Grade 8 | South Carolina College- and Career-Ready Mathematics Standards Correlation to *Eureka Math*®

About *Eureka Math*

Created by Great Minds®, a mission-driven Public Benefit Corporation, *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

Great Minds offers detailed analyses that demonstrate how each grade of *Eureka Math* aligns with specific state standards. Access these free alignment studies at greatminds.org/state-studies.

Data

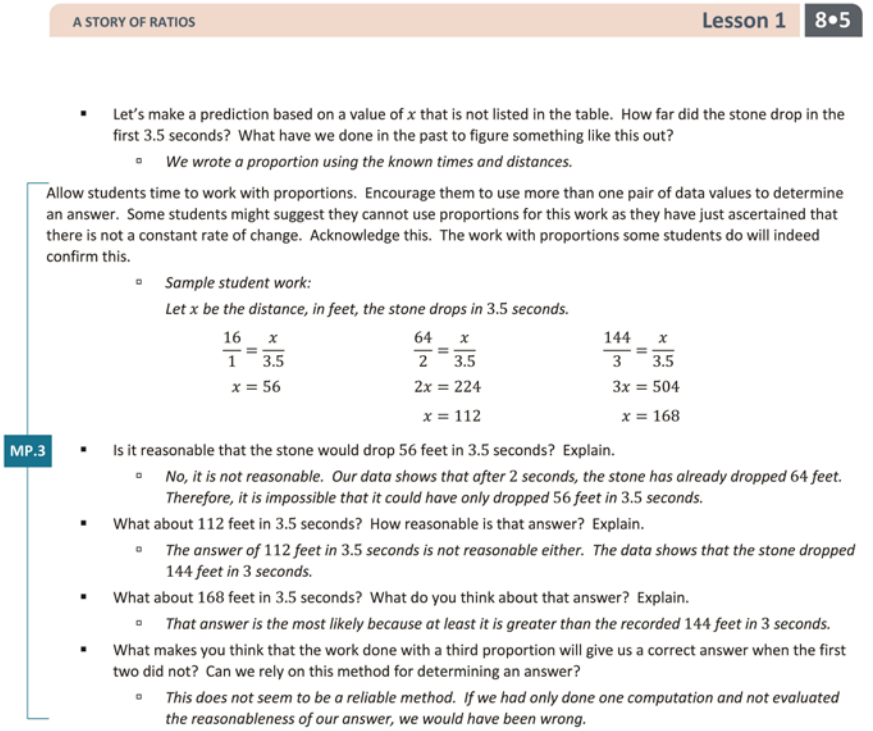
Schools and districts nationwide are experiencing student growth and impressive test scores after using *Eureka Math*. See their stories and data at greatminds.org/data.

Full Suite of Resources

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

Mathematical Process Standards	Aligned Components of *Eureka Math*
MPS.PS.1 Make sense of problems and persevere in solving them strategically.	Lessons in every module engage students in mathematical processes. These are designated in the Module Overview and labeled in lessons. For example: 
MPS.RC.1 Explain ideas using precise and contextually appropriate mathematical language, tools, and models.	
MPS.C.1 Demonstrate a deep and flexible conceptual understanding of mathematical ideas, operations, and relationships while making real-world connections.	
MPS.AJ.1 Use critical thinking skills to reason both abstractly and quantitatively.	
MPS.SP.1 Identify and apply regularity in repeated reasoning to make generalizations.	

Data, Probability, and Statistical Reasoning

8.DPSR.1 Analyze data sets to identify their statistical elements.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.DPSR.1.1 Create and analyze scatter plots to represent numerical data sets in mathematical and real-world situations.	G8 M6 Lesson 6: Scatter Plots G8 M6 Lesson 7: Patterns in Scatter Plots G8 M6 Lesson 11: Using Linear Models in a Data Context G8 M6 Lesson 12: Nonlinear Models in a Data Context
8.DPSR.1.2 Draw inferences about data sets from two populations using the shape of the distribution, measures of center, and measures of variability. Limit measures to *mean*, *median*, *mode*, *range*, *mean absolute deviation*, and *interquartile range*.	G7 M5 Lesson 15: Random Sampling G7 M5 Topic D: Comparing Populations Algebra I M2 Lesson 8: Comparing Distributions *Supplemental material is necessary to address drawing inferences about data sets using mode.*
8.DPSR.1.3 Describe how adding and deleting data throughout the data set can affect the mean, median, mode, and distribution of the data set.	G7 M5 Lesson 19: Understanding Variability When Estimating a Population Proportion *Supplemental material is necessary to fully address this standard.*

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.DPSR.1.4 For two data sets (numerical or graphical), compare and interpret the centers, spreads, and overlap of data to draw inferences about data in mathematical and real-world situations. Limit displays to double line graphs, back-to-back stem-and-leaf plots, and double box plots.	G7 M5 Topic D: Comparing Populations Algebra I M2 Lesson 8: Comparing Distributions *Supplemental material is necessary to address comparing and interpreting data sets displayed with double line graphs and back-to-back stem-and-leaf plots.*

Data, Probability, and Statistical Reasoning

8.DPSR.2 Calculate and interpret probability.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.DPSR.2.1 Determine the sample space for a compound event.	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 G7 M5 Lesson 10: Conducting a Simulation to Estimate the Probability of an Event G7 M5 Lesson 11: Conducting a Simulation to Estimate the Probability of an Event
8.DPSR.2.2 Calculate and interpret the probability of compound independent and dependent events.	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 G7 M5 Lesson 10: Conducting a Simulation to Estimate the Probability of an Event G7 M5 Lesson 11: Conducting a Simulation to Estimate the Probability of an Event *Supplemental material is necessary to address calculating and interpreting the probability of compound dependent events.*

Measurement, Geometry, and Spatial Reasoning

8.MGSR.1 Determine the measurements of geometric figures.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.MGSR.1.1 Given the geometric formulas, find the volume of cones, cylinders, and spheres in mathematical and real-world situations.	G8 M5 Topic B: Volume G8 M7 Topic D: Applications of Radicals and Roots
8.MGSR.1.2 Find the distance between any two points in the coordinate plane using the *Pythagorean Theorem*.	G8 M2 Lesson 16: Applications of the Pythagorean Theorem G8 M7 Lesson 17: Distance on the Coordinate Plane
8.MGSR.1.3 Given the *Pythagorean Theorem*, determine unknown side lengths in right triangles in mathematical and real-world situations.	G8 M2 Topic D: The Pythagorean Theorem G8 M3 Topic C: The Pythagorean Theorem G8 M7 Lesson 1: The Pythagorean Theorem G8 M7 Lesson 4: Simplifying Square Roots G8 M7 Lesson 5: Solving Equations with Radicals G8 M7 Lesson 17: Distance on the Coordinate Plane G8 M7 Lesson 18: Applications of the Pythagorean Theorem G8 M7 Lesson 19: Cones and Spheres G8 M7 Lesson 23: Nonlinear Motion
8.MGSR.1.4 Determine if a given set of sides forms a right triangle.	G8 M3 Lesson 14: The Converse of the Pythagorean Theorem G8 M7 Lesson 1: The Pythagorean Theorem G8 M7 Lesson 17: Distance on the Coordinate Plane

Measurement, Geometry, and Spatial Reasoning

8.MGSR.2 Determine angle and/or side relationships.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.MGSR.2.1 Determine missing angle measurements created when parallel lines are cut by a transversal.	G8 M2 Lesson 12: Angles Associated with Parallel Lines G8 M2 Lesson 13: Angle Sum of a Triangle G8 M2 Lesson 14: More on the Angles of a Triangle
8.MGSR.2.2 Determine if two-dimensional figures are congruent or similar.	G8 M2 Lesson 11: Definition of Congruence and Some Basic Properties G8 M3 Lesson 1: What Lies Behind "Same Shape"? G8 M3 Lesson 8: Similarity G8 M3 Lesson 9: Basic Properties of Similarity G8 M3 Lesson 11: More About Similar Triangles
8.MGSR.2.3 Identify the congruent corresponding angles of similar polygons.	G8 M2 Lesson 11: Definition of Congruence and Some Basic Properties G8 M2 Lesson 12: Angles Associated with Parallel Lines G8 M3 Lesson 8: Similarity G8 M3 Lesson 9: Basic Properties of Similarity G8 M3 Lesson 11: More About Similar Triangles
8.MGSR.2.4 Discover and apply the *Exterior Angle Theorem* of triangles to find a missing angle.	G8 M2 Lesson 12: Angles Associated with Parallel Lines G8 M2 Lesson 13: Angle Sum of a Triangle G8 M2 Lesson 14: More on the Angles of a Triangle

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.MGSR.2.5 Apply proportional reasoning to find the missing side lengths of two similar figures.	G8 M3 Lesson 8: Similarity G8 M3 Lesson 9: Basic Properties of Similarity G8 M3 Lesson 11: More About Similar Triangles G8 M3 Lesson 12: Modeling Using Similarity

Measurement, Geometry, and Spatial Reasoning

8.MGSR.3 Graph on a coordinate plane.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.MGSR.3.1 Identify the transformation as a rotation, reflection, and/or translation. Limit rotations to multiples of 90 degrees centered on the origin.	G8 M2 Topic A: Definitions and Properties of the Basic Rigid Motions
8.MGSR.3.2 Identify congruent angles and congruent line segments of a preimage and its image.	G8 M2 Topic B: Sequencing the Basic Rigid Motions G8 M2 Lesson 11: Definition of Congruence and Some Basic Properties G8 M2 Lesson 12: Angles Associated with Parallel Lines
8.MGSR.3.3 Translate geometric figures vertically and/or horizontally.	G8 M2 Lesson 1: Why Move Things Around? G8 M2 Lesson 2: Definition of Translation and Three Basic Properties G8 M2 Lesson 3: Translating Lines

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.MGSR.3.4 Reflect geometric figures with respect to the x-axis and/or y-axis.	G8 M2 Lesson 1: Why Move Things Around? G8 M2 Lesson 4: Definition of Reflection and Basic Properties
8.MGSR.3.5 Rotate geometric figures 90, 180, and 270 degrees, both clockwise and counterclockwise, about the origin in a coordinate plane.	G8 M2 Lesson 1: Why Move Things Around? G8 M2 Lesson 5: Definition of Rotation and Basic Properties
8.MGSR.3.6 Create a dilation using a given scale factor and describe the effect of a dilation.	G8 M3 Topic A: Dilation G8 M3 Lesson 8: Similarity
8.MGSR.3.7 Describe the effect of a series of transformations, including *dilations*, *translations*, *rotations*, and *reflections*, on two-dimensional figures using coordinates on the coordinate plane.	G8 M2 Topic B: Sequencing the Basic Rigid Motions G8 M3 Lesson 8: Similarity G8 M3 Lesson 9: Basic Properties of Similarity

Numerical Reasoning

8.NR.1 Translate among multiple representations of rational numbers.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.NR.1.1 Convert any form of a rational number to any other form including fractions (mixed numbers), decimals, and percentages.	G7 M1 Lesson 11: Ratios of Fractions and Their Unit Rates G7 M2 Lesson 13: Converting Between Fractions and Decimals Using Equivalent Fractions G7 M2 Lesson 14: Converting Rational Numbers to Decimals Using Long Division G7 M4 Lesson 1: Percent G7 M4 Topic C: Scale Drawings G8 M7 Topic B: Decimal Expansions of Numbers

Numerical Reasoning

8.NR.2 Utilize real numbers in mathematical and real-world situations.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.NR.2.1 Compare real numbers and write statements using *is equal to* (=), *is not equal to* (≠), *is less than* (<), *is greater than* (>), *is greater than or equal to* (≥), or *is less than or equal to* (≤).	G8 M7 Lesson 2: Square Roots G8 M7 Lesson 3: Existence and Uniqueness of Square Roots and Cube Roots G8 M7 Lesson 4: Simplifying Square Roots G8 M7 Lesson 11: The Decimal Expansion of Some Irrational Numbers G8 M7 Lesson 12: Decimal Expansions of Fractions, Part 2 G8 M7 Lesson 13: Comparing Irrational Numbers G8 M7 Lesson 14: Decimal Expansion of pi

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.NR.2.2 Classify and order the subsets of real numbers in the number system including natural, whole, integer, rational, and irrational numbers.	G8 M7 Lesson 6: Finite and Infinite Decimals G8 M7 Lesson 7: Infinite Decimals *Supplemental material is necessary to fully address this standard.*

Patterns, Algebra, and Functional Reasoning

8.PAFR.1 Determine if a table, graph, verbal description, or equation represents a function and describe its characteristics.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.PAFR.1.1 Define an equation in slope-intercept form ($y = mx + b$) as being a linear function.	G8 M5 Lesson 3: Linear Functions and Proportionality G8 M5 Lesson 5: Graphs of Functions and Equations G8 M5 Lesson 6: Graphs of Linear Functions and Rate of Change G8 M5 Lesson 7: Comparing Linear Functions and Graphs G8 M5 Lesson 8: Graphs of Simple Nonlinear Functions
8.PAFR.1.2 Identify and describe the constant rate of change and the y-intercept of a linear function.	G8 M6 Lesson 1: Modeling Linear Relationships G8 M6 Lesson 2: Interpreting Rate of Change and Initial Value G8 M6 Lesson 3: Representations of a Line

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.PAFR.1.3 Determine if a graph, table, mapping, or verbal description is a function (linear or nonlinear) or not a function.	G8 M5 Lesson 1: The Concept of a Function G8 M5 Lesson 2: Formal Definition of a Function G8 M5 Lesson 4: More Examples of Functions G8 M5 Lesson 5: Graphs of Functions and Equations G8 M5 Lesson 6: Graphs of Linear Functions and Rate of Change G8 M5 Lesson 8: Graphs of Simple Nonlinear Functions
8.PAFR.1.4 Describe the key features of given functions, including *domain*, *range*, *intervals of increasing or decreasing*, *constant*, *discrete*, *continuous*, and *intercepts*.	Algebra I M3 Lesson 13: Interpreting the Graph of a Function Algebra I M3 Lesson 14: Linear and Exponential Models—Comparing Growth Rates Algebra I M3 Lesson 23: Newton's Law of Cooling Algebra I M4 Lesson 8: Exploring the Symmetry in Graphs of Quadratic Functions Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$ Algebra I M4 Lesson 10: Interpreting Quadratic Functions from Graphs and Tables Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, $f(x) = ax^2 + bx + c$ Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways Algebra I M5 Lesson 1: Analyzing a Graph Algebra I M5 Lesson 2: Analyzing a Data Set Algebra I M5 Lesson 4: Modeling a Context from a Graph Algebra I M5 Lesson 6: Modeling a Context from Data Algebra I M5 Lesson 7: Modeling a Context from Data *Supplemental material is necessary to address describing functions as discrete or continuous.*

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.PAFR.1.5 Use multiple representations including mappings, tables, graphs, verbal description, and equations (only when linear) of two functions to compare the functions and draw conclusions.	G8 M5 Lesson 7: Comparing Linear Functions and Graphs
8.PAFR.1.6 Translate among the multiple representations, including mappings, tables, graphs, verbal description, and equations (only when linear) of a function.	Algebra I M3 Lesson 9: Representing, Naming, and Evaluating Functions Algebra I M3 Lesson 10: Representing, Naming, and Evaluating Functions Algebra I M3 Lesson 11: The Graph of a Function

Patterns, Algebra, and Functional Reasoning

8.PAFR.2 Write, simplify, and evaluate algebraic expressions; write and solve algebraic equations and inequalities.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.PAFR.2.1 Solve multi-step one-variable equations and inequalities with variables on both sides with rational coefficients.	G8 M4 Lesson 3: Linear Equations in x G8 M4 Lesson 4: Solving a Linear Equation G8 M4 Lesson 5: Writing and Solving Linear Equations G8 M4 Lesson 6: Solutions of a Linear Equation G8 M4 Lesson 8: Linear Equations in Disguise Algebra I M1 Lesson 11: Solution Sets for Equations and Inequalities Algebra I M1 Lesson 14: Solving Inequalities
8.PAFR.2.2 Describe single-variable equations as having one solution, no solution, or an infinite number of solutions.	G8 M4 Lesson 6: Solutions of a Linear Equation G8 M4 Lesson 7: Classification of Solutions
8.PAFR.2.3 Identify the rate of change for a linear function as the slope of the line.	G8 M4 Lesson 16: The Computation of the Slope of a Non-Vertical Line G8 M4 Lesson 22: Constant Rates Revisited
8.PAFR.2.4 Explain why the slope, m, is the same between any two distinct points on a linear graph.	G8 M4 Lesson 16: The Computation of the Slope of a Non-Vertical Line G8 M4 Lesson 17: The Line Joining Two Distinct Points of the Graph $y = mx + b$ has Slope m G8 M4 Lesson 18: There is Only One Line Passing Through a Given Point with a Given Slope

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.PAFR.2.5 Given a table or a graph, identify the slope and the y-intercept of a line and write a linear equation to express that line.	G8 M4 Lesson 19: The Graph of a Linear Equation in Two Variables is a Line G8 M4 Lesson 20: Every Line is a Graph of a Linear Equation G8 M4 Lesson 21: Some Facts About Graphs of a Linear Equation in Two Variables

Patterns, Algebra, and Functional Reasoning

8.PAFR.3 Apply mathematical patterns, properties, and algorithms to the set of rational numbers to find sums, differences, products, and quotients and to write equivalent expressions.

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.PAFR.3.1 Analyze patterns of perfect squares and perfect cubes to evaluate square roots and cube roots. Limit to square roots less than or equal to 400 and cube roots less than or equal to $1{,}000$.	G8 M7 Lesson 2: Square Roots G8 M7 Lesson 5: Solving Equations with Radicals G8 M7 Lesson 10: Converting Repeating Decimals to Fractions
8.PAFR.3.2 Approximate non-perfect square roots and cube roots to the nearest tenth. Limit to square roots less than or equal to 400 and cube roots less than or equal to $1{,}000$.	G8 M7 Lesson 1: The Pythagorean Theorem G8 M7 Lesson 2: Square Roots G8 M7 Lesson 3: Existence and Uniqueness of Square Roots and Cube Roots G8 M7 Lesson 4: Simplifying Square Roots G8 M7 Lesson 11: The Decimal Expansion of Some Irrational Numbers G8 M7 Lesson 13: Comparing Irrational Numbers G8 M7 Lesson 14: Decimal Expansion of pi

South Carolina College- and Career-Ready Mathematics Standards	Aligned Components of *Eureka Math*
8.PAFR.3.3 Apply laws of exponents to simplify algebraic expressions involving no more than three variables and integer exponents.	G8 M1 Topic A: Exponential Notation and Properties of Integer Exponents