EUREKA MATH[™]

ABOUT EUREKA MATH	Created by the nonprofit Great Minds, <i>Eureka Math</i> 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 <i>Eureka Math</i> find the trademark "Aha!" moments in <i>Eureka Math</i> to be a source of joy and inspiration, lesson after lesson, year after year.			
ALIGNED	<i>Eureka Math</i> 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 <i>Eureka Math</i> 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 <i>Eureka Math</i> . See their stories and data at greatminds.org/data.			
FULL SUITE OF RESOURCES	As a nonprofit, Great Minds offers the <i>Eureka Math</i> 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*™

GRADE 8 MATHEMATICS

The majority of the Grade 8 Mathematics Standards of Learning for Virginia Public Schools are fully covered by the Grade 8 *Eureka Math* curriculum. The areas where the Grade 8 Mathematics Standards of Learning for Virginia Public Schools and Grade 8 *Eureka Math* do not align will require the use of *Eureka Math* content from other grade levels or supplemental materials. A detailed analysis of alignment is provided in the table below. With strategic placement of supplemental materials, *Eureka Math* can ensure students are successful in achieving the proficiencies of the Mathematics Standards of Learning for Virginia Public Schools while still benefiting from the coherence and rigor of *Eureka Math*.

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*.

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.

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 1 and 2, which are specifically addressed in the following modules:

G8 M1: Integer Exponents and Scientific Notation

G8 M2: The Concept of Congruence

G8 M4: Linear Equations

G8 M5: Examples of Functions from Geometry

G8 M6: Linear Functions

This process goal is analogous to the CCSSM Standards for Mathematical Practice 3 and 6, which are specifically addressed in the following modules:

G8 M1: Integer Exponents and Scientific Notation

G8 M2: The Concept of Congruence

G8 M4: Linear Equations

G8 M5: Examples of Functions from Geometry

G8 M6: Linear Functions

G8 M7: Introduction to Irrational Numbers Using Geometry

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: G8 M1: Integer Exponents and Scientific Notation G8 M2: The Concept of Congruence G8 M4: Linear Equations G8 M5: Examples of Functions from Geometry G8 M6: Linear Functions G8 M7: Introduction to Irrational Numbers Using Geometry
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:G8 M4: Linear EquationsG8 M5: Examples of Functions from GeometryG8 M6: Linear 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: G8 M4: Linear Equations G8 M5: Examples of Functions from Geometry G8 M6: Linear Functions 	

Domain	Mathematical Content Standards	Aligned Components of Eureka Math	
Number and	8.1	G8 M7 Topic A: Square and Cube Roots	
Number Sense	The student will compare and order real numbers.	G8 M7 Lesson 10: Converting Repeating Decimals to Fractions	
		G8 M7 Lesson 11: The Decimal Expansion of Some Irrational Numbers	
		G8 M7 Lesson 13: Comparing Irrational Numbers	
		G8 M7 Lesson 14: Decimal Expansion of π	
	8.2	G8 M7 Topic B: Decimal Expansions of Numbers	
	The student will describe the relationships between the subsets of the real number system.	Note: Supplemental material is necessary to show students the relationships between the subsets of the real number system.	
	8.3		
	The student will		
	a. estimate and determine the two	G8 M7 Topic A: Squares and Cube Roots	
	square root lies; and	G8 M7 Lesson 11: The Decimal Expansion of Some Irrational Numbers	
		G8 M7 Lesson 13: Comparing Irrational Numbers	
	b. determine both the positive and negative	G8 M7 Lesson 2: Square Roots	
	square roots of a given perfect square.	G8 M7 Lesson 5: Solving Equations with Radicals	

Domain	Mathematical Content Standards	Aligned Components of Eureka Math
Computation and Estimation	8.4 The student will solve practical problems involving consumer applications.	G7 M4: Percent and Proportional Relationships
Measurement and Geometry	8.5 The student will use the relationships among pairs of angles that are vertical angles, adjacent angles, supplementary angles, and complementary angles to determine the measure of unknown angles.	G7 M3 Lessons 10–11: Angle Problems and Solving Equations G7 M6 Topic A: Unknown Angles
	8.6 The student will	
	a. solve problems, including practical problems, involving volume and surface area of cones and square-based pyramids; and	G7 M3 Topic C: Use Equations and Inequalities to Solve Geometry ProblemsG7 M6 Topic D: Problems Involving Area and Surface AreaG7 M6 Topic E: Problems Involving VolumeG8 M5: Examples of Functions from GeometryG8 M7 Topic D: Applications of Radicals and RootsNote: Supplemental material is necessary to address surface area of cones.

Domain	Mathematical Content Standards	Aligned Components of Eureka Math	
	b. describe how changing one measured attribute of a rectangular prism affects the volume and surface area.	G7 M3 Topic C: Use Equations and Inequalities to Solv Geometry Problems G7 M6 Topic D: Problems Involving Area and Surface A G7 M6 Topic E: Problems Involving Volume	re Area
	8. 7 The student will		
	a. given a polygon, apply transformations, to include translations, reflections, and dilations, in the coordinate plane; and	G8 M2: The Concept of Congruence G8 M3: Similarity	
	b. identify practical applications of transformations.	G8 M2: The Concept of Congruence	

Domain	n Mathematical Content Standards		Aligned Components of Eureka Math	
	8.8 The student will construct a three-dimensional model, given the top or bottom, side, and front views.		G6 M5 Lesson 15: Representing Three-Dimensional Figures Using Nets G6 M5 Lesson 16: Constructing Nets	
	8.9 The student will			
	a. verify the Pythagorean Theorem; and		G8 M2 Topic D: The Pythagorean Theorem	
			G8 M3 Topic C: The Pythagorean Theorem	
			G8 M7 Topic C: The Pythagorean Theorem	
	b. apply the Pythagorean Theorem.		G8 M2 Topic D: The Pythagorean Theorem	
			G8 M3 Topic C: The Pythagorean Theorem	
			G8 M4 Topic E: Pythagorean Theorem	
			G8 M7: Introduction to Irrational Numbers Using Geometry	
	8.10		G6 M5 Topic B: Polygons on the Coordinate Plane	
	The student will solve area and perimeter problems, including practical problems, involving composite plane figures.			

Domain	Mathematical Content Standards	Aligned Components of Eureka Math	
Probability and Statistics	8.11 The student will		
	a. compare and contrast the probability of independent and dependent events; and	<i>Eureka Math</i> does not address independent and dependent events.	
	b. determine probabilities for independent and dependent events.	<i>Eureka Math</i> does not address independent and dependent events.	
	8.12		
	The student will		
	a. represent numerical data in boxplots;	G6 M6 Topic C: Summarizing a Distribution that Is Skewed Using the Median and the Interquartile Range	
	b. make observations and inferences about data represented in boxplots; and	G6 M6 Topic C: Summarizing a Distribution that Is Skewed Using the Median and the Interquartile Range	
	c. compare and analyze two data sets using boxplots.	G6 M6 Lesson 19: Comparing Data Distributions	
	8.13		
	The student will		
	a. represent data in scatterplots;	G8 M6 Topic B: Bivariate Numerical Data	
	b. make observations about data represented in scatterplots; and	G8 M6 Topic B: Bivariate Numerical Data	
	c. use a drawing to estimate the line of best fit for data represented in a scatterplot.	G8 M6 Topic B: Bivariate Numerical Data	

Domain	Mathematical Content Standards	Aligned Components of Eureka Math	
Patterns, Functions, and Algebra	8.14 The student will		
unumgebru	a. evaluate an algebraic expression for given replacement values of the variables; and	G7 M3 Topic A: Use Properties of Operations to Generate Equivalent Expressions	
	b. simplify algebraic expressions in one variable.	G7 M3 Topic A: Use Properties of Operations to Generate Equivalent Expressions	
	8.15 The student will		
	a. determine whether a given relation is a function; and	G8 M5 Lesson 1: The Concept of a Function G8 M5 Lesson 2: Formal Definition of a Function	
	b. determine the domain and range of a function.	G8 M5: Examples of Functions from Geometry	
	8.16 The student will		
	a. recognize and describe the graph of a linear function with a slope that is positive, negative, or zero;	G8 M4 Topic B: Linear Equations in Two Variables and Their Graphs G8 M4 Topic C: Slope and Equations of Lines	
	b. identify the slope and <i>y</i> -intercept of a linear function, given a table of values, a graph, or an equation in <i>y</i> = <i>mx</i> + <i>b</i> form;	G8 M4 Topic C: Slope and Equations of Lines	

Domain	Mathematical Content Standards		Aligned Components of Eureka Math
	c. determine the independent and dependent variable, given a practical situation modeled by a linear function;	G	G8 M5: Examples of Functions from Geometry
	d. graph a linear function given the equation in $y = mx + b$ form; and	G	G8 M4: Linear Equations
	e. make connections between and among representations of a linear function using verbal descriptions, tables, equations, and graphs.	G	G8 M4: Linear Equations
	8.17 The student will solve multistep linear equations in one variable with the variable on one or both sides of the equation, including practical problems that require the solution of a multistep linear equation in one variable.	G	G8 M4 Topic A: Writing and Solving Linear Equations
	8.18 The student will solve multistep linear inequalities in one variable with the variable on one or both sides of the inequality symbol, including practical problems, and graph the solution on a number line.	G G G N	G7 M3 Lesson 12: Properties of Inequalities G7 M3 Lesson 13: Inequalities G7 M3 Lesson 14: Solving Inequalities G7 M3 Lesson 15: Graphing Solutions to Inequalities Note: Supplemental material is necessary to address variables on both sides of the inequality symbol.