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 that 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 academic 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

North Carolina Standard Course of Study Mathematics Correlation to *Eureka Math*®

GRADE 5 MATHEMATICS

The majority of the Grade 5 North Carolina Standard Course of Study for Mathematics is fully covered by the Grade 5 *Eureka Math* curriculum. The primary area where the Grade 5 North Carolina Standard Course of Study for Mathematics and Grade 5 *Eureka Math* do not align is in the domain of Measurement and Data. One standard from this domain will require the use of *Eureka Math* content from another grade level. A detailed analysis of alignment is provided in the table below.

INDICATORS

GREEN	indicates the North Carolina standard is addressed in *Eureka Math*.
YELLOW	indicates the North Carolina standard may not be completely addressed in *Eureka Math*.
RED	indicates the North Carolina standard is not addressed in *Eureka Math*.
BLUE	indicates there is a discrepancy between the grade level at which this standard is addressed in North Carolina and in *Eureka Math*.

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
1. Make sense of problems and persevere in solving them. Mathematically proficient students in grade 5 should solve problems by applying their understanding of operations with whole numbers, decimals, and fractions including mixed numbers. They solve problems related to volume and measurement conversions. Students seek the meaning of a problem and look for efficient ways to represent and solve it. They may check their thinking by asking themselves, "What is the most efficient way to solve the problem?", "Does this make sense?", and "Can I solve the problem in a different way?"	Lessons in every module engage students in making sense of problems and persevering in solving them as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 1, which is 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
2. Reason abstractly and quantitatively. Mathematically proficient students in grade 5 should recognize that a number represents a specific quantity. They connect quantities to written symbols and create a logical representation of the problem at hand, considering both the appropriate units involved and the meaning of quantities. They extend this understanding from whole numbers to their work with fractions and decimals. Students write simple expressions that record calculations with numbers and represent or round numbers using place value concepts.	Lessons in every module engage students in reasoning abstractly and quantitatively as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 2, which is specifically addressed in the following modules: G5 M2: Multi-Digit Whole Number and Decimal Fraction Operations 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

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
3. Construct viable arguments and critique the reasoning of others. In fifth grade mathematically proficient students may construct arguments using concrete referents, such as objects, pictures, and drawings. They explain calculations based upon models and properties of operations and rules that generate patterns. They demonstrate and explain the relationship between volume and multiplication. They refine their mathematical communication skills as they participate in mathematical discussions involving questions like “How did you get that?” and “Why is that true?” They explain their thinking to others and respond to others’ thinking.	Lessons in every module engage students in constructing viable arguments and critiquing the reasoning of others as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 3, which is 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 G5 M6: Problem Solving with the Coordinate Plane
4. Model with mathematics. Mathematically proficient students in grade 5 experiment with representing problem situations in multiple ways including numbers, words (mathematical language), drawing pictures, using objects, making a chart, list, or graph, creating equations, etc. Students need opportunities to connect the different representations and explain the connections. They should be able to use all of these representations as needed. Fifth graders should evaluate their results in the context of the situation and whether the results make sense. They also evaluate the utility of models to determine which models are most useful and efficient to solve problems.	Lessons in every module engage students in modeling with mathematics as required by this standard. This practice standard 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

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
5. Use appropriate tools strategically. Mathematically proficient fifth graders consider the available tools (including estimation) when solving a mathematical problem and decide when certain tools might be helpful. For instance, they may use unit cubes to fill a rectangular prism and then use a ruler to measure the dimensions. They use graph paper to accurately create graphs and solve problems or make predictions from real world data.	Lessons in every module engage students in using appropriate tools strategically as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 5, which is specifically addressed in the following modules: G5 M3: Addition and Subtraction of Fractions G5 M4: Multiplication and Division of Fractions and Decimal Fractions
6. Attend to precision. Mathematically proficient students in grade 5 continue to refine their mathematical communication skills by using clear and precise language in their discussions with others and in their own reasoning. Students use appropriate terminology when referring to expressions, fractions, geometric figures, and coordinate grids. They are careful about specifying units of measure and state the meaning of the symbols they choose. For instance, when figuring out the volume of a rectangular prism they record their answers in cubic units.	Lessons in every module engage students in attending to precision as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 6, which is specifically addressed in the following modules: G5 M1: Place Value and Decimal Fractions G5 M5: Addition and Multiplication with Volume and Area G5 M6: Problem Solving with the Coordinate Plane

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
7. Look for and make use of structure. In fifth grade mathematically proficient students look closely to discover a pattern or structure. For instance, students use properties of operations as strategies to add, subtract, multiply and divide with whole numbers, fractions, and decimals. They examine numerical patterns and relate them to a rule or a graphical representation.	Lessons in every module engage students in looking for and making use of structure as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 7, which is 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
8. Look for and express regularity in repeated reasoning. Mathematically proficient fifth graders use repeated reasoning to understand algorithms and make generalizations about patterns. Students connect place value and their prior work with operations to understand algorithms to fluently multiply multidigit numbers and perform all operations with decimals to hundredths. Students explore operations with fractions with visual models and begin to formulate generalizations.	Lessons in every module engage students in looking for and expressing regularity in repeated reasoning as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 8, which is 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

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Operations and Algebraic Thinking	**Cluster: Write and interpret numerical expressions.**	
	NC.5.OA.2 Write, explain, and evaluate numerical expressions involving the four operations to solve up to two-step problems. Include expressions involving: • Parentheses, using the order of operations. • Commutative, associative and distributive properties.	G5 M2 Topic B: The Standard Algorithm for Multi-Digit Whole Number Multiplication G5 M4 Topic D: Fraction Expressions and Word Problems G5 M4 Topic G: Division of Fractions and Decimal Fractions G5 M4 Topic H: Interpretation of Numerical Expressions G5 M6 Topic B: Patterns in the Coordinate Plane and Graphing Number Patterns from Rules
	Cluster: Analyze patterns and relationships.	
	NC.5.OA.3 Generate two numerical patterns using two given rules. • Identify apparent relationships between corresponding terms. • Form ordered pairs consisting of corresponding terms from the two patterns. • Graph the ordered pairs on a coordinate plane.	G5 M6 Topic B: Patterns in the Coordinate Plane and Graphing Number Patterns from Rules G5 M6 Topic D: Problem Solving in the Coordinate Plane

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Number and Operations in Base Ten	**Cluster: Understand the place value system.**	
	NC.5.NBT.1 Explain the patterns in the place value system from one million to the thousandths place. • Explain 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. • Explain patterns in products and quotients when numbers are multiplied by 1,000, 100, 10, 0.1, and 0.01 and/or divided by 10 and 100.	G5 M1 Topic A: Multiplicative Patterns on the Place Value Chart G5 M1 Topic D: Adding and Subtracting Decimals G5 M1 Topic E: Multiplying Decimals G5 M2 Topic A: Mental Strategies for Multi-Digit Whole Number Multiplication G5 M2 Topic E: Mental Strategies for Multi-Digit Whole Number Division
	NC.5.NBT.3 Read, write, and compare decimals to thousandths. • Write decimals using base-ten numerals, number names, and expanded form. • 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 Topic B: Decimal Fractions and Place Value Patterns G5 M1 Topic D: Adding and Subtracting Decimals G5 M1 Topic E: Multiplying Decimals G5 M1 Topic F: Dividing Decimals

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	Cluster: Perform operations with multi-digit whole numbers.	
	NC.5.NBT.5 Demonstrate fluency with the multiplication of two whole numbers up to a three-digit number by a two-digit number using the 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
	NC.5.NBT.6 Find quotients with remainders when dividing whole numbers with up to four-digit dividends and two-digit divisors using rectangular arrays, area models, repeated subtraction, partial quotients, and/or the relationship between multiplication and division. Use models to make connections and develop the algorithm.	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*
	Cluster: Perform operations with decimals.	
	NC.5.NBT.7 Compute and solve real-world problems with multi-digit whole numbers and decimal numbers. • Add and subtract decimals to thousandths using models, drawings or strategies based on place value. • Multiply decimals with a product to thousandths using models, drawings, or strategies based on place value. • Divide a whole number by a decimal and divide a decimal by a whole number, using repeated subtraction or area models. Decimals should be limited to hundredths. • Use estimation strategies to assess reasonableness of answers.	G5 M1 Topic D: Adding and Subtracting Decimals G5 M1 Topic E: Multiplying Decimals G5 M1 Topic F: Dividing Decimals G5 M2 Topic C: Decimal Multi-Digit Multiplication G5 M2 Topic D: Measurement Word Problems with Whole Number and Decimal Multiplication G5 M2 Topic G: Partial Quotients and Multi-Digit Decimal Division G5 M4 Topic E: Multiplication of a Fraction by a Fraction G5 M4 Topic G: Division of Fractions and Decimal Fractions

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Number and Operations — Fractions	**Cluster: Use equivalent fractions to add and subtract fractions.**	
	NC.5.NF.1 Add and subtract fractions, including mixed numbers, with unlike denominators using related fractions: halves, fourths and eighths; thirds, sixths, and twelfths; fifths, tenths, and hundredths. • Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. • Solve one- and two-step word problems in context using area and length models to develop the algorithm. Represent the word problem with an equation.	G5 M3 Topic B: Making Like Units Pictorially G5 M3 Topic C: Making Like Units Numerically G5 M3 Topic D: Further Applications
	Cluster: Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	
	NC.5.NF.3 Use fractions to model and solve division problems. • Interpret a fraction as an equal sharing context, where a quantity is divided into equal parts. • Model and interpret a fraction as the division of the numerator by the denominator. • Solve one-step word problems involving division of whole numbers leading to answers in the form of fractions and mixed numbers, with denominators of 2, 3, 4, 5, 6, 8, 10, and 12, using area, length, and set models or equations.	G5 M4 Topic B: Fractions as Division

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	NC.5.NF.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction, including mixed numbers. • Use area and length models to multiply two fractions, with the denominators 2, 3, 4. • Explain why multiplying a given number by a fraction greater than 1 results in a product greater than the given number and when multiplying a given number by a fraction less than 1 results in a product smaller than the given number. • Solve one-step word problems involving multiplication of fractions using models to develop the algorithm.	G5 M4 Topic C: Multiplication of a Whole Number by a Fraction G5 M4 Topic D: Fraction Expressions and Word Problems G5 M4 Topic E: Multiplication of a Fraction by a Fraction
	NC.5.NF.7 Solve one-step word problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions using area and length models, and equations to represent the problem.	G5 M4 Topic G: Division of Fractions and Decimal Fractions

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Measurement and Data	**Cluster: Convert like measurement units within a given measurement system.**	
	NC.5.MD.1 Given a conversion chart, use multiplicative reasoning to solve one-step conversion problems within a given measurement system.	G5 M2 Topic D: Measurement Word Problems with Whole Number and Decimal Multiplication G5 M4 Topic E: Multiplication of a Fraction by a Fraction
	Cluster: Represent and interpret data.	
	NC.5.MD.2 Represent and interpret data. • Collect data by asking a question that yields data that changes over time. • Make and interpret a representation of data using a line graph. • Determine whether a survey question will yield categorical or numerical data, or data that changes over time.	G5 M6 Topic D Lesson 19: Plot Data on Line Graphs and Analyze Trends G6 M6 Lesson 17: Developing a Statistical Project

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	Cluster: Understand concepts of volume.	
	NC.5.MD.4 Recognize volume as an attribute of solid figures and measure volume by counting unit cubes, using cubic centimeters, cubic inches, cubic feet, and improvised units.	G5 M5 Topic A: Concepts of Volume G5 M5 Topic B: Volume and the Operations of Multiplication and Addition
	NC.5.MD.5 Relate volume to the operations of multiplication and addition. • Find the volume of a 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. • Build understanding of the volume formula for rectangular prisms with whole-number edge lengths in the context of solving problems. • Find volume of solid figures with one-digit dimensions composed of two non-overlapping rectangular prisms.	G5 M5 Topic B: Volume and the Operations of Multiplication and Addition

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Geometry	**Cluster: Understand the coordinate plane.**	
	NC.5.G.1 Graph points in the first quadrant of a coordinate plane, and identify and interpret the *x* and *y* coordinates to solve problems.	G5 M6 Topic A: Coordinate Systems G5 M6 Topic B: Patterns in the Coordinate Plane and Graphing Number Patterns from Rules G5 M6 Topic C: Drawing Figures in the Coordinate Plane G5 M6 Topic D: Problem Solving in the Coordinate Plane
	Cluster: Classify quadrilaterals.	
	NC.5.G.3 Classify quadrilaterals into categories based on their properties. • Explain that attributes belonging to a category of quadrilaterals also belong to all subcategories of that category. • Classify quadrilaterals in a hierarchy based on properties.	G5 M5 Topic D: Drawing, Analysis, and Classification of Two-Dimensional Shapes