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

GRADE 5 MATHEMATICS

The Grade 5 Arkansas Mathematics Standards are fully covered by the Grade 5 *Eureka Math* curriculum. A detailed analysis of alignment is provided in the table below.

INDICATORS

- Green indicates that the Arkansas standard is fully addressed in *Eureka Math*.
- Yellow indicates that the Arkansas standard may not be completely addressed in *Eureka Math*.
- Red indicates that the Arkansas 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 Arkansas standards and in *Eureka Math*.

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Operations and Algebraic Thinking	**Cluster: Write and interpret numerical expressions**	
	AR.Math.Content.5.OA.A.1 Use *grouping symbols* including parentheses, brackets, or braces in numerical *expressions*, and evaluate *expressions* with these symbols	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
	AR.Math.Content.5.OA.A.2 Write simple *expressions* that record calculations with numbers, and interpret numerical *expressions* without evaluating them	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 G5 M6 Topic B: Patterns in the Coordinate Plane and Graphing Number Patterns from Rules

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	Cluster: Analyze patterns and relationships	
	AR.Math.Content.5.OA.B.3 ▪ Generate two numerical patterns, each using a given rule ▪ Identify apparent relationships between corresponding terms by completing a function table or input/output table ▪ Using the terms created, form and graph ordered pairs in the first quadrant of the *coordinate plane*	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.
Number and Operations in Base Ten	**Cluster: Understand the place value system**	
	AR.Math.Content.5.NBT.A.1 Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left	G5 M1 Topic A: Multiplicative Patterns on the Place Value Chart G5 M2 Topic A: Mental Strategies for Multi-Digit Whole Number Multiplication G5 M2 Lesson 16: Use *divide by 10* patterns for multi-digit whole number division.

Domain	Standards for Mathematical Content		Aligned Components of *Eureka Math*
	AR.Math.Content.5.NBT.A.2 Understand why multiplying or dividing by a power of 10 shifts the *value* of the digits of a whole number or decimal: ▪ Explain patterns in the number of zeros of the *product* when multiplying a whole number by powers of 10 ▪ Explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10 ▪ Use whole-number *exponents* to denote powers of 10		G5 M1 Topic A: Multiplicative Patterns on the Place Value Chart G5 M1 Topic E: Multiplying Decimals G5 M2 Topic A: Mental Strategies for Multi-Digit Whole Number Multiplication G5 M2 Lesson 16: Use *divide by 10* patterns for multi-digit whole number division. G5 M2 Lesson 24: Divide decimal dividends by multiples of 10, reasoning about the placement of the decimal point and making connections to a written method.
	AR.Math.Content.5.NBT.A.3 Read, write, and compare decimals to thousandths: ▪ Read and write decimals to thousandths using base-ten numerals, number names, and *expanded form*(*s*) ▪ Compare two decimals to thousandths based on the *value* of the digits in each place, using >, =, and < symbols to record the results of comparisons		G5 M1: Place Value and Decimal Fractions

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	AR.Math.Content.5.NBT.A.4 Apply *place value* understanding to round decimals to any place	G5 M1 Topic C: Place Value and Rounding Decimal Fractions
	Cluster: Perform operations with multi-digit whole numbers and with decimals to hundredths	
	AR.Math.Content.5.NBT.B.5 Fluently (efficiently, accurately and with some degree of flexibility) multiply multi-digit *whole numbers* using a standard *algorithm*	G5 M2 Topic B: The Standard Algorithm for Multi-Digit Whole Number Multiplication G5 M2 Topic D: Measurement Word Problems with Whole Number and Decimal Multiplication
	AR.Math.Content.5.NBT.B.6 ▪ Find whole-number *quotients* of w*hole numbers* with up to four-digit *dividends* and two-digit *divisors*, using strategies based on: ▫ *Place value* ▫ The properties of operations ▫ Divisibility rules; and ▫ The relationship between multiplication and division ▪ Illustrate and explain calculations by using *equations*, *rectangular arrays*, and area models	G5 M2 Topic E: Mental Strategies for Multi-Digit Whole Number Division G5 M2 Topic F: Partial Quotients and Multi-Digit Whole Number Division G5 M2 Topic H: Measurement Word Problems with Multi-Digit Division

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	AR.Math.Content.5.NBT.B.7 Perform basic operations on decimals to the hundredths place: ▪ Add and subtract decimals to hundredths using concrete models or drawings and strategies based on *place value*, properties of operations, and/or the relationship between addition and subtraction ▪ Multiply and divide decimals to hundredths using concrete models or drawings and strategies based on *place value*, properties of operations, and the relationship between multiplication and division	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.
Number and Operations—Fractions	**Cluster: Use equivalent fractions as a strategy to add and subtract fractions**	
	AR.Math.Content.5.NF.A.1 Efficiently, accurately and with some degree of flexibility, add and subtract *fractions* with unlike denominators (including mixed numbers) using equivalent *fractions* and common *denominators*	G5 M3: Addition and Subtraction of Fractions

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	AR.Math.Content.5.NF.A.2 ▪ Solve word problems involving addition and subtraction of *fractions* referring to the same whole, including cases of unlike *denominators* ▪ Use benchmark *fractions* and number sense of *fractions* to estimate mentally and assess the reasonableness of answers	G5 M3 Lesson 7: Solve two-step word problems. G5 M3 Lesson 9: Add fractions making like units numerically. G5 M3 Topic D: Further Applications
	Cluster: Apply and extend previous understandings of multiplication and division	
	AR.Math.Content.5.NF.B.3 ▪ Interpret a *fraction* as division of the *numerator* by the *denominator* ($a/b = a \div b$), where a and b are natural numbers ▪ Solve word problems involving division of natural numbers leading to answers in the form of *fractions* or mixed numbers	G5 M4 Topic B: Fractions as Division

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	AR.Math.Content.5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a *fraction* or whole number by a *fraction*: ▪ Interpret the *product* $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$ ▪ Find the area of a rectangle with fractional (less than and/or greater than 1) side lengths, by tiling it with unit squares of the appropriate *unit fraction* side lengths, by multiplying the fractional side lengths, and then show that both procedures yield the same area	G5 M4 Topic C: Multiplication of a Whole Number by a Fraction G5 M4 Lesson 10: Compare and evaluate expressions with parentheses. G5 M4 Topic E: Multiplication of a Fraction by a Fraction G5 M4 Topic H: Interpretation of Numerical Expressions G5 M5 Topic C: Area of Rectangular Figures with Fractional Side Lengths

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	Cluster: Apply and extend previous understandings of multiplication and division	
	AR.Math.Content.5.NF.B.5 Interpret multiplication as scaling (resizing), by: ▪ Comparing the size of a *product* to the size of one *factor* on the basis of the size of the other *factor*, without performing the indicated multiplication ▪ Explaining why multiplying a given number by a *fraction* greater than 1 results in a *product* greater than the given number ▪ Explain why multiplying a given number by a *fraction* less than 1 results in a *product* smaller than the given number ▪ Relate the principle of *fraction* equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1	G5 M4 Topic F: Multiplication with Fractions and Decimals as Scaling and Word Problems

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	AR.Math.Content.5.NF.B.6 Solve real-world problems involving multiplication of *fractions* and mixed numbers	G5 M4 Topic D: Fraction Expressions and Word Problems G5 M4 Lesson 16: Solve word problems using tape diagrams and fraction-by-fraction multiplication. G5 M4 Lesson 24: Solve word problems using fraction and decimal multiplication. G5 M5 Lessons 14–15: Solve real-world problems involving area of figures with fractional side lengths using visual models and/or equations.
	AR.Math.Content.5.NF.B.7 Apply and extend previous understandings of division to divide *unit fractions* by *whole numbers* and *whole numbers* by *unit fractions*: ▪ Interpret division of a *unit fraction* by a natural number, and compute such *quotients* ▪ Interpret division of a whole number by a *unit fraction*, and compute such *quotients* ▪ Solve real-world problems involving division of *unit fractions* by natural numbers and division of *whole numbers* by *unit fractions*	G5 M4 Topic G: Division of Fractions and Decimal Fractions G5 M4 Topic H: Interpretation of Numerical Expressions

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Measurement and Data	**Cluster: Convert like measurement units within a given measurement system**	
	AR.Math.Content.5.MD.A.1 ▪ Convert among different-sized standard measurement units within the metric system ▪ Convert among different-sized standard measurement units within the customary system ▪ Use these conversions in solving multi-step, real-world problems	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.
	Cluster: Represent and interpret data	
	AR.Math.Content.5.MD.B.2 ▪ Make a *line plot* to display a data set of measurements in *fractions* of a unit (1/2, 1/4, 1/8) ▪ Use operations on *fractions* for this grade to solve problems involving information presented in *line plots*	G5 M4 Topic A: Line Plots of Fraction Measurements

Domain	Standards for Mathematical Content		Aligned Components of *Eureka Math*
	Cluster: Geometric measurement: understand concepts of volume		
	AR.Math.Content.5.MD.C.3 Recognize volume as an *attribute* of solid figures and understand concepts of volume measurement: A cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume, and can be used to measure volume A solid figure, which can be packed without gaps or overlaps using *n* unit cubes, is said to have a volume of *n* cubic units		G5 M5 Topic A: Concepts of Volume
	AR.Math.Content.5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units		G5 M5 Topic A: Concepts of Volume

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	AR.Math.Content.5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume: ▪ Find the volume of a right *rectangular prism* with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base (B) ▪ Represent threefold whole-number *products* as volumes (e.g., to represent the associative property of multiplication) ▪ Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for *rectangular prisms* to find volumes of right *rectangular prisms* with whole-number edge lengths in the context of solving real-world and mathematical problems ▪ Recognize volume as additive ▪ Find volumes of solid figures composed of two non-overlapping right *rectangular prisms* by adding the volumes of the non-overlapping parts, applying this technique to solve real world problems	G5 M5: Addition and Multiplication with Volume and Area

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Geometry	**Cluster: Graph points on the coordinate plane to solve real-world and mathematical problems**	
	AR.Math.Content.5.G.A.1 ▪ Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines (the *origin*) arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its *coordinates* ▪ Understand that the first number indicates how far to travel from the *origin* in the direction of one axis, and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the *coordinates* correspond (e.g., *x*-axis and *x*-coordinate, *y*-axis and *y*-coordinate)	G5 M6 Topic A: Coordinate Systems G5 M6 Lesson 7: Plot points, use them to draw lines in the plane, and describe patterns within the coordinate pairs. G5 M6 Lesson 14: Construct parallel line segments, and analyze relationships of the coordinate pairs. G5 M6 Lesson 16: Construct perpendicular line segments, and analyze relationships of the coordinate pairs.
	AR.Math.Content.5.G.A.2 Represent real-world and mathematical problems by graphing points in the first quadrant and on the non-negative *x*- and *y*-axes of the *coordinate plane* Interpret coordinate values of points in the context of the situation	G5 M6 Lesson 14: Construct parallel line segments, and analyze relationships of the coordinate pairs. G5 M6 Lesson 16: Construct perpendicular line segments, and analyze relationships of the coordinate pairs. G5 M6 Topic D: Problem Solving in the Coordinate Plane

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	Cluster: Classify two-dimensional figures into categories based on their properties	
	AR.Math.Content.5.G.B.3 Understand that *attributes* belonging to a category of two-dimensional figures also belong to all subcategories of that category	G5 M5 Topic D: Drawing, Analysis, and Classification of Two-Dimensional Shapes
	AR.Math.Content.5.G.B.4 Classify two-dimensional figures in a hierarchy based on properties	G5 M5 Lesson 20: Classify two-dimensional figures in a hierarchy based on properties. G5 M5 Lesson 21: Draw and identify varied two-dimensional figures from given attributes.