Alegebra 1 | 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*
9.1.1.1 Formulate statistical investigative questions and pose hypotheses. These include questions about variation or the differences between groups, associations between quantitative and categorical variables or pairing together multiple analyses.	A1 M2 Lesson 15: Relationships Between Quantitative Variables A1 M6 Lesson 1: Analyzing Paint Splatters A1 Data Talk: Organ Transplants in the US A1 Data Talk: Energy in Earthquakes and Lightning A1 Data Talk: The Carbon in Our Trees A1 Data Talk: Change in Forest Area A1 Data Talk: Growth in Renewable Energy A1 Data Talk: Disappearing Sea Ice A1 Data Talk: Daylight at the Extremes A1 Data Talk: Life Expectancy at Birth A1 Data Talk: License to Drive A1 Data Talk: Venomous Snake Bites A1 Data Talk: Time to Vote A1 Data Talk: Disaster Relief A1 Data Talk: US House Tenure A1 Data Talk: Hot and Cold Park Days A1 Data Investigation: Driving Dangers A1 Data Investigation: Carbon in Trees A1 Data Investigation: Organ Donation

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
9.1.1.5 Analyze and explain when arguments based on data confuse correlation and causation.	A1 M2 Lesson 20: Interpreting Correlation A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data
9.1.1.6 Compute using technology or estimate the correlation coefficient of a linear model. Interpret the linear model in the context of the data.	A1 M2 Lesson 20: Interpreting Correlation A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data
9.1.1.9 Use statistics appropriate to the shape of the data distribution to compare the center and spread of two or more data sets.	*A1 M1 Topic D: Univariate Data*
9.1.1.10 Create and analyze data displays, including scatter plots, histograms and boxplots using technology.	A1 M1 Lesson 19: Describing the Center of a Distribution A1 M1 Lesson 20: Using Center to Compare Data Distributions A1 M1 Lesson 22: Estimating Variability in Data Distributions A1 M1 Lesson 23: Comparing Distributions of Univariate Data A1 M2 Topic C: Numerical Data on Two Variables A1 M6 Lesson 1: Analyzing Paint Splatters A1 Data Investigation: Carbon in Trees *Supplemental material is necessary to address creating histograms and boxplots using technology.*

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
9.1.1.11 Identify, create and compare statistical models with linear and exponential functions, including linear regression. Assess the reasonableness of model fit using residuals and correlation coefficients.	A1 M5 Lesson 22: A Closer Look at Populations A1 M5 Lesson 24: Modeling an Invasive Species Population A1 M6 Lesson 2: Using Residual Plots to Select Models for Data A1 M6 Lesson 3: Populations of US Cities
9.1.1.12 Examine and discuss competing explanations for data trends observed such as confounding variables. Respond to competing arguments or interpretations of the data of different community groups, paying careful attention to what conclusions the data supports.	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 *Supplemental material is necessary to address confounding variables and responding to competing arguments or interpretations.*

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
9.1.1.13 Analyze and interpret data using various measures, such as difference in shapes, center and spread to draw conclusions, identify trends and describe relationships, accounting for possible effects of extreme data points (outliers).	A1 M1 Topic D: Univariate Data

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*
9.2.3.6 Use units of measure and dimensional analysis to solve multi-step situations. Interpret units consistently in formulas. Interpret the scale and the origin in graphs and data displays.	A1 M4 Lesson 25: Maximizing Area A1 M6 Lesson 5: Solar System Models A1 M6 Lesson 6: Designing A Fundraiser

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*
9.3.5.1 Add, subtract, multiply and divide numbers in scientific notation.	8 M1 Topic A: Introduction to Scientific Notation 8 M1 Topic C: Applications of the Properties and Definitions of Exponents
9.3.5.2 Compare the definition of rational exponents and properties of radicals. Explain how the definition of rational exponents follows from extending the properties of integer exponents, allowing for a notation for radicals in terms of rational exponents.	A1 M5 Lesson 9: Unit Fraction Exponents A1 M5 Lesson 10: Rational Exponents
9.3.5.5 Estimate and verify the cost of an item, including multiple discounts and taxes. Show an understanding of the order of operations.	G7 M5 Lesson 12: More Discounts G7 M5 Lesson 13: What Is the Best Deal? G7 M5 Lesson 15: Tips and Taxes G7 M5 Lesson 16: Markups and Discounts *Supplemental material is necessary to address estimating the cost.*

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
9.3.5.6 Assess the reasonableness of a solution in its given context, including financial literacy applications. Compare the solution to appropriate graphical or numerical estimates. Interpret a solution in the original context.	A1 M2 Lesson 7: Low-Flow Showerhead A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 24: Another Look at Systems of Equations A1 M4 Lesson 25: Maximizing Area A1 M4 Lesson 27: Search and Rescue Helicopter A1 M5 Lesson 8: Exponential Functions A1 M5 Lesson 15: Calculating Interest A1 M5 Lesson 16: Exponential Growth A1 M5 Lesson 17: Exponential Decay A1 M5 Lesson 18: Modeling Populations A1 M5 Topic D: Comparing Linear and Exponential Models A1 M6 Topic B: Developing Models for Contexts *Supplemental material is necessary to address financial literacy contexts.*
9.3.5.7 Use the structure of an expression, equation and/or formula to create an equivalent form that is more helpful given the situation. Rearrange formulas to highlight a quantity of interest, using the same reasoning in solving equations.	A1 M1 Lesson 12: Rearranging Formulas A1 M4 Topic B: Factoring A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations A1 M4 Lesson 14: Solving Quadratic Equations by Completing the Square A1 M4 Lesson 16: Solving Quadratic Equations A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
9.3.5.8 Use the structure of an expression to write it in multiple ways.	A1 M2 Lesson 2: Graphing Linear Equations in Two Variables A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions A1 M5 Lesson 11: Graphing Exponential Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) A1 M5 Lesson 18: Modeling Populations

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*
9.3.6.1 Add, subtract and multiply polynomials.	A1 M1 Lesson 4: Adding and Subtracting Polynomial Expressions A1 M1 Lesson 5: Multiplying Polynomial Expressions A1 M1 Lesson 6: Polynomial Identities
9.3.6.2 Reason abstractly to compare general forms of quadratics, including vertex form, general form, factored form and the graph. Develop procedures to convert from one form to another.	A1 M4 Lesson 10: Zeros of Functions A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 18: The Quadratic Formula and Zeros of a Function A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
9.3.6.3 Choose and produce an equivalent form of a quadratic function, using symbolic and graphical methods, to identify the vertex, line of symmetry and intercepts of the parabola.	A1 M4 Lesson 10: Zeros of Functions A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 18: The Quadratic Formula and Zeros of a Function A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions
9.3.6.4 Factor polynomials including common monomial factors from polynomials, quadratic polynomials and the difference of two squares.	A1 M4 Lesson 6: Solving Quadratic Equations by Factoring: Identities and Guess and Check A1 M4 Lesson 7: Solving Quadratic Equations by Factoring: Splitting the Linear Term A1 M4 Lesson 8: A Summary of Solving Quadratic Equations by Factoring
9.3.6.5 Solve quadratic equations by appropriate methods using factoring, completing the square, graphing or the quadratic formula. Find non-real complex roots when they exist.	A1 M4 Lesson 8: A Summary of Solving Quadratic Equations by Factoring A1 M4 Lesson 9: Creating and Solving Quadratic Equations in One Variable A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations A1 M4 Lesson 14: Solving Quadratic Equations by Completing the Square A1 M4 Lesson 16: Solving Quadratic Equations A1 M4 Lesson 25: Maximizing Area

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
9.3.6.8 Apply the properties of rational exponents and radicals to generate equivalent algebraic expressions.	A1 M5 Lesson 9: Unit Fraction Exponents A1 M5 Lesson 10: Rational Exponents

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*
9.3.7.1 Represent and solve situations in various contexts, including financial literacy, using systems of linear equations, systems of linear inequalities and exponential and quadratic functions.	A1 M2 Topic B: Systems of Linear Equations and Inequalities in Two Variables A1 M4 Lesson 9: Creating and Solving Quadratic Equations in One Variable A1 M4 Topic D: Modeling with Quadratic Functions A1 M5 Topic C: Exponential Growth and Decay A1 M5 Topic D: Comparing Linear and Exponential Models A1 M6 Lesson 3: Populations of US Cities A1 M6 Lesson 4: The Deal A1 M6 Lesson 6: Designing a Fundraiser *Supplemental material is necessary to address financial literacy contexts.*

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
9.3.7.2 Translate between graphs of quadratic, exponential and other functions (including absolute value, rational and polynomial), tables and symbolic representations. Sketch graphs and use graphing technology to graph functions.	A1 M3 Lesson 15: The Absolute Value Function A1 M4 Lesson 4: Graphs of Quadratic Functions A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions A1 M5 Lesson 11: Graphing Exponential Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) A1 M5 Lesson 14: Writing Equations for Exponential Functions from Tables or Graphs *Supplemental material is necessary to address rational and polynomial functions.*
9.3.7.3 Determine how vertical/ horizontal reflecting, translating and scaling affect the symbolic and graphical forms of a function. Use graphing technology to examine transformations.	A1 M3 Topic D: Transformations of Functions A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions A1 M4 Lesson 20: Art with Transformations *Supplemental material is necessary to address using graphing technology to examine transformations.*
9.3.7.4 Express the terms in an arithmetic or geometric sequence recursively and by giving an explicit formula.	A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
9.3.7.5 Express recursive patterns using recursive formulas. Calculate sequences defined by recursive formulas.	A1 M5 Lesson 2: The Recursive Challenge A1 M5 Lesson 3: Recursive Formulas for Sequences A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences A1 M5 Lesson 7: Sierpinski Triangle
9.3.7.6 Find the domain and range of functions defined symbolically, graphically or in a context, including piecewise and step functions. Express solutions and recognize that some answers obtained may not be valid, including cases where the function inputs are discrete instead of continuous.	A1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables A1 M2 Lesson 4: Solution Sets of Linear Inequalities in Two Variables A1 M3 Lesson 2: Representing, Naming, and Evaluating Functions A1 M3 Lesson 3: The Graph of a Function A1 M3 Lesson 7: Exploring Key Features of a Function and Its Graph A1 M3 Lesson 8: Identifying Key Features of a Function and Its Graph A1 M3 Lesson 9: Representing Functions from Verbal Descriptions A1 M3 Lesson 12: Mars Curiosity Rover A1 M3 Topic C: Piecewise-Defined Linear Functions A1 M4 Topic A: Quadratic Functions and Their Graphs A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 25: Maximizing Area A1 M4 Lesson 27: Search and Rescue Helicopter

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
9.3.7.6 ***continued***	A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences A1 M5 Lesson 8: Exponential Functions A1 M5 Lesson 11: Graphing Exponential Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1)
9.3.7.7 Describe the graph of a function using key features such as intercepts, maxima/minima, intervals of increase and decrease and end behavior. Draw conclusions from graphs of functions and other relations.	A1 M3 Lesson 7: Exploring Key Features of a Function and Its Graph A1 M3 Lesson 8: Identifying Key Features of a Function and Its Graph
9.3.7.10 Use the concept of a function as a connection between inputs and outputs to find function values and use function notation.	A1 M3 Lesson 1: The Definition of a Function A1 M3 Lesson 2: Representing, Naming, and Evaluating Functions A1 M3 Lesson 3: The Graph of a Function A1 M3 Lesson 4: The Graph of the Equation $y = f(x)$ A1 M3 Lesson 6: Representations of Functions