EUREKA MATH™

GREAT MINDS

ABOUT *EUREKA MATH*

Created by the nonprofit Great Minds, *Eureka Math* helps teachers deliver unparalleled math instruction that provides students with a deep understanding and fluency in math. Crafted by teachers and math scholars, the curriculum carefully sequences the mathematical progressions to maximize coherence from Prekindergarten through Precalculus—a principle tested and proven to be essential in students' mastery of math.

Teachers and students using *Eureka Math* find the trademark "Aha!" moments in *Eureka Math* to be a source of joy and inspiration, lesson after lesson, year after year.

ALIGNED

Eureka Math is the only curriculum found by EdReports.org to align fully with the Common Core State Standards for Mathematics for all grades, Kindergarten through Grade 8. Great Minds offers detailed analyses which demonstrate how each grade of *Eureka Math* aligns with specific state standards. Access these free alignment studies at greatminds.org/state-studies.

DATA

Schools and districts nationwide are experiencing student growth and impressive test scores after using *Eureka Math*. See their stories and data at greatminds.org/data.

FULL SUITE OF RESOURCES

As a nonprofit, Great Minds offers the *Eureka Math* curriculum as PDF downloads for free, noncommercial use. Access the free PDFs at greatminds.org/math/curriculum.

The teacher–writers who created the curriculum have also developed essential resources, available only from Great Minds, including the following:

- Printed material in English and Spanish
- Digital resources
- Professional development
- Classroom tools and manipulatives
- Teacher support materials
- Parent resources

Mathematics Standards of Learning for Virginia Public Schools Correlation to *Eureka Math*™

ALGEBRA I

The majority of the Algebra I Mathematics Standards of Learning for Virginia Public Schools are fully covered by the Algebra I *Eureka Math* curriculum. The areas where the Algebra I Mathematics Standards of Learning for Virginia Public Schools and Algebra I *Eureka Math* do not align will require the use of *Eureka Math* content from other grade levels or courses. A detailed analysis of alignment is provided in the table below.

INDICATORS

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

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

Red indicates that the Virginia standard is not addressed in *Eureka Math*.

Blue indicates there is a discrepancy between the grade level at which this standard is addressed in the Virginia standards and in *Eureka Math*.

Mathematical Process Goals	Aligned Components of *Eureka Math*
Mathematical Problem Solving Students will apply mathematical concepts and skills and the relationships among them to solve problem situations of varying complexities. Students also will recognize and create problems from real-world data and situations within and outside mathematics and then apply appropriate strategies to determine acceptable solutions. To accomplish this goal, students will need to develop a repertoire of skills and strategies for solving a variety of problem types. A major goal of the mathematics program is to help students apply mathematics concepts and skills to become mathematical problem solvers.	This process goal is analogous to the CCSSM Standards for Mathematical Practice 1 and 2, which are specifically addressed in the following modules: Algebra I M1: Relationships Between Quantities and Reasoning with Equations and Their Graphs Algebra I M2: Descriptive Statistics Algebra I M3: Linear and Exponential Functions Algebra I M4: Polynomial and Quadratic Expressions, Equations, and Functions Algebra I M5: A Synthesis of Modeling with Equations and Functions

Mathematical Process Goals	Aligned Components of *Eureka Math*
Mathematical Communication Students will communicate thinking and reasoning using the language of mathematics, including specialized vocabulary and symbolic notation, to express mathematical ideas with precision. Representing, discussing, justifying, conjecturing, reading, writing, presenting, and listening to mathematics will help students to clarify their thinking and deepen their understanding of the mathematics being studied. Mathematical communication becomes visible where learning involves participation in mathematical discussions.	This process goal is analogous to the CCSSM Standards for Mathematical Practice 3 and 6, which are specifically addressed in the following modules: Algebra I M1: Relationships Between Quantities and Reasoning with Equations and Their Graphs Algebra I M2: Descriptive Statistics Algebra I M3: Linear and Exponential Functions Algebra I M4: Polynomial and Quadratic Expressions, Equations, and Functions Algebra I M5: A Synthesis of Modeling with Equations and Functions

Mathematical Process Goals	Aligned Components of *Eureka Math*
Mathematical Reasoning Students will recognize reasoning and proof as fundamental aspects of mathematics. Students will learn and apply inductive and deductive reasoning skills to make, test, and evaluate mathematical statements and to justify steps in mathematical procedures. Students will use logical reasoning to analyze an argument and to determine whether conclusions are valid. In addition, students will use number sense to apply proportional and spatial reasoning and to reason from a variety of representations.	This process goal is analogous to the CCSSM Standards for Mathematical Practice 2 and 8, which are specifically addressed in the following modules: Algebra I M1: Relationships Between Quantities and Reasoning with Equations and Their Graphs Algebra I M2: Descriptive Statistics Algebra I M3: Linear and Exponential Functions Algebra I M4: Polynomial and Quadratic Expressions, Equations, and Functions Algebra I M5: A Synthesis of Modeling with Equations and Functions

Mathematical Process Goals	Aligned Components of *Eureka Math*
Mathematical Connections Students will build upon prior knowledge to relate concepts and procedures from different topics within mathematics and see mathematics as an integrated field of study. Through the practical application of content and process skills, students will make connections among different areas of mathematics and between mathematics and other disciplines, and to real-world contexts. Science and mathematics teachers and curriculum writers are encouraged to develop mathematics and science curricula that support, apply, and reinforce each other.	This process goal is analogous to the CCSSM Standards for Mathematical Practice 4 and 5, which are specifically addressed in the following modules: Algebra I M1: Relationships Between Quantities and Reasoning with Equations and Their Graphs Algebra I M2: Descriptive Statistics Algebra I M3: Linear and Exponential Functions Algebra I M4: Polynomial and Quadratic Expressions, Equations, and Functions Algebra I M5: A Synthesis of Modeling with Equations and Functions

Mathematical Process Goals	Aligned Components of *Eureka Math*
Mathematical Representations Students will represent and describe mathematical ideas, generalizations, and relationships using a variety of methods. Students will understand that representations of mathematical ideas are an essential part of learning, doing, and communicating mathematics. Students should make connections among different representations—physical, visual, symbolic, verbal, and contextual—and recognize that representation is both a process and a product.	This process goal is analogous to the CCSSM Standards for Mathematical Practice 4, which is specifically addressed in the following modules: Algebra I M1: Relationships Between Quantities and Reasoning with Equations and Their Graphs Algebra I M2: Descriptive Statistics Algebra I M3: Linear and Exponential Functions Algebra I M4: Polynomial and Quadratic Expressions, Equations, and Functions Algebra I M5: A Synthesis of Modeling with Equations and Functions

Domain	Mathematical Content Standards		Aligned Components of *Eureka Math*
Expressions and Operations	**A.1** The student will		
	a. represent verbal quantitative situations algebraically; and		Algebra I M1 Lesson 8: Adding and Subtracting Polynomials Algebra I M1 Lesson 10: True and False Equations Algebra I M3 Lesson 6: Exponential Growth—U.S. Population and World Population Algebra I M3 Lesson 24: Piecewise and Step Functions in Context Algebra I M4 Lessons 23–24: Modeling with Quadratic Functions Algebra I M5: A Synthesis of Modeling with Equations and Functions
	b. evaluate algebraic expressions for given replacement values of the variables.		Algebra I M1 Lesson 8: Adding and Subtracting Polynomials Algebra I M1 Lesson 10: True and False Equations Algebra I M3 Lesson 6: Exponential Growth—U.S. Population and World Population Algebra I M3 Lesson 24: Piecewise and Step Functions in Context Algebra I M4 Lessons 23–24: Modeling with Quadratic Functions Algebra I M5: A Synthesis of Modeling with Equations and Functions

Domain	Mathematical Content Standards		Aligned Components of *Eureka Math*
	A.2 The student will perform operations on polynomials, including		
	a. applying the laws of exponents to perform operations on expressions;		Algebra I M1 Topic B: The Structure of Expressions Algebra I M4 Lessons 1–2: Multiplying and Factoring Polynomial Expressions Algebra II M1 Lesson 3: The Division of Polynomials Algebra II M1 Lesson 4: Comparing Methods—Long Division, Again? Algebra II M3 Topic A: Real Numbers
	b. adding, subtracting, multiplying, and dividing polynomials; and		Algebra I M1 Topic B: The Structure of Expressions Algebra I M4 Lessons 1–2: Multiplying and Factoring Polynomial Expressions Algebra II M1 Lesson 3: The Division of Polynomials Algebra II M1 Lesson 4: Comparing Methods—Long Division, Again?
	c. factoring completely first- and second-degree binomials and trinomials in one variable.		Algebra I M4 Topic A: Quadratic Expressions, Equations, Functions, and Their Connection to Rectangles Algebra I M4 Lesson 12: Completing the Square

Domain	Mathematical Content Standards		Aligned Components of *Eureka Math*
	A.3 The student will simplify		
	a. square roots of whole numbers and monomial algebraic expressions;		G8 M7 Topic A: Square and Cube Roots Algebra II M3 Topic A: Real Numbers
	b. cube roots of integers; and		G8 M7 Topic A: Square and Cube Roots Algebra II M3 Topic A: Real Numbers
	c. numerical expressions containing square or cube roots.		G8 M7 Topic A: Square and Cube Roots Algebra II M3 Topic A: Real Numbers
Equations and Inequalities	**A.4** The student will solve		
	a. multistep linear equations in one variable algebraically;		Algebra I M1 Lesson 12: Solving Equations Algebra I M1 Lesson 13: Some Potential Dangers when Solving Equations Algebra I M1 Lesson 20: Solution Sets to Equations with Two Variables
	b. quadratic equations in one variable algebraically;		Algebra I M1 Lesson 17: Equations Involving Factored Expressions Algebra I M4: Polynomial and Quadratic Expressions, Equations, and Functions
	c. literal equations for a specified variable;		Algebra I M1 Lesson 19: Rearranging Formulas

Domain	Mathematical Content Standards		Aligned Components of *Eureka Math*
	d. systems of two linear equations in two variables algebraically and graphically; and		Algebra I M1 Lessons 22–23: Solution Sets to Simultaneous Equations Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities Algebra I M4 Lesson 24: Modeling with Quadratic Functions
	e. practical problems involving equations and systems of equations.		Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities
	A.5 The student will		
	a. solve multistep linear inequalities in one variable algebraically and represent the solution graphically;		Algebra I M1 Lesson 14: Solving Inequalities Algebra I M1 Lesson 15: Solution Sets of Two or More Equations (or Inequalities) Joined by “And” or “Or” Algebra I M1 Lesson 16: Solving and Graphing Inequalities Joined by “And” or “Or” Algebra I M1 Lesson 21: Solution Sets to Inequalities with Two Variables
	b. represent the solution of linear inequalities in two variables graphically;		Algebra I M1 Lesson 16: Solving and Graphing Inequalities Joined by “And” or “Or”
	c. solve practical problems involving inequalities; and		Algebra I M1 Lesson 15: Solution Sets of Two or More Equations (or Inequalities) Joined by “And” or “Or” Algebra I M1 Lesson 24: Applications of Systems of Equations and Inequalities

Domain	Mathematical Content Standards		Aligned Components of *Eureka Math*
	d. represent the solution to a system of inequalities graphically.		Algebra I M1 Lesson 16: Solving and Graphing Inequalities Joined by "And" or "Or"
	A.6 The student will		
	a. determine the slope of a line when given an equation of the line, the graph of the line, or two points on the line;		G8 M4 Topic C: Slope and Equations of Lines Algebra I M2 Lesson 16: More on Modeling Relationships with a Line Algebra I M3 Lesson 14: Linear and Exponential Models—Comparing Growth Rates Algebra I M3 Lesson 21: Comparing Linear and Exponential Models Again Algebra I M5: A Synthesis of Modeling with Equations and Functions

Domain	Mathematical Content Standards		Aligned Components of *Eureka Math*
	b. write the equation of a line when given the graph of the line, two points on the line, or the slope and a point on the line; and		G8 M4 Topic C: Slope and Equations of Lines G8 M4 Lesson 29: Word Problems Algebra I M1 Lesson 5: Two Graphing Stories Algebra I M1 Lesson 20: Solution Sets to Equations with Two Variables Algebra I M1 Topic D: Creating Equations to Solve Problems Algebra I M3 Lesson 1: Integer Sequences—Should You Believe in Patterns? Algebra I M4 Lesson 16: Graphing Quadratic Equations from the Vertex Form, $y = a(x - h)^2 + k$ Algebra I M5: A Synthesis of Modeling with Equations and Functions
	c. graph linear equations in two variables.		G8 M4 Topic C: Slope and Equations of Lines
Functions	**A.7** The student will investigate and analyze linear and quadratic function families and their characteristics both algebraically and graphically, including		
	a. determining whether a relation is a function;		G8 M5 Lesson 2: Formal Definition of a Function G8 M5 Lesson 5: Graphs of Functions and Equations G8 M5 Lesson 7: Comparing Linear Functions and Graphs

Domain	Mathematical Content Standards	Aligned Components of *Eureka Math*
	b. domain and range;	Algebra I M1 Lesson 10: True and False Equations Algebra I M3 Lesson 1: Integer Sequences—Should You Believe in Patterns? Algebra I M3 Lesson 10: Representing, Naming, and Evaluating Functions Algebra I M3 Lesson 11: The Graph of a Function Algebra I M3 Lesson 12: The Graph of the Equation $y = f(x)$
	c. zeros;	Algebra I M2 Lesson 14: Modeling Relationships with a Line Algebra I M3 Lesson 13: Interpreting the Graph of a Function Algebra I M3 Lesson 14: Linear and Exponential Models—Comparing Growth Rates Algebra I M4 Lesson 8: Exploring the Symmetry in Graphs of Quadratic Functions Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$ Algebra I M4 Lesson 10: Interpreting Quadratic Functions from Graphs and Tables Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, $f(x) = ax^2 + bx + c$ Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways

Domain	Mathematical Content Standards	Aligned Components of *Eureka Math*
	d. intercepts;	Algebra I M1 Lesson 2: Graphs of Quadratic Functions Algebra I M2 Lesson 14: Modeling Relationships with a Line Algebra I M3 Lesson 13: Interpreting the Graph of a Function Algebra I M3 Lesson 14: Linear and Exponential Models—Comparing Growth Rates Algebra I M4 Lesson 8: Exploring the Symmetry in Graphs of Quadratic Functions Algebra I M4 Lesson 9: Graphing Quadratic Functions from Factored Form, $f(x) = a(x - m)(x - n)$ Algebra I M4 Lesson 10: Interpreting Quadratic Functions from Graphs and Tables Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, $f(x) = ax^2 + bx + c$ Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways Algebra I M4 Lessons 23–24: Modeling with Quadratic Functions

Domain	Mathematical Content Standards	Aligned Components of *Eureka Math*
	e. values of a function for elements in its domain; and	Algebra I M1 Lesson 2: Graphs of Quadratic Functions Algebra I M2 Lesson 14: Modeling Relationships with a Line Algebra I M3 Lesson 1: Integer Sequences—Should You Believe in Patterns? Algebra I M3 Topic B: Functions and Their Graphs Algebra I M3 Lesson 22: Modeling an Invasive Species Population Algebra I M4 Lesson 10: Interpreting Quadratic Functions from Graphs and Tables Algebra I M4 Lesson 17: Graphing Quadratic Functions from the Standard Form, $f(x) = ax^2 + bx + c$ Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways Algebra I M4 Lessons 23–24: Modeling with Quadratic Functions

Domain	Mathematical Content Standards	Aligned Components of *Eureka Math*
	f. connections between and among multiple representations of functions using verbal descriptions, tables, equations, and graphs.	Algebra I M3 Lesson 21: Comparing Linear and Exponential Models Again Algebra I M4 Lesson 22: Comparing Quadratic, Square Root, and Cube Root Functions Represented in Different Ways Algebra I M4 Lessons 23–24: Modeling with Quadratic Functions Algebra I M5: A Synthesis of Modeling with Equations and Functions
Statistics	**A.8** The student, given a data set or practical situation, will analyze a relation to determine whether a direct or inverse variation exists, and represent a direct variation algebraically and graphically and an inverse variation algebraically.	G7 M1 Topic B: Unit Rate and the Constant of Proportionality G7 M3 Lesson 7: Understanding Equations G7 M3 Lessons 8–9: Using If-Then Moves in Solving Equations G8 M4: Linear Equations
	A.9 The student will collect and analyze data, determine the equation of the curve of best fit in order to make predictions, and solve practical problems, using mathematical models of linear and quadratic functions.	Algebra I M2 Topic D: Numerical Data on Two Variables Algebra I M5 Lesson 7: Modeling a Context from Data