Mathematics I | Mathematics Standards of Learning for Virginia Public Schools 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.

Mathematical Process Goals for Students	Aligned Components of *Eureka Math²*
Mathematical Problem Solving	Lessons in every module engage students in mathematical processes. These are indicated in margin notes included with every lesson.
Mathematical Communication	Lessons in every module engage students in mathematical processes. These are indicated in margin notes included with every lesson.
Mathematical Reasoning	Lessons in every module engage students in mathematical processes. These are indicated in margin notes included with every lesson.
Mathematical Connections	Lessons in every module engage students in mathematical processes. These are indicated in margin notes included with every lesson.
Mathematical Representations	Lessons in every module engage students in mathematical processes. These are indicated in margin notes included with every lesson.

Probability and Statistics

8.PS.3 The student will apply the data cycle (formulate questions; collect or acquire data; organize and represent data; and analyze data and communicate results) with a focus on scatterplots.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
8.PS.3.a Formulate questions that require the collection or acquisition of data with a focus on scatterplots.	8 M6 Lesson 16: Using the Investigative Process 8 M6 Lesson 17: Analyzing the Model Math 1 M2 Lesson 22: Relationships Between Quantitative Variables Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data
8.PS.3.b Determine the data needed to answer a formulated question and collect the data (or acquire existing data) of no more than 20 items using various methods (e.g., observations, measurement, surveys, experiments).	8 M6 Lesson 16: Using the Investigative Process 8 M6 Lesson 17: Analyzing the Model Math 1 M2 Lesson 22: Relationships Between Quantitative Variables Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data

Expressions and Operations

A.EO.1 The student will represent verbal quantitative situations algebraically and evaluate these expressions for given replacement values of the variables.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.EO.1.a Translate between verbal quantitative situations and algebraic expressions, including contextual situations.	Math 1 M1 Lesson 2: Looking for Patterns Math 1 M1 Lesson 4: Interpreting Linear Expressions Math 1 M1 Lesson 5: Printing Presses Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable Math 1 M1 Lesson 16: Applying Absolute Value

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.EO.1.b Evaluate algebraic expressions which include absolute value, square roots, and cube roots for given replacement values to include rational numbers, without rationalizing the denominator.	*Supplemental material is necessary to address this standard.*

Equations and Inequalities

A.EI.1 The student will represent, solve, explain, and interpret the solution to multistep linear equations and inequalities in one variable and literal equations for a specified variable.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.EI.1.a Write a linear equation or inequality in one variable to represent a contextual situation.	Math 1 M1 Lesson 5: Printing Presses Math 1 M1 Lesson 6: Solution Sets of Equations and Inequalities in One Variable Math 1 M1 Lesson 7: Solving Linear Equations in One Variable Math 1 M1 Lesson 8: Some Potential Dangers When Solving Equations Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable Math 1 M1 Lesson 11: Solving Linear Inequalities in One Variable Math 1 M1 Lesson 13: Solving and Graphing Compound Inequalities Math 1 M1 Lesson 15: Solving Absolute Value Inequalities

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.EI.1.b Solve multistep linear equations in one variable, including those in contextual situations, by applying the properties of real numbers and/or properties of equality.	Math 1 M1 Lesson 5: Printing Presses Math 1 M1 Lesson 6: Solution Sets of Equations and Inequalities in One Variable Math 1 M1 Lesson 7: Solving Linear Equations in One Variable Math 1 M1 Lesson 8: Some Potential Dangers When Solving Equations Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable Math 1 M1 Lesson 15: Solving Absolute Value Equations
A.EI.1.c Solve multistep linear inequalities in one variable algebraically and graph the solution set on a number line, including those in contextual situations, by applying the properties of real numbers and/or properties of inequality.	Math 1 M1 Lesson 11: Solving Linear Inequalities in One Variable Math 1 M1 Lesson 12: Solution Sets of Compound Statements Math 1 M1 Lesson 13: Solving and Graphing Compound Inequalities Math 1 M1 Lesson 15: Solving Absolute Value Inequalities
A.EI.1.d Rearrange a formula or literal equation to solve for a specified variable by applying the properties of equality.	Math 1 M1 Lesson 10: Rearranging Formulas
A.EI.1.e Determine if a linear equation in one variable has one solution, no solution, or an infinite number of solutions.	Math 1 M1 Lesson 6: Solution Sets of Equations and Inequalities in One Variable Math 1 M1 Lesson 7: Solving Linear Equations in One Variable Math 1 M1 Lesson 8: Some Potential Dangers When Solving Equations Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.EI.1.f Verify possible solution(s) to multistep linear equations and inequalities in one variable algebraically, graphically, and with technology to justify the reasonableness of the answer(s). Explain the solution method and interpret solutions for problems given in context.	Math 1 M1 Lesson 5: Printing Presses Math 1 M1 Lesson 6: Solution Sets of Equations and Inequalities in One Variable Math 1 M1 Lesson 7: Solving Linear Equations in One Variable Math 1 M1 Lesson 8: Some Potential Dangers When Solving Equations Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable Math 1 M1 Lesson 11: Solving Linear Inequalities in One Variable *Supplemental material is necessary to address verifying possible solutions with technology.*

Equations and Inequalities

A.EI.2 The student will represent, solve, explain, and interpret the solution to a system of two linear equations, a linear inequality in two variables, or a system of two linear inequalities in two variables.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.EI.2.a Create a system of two linear equations in two variables to represent a contextual situation.	Math 1 M2 Lesson 8: Low-Flow Showerhead Math 1 M2 Lesson 12: Applications of Systems of Equations
A.EI.2.b Apply the properties of real numbers and/or properties of equality to solve a system of two linear equations in two variables, algebraically and graphically.	Math 1 M2 Topic B: Systems of Linear Equations in Two Variables

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.EI.2.c Determine whether a system of two linear equations has one solution, no solution, or an infinite number of solutions.	Math 1 M2 Lesson 9: Systems of Linear Equations in Two Variables Math 1 M2 Lesson 10: A New Way to Solve Systems Math 1 M2 Lesson 11: The Elimination Method Math 1 M2 Lesson 12: Applications of Systems of Equations
A.EI.2.d Create a linear inequality in two variables to represent a contextual situation.	Math 1 M2 Lesson 13: Solution Sets of Linear Inequalities in Two Variables Math 1 M2 Lesson 15: Applications of Linear Inequalities
A.EI.2.e Represent the solution of a linear inequality in two variables graphically on a coordinate plane.	Math 1 M2 Lesson 13: Solution Sets of Linear Inequalities in Two Variables Math 1 M2 Lesson 14: Graphing Linear Inequalities in Two Variables Math 1 M2 Lesson 15: Applications of Linear Inequalities
A.EI.2.f Create a system of two linear inequalities in two variables to represent a contextual situation.	Math 1 M2 Lesson 16: Solution Sets of Systems of Linear Inequalities Math 1 M2 Lesson 17: Graphing Solution Sets of Systems of Linear Inequalities Math 1 M2 Lesson 18: Applications of Systems of Linear Inequalities Math 1 M6 Lesson 10: Designing a Fundraiser
A.EI.2.g Represent the solution set of a system of two linear inequalities in two variables, graphically on a coordinate plane.	Math 1 M2 Lesson 16: Solution Sets of Systems of Linear Inequalities Math 1 M2 Lesson 17: Graphing Solution Sets of Systems of Linear Inequalities Math 1 M2 Lesson 18: Applications of Systems of Linear Inequalities Math 1 M6 Lesson 10: Designing a Fundraiser

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.EI.2.h Verify possible solution(s) to a system of two linear equations, a linear inequality in two variables, or a system of two linear inequalities algebraically, graphically, and with technology to justify the reasonableness of the answer(s). Explain the solution method and interpret solutions for problems given in context.	Math 1 M2 Topic B: Systems of Linear Equations in Two Variables Math 1 M2 Topic C: Linear Inequalities and Systems of Linear Inequalities in Two Variables Math 1 M6 Lesson 10: Designing a Fundraiser

Functions

A.F.1 The student will investigate, analyze, and compare linear functions algebraically and graphically, and model linear relationships.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.F.1.a Determine and identify the domain, range, zeros, slope, and intercepts of a linear function, presented algebraically or graphically, including the interpretation of these characteristics in contextual situations.	Math 1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables Math 1 M2 Lesson 2: Graphing Linear Equations in Two Variables Math 1 M2 Lesson 3: Creating Linear Equations in Two Variables Math 1 M3 Lesson 9: Identifying Key Features of a Function and Its Graph Math 1 M3 Lesson 11: Comparing Functions
A.F.1.b Investigate and explain how transformations to the parent function $y = x$ affect the rate of change (slope) and the y-intercept of a linear function.	Math 1 M3 Lesson 17: Building New Functions—Translations Math 1 M3 Lesson 19: Building New Functions—Vertical Scaling *Supplemental material is necessary to fully address this standard.*

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.F.1.c Write equivalent algebraic forms of linear functions, including slope-intercept form, standard form, and point-slope form, and analyze and interpret the information revealed by each form.	Math 1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables Math 1 M2 Lesson 2: Graphing Linear Equations in Two Variables Math 1 M2 Lesson 3: Creating Linear Equations in Two Variables
A.F.1.d Write the equation of a linear function to model a linear relationship between two quantities, including those that can represent contextual situations. Writing the equation of a linear function will include the following situations:	*This standard is fully addressed by the lessons aligned to its subsections.*
A.F.1.d.i given the graph of a line;	Math 1 M2 Lesson 3: Creating Linear Equations in Two Variables
A.F.1.d.ii given two points on the line whose coordinates are integers;	Math 1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables Math 1 M2 Lesson 3: Creating Linear Equations in Two Variables
A.F.1.d.iii given the slope and a point on the line whose coordinates are integers;	Math 1 M2 Lesson 3: Creating Linear Equations in Two Variables
A.F.1.d.iv vertical lines as $x = a$; and	8 M4 Lesson 14: Lines with Special Characteristics

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.F.1.d.v horizontal lines as $y = c$.	8 M4 Lesson 14: Lines with Special Characteristics
A.F.1.e Write the equation of a line parallel or perpendicular to a given line through a given point.	Math 1 M2 Lesson 6: Proving the Parallel Criterion Math 1 M2 Lesson 7: Equations of Parallel and Perpendicular Lines
A.F.1.f Graph a linear function in two variables, with and without the use of technology, including those that can represent contextual situations.	Math 1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables Math 1 M2 Lesson 2: Graphing Linear Equations in Two Variables Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ *Supplemental material is necessary to address graphing a linear function with technology.*
A.F.1.g For any value, x, in the domain of f, determine $f(x)$, and determine x given any value $f(x)$ in the range of f, given an algebraic or graphical representation of a linear function.	Math 1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables Math 1 M2 Lesson 2: Graphing Linear Equations in Two Variables Math 1 M3 Lesson 2: Interpreting and Using Function Notation Math 1 M3 Lesson 3: Representing, Naming, and Evaluating Functions Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ Math 1 M3 Lesson 7: Representations of Functions Math 1 M6 Lesson 9: Solar System Models

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.F.1.h Compare and contrast the characteristics of linear functions represented algebraically, graphically, in tables, and in contextual situations.	8 M6 Lesson 7: Interpreting Rate of Change and Initial Value 8 M6 Lesson 8: Comparing Functions Math 1 M3 Lesson 2: Interpreting and Using Function Notation Math 1 M3 Lesson 3: Representing, Naming, and Evaluating Functions Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ Math 1 M3 Lesson 7: Representations of Functions

Functions

A.F.2 The student will investigate, analyze, and compare characteristics of functions, including quadratic and exponential functions, and model quadratic and exponential relationships.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.F.2.a Determine whether a relation, represented by a set of ordered pairs, a table, a mapping, or a graph is a function; for relations that are functions, determine the domain and range.	Math 1 M3 Topic A: Functions and Their Graphs Math 1 M5 Lesson 1: Exploring Patterns Math 1 M5 Lesson 2: The Recursive Challenge Math 1 M5 Lesson 3: Recursive Formulas for Sequences Math 1 M5 Lesson 4: Explicit Formulas for Sequences

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.F.2.b Given an equation or graph, determine key characteristics of a quadratic function including x-intercepts (zeros), y-intercept, vertex (maximum or minimum), and domain and range (including when restricted by context); interpret key characteristics as related to contextual situations, where applicable.	A1 M4 Topic A: Quadratic Functions and Their Graphs 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 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
A.F.2.c Graph a quadratic function, $f(x)$, in two variables using a variety of strategies, including transformations $f(x) + k$ and $kf(x)$, where k is limited to rational values.	Math 1 M3 Topic D: Transformations of Functions A1 M4 Lesson 4: Graphs of Quadratic Functions 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 19: Transforming the Graphs of Quadratic Functions A1 M4 Lesson 20: Art with Transformations 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 24: Another Look at Systems of Equations

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.F.2.e Given an equation or graph of an exponential function in the form $y = ab^x$ (where b is limited to a natural number), interpret key characteristics, including y-intercepts and domain and range; interpret key characteristics as related to contextual situations, where applicable.	Math 1 M5 Lesson 7: Exponential Functions Math 1 M5 Lesson 8: Graphing Exponential Functions Math 1 M5 Lesson 9: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) Math 1 M5 Lesson 14: Exponential Growth Math 1 M5 Lesson 16: Modeling Populations
A.F.2.f Graph an exponential function, $f(x)$, in two variables using a variety of strategies, including transformations $f(x) + k$ and $kf(x)$, where k is limited to rational values.	Math 1 M5 Lesson 8: Graphing Exponential Functions Math 1 M5 Lesson 9: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) Math 1 M5 Lesson 10: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1)
A.F.2.g For any value, x, in the domain of f, determine $f(x)$ of a quadratic or exponential function. Determine x given any value $f(x)$ in the range of f of a quadratic function. Explain the meaning of x and $f(x)$ in context.	A1 M4 Lesson 10: Zeros of Functions A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions Math 1 M5 Lesson 1: Exploring Patterns Math 1 M5 Lesson 2: The Recursive Challenge Math 1 M5 Lesson 3: Recursive Formulas for Sequences Math 1 M5 Lesson 4: Explicit Formulas for Sequences Math 1 M6 Lesson 8: The Deal

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.F.2.h Compare and contrast the key characteristics of linear functions ($f(x) = x$), quadratic functions ($f(x) = x^2$), and exponential functions ($f(x) = b^x$) using tables and graphs.	Math 1 M5 Lesson 16: Modeling Populations Math 1 M5 Lesson 17: Average Rate of Change Math 1 M5 Lesson 18: Analyzing Exponential Growth Math 1 M5 Lesson 19: Comparing Growth of Functions Math 1 M5 Lesson 20: World Population Prediction Math 1 M5 Lesson 21: A Closer Look at Populations

Statistics

A.ST.1 The student will apply the data cycle (formulate questions; collect or acquire data; organize and represent data; and analyze data and communicate results) with a focus on representing bivariate data in scatterplots and determining the curve of best fit using linear and quadratic functions.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.ST.1.d Given a table of ordered pairs or a scatterplot representing no more than 30 data points, use available technology to determine whether a linear or quadratic function would represent the relationship, and if so, determine the equation of the curve of best fit.	Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data Math 1 M2 Lesson 24: Modeling Relationships with a Line Math 1 M2 Lesson 25: Calculating and Analyzing Residuals Math 1 M2 Lesson 26: Analyzing Residuals Math 1 M2 Lesson 27: Interpreting Correlation Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 11: A Vanishing Sea

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.ST.1.e Use linear and quadratic regression methods available through technology to write a linear or quadratic function that represents the data where appropriate and describe the strengths and weaknesses of the model.	Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data Math 1 M2 Lesson 24: Modeling Relationships with a Line Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 11: A Vanishing Sea
A.ST.1.f Use a linear model to predict outcomes and evaluate the strength and validity of these predictions, including through the use of technology.	Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data Math 1 M2 Lesson 24: Modeling Relationships with a Line Math 1 M2 Lesson 25: Calculating and Analyzing Residuals Math 1 M2 Lesson 26: Analyzing Residuals Math 1 M2 Lesson 27: Interpreting Correlation Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 11: A Vanishing Sea
A.ST.1.g Investigate and explain the meaning of the rate of change (slope) and y-intercept (constant term) of a linear model in context.	Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data Math 1 M2 Lesson 24: Modeling Relationships with a Line Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
A.ST.1.h Analyze relationships between two quantitative variables revealed in a scatterplot.	Math 1 M1 Lesson 1: A Powerful Trio Math 1 M2 Topic E: Numerical Data on Two Variables Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 11: A Vanishing Sea
A.ST.1.i Make conclusions based on the analysis of a set of bivariate data and communicate the results.	Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data Math 1 M2 Lesson 24: Modeling Relationships with a Line Math 1 M2 Lesson 27: Interpreting Correlation Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 11: A Vanishing Sea

Reasoning, Lines and Transformations

G.RLT.3 The student will solve problems, including contextual problems, involving symmetry and transformation.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
G.RLT.3.a Locate, count, and draw lines of symmetry given a figure, including figures in context.	Math 1 M4 Lesson 12: Reflective Symmetry and Rotational Symmetry

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
G.RLT.3.b Determine whether a figure has point symmetry, line symmetry, both, or neither, including figures in context.	Math 1 M4 Lesson 12: Reflective Symmetry and Rotational Symmetry
G.RLT.3.c Given an image or preimage, identify the transformation or combination of transformations that has/have occurred. Transformations include:	*This standard is fully addressed by the lessons aligned to its subsections.*
G.RLT.3.c.i translations;	Math 1 M4 Lesson 1: Geometric Transformations Math 1 M4 Lesson 2: Translations of the Coordinate Plane Math 1 M4 Lesson 5: Proving the Perpendicular Criterion Math 1 M4 Lesson 13: Sequences of Basic Rigid Motions Math 1 M4 Lesson 14: Transformations of the Coordinate Plane Math 1 M4 Lesson 15: Designs with Rigid Motions Math 1 M4 Lesson 16: Congruent Figures
G.RLT.3.c.ii reflections over any horizontal or vertical line or the lines $y = x$ or $y = -x$;	Math 1 M4 Lesson 1: Geometric Transformations Math 1 M4 Lesson 4: Reflections of the Coordinate Plane Math 1 M4 Lesson 13: Sequences of Basic Rigid Motions Math 1 M4 Lesson 14: Transformations of the Coordinate Plane Math 1 M4 Lesson 15: Designs with Rigid Motions Math 1 M4 Lesson 16: Congruent Figures *Supplemental material is necessary to address reflections over the lines $y = x$ and $y = -x$.*

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
G.RLT.3.c.iii clockwise or counterclockwise rotations of 90°, 180°, 270°, or 360° on a coordinate grid where the center of rotation is limited to the origin;	Math 1 M4 Lesson 1: Geometric Transformations Math 1 M4 Lesson 3: Rotations of the Coordinate Plane Math 1 M4 Lesson 5: Proving the Perpendicular Criterion Math 1 M4 Lesson 13: Sequences of Basic Rigid Motions Math 1 M4 Lesson 14: Transformations of the Coordinate Plane Math 1 M4 Lesson 15: Designs with Rigid Motions Math 1 M4 Lesson 16: Congruent Figures

Triangles

G.TR.2 The student will, given information in the form of a figure or statement, prove and justify two triangles are congruent using direct and indirect proofs, and solve problems involving measured attributes of congruent triangles.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
G.TR.2.a Use definitions, postulates, and theorems (including Side-Side-Side (SSS); Side-Angle-Side (SAS); Angle-Side-Angle (ASA); Angle-Angle-Side (AAS); and Hypotenuse-Leg (HL)) to prove and justify two triangles are congruent.	Math 1 M4 Lesson 17: Congruent Triangles Math 1 M4 Lesson 18: Side–Angle–Side Math 1 M4 Lesson 19: Angle–Angle–Angle and Side–Side–Side Math 1 M4 Lesson 20: Angle–Side–Angle Math 1 M4 Lesson 21: Side–Side–Angle and Hypotenuse–Leg *Supplemental material is necessary to address the Angle-Angle-Side theorem.*

Triangles

G.TR.4 The student will model and solve problems, including those in context, involving trigonometry in right triangles and applications of the Pythagorean Theorem.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
G.TR.4.a Determine whether a triangle formed with three given lengths is a right triangle.	8 M2 Lesson 19: Using the Pythagorean Theorem and Its Converse
G.TR.4.g Solve problems, including those in context, involving right triangles using the Pythagorean Theorem and its converse, including recognizing Pythagorean Triples.	Math 1 M2 Lesson 19: The Distance Formula Math 1 M2 Lesson 20: Proving Geometric Theorems Algebraically *Supplemental material is necessary to address recognizing Pythagorean Triples.*

Polygons and Circles

G.PC.1 The student will prove and justify theorems and properties of quadrilaterals, and verify and use properties of quadrilaterals to solve problems, including the relationships between the sides, angles, and diagonals.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
G.PC.1.a Solve problems, using the properties specific to parallelograms, rectangles, rhombi, squares, isosceles trapezoids, and trapezoids.	Math 1 M2 Lesson 4: Proving Conditional Statements Math 1 M2 Lesson 5: Proving Biconditional Statements Math 1 M2 Lesson 20: Proving Geometric Theorems Algebraically Math 1 M2 Lesson 21: Using Coordinates to Determine Perimeters and Areas of Figures Math 1 M4 Lesson 5: Proving the Perpendicular Criterion *Supplemental material is necessary to address isosceles trapezoids.*

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
G.PC.1.b Prove and justify that quadrilaterals have specific properties, using coordinate and algebraic methods, such as the slope formula, the distance formula, and the midpoint formula.	Math 1 M2 Lesson 4: Proving Conditional Statements Math 1 M2 Lesson 5: Proving Biconditional Statements Math 1 M2 Lesson 20: Proving Geometric Theorems Algebraically
G.PC.1.d Use congruent segment, congruent angle, angle bisector, perpendicular line, and/or parallel line constructions to verify properties of quadrilaterals.	Math 1 M4 Lesson 9: Rotations of the Plane Math 1 M4 Lesson 24: Squares Inscribed in Circles *Supplemental material is necessary to fully address this standard.*

Algebra and Functions

AFDA.AF.1 The student will investigate, analyze, and compare linear, quadratic, and exponential function families, algebraically and graphically, using transformations.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
AFDA.AF.1.a Identify graphs and equations of parent functions for linear, quadratic, and exponential function families.	Math 1 M5 Lesson 9: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) Math 1 M5 Lesson 10: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) Math 1 M5 Lesson 12: Writing Equations for Exponential Functions from Tables or Graphs A1 M4 Lesson 4: Graphs of Quadratic Functions *Supplemental material is necessary to address identifying the graph of $y = x$.*

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
AFDA.AF.1.b Describe the transformation from the parent function given the equation or the graph of the function.	Math 1 M3 Topic D: Transformations of Functions Math 1 M5 Lesson 9: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) Math 1 M5 Lesson 10: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) Math 1 M5 Lesson 12: Writing Equations for Exponential Functions from Tables or Graphs A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions
AFDA.AF.1.c Determine and analyze whether a linear, quadratic, or exponential function best models a given representation, including those in context.	Math 1 M5 Lesson 13: Calculating Interest Math 1 M5 Lesson 16: Modeling Populations Math 1 M5 Lesson 20: World Population Prediction Math 1 M5 Lesson 21: A Closer Look at Populations Math 1 M5 Lesson 23: Modeling an Invasive Species Population Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 11: A Vanishing Sea *Supplemental material is necessary to address whether a quadratic function best models a situation.*
AFDA.AF.1.d Write the equation of a linear, quadratic, or exponential function, given a graph, using transformations of the parent function.	Math 1 M3 Topic D: Transformations of Functions Math 1 M5 Lesson 9: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) Math 1 M5 Lesson 10: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) Math 1 M5 Lesson 12: Writing Equations for Exponential Functions from Tables or Graphs A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
AFDA.AF.1.e Use a graphical or algebraic representation of a function to solve problems within a context, graphically and algebraically, when appropriate.	Math 1 M3 Lesson 8: Exploring Key Features of a Function and Its Graph Math 1 M3 Lesson 9: Identifying Key Features of a Function and Its Graph Math 1 M3 Lesson 11: Comparing Functions Math 1 M3 Lesson 12: Sketching Graphs of Functions from Verbal Descriptions Math 1 M3 Lesson 13: Modeling Elevation as a Function of Time Math 1 M3 Lesson 15: Mars Curiosity Rover
AFDA.AF.1.f Graph a function given the equation of a function, using transformations of the parent function. Use technology to verify transformations of functions.	Math 1 M3 Topic D: Transformations of Functions Math 1 M5 Lesson 9: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) Math 1 M5 Lesson 10: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) Math 1 M5 Lesson 11: Solving Equations Containing Exponential Expressions Math 1 M5 Lesson 12: Writing Equations for Exponential Functions from Tables or Graphs A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions *Supplemental material is necessary to address verifying transformations of functions with technology.*

Data Analysis

AFDA.DA.1 The student will apply the data cycle (formulate questions; collect or acquire data; organize and represent data; and analyze data and communicate results) with a focus on representing bivariate data in scatterplots and determining the curve of best fit using linear, quadratic, and exponential functions.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
AFDA.DA.1.a Formulate investigative questions that require the collection or acquisition of bivariate data, where exactly two of the variables are quantitative.	Math 1 M2 Lesson 22: Relationships Between Quantitative Variables Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data
AFDA.DA.1.b Collect or acquire bivariate data from a representative sample to answer an investigative question.	Math 1 M2 Lesson 22: Relationships Between Quantitative Variables Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data
AFDA.DA.1.c Represent bivariate data with a scatterplot using technology and describe how the variables are related in terms of the given context.	Math 1 M2 Topic E: Numerical Data on Two Variables Math 1 M5 Lesson 21: A Closer Look at Populations Math 1 M5 Lesson 23: Modeling an Invasive Species Population
AFDA.DA.1.d Make predictions, decisions, and critical judgments using data, scatterplots, or the equation(s) of the mathematical model.	Math 1 M2 Topic E: Numerical Data on Two Variables Math 1 M5 Topic D: Comparing Linear and Exponential Models Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters

Descriptive Statistics

PS.DS.1 The student will represent and analyze data visualizations of univariate quantitative data, including dot plots, stemplots, boxplots, cumulative frequency graphs, and histograms, to identify and describe patterns and departures from patterns, using central tendency, spread, clusters, gaps, and outliers, within the context of a problem.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
PS.DS.1.a Create and interpret graphical displays of data, including dot plots, stemplots, boxplots, cumulative frequency graphs, and histograms, using appropriate technology.	Math 1 M1 Topic D: Univariate Data Math 1 M6 Lesson 1: Using Data to Edit Digital Photography *Supplemental material is necessary to address stemplots and cumulative frequency graphs.*
PS.DS.1.b Examine the graphs within the context of the problem by analyzing:	*This standard is fully addressed by the lessons aligned to its subsections.*
PS.DS.1.b.i shape;	Math 1 M1 Topic D: Univariate Data Math 1 M6 Lesson 1: Using Data to Edit Digital Photography
PS.DS.1.b.ii measures of center;	Math 1 M1 Topic D: Univariate Data Math 1 M6 Lesson 1: Using Data to Edit Digital Photography
PS.DS.1.b.iii spread; and	Math 1 M1 Topic D: Univariate Data Math 1 M6 Lesson 1: Using Data to Edit Digital Photography
PS.DS.1.b.iv unusual features of the data (e.g., outliers, clusters, gaps).	Math 1 M1 Topic D: Univariate Data Math 1 M6 Lesson 1: Using Data to Edit Digital Photography

Descriptive Statistics

PS.DS.2 The student will represent and analyze numerical characteristics of univariate quantitative data sets to describe patterns and departures from patterns within the context of a problem.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
PS.DS.2.a Interpret measures of central tendency: mean, median, and mode.	Math 1 M1 Topic D: Univariate Data *Supplemental material is necessary to address mode.*
PS.DS.2.b Interpret measures of spread: range, interquartile range, variance, and standard deviation.	Math 1 M1 Topic D: Univariate Data Math 1 M6 Lesson 1: Using Data to Edit Digital Photography
PS.DS.2.d Investigate and explain the influence of outliers on a univariate data set.	Math 1 M1 Topic D: Univariate Data
PS.DS.2.e Investigate and explain ways in which standard deviation addresses variability by examining the formula for standard deviation.	Math 1 M1 Lesson 20: Describing Variability in a Univariate Distribution with Standard Deviation

Descriptive Statistics

PS.DS.3 The student will represent, compare, and analyze distributions of two or more univariate quantitative data sets, numerically and graphically.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
PS.DS.3.a Create graphical displays of data, including back-to-back stemplots, parallel dot plots, parallel boxplots, and histograms, using appropriate technology.	Math 1 M1 Lesson 19: Using Center to Compare Data Distributions Math 1 M1 Lesson 21: Estimating Variability in Data Distributions Math 1 M1 Lesson 22: Comparing Distributions of Univariate Data *Supplemental material is necessary to address back-to-back stemplots.*
PS.DS.3.b Compare and contrast two or more univariate data sets, numerically and graphically, within the context of a problem by analyzing:	*This standard is fully addressed by the lessons aligned to its subsections.*
PS.DS.3.b.i shape;	Math 1 M1 Lesson 19: Using Center to Compare Data Distributions Math 1 M1 Lesson 21: Estimating Variability in Data Distributions Math 1 M1 Lesson 22: Comparing Distributions of Univariate Data
PS.DS.3.b.ii measures of center;	Math 1 M1 Lesson 19: Using Center to Compare Data Distributions Math 1 M1 Lesson 21: Estimating Variability in Data Distributions Math 1 M1 Lesson 22: Comparing Distributions of Univariate Data
PS.DS.3.b.iii measures of spread; and	Math 1 M1 Lesson 21: Estimating Variability in Data Distributions Math 1 M1 Lesson 22: Comparing Distributions of Univariate Data
PS.DS.3.b.iv unusual features of the data (e.g., clusters, gaps, outliers).	Math 1 M1 Lesson 19: Using Center to Compare Data Distributions Math 1 M1 Lesson 21: Estimating Variability in Data Distributions Math 1 M1 Lesson 22: Comparing Distributions of Univariate Data

Descriptive Statistics

PS.DS.4 The student will represent and analyze categorical data, using two-way tables and other graphical displays, to describe patterns and relationships.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
PS.DS.4.c Generate and interpret a two-way table as a summary of the information obtained from two categorical variables.	Math 1 M6 Topic B: Modeling with Categorical Data
PS.DS.4.d Calculate and interpret marginal, relative, and conditional frequencies to analyze data in a two-way table within the context of a problem.	Math 1 M6 Topic B: Modeling with Categorical Data

Descriptive Statistics

PS.DS.5 The student will represent and analyze quantitative bivariate data with scatterplots to identify and describe the relationship between two variables.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
PS.DS.5.a Create scatterplots, using appropriate technology.	Math 1 M2 Topic E: Numerical Data on Two Variables Math 1 M5 Lesson 21: A Closer Look at Populations Math 1 M5 Lesson 23: Modeling an Invasive Species Population

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
PS.DS.5.b Examine and interpret scatterplots in the context of the problem by analyzing:	Math 1 M2 Topic E: Numerical Data on Two Variables Math 1 M5 Lesson 21: A Closer Look at Populations Math 1 M5 Lesson 23: Modeling an Invasive Species Population Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters
PS.DS.5.b.i the form of relationship for linear and nonlinear trends;	Math 1 M2 Topic E: Numerical Data on Two Variables Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters
PS.DS.5.b.ii the direction of the relationship for positive, negative, or no association;	Math 1 M2 Topic E: Numerical Data on Two Variables Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters
PS.DS.5.b.iii the strength of the relationship such as strong, moderate, or weak; and	Math 1 M2 Topic E: Numerical Data on Two Variables Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters
PS.DS.5.b.iv the presence of unusual features within the data (e.g., clusters, gaps, influential points, outliers).	Math 1 M2 Topic E: Numerical Data on Two Variables

Descriptive Statistics

PS.DS.6 The student will create and interpret a linear model using the least squares regression method to assess the relationship between two quantitative variables.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
PS.DS.6.a Create the least squares regression model using technology to interpret the contextual meaning of the slope and y-intercept.	Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data Math 1 M2 Lesson 24: Modeling Relationships with a Line Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data
PS.DS.6.b Using technology, calculate and interpret the correlation coefficient, r, within the context of a problem.	Math 1 M2 Lesson 27: Interpreting Correlation Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data
PS.DS.6.d Use regression lines to make predictions, and identify the limitations of the predictions, such as extrapolation.	Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data Math 1 M2 Lesson 24: Modeling Relationships with a Line Math 1 M2 Lesson 25: Calculating and Analyzing Residuals Math 1 M2 Lesson 27: Interpreting Correlation Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 11: A Vanishing Sea
PS.DS.6.e Calculate and interpret a residual to understand the error of a prediction.	Math 1 M2 Lesson 25: Calculating and Analyzing Residuals Math 1 M2 Lesson 26: Analyzing Residuals Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters

Functional Relationships

MA.FR.3 The student will analyze sequences and finite series, and model and solve problems in context using sequences and series.

Mathematics Standards of Learning for Virginia Public Schools	Aligned Components of *Eureka Math²*
MA.FR.3.b Derive the formulas associated with arithmetic and geometric sequences and series.	Math 1 M5 Topic A: Arithmetic and Geometric Sequences *Supplemental material is necessary to address arithmetic and geometric series.*
MA.FR.3.c Determine the nth term, a_n, for an arithmetic or geometric sequence.	Math 1 M5 Topic A: Arithmetic and Geometric Sequences
MA.FR.3.e Model and solve problems in context, using sequences and series.	Math 1 M5 Topic A: Arithmetic and Geometric Sequences *Supplemental material is necessary to address arithmetic and geometric series.*