Grade 8 | Minnesota K–12 Academic Standards in Mathematics Correlation to *Eureka Math²®*

When the original *Eureka Math®* curriculum was released, it quickly became the most widely used K–5 mathematics curriculum in the country. Now, the Great Minds® teacher–writers have created *Eureka Math²®*, a groundbreaking new curriculum that helps teachers deliver exponentially better math instruction while still providing students with the same deep understanding of and fluency in math. *Eureka Math²* carefully sequences mathematical content to maximize vertical alignment—a principle tested and proven to be essential in students' mastery of math—from kindergarten through high school.

While this innovative new curriculum includes all the trademark *Eureka Math* aha moments that have been delighting students and teachers for years, it also boasts these exciting new features:

Teachability

Eureka Math² employs streamlined materials that allow teachers to plan more efficiently and focus their energy on delivering high-quality instruction that meets the individual needs of their students. Differentiation suggestions, slide decks, digital interactives, and multiple forms of assessment are just a few of the resources built right into the teacher materials.

Accessibility

Eureka Math² incorporates Universal Design for Learning principles so all learners can access the mathematics and take on challenging math concepts. Student supports are built into the instructional design and are clearly identified in the *Teach* book. Further, the curriculum carries a focus on readability. By eliminating unnecessary words and using simple, clear sentences, the *Eureka Math²* teacher–writers have created one of the most readable mathematics curricula on the market. The curriculum's readability and accessibility help all students see themselves as mathematical thinkers and doers who are fully capable of owning their mathematics learning.

Digital Engagement

The digital elements of *Eureka Math²* add to students' engagement with the math. The curriculum provides teachers with digital slides for each lesson. In addition, each grade level includes wordless videos that spark students' interest and curiosity. Students at all levels work through mathematical explorations that help lead to their own mathematical discoveries. Digital lessons and videos provide opportunities for students to wonder, explore, and make sense of mathematics, which contributes to the development of a strong, positive mathematical identity.

Number & Operation

Read, write, compare, classify and represent real numbers, and use them to solve problems in various contexts.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
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.	8 M1 Lesson 22: Familiar and Not So Familiar Numbers 8 M4 Lesson 5: An Interesting Application of Linear Equations, Part 1 8 M4 Lesson 6: An Interesting Application of Linear Equations, Part 2 A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations A1 M4 Lesson 17: Rewriting Square Roots
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.	8 M1 Lesson 16: Perfect Squares and Perfect Cubes 8 M1 Lesson 17: Solving Equations with Squares and Cubes 8 M1 Lesson 21: Approximating Values of Roots and π^2 8 M1 Lesson 23: Ordering Irrational Numbers
8.1.1.3 Determine rational approximations for solutions to problems involving real numbers.	8 M1 Lesson 21: Approximating Values of Roots and π^2 8 M1 Lesson 23: Ordering Irrational Numbers
8.1.1.4 Know and apply the properties of positive and negative integer exponents to generate equivalent numerical expressions.	8 M1 Topic B: Properties and Definitions of Exponents

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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.	8 M1 Topic A: Introduction to Scientific Notation 8 M1 Topic C: Applications of the Properties and Definitions of Exponents *Supplemental material is necessary to address using the correct number of significant digits when physical measurements are involved.*

Algebra

Understand the concept of function in real-world and mathematical situations, and distinguish between linear and non-linear functions.

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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.	8 M6 Lesson 1: Motion and Speed 8 M6 Lesson 2: Definition of a Function 8 M6 Lesson 4: More Examples of Functions 8 M6 Lesson 5: Graphs of Functions and Equations A1 M3 Topic A: Functions and Their Graphs

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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.	8 M6 Lesson 6: Linear Functions and Rate of Change 8 M6 Lesson 7: Interpreting Rate of Change and Initial Value 8 M6 Lesson 25: Applications of Volume
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.	8 M6 Lesson 3: Linear Functions and Proportionality 8 M6 Lesson 6: Linear Functions and Rate of Change 8 M6 Lesson 7: Interpreting Rate of Change and Initial Value
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 $x = 0, 1, 2, 3, \ldots$.	A1 M5 Topic A: Arithmetic and Geometric Sequences
8.2.1.5 Understand that a geometric sequence is a non-linear function that can be expressed in the form $f(x) = abx$, where $x = 0, 1, 2, 3, \ldots$.	A1 M5 Topic A: Arithmetic and Geometric Sequences

Algebra

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.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.2.2.1 Represent linear functions with tables, verbal descriptions, symbols, equations and graphs; translate from one representation to another.	8 M6 Lesson 6: Linear Functions and Rate of Change 8 M6 Lesson 7: Interpreting Rate of Change and Initial Value 8 M6 Lesson 25: Applications of Volume
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.	8 M3 Lesson 17: Similar Triangles on a Line 8 M4 Lesson 16: Proportional Relationships and Slope 8 M4 Lesson 17: Slopes of Rising Lines 8 M4 Lesson 18: Slopes of Falling Lines 8 M4 Lesson 19: Using Coordinates to Find Slope 8 M4 Lesson 20: Slope-Intercept Form of the Equation of a Line 8 M6 Lesson 6: Linear Functions and Rate of Change 8 M6 Lesson 7: Interpreting Rate of Change and Initial Value
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.	*Supplemental material is necessary to address this standard.*

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8.2.2.4 Represent arithmetic sequences using equations, tables, graphs and verbal descriptions, and use them to solve problems.	A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences A1 M5 Lesson 7: Sierpinski Triangle *Supplemental material is necessary to address representing arithmetic sequences by using tables and verbal descriptions.*
8.2.2.5 Represent geometric sequences using equations, tables, graphs and verbal descriptions, and use them to solve problems.	A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences A1 M5 Lesson 7: Sierpinski Triangle *Supplemental material is necessary to address representing geometric sequences by using tables and verbal descriptions.*

Algebra

Generate equivalent numerical and algebraic expressions and use algebraic properties to evaluate expressions.

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8.2.3.1 Evaluate algebraic expressions, including expressions containing radicals and absolute values, at specified values of their variables.	*Supplemental material is necessary to address this standard.*

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
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.	7 M3 Topic A: Equivalent Expressions

Algebra

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.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.2.4.1 Use linear equations to represent situations involving a constant rate of change, including proportional and non-proportional relationships.	8 M4 Lesson 2: Solving Linear Equations 8 M4 Lesson 3: Solving Linear Equations with Rational Coefficients 8 M4 Lesson 4: Using Linear Equations to Solve Problems 8 M4 Lesson 10: Using Linear Equations to Solve Real-World Problems 8 M4 Lesson 11: Planning a Trip
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.	8 M4 Topic A: Linear Equations in One Variable 8 M4 Lesson 10: Using Linear Equations to Solve Real-World Problems 8 M4 Lesson 11: Planning a Trip A1 M1 Lesson 12: Rearranging Formulas

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
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.	8 M4 Topic E: Different Forms of Linear Equations 8 M4 Topic F: Graphing and Writing Linear Equations
8.2.4.4 Use linear inequalities to represent relationships in various contexts.	7 M3 Topic D: Inequalities
8.2.4.5 Solve linear inequalities using properties of inequalities. Graph the solutions on a number line.	7 M3 Topic D: Inequalities
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.	A1 M1 Lesson 16: Solving Absolute Value Equations A1 M1 Lesson 17: Solving Absolute Value Inequalities
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.	8 M5 Topic A: Solving Systems of Linear Equations Graphically 8 M5 Topic B: Solving Systems of Linear Equations Algebraically 8 M5 Topic C: Writing and Solving Systems of Linear Equations

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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.	8 M5 Lesson 2: Introduction to Systems of Linear Equations 8 M5 Lesson 3: Identifying Solutions 8 M5 Lesson 4: More Than One Solution
8.2.4.9 Use the relationship between square roots and squares of a number to solve problems.	8 M1 Lesson 17: Solving Equations with Squares and Cubes 8 M1 Lesson 18: The Pythagorean Theorem 8 M1 Lesson 19: Using the Pythagorean Theorem 8 M1 Lesson 20: Square Roots 8 M1 Lesson 24: Revisiting Equations with Squares and Cubes 8 M2 Lesson 19: Using the Pythagorean Theorem and Its Converse 8 M2 Lesson 20: Distance in the Coordinate Plane 8 M2 Lesson 21: Applying the Pythagorean Theorem 8 M2 Lesson 22: On the Right Path

Geometry & Measurement

Solve problems involving right triangles using the Pythagorean Theorem and its converse.

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8.3.1.1 Use the Pythagorean Theorem to solve problems involving right triangles.	8 M1 Lesson 18: The Pythagorean Theorem 8 M1 Lesson 19: Using the Pythagorean Theorem 8 M1 Lesson 20: Square Roots 8 M2 Lesson 19: Using the Pythagorean Theorem and Its Converse 8 M2 Lesson 21: Applying the Pythagorean Theorem 8 M2 Lesson 22: On the Right Path 8 M3 Lesson 16: Similar Right Triangles
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.	8 M2 Lesson 20: Distance in the Coordinate Plane 8 M2 Lesson 22: On the Right Path
8.3.1.3 Informally justify the Pythagorean Theorem by using measurements, diagrams and computer software.	8 M2 Lesson 17: Proving the Pythagorean Theorem 8 M2 Lesson 18: Proving the Converse of the Pythagorean Theorem 8 M2 Lesson 19: Using the Pythagorean Theorem and Its Converse

Geometry & Measurement

Solve problems involving parallel and perpendicular lines on a coordinate system.

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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.	8 M4 Lesson 21: Slope and Parallel Lines *Supplementary material is necessary to address the relationships between the slopes of perpendicular lines.*
8.3.2.2 Analyze polygons on a coordinate system by determining the slopes of their sides.	*Supplemental material is necessary to address this standard.*
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.	*Supplemental material is necessary to address this standard.*

Data Analysis & Probability

Interpret data using scatterplots and approximate lines of best fit. Use lines of best fit to draw conclusions about data.

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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.	8 M6 Topic C: Bivariate Numerical Data
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.	8 M6 Lesson 14: Determining an Equation of a Line Fit to Data 8 M6 Lesson 15: Linear Models 8 M6 Lesson 16: Using the Investigative Process 8 M6 Lesson 17: Analyzing the Model
8.4.1.3 Assess the reasonableness of predictions using scatterplots by interpreting them in the original context.	8 M6 Lesson 13: Informally Fitting a Line to Data 8 M6 Lesson 14: Determining an Equation of a Line Fit to Data 8 M6 Lesson 15: Linear Models