Grade 3 | Indiana Academic Standards for Mathematics Correlation to *Eureka Math*®

About *Eureka Math*

Created by Great Minds®, a mission-driven Public Benefit Corporation, *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

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

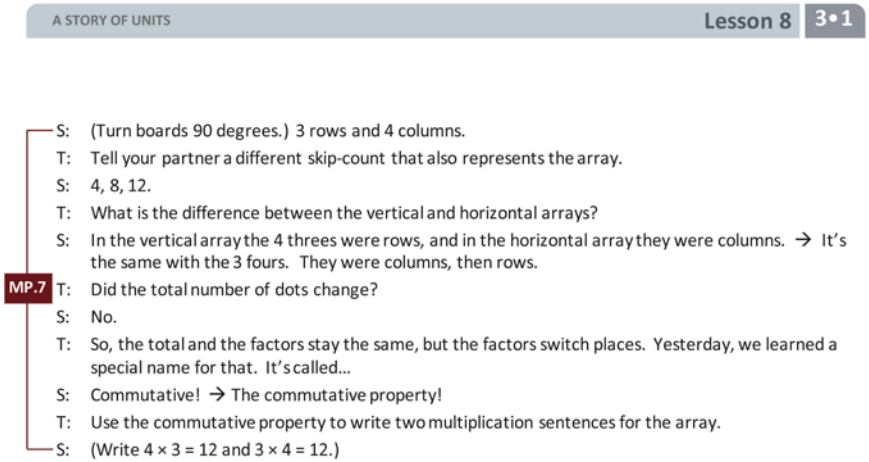
Schools and districts nationwide are experiencing student growth and impressive test scores after using *Eureka Math*. See their stories and data at greatminds.org/data.

Full Suite of Resources

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

Mathematics Process Standards	Aligned Components of *Eureka Math*
PS.1 Make sense of problems and persevere in solving them.	Lessons in every module engage students in mathematical processes. These are designated in the Module Overview and labeled in lessons. For example: 
PS.2 Reason abstractly and quantitatively.	
PS.3 Construct viable arguments and critique the reasoning of others.	
PS.4 Model with mathematics.	
PS.5 Use appropriate tools strategically.	
PS.6 Attend to precision.	
PS.7 Look for and make use of structure.	
PS.8 Look for and express regularity in repeated reasoning.	

Number Sense

Students represent and round whole numbers up to 10,000. Students model, compare, and generate simple equivalent unit and non-unit fractions.

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math*
3.NS.1 Read and write whole numbers up to 10,000. Use words, models, standard form, and expanded form to represent and show equivalent forms of whole numbers up to 10,000.	*Supplemental material is necessary to address this standard.*
3.NS.2 Model unit fractions as the quantity formed by 1 part when a whole is partitioned into equal parts; model non-unit fractions as the quantity formed by iterations of unit fractions. [In grade 3, limit denominators of fractions to 2, 3, 4, 6, 8.] (E)	G3 M5 Topic B: Unit Fractions and their Relation to the Whole G3 M5 Lesson 12: Specify the corresponding whole when presented with one equal part. G3 M7 Lesson 33: Solidify fluency with Grade 3 skills. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.
3.NS.3 Model a non-unit fraction on a number line by marking equal lengths from 0, identifying each part as a unit fraction and locating the non-unit fraction as the endpoint on the number line. (E)	G3 M5 Lesson 14: Place fractions on a number line with endpoints 0 and 1. G3 M5 Lesson 15: Place any fraction on a number line with endpoints 0 and 1. G3 M5 Lesson 16: Place whole number fractions and fractions between whole numbers on the number line. G3 M5 Lesson 17: Practice placing various fractions on the number line. G3 M5 Lesson 18: Compare fractions and whole numbers on the number line by reasoning about their distance from 0. G3 M5 Lesson 30: Partition various wholes precisely into equal parts using a number line method.

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3.NS.4 Use fraction models to represent two simple equivalent fractions with attention to how the number and size of the parts differ even though the quantities are the same. Use this principle to generate simple equivalent fractions (e.g. $\frac{1}{2}=\frac{2}{4}, \frac{4}{6}=\frac{2}{3}$).	G3 M5 Lesson 10: Compare unit fractions by reasoning about their size using fraction strips. G3 M5 Lesson 11: Compare unit fractions with different-sized models representing the whole. G3 M5 Lesson 13: Identify a shaded fractional part in different ways depending on the designation of the whole. G3 M5 Topic D: Fractions on the Number Line G3 M5 Topic E: Equivalent Fractions G3 M5 Lesson 28: Compare fractions with the same numerator pictorially. G3 M5 Lesson 29: Compare fractions with the same numerator using $<$, $>$, or $=$, and use a model to reason about their size. G3 M7 Lesson 33: Solidify fluency with Grade 3 skills.
3.NS.5 Compare two fractions with the same numerator or the same denominator by reasoning about their size based on the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions (e.g., by using a visual fraction model). (E)	G3 M5 Lesson 10: Compare unit fractions by reasoning about their size using fraction strips. G3 M5 Lesson 11: Compare unit fractions with different-sized models representing the whole. G3 M5 Lesson 13: Identify a shaded fractional part in different ways depending on the designation of the whole. G3 M5 Topic D: Fractions on the Number Line G3 M5 Topic E: Equivalent Fractions G3 M5 Lesson 28: Compare fractions with the same numerator pictorially. G3 M5 Lesson 29: Compare fractions with the same numerator using $<$, $>$, or $=$, and use a model to reason about their size. G3 M7 Lesson 33: Solidify fluency with Grade 3 skills.

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3.NS.6 Use place value understanding to round two- and three-digit whole numbers to the nearest 10 or 100.	G3 M2 Topic C: Rounding to the Nearest Ten and Hundred G3 M2 Lesson 17: Estimate sums by rounding and apply to solve measurement word problems. G3 M2 Lesson 20: Estimate differences by rounding and apply to solve measurement word problems. G3 M2 Lesson 21: Estimate sums and differences of measurements by rounding, and then solve mixed word problems. G3 M7 Lesson 33: Solidify fluency with Grade 3 skills. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.

Computation and Algebraic Thinking

Students use modeling and conceptual strategies to multiply and divide numbers within 100 in real-world situations. Students apply concepts and strategies of addition and subtraction to solve real-world problems and investigate number patterns through the application of concepts of multiplication and more complex concepts of addition within 100.

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3.CA.1 Fluently add and subtract multi-digit whole numbers using strategies and algorithms based on place value, properties of operations, and relationships between addition and subtraction.	G3 M2 Lesson 15: Add measurements using the standard algorithm to compose larger units once. G3 M2 Lesson 16: Add measurements using the standard algorithm to compose larger units twice. G3 M2 Lesson 18: Decompose once to subtract measurements including three-digit minuends with zeros in the tens or ones place. G3 M2 Lesson 19: Decompose twice to subtract measurements including three-digit minuends with zeros in the tens and ones places. G3 M7 Lesson 33: Solidify fluency with Grade 3 skills. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math*
3.CA.2 Solve real-world problems involving addition and subtraction of multi-digit whole numbers (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem). (E)	G3 M2 Lesson 4: Solve word problems involving time intervals within 1 hour by counting backward and forward using the number line and clock. G3 M2 Lesson 5: Solve word problems involving time intervals within 1 hour by adding and subtracting on the number line. G3 M2 Lesson 8: Solve one-step word problems involving metric weights within 100 and estimate to reason about solutions. G3 M2 Lesson 11: Solve mixed word problems involving all four operations with grams, kilograms, liters, and milliliters given in the same units. G3 M2 Lesson 17: Estimate sums by rounding and apply to solve measurement word problems. G3 M2 Lesson 20: Estimate differences by rounding and apply to solve measurement word problems. G3 M2 Lesson 21: Estimate sums and differences of measurements by rounding, and then solve mixed word problems. G3 M7 Lesson 33: Solidify fluency with Grade 3 skills. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.
3.CA.3 Model the concept of multiplication of whole numbers using equal-sized groups, arrays, area models, and equal intervals on a number line. Model the properties of 0 and 1 in multiplication using objects or drawings. (E)	G3 M1 Topic A: Multiplication and the Meaning of the Factors G3 M1 Topic C: Multiplication Using Units of 2 and 3 G3 M3 Lesson 16: Reason about and explain arithmetic patterns using units of 0 and 1 as they relate to multiplication and division. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math*
3.CA.4 Model the concept of division of whole numbers with the following models: partitioning, sharing, and an inverse of multiplication. Model the properties of 0 and 1 in division using objects or drawings. (E)	G3 M1 Topic B: Division as an Unknown Factor Problem G3 M1 Topic D: Division Using Units of 2 and 3 G3 M1 Lesson 17: Model the relationship between multiplication and division. G3 M3 Lesson 3: Multiply and divide with familiar facts using a letter to represent the unknown. G3 M3 Lesson 4: Count by units of 6 to multiply and divide using number bonds to decompose. G3 M3 Lesson 5: Count by units of 7 to multiply and divide using number bonds to decompose. G3 M3 Lesson 7: Interpret the unknown in multiplication and division to model and solve problems using units of 6 and 7. G3 M3 Lesson 11: Interpret the unknown in multiplication and division to model and solve problems. G3 M3 Lesson 15: Interpret the unknown in multiplication and division to model and solve problems. G3 M7 Lesson 33: Solidify fluency with Grade 3 skills. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.
3.CA.5 Multiply and divide within 100 using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows $40 \div 5 = 8$) or properties of operations. (E)	G3 M1 Topic C: Multiplication Using Units of 2 and 3 G3 M1 Topic E: Multiplication and Division Using Units of 4 G3 M1 Lesson 18: Apply the distributive property to decompose units. G3 M1 Lesson 19: Apply the distributive property to decompose units. G3 M3 Topic A: The Properties of Multiplication and Division G3 M3 Topic B: Multiplication and Division Using Units of 6 and 7 G3 M3 Lesson 8: Understand the function of parentheses and apply to solving problems. G3 M3 Lesson 9: Model the associative property as a strategy to multiply. G3 M3 Lesson 10: Use the distributive property as a strategy to multiply and divide. G3 M3 Lesson 12: Apply the distributive property and the fact $9 = 10 - 1$ as a strategy to multiply. G3 M3 Lesson 13: Identify and use arithmetic patterns to multiply.

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3.CA.5 ***continued***	G3 M3 Lesson 14: Identify and use arithmetic patterns to multiply. G3 M3 Lesson 16: Reason about and explain arithmetic patterns using units of 0 and 1 as they relate to multiplication and division. G3 M3 Lesson 17: Identify patterns in multiplication and division facts using the multiplication table. G3 M3 Lesson 20: Use place value strategies and the associative property $n \times (m \times 10) = (n \times m) \times 10$ (where n and m are less than 10) to multiply by multiples of 10. G3 M7 Lesson 33: Solidify fluency with Grade 3 skills. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.
3.CA.6 Demonstrate fluency with mastery of multiplication facts and corresponding division facts of 0 to 10.	G3 M1 Lesson 14: Skip-count objects in models to build fluency with multiplication facts using units of 4. G3 M1 Lesson 17: Model the relationship between multiplication and division. G3 M3 Topic A: The Properties of Multiplication and Division G3 M3 Topic B: Multiplication and Division Using Units of 6 and 7 G3 M3 Lesson 12: Apply the distributive property and the fact $9 = 10 - 1$ as a strategy to multiply. G3 M3 Lesson 13: Identify and use arithmetic patterns to multiply. G3 M3 Lesson 14: Identify and use arithmetic patterns to multiply. G3 M3 Lesson 16: Reason about and explain arithmetic patterns using units of 0 and 1 as they relate to multiplication and division. G3 M3 Lesson 17: Identify patterns in multiplication and division facts using the multiplication table. G3 M7 Lesson 33: Solidify fluency with Grade 3 skills. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.

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3.CA.7 Solve real-world problems involving whole number multiplication and division within 100 in situations involving equal groups, arrays, and measurement quantities (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem). (E)	G3 M1 Topic D: Division Using Units of 2 and 3 G3 M1 Lesson 20: Solve two-step word problems involving multiplication and division and assess the reasonableness of answers. G3 M1 Lesson 21: Solve two-step word problems involving all four operations and assess the reasonableness of answers. G3 M3 Lesson 7: Interpret the unknown in multiplication and division to model and solve problems using units of 6 and 7. G3 M3 Lesson 11: Interpret the unknown in multiplication and division to model and solve problems. G3 M3 Lesson 15: Interpret the unknown in multiplication and division to model and solve problems. G3 M3 Lesson 18: Solve two-step word problems involving all four operations and assess the reasonableness of solutions. G3 M3 Lesson 21: Solve two-step word problems involving multiplying single-digit factors and multiples of 10. G3 M7 Lesson 33: Solidify fluency with Grade 3 skills.
3.CA.8 Create, extend, and give an appropriate rule for number patterns within 100 (including patterns in the addition table or multiplication table).	G3 M3 Lesson 1: Study commutativity to find known facts of 6, 7, 8, and 9. G3 M3 Lesson 2: Apply the distributive and commutative properties to relate multiplication facts $5 \times n + n$ to $6 \times n$ and $n \times 6$ where n is the size of the unit. G3 M3 Lesson 13: Identify and use arithmetic patterns to multiply. G3 M3 Lesson 14: Identify and use arithmetic patterns to multiply. G3 M3 Lesson 16: Reason about and explain arithmetic patterns using units of 0 and 1 as they relate to multiplication and division. G3 M3 Lesson 17: Identify patterns in multiplication and division facts using the multiplication table. G3 M3 Lesson 19: Multiply by multiples of 10 using the place value chart. G3 M3 Lesson 20: Use place value strategies and the associative property $n \times (m \times 10) = (n \times m) \times 10$ (where n and m are less than 10) to multiply by multiples of 10.

Geometry

Students continue to investigate and classify more complex two-dimensional shapes based on their attributes.

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3.G.1 Define, identify, and classify four-sided shapes such as rhombuses, rectangles, and squares as quadrilaterals. Identify and draw examples and non-examples of quadrilaterals.	G3 M7 Topic B: Attributes of Two-Dimensional Figures G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.
3.G.2 Identify, describe, and draw points, lines, and line segments using appropriate tools (e.g., ruler, straightedge, and technology), and use these terms when describing two-dimensional shapes.	G4 M4 Lesson 1: Identify and draw points, lines, line segments, rays, and angles. Recognize them in various contexts and familiar figures.
3.G.3 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole (i.e., $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{6}, \frac{1}{8}$).	G3 M5 Topic A: Partitioning a Whole into Equal Parts G3 M7 Lesson 31: Explore and create unconventional representations of one-half. G3 M7 Lesson 32: Explore and create unconventional representations of one-half. G3 M7 Lesson 33: Solidify fluency with Grade 3 skills.

Measurement

Students use appropriate tools, computation strategies, and relationships of measurement to solve real-world problems including more specific measurements of length, weight, temperature, mass, time, and money. Students investigate and model the area of rectangles and perimeter of all polygons.

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3.M.1 Estimate and measure the mass of objects in grams (g) and kilograms (kg) and the volume of objects in quarts (qt), gallons (gal), and liters (l). Add, subtract, multiply, or divide to solve one-step, real-world problems involving masses or volumes that are given in the same units or obtained through investigation. (E)	G3 M2 Topic B: Measuring Weight and Liquid Volume in Metric Units G3 M2 Lesson 12: Round two-digit measurements to the nearest ten on the vertical number line. G3 M2 Lesson 21: Estimate sums and differences of measurements by rounding, and then solve mixed word problems. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills. *Supplemental material is necessary to address volume of objects in quarts and gallons.*
3.M.2 Choose and use appropriate units and tools to estimate and measure length, weight, and temperature. Estimate and measure length to a quarter-inch, weight in pounds, and temperature in degrees Celsius and Fahrenheit.	G3 M6 Lesson 5: Create ruler with 1-inch, $\frac{1}{2}$-inch, and $\frac{1}{4}$-inch intervals, and generate measurement data. *Supplemental material is necessary to address weight in pounds and temperature in degrees Celsius and Fahrenheit.*
3.M.3 Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes (e.g., by representing the problem on a number line diagram). (E)	G3 M2 Topic A: Time Measurement and Problem Solving G3 M2 Lesson 12: Round two-digit measurements to the nearest ten on the vertical number line. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.

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3.M.4 Find the value of any collection of coins and bills. Write amounts less than a dollar using the ¢ symbol and write larger amounts using the $ symbol in the form of dollars and cents (e.g., $4.59). Solve real-world problems to determine whether there is enough money to make a purchase. (E)	*Supplemental material is necessary to address this standard.*
3.M.5 Find the area of a rectangle with whole-number side lengths by modeling with unit squares, and show that the area is the same as would be found by multiplying the side lengths. Identify and draw rectangles with the same perimeter and different areas or with the same area and different perimeters. (E)	G3 M4 Topic A: Foundations for Understanding Area G3 M4 Topic B: Concepts of Area Measurement G3 M4 Topic C: Arithmetic Properties Using Area Models G3 M4 Topic D: Applications of Area Using Side Lengths of Figures G3 M7 Topic D: Recording Perimeter and Area Data on Line Plots G3 M7 Topic E: Problem Solving with Perimeter and Area G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.
3.M.6 Find perimeters of polygons given the side lengths or given an unknown side length.	G3 M7 Topic C: Problem Solving with Perimeter G3 M7 Topic D: Recording Perimeter and Area Data on Line Plots G3 M7 Topic E: Problem Solving with Perimeter and Area G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.

Data Analysis

Students collect and present data in multiple manners and solve multi-step problems with the data.

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3.DA.1 Collect, organize, and graph data from observations, surveys, and experiments using scaled bar graphs and pictographs. Solve real-world problems by analyzing and interpreting the data using grade-level computation and comparison strategies. (E)	G3 M6 Topic A: Generate and Analyze Categorical Data G3 M6 Lesson 9: Analyze data to problem solve. G3 M7 Lesson 34: Create resource booklets to support fluency with Grade 3 skills.