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 4 MATHEMATICS

The majority of the Grade 4 Mathematics Standards of Learning for Virginia Public Schools are fully covered by the Grade 4 *Eureka Math* curriculum. The areas where the Grade 4 Mathematics Standards of Learning for Virginia Public Schools and Grade 4 *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. This process goal is analogous to the CCSSM Standards for Mathematical Practice 1 and 2, which are specifically addressed in the following modules:

G4 M1: Place Value, Rounding, and Algorithms for Addition and Subtraction

G4 M2: Unit Conversions and Problem Solving with Metric Measurement

G4 M3: Multi-Digit Multiplication and Division

G4 M4: Angle Measure and Plane Figures

G4 M5: Fraction Equivalence, Ordering, and Operations

G4 M6: Decimal Fractions

G4 M7: Exploring Measurement with Multiplication

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:

G4 M1: Place Value, Rounding, and Algorithms for Addition and Subtraction

G4 M4: Angle Measure and Plane Figures

G4 M5: Fraction Equivalence, Ordering, and Operations

G4 M6: Decimal Fractions

G4 M7: Exploring Measurement with Multiplication

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:

G4 M1: Place Value, Rounding, and Algorithms for Addition and Subtraction

G4 M2: Unit Conversions and Problem Solving with Metric Measurement

G4 M3: Multi-Digit Multiplication and Division

G4 M4: Angle Measure and Plane Figures

G4 M5: Fraction Equivalence, Ordering, and Operations

G4 M6: Decimal Fractions

G4 M7: Exploring Measurement with Multiplication

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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.	is process goa Mathematica Iressed in the M1: Place Val I Subtraction M3: Multi-Di M4: Angle M M5: Fraction M6: Decimal	l is analogous to the CCSSM Standards l Practice 4 and 5, which are specifically following modules: lue, Rounding, and Algorithms for Addition git Multiplication and Division easure and Plane Figures Equivalence, Ordering, and Operations Fractions
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.	is process goa thematical Pr owing module M3: Multi-Di M5: Fraction M6: Decimal	l is analogous to the CCSSM Standards for actice 4, which is specifically addressed in the es: git Multiplication and Division Equivalence, Ordering, and Operations Fractions

Domain	Mathematical Content Standards	Aligned Components of Eureka Math
Number and Number Sense	4.1 The student will	
Sense	a. read, write, and identify the place and value of each digit in a nine-digit whole number;	G4 M1 Topic A: Place Value of Multi-Digit Whole Numbers G4 M3 Topic B: Multiplication by 10, 100, and 1,000 G4 M6 Lesson 8: Use understanding of fraction equivalence to investigate decimal numbers on the place value chart expressed in different units.
	b. compare and order whole numbers expressed through millions; and	G4 M1 Topic A: Place Value of Multi-Digit Whole Numbers G4 M1 Topic B: Comparing Multi-Digit Whole Numbers
	c. round whole numbers expressed through millions to the nearest thousand, ten thousand, and hundred thousand.	G4 M1 Topic C: Rounding Multi-Digit Whole Numbers
	4.2 The student will	
	a. compare and order fractions and mixed numbers, with and without models;	 G4 M5 Topic C: Fraction Comparison G4 M5 Lesson 26: Compare fractions greater than 1 by reasoning using benchmark fractions. G4 M5 Lesson 27: Compare fractions greater than 1 by creating common numerators or denominators. G4 M5 Lesson 28: Solve word problems with line plots.

Domain	Mathematical Content Standards	Aligned Components of Eureka Math
	b. represent equivalent fractions; and	G4 M5 Topic A: Decomposition and Fraction Equivalence
		G4 M5 Topic B: Fraction Equivalence Using Multiplication and Division
	c. identify the division statement that represents a fraction, with models and in context.	G5 M4 Topic B: Fractions as Division
	4·3 The student will	
	a. read, write, represent, and identify decimals expressed through thousandths;	G4 M6: Decimal Fractions
	b. round decimals to the nearest whole number;	G5 M1 Topic C: Place Value and Rounding Decimal Fractions
	c. compare and order decimals; and	G4 M6 Topic C: Decimal Comparison
	d. given a model, write the decimal and fraction equivalents.	G4 M6: Decimal Fractions

Domain	Mathematical Content Standards	Aligned Components of Eureka Math
Computation and Estimation	4·4 The student will	
	a. demonstrate fluency with multiplication facts through 12×12 , and the corresponding division facts;	G3 M1: Properties of Multiplication and Division and Solving Problems with Units of 2–5 and 10
		G3 M3: Multiplication and Division with Units of 0, 1, 6–9, and Multiples of 10
		Note: Supplemental material is necessary to address numbers greater than 10.
	b. estimate and determine sums, differences, and products of whole numbers;	G4 M1: Place Value, Rounding, and Algorithms for Addition and Subtraction
		G4 M3: Multi-Digit Multiplication and Division
		G4 M4 Topic C: Problem Solving with the Addition of Angle Measures
	c. estimate and determine quotients of whole numbers, with and without remainders; and	G4 M3 Topic E: Division of Tens and Ones with Successive Remainders
		G4 M3 Topic G: Division of Thousands, Hundreds, Tens, and Ones

Domain	Mathematical Content Standards	Aligned Components of Eureka Math
	d. create and solve single-step and multi- step practical problems involving	G4 M1: Place Value, Rounding, and Algorithms for Addition and Subtraction
	addition, subtraction, and multiplication, and single-step practical problems	G4 M3 Topic D: Multiplication Word Problems
	involving division with whole numbers.	G4 M7 Topic B: Problem Solving with Measurement
		G4 M7 Lesson 14: Solve multi-step word problems involving converting mixed number measurements to a single unit.
	4·5 The student will	
	a. determine common multiples and factors, including least common multiple and greatest common factor;	G4 M3 Topic F: Reasoning with Divisibility
		G6 M2 Topic D: Number Theory—Thinking Logically About Multiplicative Arithmetic
	b. add and subtract fractions and mixed numbers having like and unlike denominators; and	G4 M5 Lesson 24: Decompose and compose fractions greater than 1 to express them in various forms.
		G4 M5 Topic F: Addition and Subtraction of Fractions by Decomposition
		G5 M3: Addition and Subtraction of Fractions
	c. solve single-step practical problems involving addition and subtraction with fractions and mixed numbers.	G4 M5 Lesson 19: Solve word problems involving addition and subtraction of fractions.
		G4 M5 Lesson 28: Solve word problems with line plots.
		G5 M3: Addition and Subtraction of Fractions

Domain	Mathematical Content Standards	Aligned Components of Eureka Math
	4.6 The student will	
	a. add and subtract with decimals; and	G5 M1 Topic D: Adding and Subtracting Decimals
	b. solve single-step and multi-step practical problems involving addition and subtraction with decimals.	G5 M1 Topic D: Adding and Subtracting Decimals
Measurement	4.7	G3 M4: Multiplication and Area
and Geometry	The student will solve practical problems that involve determining perimeter and area in U.S. Customary and metric units.	G4 M3 Topic A: Multiplicative Comparison Word Problems
	4.8 The student will	
	a. estimate and measure length and describe the result in U.S. Customary and metric units;	 G4 M2: Unit Conversions and Problem Solving with Metric Measurement G4 M5 Lesson 40: Solve word problems involving the multiplication of a whole number and a fraction including those involving line plots. G4 M7: Exploring Measurement with Multiplication
	b. estimate and measure weight/mass and describe the result in U.S. Customary and metric units;	G4 M2: Unit Conversions and Problem Solving with Metric Measurement

Domain	Mathematical Content Standards	Aligned Components of Eureka Math
	c. given the equivalent measure of one unit, identify equivalent measures of	G4 M2: Unit Conversions and Problem Solving with Metric Measurement
	between units within the U.S. Customary system; and	G4 M6 Lesson 14: Solve word problems involving the addition of measurements in decimal form.
		G4 M7: Exploring Measurement with Multiplication
	d. solve practical problems that involve length, weight/mass, and liquid volume	G4 M2: Unit Conversions and Problem Solving with Metric Measurement
	in U.S. Customary units.	G4 M6 Lesson 14: Solve word problems involving the addition of measurements in decimal form.
		G4 M7: Exploring Measurement with Multiplication
	4.9	G3 M2 Topic A: Time Measurement and Problem Solving
	The student will solve practical problems related to elapsed time in hours and minutes within a 12-hour period.	G3 M2 Lesson 12: Round two-digit measurements to the nearest ten on the vertical number line.
	4.10 The student will	
	a. identify and describe points, lines, line segments, rays, and angles, including endpoints and vertices; and	G4 M4: Angle Measure and Plane Figures
	b. identify and describe intersecting, parallel, and perpendicular lines.	G4 M4: Angle Measure and Plane Figures

Domain	Mathematical Content Standards	Aligned Components of Eureka Math
	4.11 The student will identify, describe, compare, and contrast plane and solid figures according to their characteristics (number of angles, vertices, edges, and the number and shape of faces) using concrete models and pictorial representations.	G4 M4 Topic D: Two-Dimensional Figures and Symmetry
	4.12 The student will classify quadrilaterals as parallelograms, rectangles, squares, rhombi, and/or trapezoids.	G5 M5 Topic D: Drawing, Analysis, and Classification of Two- Dimensional Shapes
Probability and Statistics	4.13 The student will	
	a. determine the likelihood of an outcome of a simple event;	G7 M5 Lesson 2: Estimating Probabilities by Collecting Data
	b. represent probability as a number between 0 and 1, inclusive; and	G7 M5 Lesson 1: Chance Experiments
	c. create a model or practical problem to represent a given probability.	G7 M5 Topic A: Calculating and Interpreting Probabilities
	4.14 The student will	
	a. collect, organize, and represent data in bar graphs and line graphs;	G3 M6: Collecting and Displaying Data

Domain	Mathematical Content Standards	Aligned Components of Eureka Math
	b. interpret data represented in bar graphs and line graphs; and	G3 M6: Collecting and Displaying Data
	c. compare two different representations of the same data (e.g., a set of data displayed on a chart and a bar graph, a chart and a line graph, or a pictograph and a bar graph).	G3 M6: Collecting and Displaying Data
Patterns, Functions, and Algebra	4.15 The student will identify, describe, create, and extend patterns found in objects, pictures, numbers, and tables.	G4 M3 Topic F: Reasoning with Divisibility G4 M5 Topic H: Exploring a Fraction Pattern
	4.16 The student will recognize and demonstrate the meaning of equality in an equation.	G6 M4 Lessons 23–24: True and False Number Sentences G6 M4 Lesson 25: Finding Solutions to Make Equations True