EUREKA MATH™

GREAT MINDS

ABOUT *EUREKA MATH*

Created by the nonprofit Great Minds, *Eureka Math* helps teachers deliver unparalleled math instruction that provides students with a deep understanding and fluency in math. Crafted by teachers and math scholars, the curriculum carefully sequences the mathematical progressions to maximize coherence from Prekindergarten through Precalculus—a principle tested and proven to be essential in students' mastery of math.

Teachers and students using *Eureka Math* find the trademark "Aha!" moments in *Eureka Math* to be a source of joy and inspiration, lesson after lesson, year after year.

ALIGNED

Eureka Math is the only curriculum found by EdReports.org to align fully with the Common Core State Standards for Mathematics for all grades, Kindergarten through Grade 8. Great Minds offers detailed analyses which demonstrate how each grade of *Eureka Math* aligns with specific state standards. Access these free alignment studies at greatminds.org/state-studies.

DATA

Schools and districts nationwide are experiencing student growth and impressive test scores after using *Eureka Math*. See their stories and data at greatminds.org/data.

FULL SUITE OF RESOURCES

As a nonprofit, Great Minds offers the *Eureka Math* curriculum as PDF downloads for free, noncommercial use. Access the free PDFs at greatminds.org/math/curriculum.

The teacher–writers who created the curriculum have also developed essential resources, available only from Great Minds, including the following:

- Printed material in English and Spanish
- Digital resources
- Professional development
- Classroom tools and manipulatives
- Teacher support materials
- Parent resources

GRADE 7 MATHEMATICS

The majority of the Grade 7 South Carolina College- and Career-Ready Standards for Mathematics are fully covered by the Grade 7 *Eureka Math* curriculum. The areas where the Grade 7 South Carolina College- and Career-Ready Standards for Mathematics and Grade 7 *Eureka Math* do not align will require the use of *Eureka Math* content from other grade levels or supplemental materials. A detailed analysis of alignment is provided in the table below. With strategic placement of supplemental materials, *Eureka Math* can ensure students are successful in achieving the proficiencies of the South Carolina College- and Career-Ready Standards for Mathematics while still benefiting from the coherence and rigor of *Eureka Math*.

INDICATORS

- Green indicates that the South Carolina standard is fully addressed in *Eureka Math*.
- Yellow indicates that the South Carolina standard may not be completely addressed in *Eureka Math*.
- Red indicates that the South Carolina standard is not addressed in *Eureka Math*.
- Blue indicates there is a discrepancy between the grade level at which this standard is addressed in the South Carolina standards and in *Eureka Math*.

Mathematical Process Standards	Aligned Components of *Eureka Math*
1: Make sense of problems and persevere in solving them. a. Relate a problem to prior knowledge. b. Recognize there may be multiple entry points to a problem and more than one path to a solution. c. Analyze what is given, what is not given, what is being asked, and what strategies are needed, and make an initial attempt to solve a problem. d. Evaluate the success of an approach to solve a problem and refine it if necessary.	Lessons in every module engage students in making sense of problems and persevering in solving them as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 1, which is specifically addressed in the following modules: G7 M1: Ratios and Proportional Relationships G7 M2: Rational Numbers G7 M4: Percent and Proportional Relationships G7 M6: Geometry
2: Reason both contextually and abstractly. a. Make sense of quantities and their relationships in mathematical and real-world situations. b. Describe a given situation using multiple mathematical representations. c. Translate among multiple mathematical representations and compare the meanings each representation conveys about the situation. d. Connect the meaning of mathematical operations to the context of a given situation.	Lessons in every module engage students in reasoning abstractly and quantitatively as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 2, which is specifically addressed in the following modules: G7 M1: Ratios and Proportional Relationships G7 M2: Rational Numbers G7 M3: Expressions and Equations G7 M4: Percent and Proportional Relationships G7 M5: Statistics and Probability

Mathematical Process Standards	Aligned Components of *Eureka Math*
3: Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others. a. Construct and justify a solution to a problem. b. Compare and discuss the validity of various reasoning strategies. c. Make conjectures and explore their validity. d. Reflect on and provide thoughtful responses to the reasoning of others.	Lessons in every module engage students in constructing viable arguments and critiquing the reasoning of others as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 3, which is specifically addressed in the following modules: G7 M5: Statistics and Probability G7 M6: Geometry
4: Connect mathematical ideas and real-world situations through modeling. a. Identify relevant quantities and develop a model to describe their relationships. b. Interpret mathematical models in the context of the situation. c. Make assumptions and estimates to simplify complicated situations. d. Evaluate the reasonableness of a model and refine if necessary.	Lessons in every module engage students in modeling with mathematics as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 4, which is specifically addressed in the following modules: G7 M2: Rational Numbers G7 M3: Expressions and Equations G7 M5: Statistics and Probability

Mathematical Process Standards	Aligned Components of *Eureka Math*
5: Use a variety of mathematical tools effectively and strategically. a. Select and use appropriate tools when solving a mathematical problem. b. Use technological tools and other external mathematical resources to explore and deepen understanding of concepts.	Lessons in every module engage students in using appropriate tools strategically as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 5, which is specifically addressed in the following modules: G7 M4: Percent and Proportional Relationships G7 M5: Statistics and Probability G7 M6: Geometry
6: Communicate mathematically and approach mathematical situations with precision. a. Express numerical answers with the degree of precision appropriate for the context of a situation. b. Represent numbers in an appropriate form according to the context of the situation. c. Use appropriate and precise mathematical language. d. Use appropriate units, scales, and labels.	Lessons in every module engage students in attending to precision as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 6, which is specifically addressed in the following modules: G7 M2: Rational Numbers G7 M3: Expressions and Equations G7 M4: Percent and Proportional Relationships G7 M5: Statistics and Probability

Mathematical Process Standards	Aligned Components of *Eureka Math*
7: Identify and utilize structure and patterns. a. Recognize complex mathematical objects as being composed of more than one simple object. b. Recognize mathematical repetition in order to make generalizations. c. Look for structures to interpret meaning and develop solution strategies.	Lessons in every module engage students in looking for and making use of structure as required by this standard. This process standard is analogous to the CCSSM Standards for Mathematical Practice 7 and 8, which are specifically addressed in the following modules: G7 M2: Rational Numbers G7 M3: Expressions and Equations G7 M4: Percent and Proportional Relationships G7 M6: Geometry

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
The Number System	**7.NS.1** Extend prior knowledge of operations with positive rational numbers to add and to subtract all rational numbers and represent the sum or difference on a number line.		
	a. Understand that the additive inverse of a number is its opposite and their sum is equal to zero.		G7 M2 Lesson 1: Opposite Quantities Combine to Make Zero
	b. Understand that the sum of two rational numbers ($p + q$) represents a distance from p on the number line equal to $\|q\|$ where the direction is indicated by the sign of q.		G7 M2 Topic A: Addition and Subtraction of Integers and Rational Numbers
	c. Translate between the subtraction of rational numbers and addition using the additive inverse, $p - q = p + (-q)$.		G7 M2 Topic A: Addition and Subtraction of Integers and Rational Numbers
	d. Demonstrate that the distance between two rational numbers on the number line is the absolute value of their difference.		G7 M2 Topic A: Addition and Subtraction of Integers and Rational Numbers
	e. Apply mathematical properties (e.g., commutative, associative, distributive, or the properties of identity and inverse elements) to add and subtract rational numbers.		G7 M2 Lessons 8–9: Applying the Properties of Operations to Add and Subtract Rational Numbers

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
	7.NS.2 Extend prior knowledge of operations with positive rational numbers to multiply and to divide all rational numbers.		
	a. Understand that the multiplicative inverse of a number is its reciprocal and their product is equal to one.		G7 M3 Lesson 5: Using the Identity and Inverse to Write Equivalent Expressions
	b. Understand sign rules for multiplying rational numbers.		G7 M2 Topic B: Multiplication and Division of Integers and Rational Numbers
	c. Understand sign rules for dividing rational numbers and that a quotient of integers (with a non-zero divisor) is a rational number.		G7 M2 Lesson 12: Division of Integers G7 M2 Lesson 15: Multiplication and Division of Rational Numbers
	d. Apply mathematical properties (e.g., commutative, associative, distributive, or the properties of identity and inverse elements) to multiply and divide rational numbers.		G7 M2 Lesson 16: Applying the Properties of Operations to Multiply and Divide Rational Numbers
	e. Understand that some rational numbers can be written as integers and all rational numbers can be written as fractions or decimal numbers that terminate or repeat.		G7 M2 Lesson 14: Converting Rational Numbers to Decimals Using Long Division

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
	7.NS.3 Apply the concepts of all four operations with rational numbers to solve real-world and mathematical problems.		G7 M2 Lesson 15: Multiplication and Division of Rational Numbers G7 M2 Lessons 18–19: Writing, Evaluating, and Finding Equivalent Expressions with Rational Numbers G7 M2 Lesson 20: Investments—Performing Operations with Rational Numbers
	7.NS.4 Understand and apply the concepts of comparing and ordering to rational numbers.		
	a. Interpret statements using less than (<), greater than (>), less than or equal to (≤), greater than or equal to (≥), and equal to (=) as relative locations on the number line.		G6 M3 Lesson 11: Absolute Value—Magnitude and Distance G6 M3 Lesson 12: The Relationship Between Absolute Value and Order G6 M3 Lesson 13: Statements of Order in the Real World
	b. Use concepts of equality and inequality to write and explain real-world and mathematical situations.		G7 M3: Expressions and Equations
	7.NS.5 Extend prior knowledge to translate among multiple representations of rational numbers (fractions, decimal numbers, percentages). Exclude the conversion of repeating decimal numbers to fractions.		G7 M2 Lesson 13: Converting Between Fractions and Decimals Using Equivalent Fractions G7 M2 Lesson 14: Converting Rational Numbers to Decimals Using Long Division

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
Ratios and Proportional Relationships	**7.RP.1** Compute unit rates, including those involving complex fractions, with like or different units.		G7 M1 Topic C: Ratios and Rates Involving Fractions
	7.RP.2 Identify and model proportional relationships given multiple representations, including tables, graphs, equations, diagrams, verbal descriptions, and real-world situations.		
	a. Determine when two quantities are in a proportional relationship.		G7 M1 Topic A: Proportional Relationships
	b. Recognize or compute the constant of proportionality.		G7 M1 Topic B: Unit Rate and the Constant of Proportionality G7 M1 Lesson 15: Equations of Graphs of Proportional Relationships Involving Fractions G7 M1 Lesson 16: Relating Scale Drawings to Ratios and Rates G7 M4 Lesson 12: The Scale Factor as a Percent for a Scale Drawing
	c. Understand that the constant of proportionality is the unit rate.		G7 M1 Lesson 7: Unit Rate as the Constant of Proportionality
	d. Use equations to model proportional relationships.		G7 M1 Lesson 2: Proportional Relationships G7 M1 Topic B: Unit Rate and the Constant of Proportionality G7 M1 Lesson 14: Multi-Step Ratio Problems G7 M4: Percent and Proportional Relationships

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
	e. Investigate the graph of a proportional relationship and explain the meaning of specific points (e.g., origin, unit rate) in the context of the situation.		G7 M1 Lesson 10: Interpreting Graphs of Proportional Relationships
	7.RP.3 Solve real-world and mathematical problems involving ratios and percentages using proportional reasoning (e.g., multi-step dimensional analysis, percent increase/ decrease, tax).		G7 M1 Lesson 13: Finding Equivalent Ratios Given the Total Quantity G7 M4: Percent and Proportional Relationships
Expressions, Equations, and Inequalities	**7.EEI.1** Apply mathematical properties (e.g., commutative, associative, distributive) to simplify and to factor linear algebraic expressions with rational coefficients.		G7 M3 Topic A: Use Properties of Operations to Generate Equivalent Expressions
	7.EEI.2 Recognize that algebraic expressions may have a variety of equivalent forms and determine an appropriate form for a given real-world situation.		G7 M2 Lessons 18–19: Writing, Evaluating, and Finding Equivalent Expressions with Rational Numbers G7 M3 Lessons 3–4: Writing Products as Sums and Sums as Products
	7.EEI.3 Extend previous understanding of Order of Operations to solve multi-step real-world and mathematical problems involving rational numbers. Include fraction bars as a grouping symbol.		G6 M4 Topic B: Special Notations and Operations Note: Supplemental material is necessary to address Order of Operations with rational numbers.

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
	7.EEI.4 Apply the concepts of linear equations and inequalities in one variable to real-world and mathematical situations.		
	a. Write and fluently solve linear equations of the form $ax + b = c$ and $a(x + b) = c$ where a, b, and c are rational numbers.		G7 M2 Lesson 17: Comparing Tape Diagram Solutions to Algebraic Solutions G7 M2 Lessons 22–23: Solving Equations Using Algebra G7 M3 Topic B: Solve Problems Using Expressions, Equations, and Inequalities G7 M4 Lesson 10: Simple Interest G7 M4 Lesson 11: Tax, Commissions, Fees, and Other Real-World Percent Applications G7 M4 Lesson 17: Mixture Problems
	b. Write and solve multi-step linear equations that include the use of the distributive property and combining like terms. Exclude equations that contain variables on both sides.		G7 M2 Lesson 17: Comparing Tape Diagram Solutions to Algebraic Solutions G7 M2 Lessons 22–23: Solving Equations Using Algebra G7 M3 Topic B: Solve Problems Using Expressions, Equations, and Inequalities G7 M4 Lesson 17: Mixture Problems

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
	c. Write and solve two-step linear inequalities. Graph the solution set on a number line and interpret its meaning.		G7 M3 Lesson 12: Properties of Inequalities G7 M3 Lesson 13: Inequalities G7 M3 Lesson 14: Solving Inequalities G7 M3 Lesson 15: Graphing Solutions to Inequalities
	d. Identify and justify the steps for solving multi-step linear equations and two-step linear inequalities.		G7 M2 Lesson 17: Comparing Tape Diagram Solutions to Algebraic Solutions G7 M2 Lessons 22–23: Solving Equations Using Algebra G7 M3 Topic B: Solve Problems Using Expressions, Equations, and Inequalities
	7.EEI.5 Understand and apply the laws of exponents (i.e., product rule, quotient rule, power to a power, product to a power, quotient to a power, zero power property) to simplify numerical expressions that include whole-number exponents.		G8 M1: Integer Exponents and Scientific Notation
Geometry and Measurement	**7.GM.1** Determine the scale factor and translate between scale models and actual measurements (e.g., lengths, area) of real-world objects and geometric figures using proportional reasoning.		G7 M1 Topic D: Ratios of Scale Drawings G7 M4 Topic C: Scale Drawings

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
	7.GM.2 Construct triangles and special quadrilaterals using a variety of tools (e.g., freehand, ruler and protractor, technology).		
	a. Construct triangles given all measurements of either angles or sides.		G7 M6 Topic B: Constructing Triangles
	b. Decide if the measurements determine a unique triangle, more than one triangle, or no triangle.		G7 M6 Topic B: Constructing Triangles
	c. Construct special quadrilaterals (i.e., kite, trapezoid, isosceles trapezoid, rhombus, parallelogram, rectangle) given specific parameters about angles or sides.		G7 M6 Topic B: Constructing Triangles Note: Supplemental material is necessary to incorporate all shapes listed in this standard.
	7.GM.3 Describe two-dimensional cross-sections of three-dimensional figures, specifically right rectangular prisms and right rectangular pyramids.		G7 M6 Topic C: Slicing Solids
	7.GM.4 Investigate the concept of circles.		
	a. Demonstrate an understanding of the proportional relationships between diameter, radius, and circumference of a circle.		G7 M3 Lesson 16: The Most Famous Ratio of All

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
	b. Understand that the constant of proportionality between the circumference and diameter is equivalent to π.		G7 M3 Lesson 16: The Most Famous Ratio of All
	c. Explore the relationship between circumference and area using a visual model.		G7 M3 Lesson 16: The Most Famous Ratio of All G7 M3 Lesson 17: The Area of a Circle G7 M3 Lesson 18: More Problems on Area and Circumference
	d. Use the formulas for circumference and area of circles appropriately to solve real-world and mathematical problems.		G7 M3 Lesson 16: The Most Famous Ratio of All G7 M3 Lesson 17: The Area of a Circle G7 M3 Lesson 18: More Problems on Area and Circumference G7 M3 Lesson 20: Composite Area Problems
	7.GM.5 Write equations to solve problems involving the relationships between angles formed by two intersecting lines, including supplementary, complementary, vertical, and adjacent.		G7 M3 Lessons 10–11: Angle Problems and Solving Equations G7 M6 Topic A: Unknown Angles

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
	7.GM.6 Apply the concepts of two- and three-dimensional figures to real-world and mathematical situations.		
	a. Understand that the concept of area is applied to two-dimensional figures such as triangles, quadrilaterals, and polygons.		G7 M3 Lesson 19: Unknown Area Problems on the Coordinate Plane G7 M3 Lesson 20: Composite Area Problems G7 M6 Lesson 20: Real-World Area Problems G7 M6 Lesson 21: Mathematical Area Problems
	b. Understand that the concepts of volume and surface area are applied to three-dimensional figures such as cubes, right rectangular prisms, and right triangular prisms.		G7 M3 Topic C: Use Equations and Inequalities to Solve Geometry Problems G7 M6 Topic D: Problems Involving Area and Surface Area G7 M6 Topic E: Problems Involving Volume
	c. Decompose cubes, right rectangular prisms, and right triangular prisms into rectangles and triangles to derive the formulas for volume and surface area.		G7 M3 Topic C: Use Equations and Inequalities to Solve Geometry Problems G7 M6 Topic D: Problems Involving Area and Surface Area G7 M6 Topic E: Problems Involving Volume
	d. Use the formulas for area, volume, and surface area appropriately.		G7 M3 Topic C: Use Equations and Inequalities to Solve Geometry Problems G7 M6 Topic D: Problems Involving Area and Surface Area G7 M6 Topic E: Problems Involving Volume

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
Data Analysis, Statistics, and Probability	**7.DSP.1** Investigate concepts of random sampling.		
	a. Understand that a sample is a subset of a population and both possess the same characteristics.		G7 M5 Topic C: Random Sampling and Estimating Population Characteristics
	b. Differentiate between random and non-random sampling.		G7 M5 Topic C: Random Sampling and Estimating Population Characteristics
	c. Understand that generalizations from a sample are valid only if the sample is representative of the population.		G7 M5 Topic C: Random Sampling and Estimating Population Characteristics
	d. Understand that random sampling is used to gather a representative sample and supports valid inferences about the population.		G7 M5 Topic C: Random Sampling and Estimating Population Characteristics
	7.DSP.2 Draw inferences about a population by collecting multiple random samples of the same size to investigate variability in estimates of the characteristic of interest.		G7 M5: Statistics and Probability
	7.DSP.3 Visually compare the centers, spreads, and overlap of two displays of data (i.e., dot plots, histograms, box plots) that are graphed on the same scale and draw inferences about this data.		G6 M6: Statistics G7 M5 Topic D: Comparing Populations

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
	7.DSP.4 Compare the numerical measures of center (mean, median, mode) and variability (range, interquartile range, mean absolute deviation) from two random samples to draw inferences about the populations.		G6 M6: Statistics Note: Supplemental material is necessary to address mode and range.
	7.DSP.5 Investigate the concept of probability of chance events.		
	a. Determine probabilities of simple events.		G7 M5 Lesson 1: Chance Experiments G7 M5 Lesson 4: Calculating Probabilities for Chance Experiments with Equally Likely Outcomes
	b. Understand that probability measures likelihood of a chance event occurring.		G7 M5 Topic A: Calculating and Interpreting Probabilities
	c. Understand that the probability of a chance event is a number between 0 and 1.		G7 M5 Lesson 1: Chance Experiments
	d. Understand that a probability closer to 1 indicates a likely chance event.		G7 M5 Lesson 1: Chance Experiments
	e. Understand that a probability close to 1/2 indicates that a chance event is neither likely nor unlikely.		G7 M5 Lesson 1: Chance Experiments
	f. Understand that a probability closer to 0 indicates an unlikely chance event.		G7 M5 Lesson 1: Chance Experiments

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
	7.DSP.6 Investigate the relationship between theoretical and experimental probabilities for simple events.		
	a. Determine approximate outcomes using theoretical probability.		G7 M5 Lesson 4: Calculating Probabilities for Chance Experiments with Equally Likely Outcomes G7 M5 Topic B: Estimating Probabilities
	b. Perform experiments that model theoretical probability.		G7 M5 Lesson 4: Calculating Probabilities for Chance Experiments with Equally Likely Outcomes G7 M5 Lessons 10–11: Conducting a Simulation to Estimate the Probability of an Event
	c. Compare theoretical and experimental probabilities.		G7 M5 Lesson 10: Conducting a Simulation to Estimate the Probability of an Event
	7.DSP.7 Apply the concepts of theoretical and experimental probabilities for simple events.		
	d. Differentiate between uniform and non-uniform probability models (distributions).		*Eureka Math* does not explicitly address uniform and non-uniform probability models.
	e. Develop both uniform and non-uniform probability models.		*Eureka Math* does not explicitly address uniform and non-uniform probability models.
	f. Perform experiments to test the validity of probability models.		G7 M5 Lessons 10–11: Conducting a Simulation to Estimate the Probability of an Event

Key Concepts	Content Standards for Mathematics		Aligned Components of *Eureka Math*
	7.DSP.8 Extend the concepts of simple events to investigate compound events.		
	a. Understand that the probability of a compound event is between 0 and 1.		G7 M5 Lesson 1: Chance Experiments
	b. Identify the outcomes in a sample space using organized lists, tables, and tree diagrams.		G7 M5 Topic A: Calculating and Interpreting Probabilities
	c. Determine probabilities of compound events using organized lists, tables, and tree diagrams.		G7 M5 Lesson 6: Using Tree Diagrams to Represent a Sample Space and to Calculate Probabilities G7 M5 Lesson 7: Calculating Probabilities of Compound Events
	d. Design and use simulations to collect data and determine probabilities.		G7 M5 Lessons 10–11: Conducting a Simulation to Estimate the Probability of an Event
	e. Compare theoretical and experimental probabilities for compound events.		G7 M5: Statistics and Probability