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

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GRADE 5 MATHEMATICS

Many of the Grade 5 Mathematics Standards of Learning for Virginia Public Schools 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*.

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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: G5 M2: Multi-Digit Whole Number and Decimal Fraction Operations G5 M3: Addition and Subtraction of Fractions G5 M4: Multiplication and Division of Fractions and Decimal Fractions G5 M5: Addition and Multiplication with Volume and Area G5 M6: Problem Solving with the Coordinate Plane
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: G5 M1: Place Value and Decimal Fractions G5 M3: Addition and Subtraction of Fractions G5 M4: Multiplication and Division of Fractions and Decimal Fractions G5 M5: Addition and Multiplication with Volume and Area G5 M6: Problem Solving with the Coordinate Plane

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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: G5 M1: Place Value and Decimal Fractions G5 M2: Multi-Digit Whole Number and Decimal Fraction Operations G5 M3: Addition and Subtraction of Fractions G5 M4: Multiplication and Division of Fractions and Decimal Fractions G5 M5: Addition and Multiplication with Volume and Area G5 M6: Problem Solving with the Coordinate Plane
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: G5 M3: Addition and Subtraction of Fractions G5 M4: Multiplication and Division of Fractions and Decimal Fractions G5 M5: Addition and Multiplication with Volume and Area

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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: G5 M4: Multiplication and Division of Fractions and Decimal Fractions G5 M5: Addition and Multiplication with Volume and Area

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Domain	Mathematical Content Standards		Aligned Components of *Eureka Math*
Number and Number Sense	**5.1** The student, given a decimal through thousandths, will round to the nearest whole number, tenth, or hundredth.		G5 M1 Topic C: Place Value and Rounding Decimal Fractions
	5.2 The student will		
	a. represent and identify equivalencies among fractions and decimals, with and without models; and		G4 M6: Decimal Fractions
	b. compare and order fractions, mixed numbers, and/or decimals in a given set, from least to greatest and greatest to least.		G5 M1 Lesson 6: Compare decimal fractions to the thousandths using like units, and express comparisons with >, <, =.
	5.3 The student will		
	a. identify and describe the characteristics of prime and composite numbers; and		G4 M3 Topic F: Reasoning with Divisibility
	b. identify and describe the characteristics of even and odd numbers.		G6 M2 Lesson 16: Even and Odd Numbers
Computation and Estimation	**5.4** The student will create and solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of whole numbers.		G5 M2: Multi-Digit Whole Number and Decimal Fraction Operations G5 M3 Lesson 7: Solve two-step word problems. G5 M3 Lesson 15: Solve multi-step word problems; assess reasonableness of solutions using benchmark numbers.

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Domain	Mathematical Content Standards		Aligned Components of *Eureka Math*
	5.5 The student will		
	a. estimate and determine the product and quotient of two numbers involving decimals; and		G5 M2: Multi-Digit Whole Number and Decimal Fraction Operations
	b. create and solve single-step and multistep practical problems involving addition, subtraction, and multiplication of decimals, and create and solve single-step practical problems involving division of decimals.		G5 M1: Place Value and Decimal Fractions G5 M2: Multi-Digit Whole Number and Decimal Fraction Operations G5 M4 Lessons 17–18: Relate decimal and fraction multiplication. G5 M4 Lesson 29: Connect division by a unit fraction to division by 1 tenth and 1 hundredth. G5 M4 Lessons 30–31: Divide decimal dividends by non-unit decimal divisors.
	5.6 The student will		
	a. solve single-step and multistep practical problems involving addition and subtraction with fractions and mixed numbers; and		G5 M3: Addition and Subtraction of Fractions
	b. solve single-step practical problems involving multiplication of a whole number, limited to 12 or less, and a proper fraction, with models.		G5 M4 Topic C: Multiplication of a Whole Number by a Fraction

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	5.7 The student will simplify whole number numerical expressions using the order of operations.		G5 M2 Lesson 3: Write and interpret numerical expressions, and compare expressions using a visual model. G5 M2 Lesson 4: Convert numerical expressions into unit form as a mental strategy for multi-digit multiplication. G5 M4 Lesson 10: Compare and evaluate expressions with parentheses. G5 M4 Topic H: Interpretation of Numerical Expressions G6 M4 Topic B: Special Notations of Operations
Measurement and Geometry	**5.8** The student will		
	a. solve practical problems that involve perimeter, area, and volume in standard units of measure; and		G5 M5: Addition and Multiplication with Volume and Area
	b. differentiate among perimeter, area, and volume and identify whether the application of the concept of perimeter, area, or volume is appropriate for a given situation.		G5 M5: Addition and Multiplication with Volume and Area

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	5.9 The student will		
	a. given the equivalent measure of one unit, identify equivalent measurements within the metric system; and		G5 M1 Lesson 4: Use exponents to denote powers of 10 with application to metric conversions. G5 M2 Topic D: Measurement Word Problems with Whole Number and Decimal Multiplication G5 M4 Topic C: Multiplication of a Whole Number by a Fraction G5 M4 Lesson 19: Convert measures involving whole numbers, and solve multi-step word problems. G5 M4 Lesson 20: Convert mixed unit measurements, and solve multi-step word problems.
	b. solve practical problems involving length, mass, and liquid volume using metric units.		G5 M5: Addition and Multiplication with Volume and Area
	5.10 The student will identify and describe the diameter, radius, chord, and circumference of a circle.		G7 M3 Lesson 16: The Most Famous Ratio of All G7 M3 Lesson 18: More Problems on Area and Circumference G8 M7 Lesson 19: Cones and Spheres Geometry M5: Circles With and Without Coordinates

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	5.11 The student will solve practical problems related to elapsed time in hours and minutes within a 24-hour period.		G3 M2 Topic A: Time Measurement and Problem Solving Note: Supplemental material is necessary to completely address this standard.
	5.12 The student will classify and measure right, acute, obtuse, and straight angles.		G4 M4 Topic B: Angle Measurement
	5.13 The student will		
	a. classify triangles as right, acute, or obtuse and equilateral, scalene, or isosceles; and		G4 M4: Angle Measure and Plane Figures
	b. investigate the sum of the interior angles in a triangle and determine an unknown angle measure.		G4 M4: Angle Measure and Plane Figures
	5.14 The student will		
	a. recognize and apply transformations, such as translation, reflection, and rotation; and		G8 M2: The Concept of Congruence
	b. investigate and describe the results of combining and subdividing polygons.		G5 M5 Topic D: Drawing, Analysis, and Classification of Two-Dimensional Shapes

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Probability and Statistics	**5.15** The student will determine the probability of an outcome by constructing a sample space or using the Fundamental (Basic) Counting Principle.		G7 M5: Statistics and Probability
	5.16 The student, given a practical problem, will		
	a. represent data in line plots and stem-and-leaf plots;		G3 M6: Collecting and Displaying Data G3 M7 Lesson 22: Use a line plot to record the number of rectangles constructed in Lessons 20 and 21. Note: Supplemental material is necessary to address stem-and-leaf plots.
	b. interpret data represented in line plots and stem-and-leaf plots; and		G3 M6: Collecting and Displaying Data G3 M7 Lesson 22: Use a line plot to record the number of rectangles constructed in Lessons 20 and 21. Note: Supplemental material is necessary to address stem-and-leaf plots.
	c. compare data represented in a line plot with the same data represented in a stem-and-leaf plot.		G3 M6: Collecting and Displaying Data G3 M7 Lesson 22: Use a line plot to record the number of rectangles constructed in Lessons 20 and 21. Note: Supplemental material is necessary to address stem-and-leaf plots.

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	5.17 The student, given a practical context, will		
	a. describe mean, median, and mode as measures of center;		G6 M6: Statistics Note: Supplemental material is necessary to address mode.
	b. describe mean as fair share;		G6 M6 Lesson 6: Describing the Center of a Distribution Using the Mean G6 M6 Lesson 7: The Mean as a Balance Point
	c. describe the range of a set of data as a measure of spread; and		*Eureka Math* does not explicitly address range.
	d. determine the mean, median, mode, and range of a set of data.		G6 M6: Statistics Note: Supplemental material is necessary to address mode and range.
Patterns, Functions, and Algebra	**5.18** The student will identify, describe, create, express, and extend number patterns found in objects, pictures, numbers, and tables.		G5 M6 Topic B: Patterns in the Coordinate Plane and Graphing Number Patterns from Rules G5 M6 Lesson 18: Draw symmetric figures on the coordinate plane.
	5.19 The student will		
	a. investigate and describe the concept of variable;		G6 M4: Expressions and Equations

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Domain	Mathematical Content Standards		Aligned Components of *Eureka Math*
	b. write an equation to represent a given mathematical relationship, using a variable;		G6 M4: Expressions and Equations
	c. use an expression with a variable to represent a given verbal expression involving one operation; and		G6 M4: Expressions and Equations
	d. create a problem situation based on a given equation, using a single variable and one operation.		G6 M4: Expressions and Equations

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