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.

Standards for Mathematical Practice	Aligned Components of *Eureka Math²*
MP.1 Make sense of problems and persevere in solving them.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.2 Reason abstractly and quantitatively.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.3 Construct viable arguments and critique the reasoning of others.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.4 Model with mathematics.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.5 Use appropriate tools strategically.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.6 Attend to precision.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.7 Look for and make use of structure.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.8 Look for and express regularity in repeated reasoning.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.

Data and Probability

Data Sciences: Identify, formulate and investigate statistical questions by collecting data, considering cultural perspectives, analyzing and interpreting data and communicating the results.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.1.1.1 Formulate statistical investigative questions, such as questions about variation, the differences between groups and associations between two numerical variables.	8 M6 Lesson 16: Using the Investigative Process 8 M6 Lesson 17: Analyzing the Model 8 Data Talk: The Power of the Wind 8 Data Talk: Sea Turtle Hospital 8 Data Talk: Hours of Daylight Around the Earth 8 Data Talk: Share of Electricity 8 Data Talk: Dead Zones in the Gulf of Mexico 8 Data Talk: Drought in the United States 8 Data Talk: Presidents' Ages 8 Data Talk: Page Turners 8 Data Talk: Buckle Up! 8 Data Talk: Lifetime Learner 8 Data Talk: Alaskan Sled Dog Racing 8 Data Talk: A Nation of Parks 8 Data Talk: US Armed Services Members 8 Data Talk: California Trees 8 Data Investigation: Obstacles to Leisure Reading 8 Data Investigation: US Presidents 8 Data Investigation: Crash Impact

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.1.1.2 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association and nonlinear association.	8 M6 Lesson 11: Scatter Plots 8 M6 Lesson 12: Patterns in Scatter Plots 8 Data Talk: Alaskan Sled Dog Racing 8 Data Investigation: Crash Impact
8.1.1.3 Identify when to use straight lines to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line and assess the model fit by judging the closeness of the data points to the line.	8 M6 Lesson 13: Informally Fitting a Line to Data 8 M6 Lesson 15: Linear Models 8 M6 Lesson 16: Using the Investigative Process 8 M6 Lesson 17: Analyzing the Model 8 Data Investigation: Crash Impact
8.1.1.4 Use the equation of a linear model to solve situations in the context of bivariate measurement data. Interpret the slope and intercepts in context of the variables.	8 M6 Lesson 6: Linear Functions and Rate of Change 8 M6 Lesson 7: Interpreting Rate of Change and Initial Value 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

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.1.1.5 Create data visualizations about a data set. Organize and present the data in appropriate ways, including in tables and scatter plots, and incorporate other relevant information that helps to tell a story and support a claim about the data.	8 M6 Topic C: Bivariate Numerical Data 8 M6 Topic D: Bivariate Categorical Data 8 Data Investigation: Obstacles to Leisure Reading 8 Data Investigation: US Presidents 8 Data Investigation: Crash Impact
8.1.1.6 Compare and communicate competing explanations for data trends observed, considering the reasonableness of the model's predictions and correlation versus causation.	8 M6 L11: Scatter Plots 8 Data Talk: Alaskan Sled Dog Racing 8 Data Talk: US Armed Service Members A1 M2 Lesson 20: Interpreting Correlation A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data A1 Data Talk: US House Tenure

Spatial Reasoning

Measurement: Investigate measurement using a variety of tools, units, systems, processes and techniques in various cultures. Explain and reason with attributes, estimations and formulas to communicate measurement(s) and relationships effectively. Justify decisions and consider the reasonableness of the measurement.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.2.3.1 Informally justify the Pythagorean Theorem and its converse by using measurements, diagrams or 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
8.2.3.2 Apply the Pythagorean Theorem to solve multi-step contextual situations by determining unknown side lengths in right triangles in both two- and three-dimensional shapes.	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
8.2.3.3 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

Spatial Reasoning

Geometry: Analyze characteristics of geometric shapes to make mathematical arguments and justifications about geometric relationships. Use visualization and geometric modeling to compare, solve problems and communicate ideas.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.2.4.1 Use similar triangles to explain why the slope m is the same between any two distinct points on a non-vertical line in the coordinate plane. Derive the equation $y = mx$ for a line through the origin and the equation $y = mx + b$ for a line intercepting the vertical axis at b.	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
8.2.4.2 Given a line on a coordinate plane and the coordinates of a point not on the line, find lines through that point that are parallel and perpendicular to the given line, using graphing technology or hand drawn graphs.	*Supplemental material is necessary to address this standard.*

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.2.4.3 Identify the different types of solutions possible for a system of linear equations (no solution, one solution, infinitely many solutions). Using slope, compare the number of solutions to the graphical representation of pairs of lines that are intersecting, parallel or identical.	8 M5 Lesson 2: Introduction to Systems of Linear Equations 8 M5 Lesson 3: Identifying Solutions 8 M5 Lesson 4: More Than One Solution

Patterns and Relationships

Number Relationships: Describe, Interpret and use quantities, relationships between quantities, representations of quantities, and number systems. Describe operations and the relationship between operations. Use strategies and procedures accurately, efficiently and flexibly. Assess the reasonableness of the results.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.3.5.1 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.	8 M1 Lesson 22: Familiar and Not So Familiar Numbers 8 M4 Lesson 5: An Interesting Application of Linear Equations, Part 1

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.3.5.2 Use rational approximations of irrational numbers to compare the size of irrational numbers and locate them approximately on a number line. Estimate the value of expressions involving irrational numbers.	8 M1 Lesson 21: Approximating Values of Roots and π^2 8 M1 Lesson 23: Ordering Irrational Numbers
8.3.5.3 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
8.3.5.4 Express approximations of very large and very small numbers using scientific notation. Understand how technology displays numbers in scientific notation. Compare numbers expressed in scientific notation using the symbols $<$, $>$, $=$, $\leq$ and $\geq$.	8 M1 Lesson 3: Time to Be More Precise—Scientific Notation 8 M1 Lesson 4: Adding and Subtracting Numbers Written in Scientific Notation 8 M1 Lesson 11: Small Positive Numbers in Scientific Notation 8 M1 Lesson 12: Operations with Numbers in Scientific Notation 8 M1 Lesson 13: Applications with Numbers in Scientific Notation *Supplemental material is necessary to address using the symbols $\leq$ and $\geq$.*
8.3.5.5 Multiply and divide numbers expressed in scientific notation. Express answers in scientific notation.	8 M1 Lesson 12: Operations with Numbers in Scientific Notation 8 M1 Lesson 13: Applications with Numbers in Scientific Notation 8 M1 Lesson 14: Choosing Units of Measurement 8 M1 Lesson 15: Get to the Point

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.3.5.6 Solve situations in various contexts involving calculating and comparing simple and compound interest. Compound interest situations are limited to compounded annually.	7 M5 L17: Simple Interest and Proportionality 7 M5 L18: Simple Interest—Solving for Unknown Values A1 M5 Lesson 15: Calculating Interest A1 M5 Lesson 19: Analyzing Exponential Growth
8.3.5.7 Solve multi-step contextual situations comparing how interest rate and loan length affect the cost of credit. Calculate the total cost of repaying a loan under various rates of interest and over different periods of time.	A1 M5 Lesson 19: Analyzing Exponential Growth *Supplemental material is necessary to fully address this standard.*
8.3.5.8 Compare and contrast employment opportunities and their payment methods, including per hour, with or without tips, salary, per diem and piecework pay. Justify financial decisions with representations, including linear relationships.	*Supplemental material is necessary to address this standard.*

Patterns and Relationships

Equivalence and Relational Thinking: Use concepts and properties of equivalence and relational thinking to represent and compare numerical expressions, proportional relationships, algebraic expressions and equations.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.3.6.1 Justify steps in generating equivalent algebraic expressions and identify the properties used. Properties include the associative, commutative, distributive, identity and inverse.	7 M3 Topic A: Equivalent Expressions A1 M1 Lesson 2: Associate, Commutative, and Distributive Properties
8.3.6.2 Evaluate algebraic expressions, including expressions containing radicals and absolute values, by applying computational hierarchy of operations at specified values of their variables.	*Supplemental material is necessary to address this standard.*
8.3.6.3 Solve multi-step equations in one variable, including equivalent linear expressions. Solve for one variable in a multivariable equation in terms of the other variables. Justify the steps by identifying the properties of the equality 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*
8.3.6.4 Use the relationship between square roots and squares of a number to solve situations.	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
8.3.6.5 Represent linear relationships in point-slope and standard form and convert to slope-intercept form.	8 M4 Topic C: Linear Equations in Two Variables 8 M4 Topic E: Different Forms of Linear Equations 8 M4 Topic F: Graphing and Writing Linear Equations
8.3.6.6 Reason abstractly, involving variables as a point, slope or intercept, to compare general forms of linear relationships, including point-point, point-slope, standard form and slope-intercept form.	8 M4 Lesson 23: Comparing Equations in Different Forms *Supplemental material is necessary to address the point-point form of a linear equation.*

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.3.6.7 Represent relationships in various contexts using multi-step linear inequalities. Solve linear inequalities using properties of inequalities. Graph the solutions on a number line and interpret the solutions in context.	A1 M1 Lesson 13: Solving Linear Inequalities in One Variable
8.3.6.8 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
8.3.6.9 Represent relationships in various contextual situations using systems of linear equations. Solve systems of linear equations in two variables, symbolically and graphically, understanding that the solution corresponds to the point of intersection of their graphs.	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

Patterns and Relationships

Patterns and Relationships: Represent and connect mathematical patterns and relationships using verbal descriptions, generalizations, tables and graphs. Use representations to generate questions, make predictions and solve mathematical problems.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.3.7.1 Compare graphical properties of proportional and non-proportional linear relationships, including slope.	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
8.3.7.2 Analyze visual patterns to distinguish between linear and non-linear patterns. For linear patterns, describe how a pattern is changing, name the n^{th} term and write an equation to generalize the n^{th} term.	A1 M5 Lesson 1: Exploring Patterns A1 M5 Lesson 4: Explicit Formulas for Sequences A1 M5 Lesson 5: Arithmetic and Geometric Sequences

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.3.7.3 Recognize that a function is a rule that assigns each input to exactly one output. Use the function to represent the relationship in which changing the input (independent) variable, by an amount, leads to a change in the output (dependent) variable, a constant multiplied by that amount. Recognize that the graph of a function is the set of ordered pairs consisting of an input and the corresponding output. 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
8.3.7.4 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
8.3.7.5 Explain how changes to the values m or b in the linear function $f(x) = mx + b$ affect the graph of the function. Use graphing technology to examine these effects. Recognize that the graph of the linear equation $y = mx + b$ comes from b units translation of $y = mx$ graph.	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 *Supplemental material is necessary to address using graphing technology to examine the effects of changes to the values m or b on the graphs of linear functions.*

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
8.3.7.6 Identify graphical properties of linear functions in the form $y = mx + b$, including slope, y-intercept, and x-intercept. Know that the graph is a straight line, the slope (m) equals the rate of change, the y-intercept (b) is the value of the function at $x = 0$, and the x-intercept is the value of the function at $f(x) = 0$.	8 M4 Lesson 13: The Graph of a Linear Equation in Two Variables 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
8.3.7.7 Recognize 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 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences
8.3.7.8 Recognize that a geometric sequence is a non-linear function that can be expressed in the form $f(x) = a\,(b)^x$, where $x = 0, 1, 2, 3, \ldots$	A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences
8.3.7.9 Represent arithmetic and geometric sequences using equations, tables, graphs and verbal descriptions and use them to solve situations.	A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences A1 M5 Lesson 7: Sierpinski Triangle