
Grade 5 | North Carolina Standard Course of Study—Mathematics Correlation to *Eureka Math*²TM

When the original *Eureka Math*[®] curriculum was released, it quickly became the most widely used K–5 mathematics curriculum in the country. Now, the Great Minds[®] teacher–writers have created *Eureka Math*²TM, a groundbreaking new curriculum that helps teachers deliver exponentially better math instruction while still providing students with the same deep understanding of and fluency in math. *Eureka Math*² carefully sequences mathematical content to maximize vertical alignment—a principle tested and proven to be essential in students’ mastery of math—from kindergarten through high school.

While this innovative new curriculum includes all the trademark *Eureka Math* aha moments that have been delighting students and teachers for years, it also boasts these exciting new features:

Teachability

*Eureka Math*² employs streamlined materials that allow teachers to plan more efficiently and focus their energy on delivering high-quality instruction that meets the individual needs of their students. Differentiation suggestions, slide decks, digital interactives, and multiple forms of assessment are just a few of the resources built right into the teacher materials.

Accessibility

*Eureka Math*² incorporates Universal Design for Learning principles so all learners can access the mathematics and take on challenging math concepts. Student supports are built into the instructional design and are clearly identified in the *Teach* book. Further, the curriculum carries a focus on readability. By eliminating unnecessary words and using simple, clear sentences, the *Eureka Math*² teacher–writers have created one of the most readable mathematics curricula on the market. The curriculum’s readability and accessibility help all students see themselves as mathematical thinkers and doers who are fully capable of owning their mathematics learning.

Digital Engagement

The digital elements of *Eureka Math*² add to students’ engagement with the math. The curriculum provides teachers with digital slides for each lesson. In addition, each grade level includes wordless videos that spark students’ interest and curiosity. Students at all levels work through mathematical explorations that help lead to their own mathematical discoveries. Digital lessons and videos provide opportunities for students to wonder, explore, and make sense of mathematics, which contributes to the development of a strong, positive mathematical identity.

Standards for Mathematical Practice

Aligned Components of *Eureka Math*²

<p>MP.1 Make sense of problems and persevere in solving them.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p>MP.2 Reason abstractly and quantitatively.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p>MP.3 Construct viable arguments and critique the reasoning of others.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p>MP.4 Model with mathematics.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p>MP.5 Use appropriate tools strategically.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p>MP.6 Attend to precision.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p>MP.7 Look for and make use of structure.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p>MP.8 Look for and express regularity in repeated reasoning.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>

Operations and Algebraic Thinking

Write and interpret numerical expressions.

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Aligned Components of *Eureka Math*²

<p>NC.5.OA.2</p> <p>Write, explain, and evaluate numerical expressions involving the four operations to solve up to two-step problems. Include expressions involving:</p> <ul style="list-style-type: none"> • Parentheses, using the order of operations. • Commutative, associative and distributive properties. 	<p>5 M1 Lesson 7: Multiply by using familiar methods.</p> <p>5 M1 Lesson 8: Multiply two- and three-digit numbers by two-digit numbers by using the distributive property.</p> <p>5 M1 Topic D: Multi-Step Problems with Whole Numbers</p> <p>5 M3 Lesson 12: Divide a nonzero whole number by a unit fraction to find the number of groups.</p> <p>5 M3 Lesson 16: Reason about the size of quotients of whole numbers and unit fractions and quotients of unit fractions and whole numbers.</p> <p>5 M3 Lesson 18: Compare and evaluate expressions with parentheses.</p> <p>5 M3 Lesson 22: Evaluate expressions involving nested grouping symbols.</p> <p>5 M4 Lesson 29: Interpret, evaluate, and compare numerical expressions involving decimals.</p> <p>5 M4 Lesson 30: Create and solve real-world problems for given numerical expressions involving decimals.</p>
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Operations and Algebraic Thinking

Analyze patterns and relationships.

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<p>NC.5.OA.3</p> <p>Generate two numerical patterns using two given rules.</p> <ul style="list-style-type: none"> 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. 	<p>5 M6 Lesson 7: Generate number patterns to form ordered pairs.</p> <p>5 M6 Lesson 8: Identify addition and subtraction relationships between corresponding terms in number patterns.</p> <p>5 M6 Lesson 9: Identify multiplication and division relationships between corresponding terms in number patterns.</p> <p>5 M6 Lesson 11: Draw lines in the coordinate plane and identify points on the lines.</p> <p>5 M6 Lesson 20: Reason about patterns in real-world situations.</p>
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Number and Operations in Base Ten

Understand the place value system.

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<p>NC.5.NBT.1</p> <p>Explain the patterns in the place value system from one million to the thousandths place.</p> <ul style="list-style-type: none"> 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 $\frac{1}{10}$ 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. 	<p>5 M1 Lesson 1: Relate adjacent place value units by using place value understanding.</p> <p>5 M1 Lesson 2: Multiply and divide by 10, 100, and 1,000 and identify patterns in the products and quotients.</p> <p>5 M1 Lesson 3: Use exponents to multiply and divide by powers of 10.</p> <p>5 M1 Lesson 4: Estimate products and quotients by using powers of 10 and their multiples.</p> <p>5 M4 Lesson 1: Model and relate decimal place value units to thousandths.</p> <p>5 M4 Lesson 2: Represent thousandths as a place value unit.</p> <p>5 M4 Lesson 3: Represent decimal numbers to the thousandths place in different forms.</p> <p>5 M4 Lesson 4: Relate the values of digits in a decimal number by using place value understanding.</p> <p>5 M4 Lesson 5: Multiply and divide decimal numbers by powers of 10.</p>
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<p>NC.5.NBT.3 Read, write, and compare decimals to thousandths.</p>	<p>5 M4 Lesson 1: Model and relate decimal place value units to thousandths. 5 M4 Lesson 2: Represent thousandths as a place value unit. 5 M4 Lesson 3: Represent decimal numbers to the thousandths place in different forms. 5 M4 Lesson 6: Compare decimal numbers to the thousandths place.</p>
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Number and Operations in Base Ten

Perform operations with multi-digit whole numbers.

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<p>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.</p>	<p>5 M1 Topic B: Multiplication of Whole Numbers 5 M4 Lesson 9: Add decimal numbers by using different methods. 5 M4 Lesson 12: Subtract decimal numbers by using place value understanding. 5 M4 Lesson 13: Solve word problems involving addition and subtraction of decimal numbers and fractions. 5 M4 Lesson 15: Multiply decimal numbers to hundredths by one-digit whole numbers and multiples of 10, 100, or 1,000 by using different written methods. 5 M4 Lesson 16: Multiply decimal numbers to hundredths by two-digit whole numbers by using area models and vertical form. 5 M4 Lesson 17: Multiply decimal numbers to hundredths by two-digit whole numbers by using different methods. 5 M4 Lesson 19: Multiply a decimal number by a decimal number. 5 M4 Lesson 20: Divide decimal numbers to hundredths by one-digit whole numbers and multiples of 10, 100, or 1,000 by using unit form and place value understanding. 5 M4 Lesson 22: Divide decimal numbers to hundredths by two-digit whole numbers.</p>
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<p>NC.5.NBT.5 <i>continued</i></p>	<p>5 M4 Lesson 23: Relate division by 0.1 and 0.01 to division by a unit fraction.</p> <p>5 M4 Lesson 24: Divide decimal numbers by decimal numbers, resulting in whole-number quotients.</p> <p>5 M4 Lesson 25: Divide decimal numbers by decimal numbers, resulting in decimal-number quotients.</p>
<p>NC.5.NBT.6</p> <p>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.</p>	<p>5 M1 Topic C: Division of Whole Numbers</p>

Number and Operations in Base Ten

Perform operations with decimals.

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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.

5 M4 Lesson 9: Add decimal numbers by using different methods.

5 M4 Lesson 10: Add decimal numbers by using place value understanding.

5 M4 Lesson 11: Subtract decimal numbers by using different methods.

5 M4 Lesson 12: Subtract decimal numbers by using place value understanding.

5 M4 Topic C: Multiplication of Decimal Numbers

5 M4 Topic D: Division of Decimal Numbers

Number and Operations—Fractions

Use equivalent fractions as a strategy to add and subtract fractions.

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<p>NC.5.NF.1</p> <p>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.</p> <ul style="list-style-type: none">• 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 in an equation.	<p>5 M2 Lesson 7: Add and subtract fractions with related units by finding equivalent fractions numerically.</p> <p>5 M2 Lesson 8: Add and subtract fractions with unrelated units by finding equivalent fractions pictorially.</p> <p>5 M2 Lesson 9: Add and subtract fractions with unrelated units by finding equivalent fractions numerically.</p> <p>5 M2 Topic C: Addition and Subtraction of Fractions, Whole Numbers, and Mixed Numbers</p> <p>5 M2 Lesson 17: Solve problems by equally redistributing a total amount.</p>

Number and Operations—Fractions

Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

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<p>NC.5.NF.3</p> <p>Use fractions to model and solve division problems.</p> <ul style="list-style-type: none"> • 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. 	<p>5 M2 Topic A: Fractions and Division</p>
<p>NC.5.NF.4</p> <p>Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction, including mixed numbers.</p> <ul style="list-style-type: none"> • 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. 	<p>5 M3 Topic A: Multiplication of a Whole Number by a Fraction</p> <p>5 M3 Topic B: Multiplication of Fractions</p> <p>5 M3 Lesson 17: Solve word problems involving fractions with multiplication and division.</p> <p>5 M3 Lesson 21: Solve multi-step word problems involving fractions.</p> <p>5 M5 Topic B: Areas of Rectangular Figures with Fraction Side Lengths</p> <p>5 M6 Lesson 15: Use the coordinate plane to reason about perimeters and areas of rectangles.</p>

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<p>NC.5.NF.7</p> <p>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.</p>	<p>5 M3 Topic C: Division with a Unit Fraction and a Whole Number</p> <p>5 M3 Lesson 19: Create and solve one-step word problems involving fractions.</p> <p>5 M3 Lesson 20: Solve multi-step word problems involving fractions and write equations with parentheses.</p> <p>5 M3 Lesson 21: Solve multi-step word problems involving fractions.</p>
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Measurement and Data

Convert like measurement units within a given measurement system.

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<p>NC.5.MD.1</p> <p>Given a conversion chart, use multiplicative reasoning to solve one-step conversion problems within a given measurement system.</p>	<p>5 M1 Lesson 5: Convert measurements and describe relationships between metric units.</p> <p>5 M1 Lesson 6: Solve multi-step word problems by using metric measurement conversion.</p> <p>5 M3 Lesson 5: Convert larger customary measurement units to smaller measurement units.</p> <p>5 M3 Lesson 6: Convert smaller customary measurement units to larger measurement units.</p> <p>5 M4 Lesson 26: Solve a real-world problem involving metric measurements.</p> <p>5 M4 Lesson 27: Convert metric measurements involving decimals.</p> <p>5 M4 Lesson 28: Convert customary measurements involving decimals.</p>
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Measurement and Data

Represent and interpret data.

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<p>NC.5.MD.2</p> <p>Represent and interpret data.</p> <ul style="list-style-type: none">• 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.	<p><i>Supplemental material is necessary to address this standard.</i></p>
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Measurement and Data

Understand concepts of volume.

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<p>NC.5.MD.4</p> <p>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.</p>	<p>5 M5 Topic C: Volume Concepts</p>
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**North Carolina Standard Course
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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.

5 M5 Topic D: Volume and the Operations of Multiplication and Addition

Geometry

Understand the coordinate plane.

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<p>NC.5.G.1</p> <p>Graph points in the first quadrant of a coordinate plane, and identify and interpret the x and y coordinates to solve problems.</p>	<p>5 M6 Topic A: Coordinate Systems</p> <p>5 M6 Lesson 5: Identify properties of horizontal and vertical lines.</p> <p>5 M6 Lesson 6: Use properties of horizontal and vertical lines to solve problems.</p> <p>5 M6 Lesson 7: Generate number patterns to form ordered pairs.</p> <p>5 M6 Lesson 8: Identify addition and subtraction relationships between corresponding terms in number patterns.</p> <p>5 M6 Lesson 9: Identify multiplication and division relationships between corresponding terms in number patterns.</p> <p>5 M6 Topic C: Solve Mathematical Problems in the Coordinate Plane</p> <p>5 M6 Lesson 16: Interpret graphs that represent real-world situations.</p> <p>5 M6 Lesson 17: Plot data in the coordinate plane and analyze relationships.</p> <p>5 M6 Lesson 18: Interpret line graphs.</p> <p>5 M6 Lesson 20: Reason about patterns in real-world situations.</p>
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Geometry

Classify quadrilaterals.

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<p>NC.5.G.3</p> <p>Classify quadrilaterals into categories based on their properties.</p> <ul style="list-style-type: none">• 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.	<p>5 M5 Topic A: Drawing, Analysis, and Classification of Two-Dimensional Figures</p> <p>5 M6 Lesson 12: Graph and classify quadrilaterals in the coordinate plane.</p>