math is part of everyday life. Through these videos, students will more readily realize that math surrounds them and that they, too, can engage in mathematical pursuits. The videos allow students to see themselves in the math problems they encounter, which lowers the barrier to engagement and makes the math classroom a more welcoming place.

Wordless videos in lessons serve many other purposes as well, such as the following:

- They make the context for a given problem come alive, putting all students on the same footing by giving them the requisite background knowledge.
- They remove any language and reading barriers to the written word problem.
- They raise the accessibility of mathematics through accurate and inclusive representation.
- They show the many ways in which we interact with math in the world around us and how these interactions spark curiosity and joy.
- They help students see the delight and wonder associated with being a mathematician.
- They create excitement and buzz in the classroom about the content of the new word problem.
- They invite students to tell the story of the math problem, to notice, to wonder, and to drive the discussion.
- Examples include:
 - Grade 6 module 1 lesson 3: Batches of Paint Part 1
 - Grade 7 module 1 lesson 4: Bulk Almonds Part 1
 - Grade 8 module 3 lesson 14: Mirror Height

Specific instructional prompts, engaging word problems, accessible and engaging tasks, art connections, Math Past connections, and context videos throughout *Eureka Math*² work together to create a powerful curriculum that welcomes all students and invites them to become doers of mathematics.

Addressing Learner Variance

To ensure success of all learners, every *Eureka Math*² lesson includes Universal Design for Learning (UDL) strategies and scaffolds that address learner variance. These suggestions promote flexibility with engagement, representation, and action and expression, the three UDL principles described by CAST. These strategies and scaffolds are complements to the curriculum’s overall alignment with the UDL Guidelines and were designed to support educators in effectively teaching students who experience difficulty in mathematics. The strategies are based on research specific to mathematics instruction.

According to *Teaching Mathematics Meaningfully: Solutions for Reaching Struggling Learners, Second Edition*, (page 71) “Students who have learning difficulties that affect their ability to do well in mathematics come from a variety of backgrounds and experiences. Although each of these students is individual and unique, students often demonstrate one or more of the nine learning characteristics...” The nine learning characteristics described include: learned helplessness, passive learning, knowledge and skills gaps, math anxiety, memory disabilities, attention disabilities, metacognitive thinking disabilities, processing disabilities, and reading disabilities. Some of these characteristics can affect all students who may be struggling in math regardless of whether they have learning-related disabilities (learned helplessness, passive learning, knowledge and skills gaps, math anxiety). Other characteristics result from learning-related disabilities (memory disabilities, attention disabilities, metacognitive thinking disabilities, processing disabilities, and reading disabilities). These learning characteristics as well as curriculum factors can result in common mathematics performance traits of students who struggle in mathematics.

According to Allsopp et. al (2018), “Mathematics visuals appear to be most effective when used in conjunction with other effective instructional practices. An example of this is the use of explicit instruction techniques in conjunction with visuals. (page 192).” “Explicit cueing techniques can be utilized with visuals in ways that help students attend to the visual’s most important features and its representation of the mathematical idea. Simple techniques, such as color-coding, using

UDL: Action & Expression

Before beginning the Scavenger Hunt, prompt students to engage in strategic planning by asking partners to recall the types of equations they have been solving and the strategies they have used.

- How can we solve equations that contain both fractions and decimals?
- What steps can we take to make the equation simpler before we use if-then moves?

UDL: Representation

To help students identify different ways they can group the treats, consider providing them with manipulatives to represent the lollipops and candies. Making the activity a concrete experience for students promotes conceptual understanding about the factors of each new expression and what the factors represent in the situation.

directional arrows, and highlighting, can help students focus on what is most relevant.” An example of this is found in grade 7 module 5 lesson 7.

A variety of other strategies suggested in the literature are the foundation of all UDL margin notes found in *Eureka Math*². Each margin note is aligned to a strategy found to minimize the impacts of one of the nine learning characteristics listed above. Strategies include, but are not limited to:

- Break down tasks into manageable chunks.
- Demonstrate the belief that students can be successful.
- Visually organize to cue student to important aspects of concept.
- Teach students to change their frame of thinking.
- Embed math in relevant contexts.
- Help students make connections to prior knowledge
- Engage students by addressing interests.
- Celebrate progress and success.
- Cultivate a growth mindset.
- Relate math to students’ lives.
- Use concrete materials
- Associate content with meaningful context.
- Use a variety (visual, auditory, tactile or kinesthetic) of strategies.
- Provide visual organizers.
- Provide think alouds.
- Use novel learning contexts.
- Help students focus on what is important rather than on things that are irrelevant.

UDL: Representation

To activate students’ prior knowledge about ratios, rates, and percents, consider using the following prompts:

- How do you know whether a relationship is a ratio relationship?
- What is the value of the ratio and how do you find it?
- What is speed and how do you determine it?
- What strategies can you use to determine the percent of a number?

In problem 3, consider drawing attention to the fact that the coefficient of p in the expression $3.5p$ is the value of the ratio.

*Eureka Math*² embeds differentiation through the simple-to-complex sequencing of lesson and Practice problems. This logical sequence gradually reduces scaffolds and builds in complexity, allowing teachers to differentiate assignments for either individual or small-group work. For all students, including those working above grade level, the gradual reduction of support and increase in complexity builds independent thinking and encourages productive struggle. Problems toward the end of the Problem Set (a lesson’s daily independent practice) are often open-ended, at Depth of Knowledge (DOK) levels 2 and 3, and integrate two or more standards and/or Standards for Mathematical Practice. Teachers can assign problems of different complexities to students according to their needs or allow students to select problems in the 10-minute (approximate) timeframe. Lessons provide differentiation suggestions at the point of instruction to support a wide variety of learners. Differentiation margin notes found in the *Teach* book offer guidance for adapting instruction so that all students can successfully access grade-level content. There are two types of Differentiation margin notes: Support and Challenge. Challenge boxes suggest ways to keep students working at a more advanced level engaged by providing opportunities for extension.

In this example from grade 8 module 6 lesson 2 the Differentiation margin note offers a suggestion for students to interact with the purpose of the Learn segment of determining whether tables represent functions at a deeper level of complexity by having students create their own tables and trade with a partner.

Differentiation: Challenge

If students finish early, consider asking them to create a table of values. Have them trade the table with a partner and ask their partner to identify whether the table of values represents a function.

Supporting Multilanguage Learners

*Eureka Math*² writers relied on language development research to outline and build in the language support needed for multilanguage learners to engage with the language-rich lessons. With the goal of supporting the clear, concise, and precise use of reading, writing, speaking, and listening in English, *Eureka Math*² supports multilanguage learners through each lesson’s instructional design. It does this by including instructional best practices, support for mathematical discourse, and support for the different tiers of terminology. Additionally, Language Support margin notes provide just-in-time, targeted instructional recommendations to support multilanguage learners.

Instructional Best Practices

The following table outlines the instructional best practices included in *Eureka Math*².

Practice	Eureka Math ²
Activate prior knowledge (mathematics content, terminology, contexts)	The daily Fluency and Launch lesson components activate prior knowledge to prepare students for new learning. Context videos demonstrate math concepts in a concrete or real-world context.
Provide multiple entry points to the mathematics	Recurring Notice and Wonder routines and frequent open-middle and open-ended tasks provide multiple points of entry for students to participate. The inclusion of fine art and Math Past history components engages students with math in the real world.
Use clear, concise student-facing language	Readability guidelines ensure that words are never an obstacle to math learning.
Provide strategic active processing time	Frequent mathematical discourse, core instructional routines, and the 10/2 principle expand opportunities for students to synthesize and process new information.
Illustrate multiple modes and formats	Varied physical and visual models, such as digital interactives, context videos, and graphic organizers, help students make connections and deepen understanding.
Provide opportunities for strategic review	Daily fluency activities, distributed practice Remember problems, Exit Tickets, and comprehensive assessments provide frequent opportunities for strategic review.

Mathematical Discourse

To support all learners, lessons provide ample authentic and engaging opportunities for students to read, write, speak, and listen. *Eureka Math*² supports teachers in creating language-rich classrooms by modeling teacher-student discourse and by providing suggestions for supported student-to-student discourse. Because curricula in general have an abundance of receptive language experiences (reading and listening), *Eureka Math*² focuses specific supports on language production (speaking and writing) in mathematics.

The instructional routines that promote discourse are aligned with Stanford’s Language Design Principles of supporting sense-making, optimizing output, cultivating conversation, and maximizing linguistic and cognitive meta-awareness.

*Eureka Math*² periodically includes Language Support notes that suggest specific sentence frames and sentence starters to support multilanguage learners in student-to-student discussions, such as those used in instructional routines. General sentence frames and sentence starters are provided in the Talking Tool which is referenced often during times of student-to-student discourse.

Talking Tool

Share Your Thinking	I know I did it this way because The answer is _____ because My drawing shows
Agree or Disagree	I agree because That is true because I disagree because That is not true because Do you agree or disagree with _____? Why?
Ask for Reasoning	Why did you? Can you explain? What can we do first? How is _____ related to _____?
Say It Again	I heard you say _____ said Another way to say that is What does that mean?

Terminology

*Eureka Math*² lessons give students experience with a new mathematical concept before naming it with a precise mathematical term. Students may see a mathematical concept come to life in a digital interactive, manipulate counters in groups, or use an instructional routine to engage in mathematical discourse before the teacher gives that concept a name. In addition, teachers are provided with educative guidance, either in the body of the lesson or in a Language Support margin note, to support students in pairing the written term with a visual representation. *Eureka Math*² highlights domain-specific terms from previous lessons in the current lesson, along with instructional recommendations for supporting those terms. These instructional recommendations focus on previewing the meaning of the terms before students are expected to interact with them in the mathematics of the lesson. Additionally, domain-specific terms from previous lessons are also supported by pairing the written term with a visual representation. For each grade, the

academic verbs needed to engage with the mathematics were considered. Each grade in *Eureka Math*² offers a carefully curated list of targeted academic verbs that appear in the lessons for students to preview before they are expected to understand and use the language. For example, before students are asked to *verify* in grade 8, lessons preview the meaning of the academic verb, supporting the meaning of the term in a class discussion emphasizing the use of synonyms of that verb.

Multiple-meaning terms encompass homophones like *very* and *vary*, and homographs, like *scale* and *scale*, (see image from grade 7 module 1 lesson 19) and other pronunciation-based challenges, like the difference between *approximate* (as an adjective, as in, “What is the approximate value?”) and *approximate* (as a verb, as in, “Approximate the sum.”). Lessons call out multiple-meaning terms that could affect multilanguage learners’ understanding of the mathematics. Lessons also include Language Support notes to preview the meaning of the term in the lesson. These previews include pairing the term with a visual, with real items, or with a video to highlight the different meanings of the term and emphasize the specific meaning used in the lesson.

Language Support Boxes

A Language Support margin note appears in the first lesson of every module to prompt teachers to consider using strategic, flexible grouping in each activity of the module to support multilanguage learners. These grouping suggestions invite teachers to use students’ knowledge and home language by pairing students in different ways. Each of these different ways of pairing students has specific benefits for multilanguage learners. The Language Support margin notes highlight either discourse, language or terminology supports.

To learn more, please visit the Great Minds MLL blog: <https://gm.greatminds.org/how-to-support-multilingual-learners-in-engaging-in-math-conversations-in-the-classroom>

2. Consider the following figures, which all depict the word scale. Which one best relates to the work of the module? Why? What does the figure show?

	Representation of Scale
A.	
B.	
C.	
D.	
E.	

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