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 8 MATHEMATICS

The majority of the Grade 8 Minnesota Academic Standards in Mathematics are fully covered by the Grade 8 *Eureka Math* curriculum. The areas where the Grade 8 Minnesota Academic Standards in Mathematics and Grade 8 *Eureka Math* do not align will require the use of *Eureka Math* content from other grade levels or courses, 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 Minnesota Academic Standards in Mathematics while still benefiting from the coherence and rigor of *Eureka Math*.

INDICATORS

Green indicates that the Minnesota standard is fully addressed in *Eureka Math*.

Yellow indicates that the Minnesota standard may not be completely addressed in *Eureka Math*.

Red indicates that the Minnesota 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 Minnesota standards and in *Eureka Math*.

Strand	Academic Standards	Aligned Components of *Eureka Math*
Number & Operation	**Standard: Read, write, compare, classify, and represent real numbers, and use them to solve problems in various contexts.**	
	8.1.1.1 Classify real numbers as rational or irrational. Know that when a square root of a positive integer is not an integer, then it is irrational. Know that the sum of a rational number and an irrational number is irrational, and the product of a non-zero rational number and an irrational number is irrational.	G8 M7: Introduction to Irrational Numbers Using Geometry
	8.1.1.2 Compare real numbers; locate real numbers on a number line. Identify the square root of a positive integer as an integer, or if it is not an integer, locate it as a real number between two consecutive positive integers.	G8 M7 Topic A: Square and Cube Roots G8 M7 Lesson 10: Converting Repeating Decimals to Fractions 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 π

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	8.1.1.3 Determine rational approximations for solutions to problems involving real numbers.	G8 M7 Topic A: Square and Cube Roots G8 M7 Lesson 10: Converting Repeating Decimals to Fractions 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 π
	8.1.1.4 Know and apply the properties of positive and negative integer exponents to generate equivalent numerical expressions.	G8 M1: Integer Exponents and Scientific Notation
	8.1.1.5 Express approximations of very large and very small numbers using scientific notation; understand how calculators display numbers in scientific notation. Multiply and divide numbers expressed in scientific notation, express the answer in scientific notation, using the correct number of significant digits when physical measurements are involved.	G8 M1: Integer Exponents and Scientific Notation Note: Supplemental material is necessary to address significant digits.

Strand	Academic Standards	Aligned Components of *Eureka Math*
Algebra	**Standard: Understand the concept of function in real-world and mathematical situations, and distinguish between linear and nonlinear functions.**	
	8.2.1.1 Understand that a function is a relationship between an independent variable and a dependent variable in which the value of the independent variable determines the value of the dependent variable. Use functional notation, such as $f(x)$, to represent such relationships.	G8 M5: Examples of Functions from Geometry
	8.2.1.2 Use linear functions to represent relationships in which changing the input variable by some amount leads to a change in the output variable that is a constant times that amount.	G8 M5: Examples of Functions from Geometry
	8.2.1.3 Understand that a function is linear if it can be expressed in the form $f(x) = mx + b$ or if its graph is a straight line.	G8 M5: Examples of Functions from Geometry G8 M6 Topic A: Linear Functions
	8.2.1.4 Understand that an arithmetic sequence is a linear function that can be expressed in the form $f(x) = mx + b$, where $x = 0, 1, 2, 3, ...$	Algebra I M3 Topic A: Linear and Exponential Sequences

Strand	Academic Standards	Aligned Components of *Eureka Math*
	8.2.1.5 Understand that a geometric sequence is a nonlinear function that can be expressed in the form $f(x) = ab^x$, where $x = 0, 1, 2, 3, ...$	Algebra I M3 Topic A: Linear and Exponential Sequences.
	Standard: Recognize linear functions in real-world and mathematical situations; represent linear functions and other functions with tables, verbal descriptions, symbols and graphs; solve problems involving these functions and explain results in the original context.	
	8.2.2.1 Represent linear functions with tables, verbal descriptions, symbols, equations, and graphs; translate from one representation to another.	G8 M4 Lesson 1: Writing Equations Using Symbols G8 M5 Lesson 3: Linear Functions and Proportionality G8 M5 Lesson 6: Graphs of Linear Functions and Rate of Change G8 M5 Lesson 7: Comparing Linear Functions and Graphs G8 M6: Linear Functions
	8.2.2.2 Identify graphical properties of linear functions including slopes and intercepts. Know that the slope equals the rate of change, and that the y-intercept is zero when the function represents a proportional relationship.	G8 M4 Topic C: Slope and Equations of Lines G8 M6 Topic A: Linear Functions

Strand	Academic Standards	Aligned Components of *Eureka Math*
	8.2.2.3 Identify how coefficient changes in the equation $f(x) = mx + b$ affect the graphs of linear functions. Know how to use graphing technology to examine these effects.	G8 M4 Topic C: Slope and Equations of Lines G8 M5 Lesson 3: Linear Functions and Proportionality G8 M5 Lesson 6: Graphs of Linear Functions and Rate of Change
	8.2.2.4 Represent arithmetic sequences using equations, tables, graphs, and verbal descriptions, and use them to solve problems.	Algebra I M3 Topic A: Linear and Exponential Sequences
	8.2.2.5 Represent geometric sequences using equations, tables, graphs, and verbal descriptions, and use them to solve problems.	Algebra I M3 Topic A: Linear and Exponential Sequences
Standard: Generate equivalent numerical and algebraic expressions and use algebraic properties to evaluate expressions.		
	8.2.3.1 Evaluate algebraic expressions, including expressions containing radicals and absolute values, at specified values of their variables.	G8 M5 Topic B: Volume G8 M7: Introduction to Irrational Numbers Using Geometry Note: Supplemental material is necessary to address absolute value.

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	8.2.3.2 Justify steps in generating equivalent expressions by identifying the properties used, including the properties of algebra. Properties include the associative, commutative, and distributive laws, and the order of operations, including grouping symbols.	G8 M4 Topic A: Writing and Solving Linear Equations
	Standard: Represent real-world and mathematical situations using equations and inequalities involving linear expressions. Solve equations and inequalities symbolically and graphically. Interpret solutions in the original context.	
	8.2.4.1 Use linear equations to represent situations involving a constant rate of change, including proportional and non-proportional relationships.	G8 M4: Linear Equations
	8.2.4.2 Solve multi-step equations in one variable. Solve for one variable in a multi-variable equation in terms of the other variables. Justify the steps by identifying the properties of equalities used.	G8 M4 Topic A: Writing and Solving Linear Equations

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	8.2.4.3 Express linear equations in slope-intercept, point-slope, and standard forms, and convert between these forms. Given sufficient information, find an equation of a line.	G8 M4 Topic C: Slope and Equations of Lines G8 M6 Topic A: Linear Functions Note: Supplemental material is necessary to address point-slope form.
	8.2.4.4 Use linear inequalities to represent relationships in various contexts.	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 Algebra I M1 Topic C: Solving Equations and Inequalities
	8.2.4.5 Solve linear inequalities using properties of inequalities. Graph the solutions on a number line.	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 Algebra I M1 Topic C: Solving Equations and Inequalities

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	8.2.4.6 Represent relationships in various contexts with equations and inequalities involving the absolute value of a linear expression. Solve such equations and inequalities and graph the solutions on a number line.	G7 M3 Topic B: Solve Problems Using Expressions, Equations, and Inequalities G8 M4 Topic A: Writing and Solving Linear Equations G8 M4 Lesson 21: Some Facts About Graphs of Linear Equations in Two Variables Algebra I M1 Topic C: Solving Equations and Inequalities Algebra I M3 Lesson 15: Piecewise Functions Algebra I M3 Lesson 16: Graphs Can Solve Equations Too
	8.2.4.7 Represent relationships in various contexts using systems of linear equations. Solve systems of linear equations in two variables symbolically, graphically, and numerically.	G8 M4 Topic D: Systems of Linear Equations and Their Solutions G8 M4 Topic E: Pythagorean Theorem Note: Learning systems of linear equations is extended in Algebra I M1 Topic C.
	8.2.4.8 Understand that a system of linear equations may have no solution, one solution, or an infinite number of solutions. Relate the number of solutions to pairs of lines that are intersecting, parallel, or identical. Check whether a pair of numbers satisfies a system of two linear equations in two unknowns by substituting the numbers into both equations.	G8 M4 Topic D: Systems of Linear Equations and Their Solutions G8 M4 Topic E: Pythagorean Theorem Note: Learning systems of linear equations is extended in Algebra I M1 Topic C.

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	8.2.4.9 Use the relationship between square roots and squares of a number to solve problems.	G8 M7: Introduction to Irrational Numbers Using Geometry
Geometry & Measurement	**Standard: Solve problems involving right triangles using the Pythagorean Theorem and its converse.**	
	8.3.1.1 Use the Pythagorean Theorem to solve problems involving right triangles.	G8 M2 Topic D: The Pythagorean Theorem G8 M3 Topic C: The Pythagorean Theorem G8 M4 Topic E: Pythagorean Theorem G8 M7: Introduction to Irrational Numbers Using Geometry
	8.3.1.2 Determine the distance between two points on a horizontal or vertical line in a coordinate system. Use the Pythagorean Theorem to find the distance between any two points in a coordinate system.	G8 M2 Topic D: The Pythagorean Theorem G8 M7 Lesson 17: Distance on the Coordinate Plane
	8.3.1.3 Informally justify the Pythagorean Theorem by using measurements, diagrams, and computer software.	G8 M2 Topic D: The Pythagorean Theorem G8 M3 Topic C: The Pythagorean Theorem G8 M7 Topic C: The Pythagorean Theorem Note: Supplemental material is necessary to incorporate computer software.

Strand	Academic Standards	Aligned Components of *Eureka Math*
	Standard: Solve problems involving parallel and perpendicular lines on a coordinate system.	
	8.3.2.1 Understand and apply the relationships between the slopes of parallel lines and between the slopes of perpendicular lines. Dynamic graphing software may be used to examine these relationships.	G8 M4 Topic C: Slope and Equations of Lines Note: Supplemental material is necessary to incorporate graphing software.
	8.3.2.2 Analyze polygons on a coordinate system by determining the slopes of their sides.	Geometry M4 Topic B: Perpendicular and Parallel Lines in the Cartesian Plane
	8.3.2.3 Given a line on a coordinate system and the coordinates of a point not on the line, find lines through that point that are parallel and perpendicular to the given line, symbolically and graphically.	Geometry M4 Topic B: Perpendicular and Parallel Lines in the Cartesian Plane

Strand	Academic Standards	Aligned Components of *Eureka Math*
Data Analysis & Probability	**Standard: Interpret data using scatterplots and approximate lines of best fit. Use lines of best fit to draw conclusions about data.**	
	8.4.1.1 Collect, display, and interpret data using scatterplots. Use the shape of the scatterplot to informally estimate a line of best fit and determine an equation for the line. Use appropriate titles, labels, and units. Know how to use graphing technology to display scatterplots and corresponding lines of best fit.	G8 M6: Linear Functions
	8.4.1.2 Use a line of best fit to make statements about approximate rate of change and to make predictions about values not in the original data set.	G8 M6: Linear Functions
	8.4.1.3 Assess the reasonableness of predictions using scatterplots by interpreting them in the original context.	G8 M6 Topic B: Bivariate Numerical Data