# Grade 5 | Pennsylvania Core Standards Mathematics (2014) Correlation to *Eureka Math²® (2027)*

*Eureka Math²* is a research-proven math curriculum that empowers teachers to center instructional techniques on student success. Teachers can foster more "aha!" learning moments by providing the support needed for all learners to build a more confident math mindset.

This *Eureka Math²* edition builds on a strong foundation of effective instruction. It provides teachers with guidance on delivering rigorous instruction that honors student choice and encourages confident problem-solving.

*Eureka Math²* carefully sequences mathematical content to maximize vertical alignment from kindergarten through high school. This kind of sequencing has proven to be essential in students' mastery of math.

## Teachability

*Eureka Math²* 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 into the teacher materials.

## Accessibility

*Eureka Math²* incorporates Universal Design for Learning (UDL) principles so all learners can access the mathematics and take on challenging math concepts. UDL, Differentiation, and Multilingual Learner supports are built into the instructional design and are clearly identified in the *Teach* book.

The curriculum also carries a focus on readability. By eliminating unnecessary words and using clear sentences, the *Eureka Math²* 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.

## Math Confidence

*Eureka Math²* fosters a classroom culture of learning by encouraging student-led discourse and cognitive engagement that results in confident learners. By leveraging consistent models, routines, and progressions, teachers can remove barriers and allow all students an avenue to success. Within the digital platform, each grade includes wordless videos and digital interactives that spark students' curiosity and help them make conceptual connections. Using the *Learn* books, students wonder, explore, and make sense of mathematics, which helps them develop a strong, positive mathematical identity.

| Standards for Mathematical Practice | Aligned Components of *Eureka Math²* |
|---|---|
| **MP.1**<br>Make sense of problems and persevere in solving them. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
| **MP.2**<br>Reason abstractly and quantitatively. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
| **MP.3**<br>Construct viable arguments and critique the reasoning of others. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
| **MP.4**<br>Model with mathematics. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
| **MP.5**<br>Use appropriate tools strategically. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
| **MP.6**<br>Attend to precision. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
| **MP.7**<br>Look for and make use of structure. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |
| **MP.8**<br>Look for and express regularity in repeated reasoning. | Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson. |

## Numbers and Operations

**CC.2.1.5.B Numbers and Operations in Base Ten**

| Pennsylvania Core Standards Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **CC.2.1.5.B.1**<br>Apply place-value concepts to show an understanding of operations and rounding as they pertain to whole numbers and decimals. | 5 M1 Lesson 1: Relate adjacent place value units by using place value understanding.<br>5 M1 Lesson 2: Multiply and divide by $10$, $100$, and $1{,}000$ and identify patterns in the products and quotients.<br>5 M1 Lesson 3: Use exponents to multiply and divide by powers of $10$.<br>5 M1 Lesson 4: Estimate products and quotients by using powers of $10$ and their multiples.<br>5 M4 Lesson 1: Model and relate decimal place value units to thousandths.<br>5 M4 Lesson 2: Represent thousandths as a place value unit.<br>5 M4 Lesson 3: Represent decimal numbers to the thousandths place in different forms.<br>5 M4 Lesson 4: Relate the values of digits in a decimal number by using place value understanding.<br>5 M4 Lesson 5: Multiply and divide decimal numbers by powers of $10$.<br>5 M4 Lesson 6: Compare decimal numbers to the thousandths place.<br>5 M4 Lesson 7: Round decimal numbers to the nearest one, tenth, or hundredth.<br>5 M4 Lesson 8: Round decimal numbers to any place value unit. |
| **CC.2.1.5.B.2**<br>Extend an understanding of operations with whole numbers to perform operations including decimals. | 5 M1 Lesson 7: Multiply by using familiar methods.<br>5 M1 Lesson 8: Multiply two- and three-digit numbers by two-digit numbers by using the distributive property.<br>5 M1 Lesson 9: Multiply two- and three-digit numbers by two-digit numbers by using the standard algorithm.<br>5 M1 Lesson 10: Multiply three- and four-digit numbers by three-digit numbers by using the standard algorithm.<br>5 M1 Lesson 11: Multiply two multi-digit numbers by using the standard algorithm.<br>5 M1 Lesson 12: Divide two- and three-digit numbers by multiples of $10$. |

| Pennsylvania Core Standards Mathematics | Aligned Components of *Eureka Math²* |
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| **CC.2.1.5.B.2** ***continued*** | 5 M1 Lesson 13: Divide two-digit numbers by two-digit numbers in problems that result in one-digit quotients.<br>5 M1 Lesson 14: Divide three-digit numbers by two-digit numbers in problems that result in one-digit quotients.<br>5 M1 Lesson 15: Divide three-digit numbers by two-digit numbers in problems that result in two-digit quotients.<br>5 M1 Lesson 16: Divide four-digit numbers by two-digit numbers.<br>5 M4 Lesson 9: Add decimal numbers by using different methods.<br>5 M4 Lesson 10: Add decimal numbers by using place value understanding.<br>5 M4 Lesson 11: Subtract decimal numbers by using different methods.<br>5 M4 Lesson 12: Subtract decimal numbers by using place value understanding.<br>5 M4 Lesson 14: Multiply decimal numbers to hundredths by one-digit whole numbers by using different models.<br>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.<br>5 M4 Lesson 16: Multiply decimal numbers to hundredths by two-digit whole numbers by using area models and vertical form.<br>5 M4 Lesson 17: Multiply decimal numbers to hundredths by two-digit whole numbers by using different methods.<br>5 M4 Lesson 18: Relate decimal number multiplication to fraction multiplication.<br>5 M4 Lesson 19: Multiply a decimal number by a decimal number.<br>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.<br>5 M4 Lesson 21: Divide decimal numbers to hundredths by one-digit whole numbers and multiples of $10$, $100$, or $1{,}000$ by using place value understanding and vertical form.<br>5 M4 Lesson 22: Divide decimal numbers to hundredths by two-digit whole numbers. |

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| **CC.2.1.5.B.2** ***continued*** | 5 M4 Lesson 23: Relate division by $0.1$ and $0.01$ to division by a unit fraction.<br>5 M4 Lesson 24: Divide decimal numbers by decimal numbers, resulting in whole-number quotients.<br>5 M4 Lesson 25: Divide decimal numbers by decimal numbers, resulting in decimal-number quotients. |

## Numbers and Operations

**CC.2.1.5.C Numbers and Operations—Fractions**

| Pennsylvania Core Standards Mathematics | Aligned Components of *Eureka Math²* |
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| **CC.2.1.5.C.1**<br>Use the understanding of equivalency to add and subtract fractions. | 5 M2 Lesson 5: Add and subtract fractions with related units by using pictorial models.<br>5 M2 Lesson 6: Add and subtract fractions with related units by using area models to rename fractions.<br>5 M2 Lesson 7: Add and subtract fractions with related units by finding equivalent fractions numerically.<br>5 M2 Lesson 8: Add and subtract fractions with unrelated units by finding equivalent fractions pictorially.<br>5 M2 Lesson 9: Add and subtract fractions with unrelated units by finding equivalent fractions numerically.<br>5 M2 Lesson 10: Add whole numbers and mixed numbers and add mixed numbers with related units.<br>5 M2 Lesson 11: Add mixed numbers with unrelated units.<br>5 M2 Lesson 12: Subtract whole numbers from mixed numbers and mixed numbers from whole numbers.<br>5 M2 Lesson 13: Subtract mixed numbers from mixed numbers with related units.<br>5 M2 Lesson 14: Subtract mixed numbers from mixed numbers with unrelated units. |

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| **CC.2.1.5.C.2**<br>Apply and extend previous understandings of multiplication and division to multiply and divide fractions. | 5 M2 Lesson 1: Interpret a fraction as division.<br>5 M2 Lesson 2: Interpret a fraction as division by writing remainders as fractions.<br>5 M2 Lesson 3: Represent fractions as division by using models.<br>5 M2 Lesson 4: Solve word problems involving division and fractions.<br>5 M3 Lesson 1: Find fractions of a set with arrays.<br>5 M3 Lesson 2: Interpret fractions as division to find fractions of a set with tape diagrams and number lines.<br>5 M3 Lesson 3: Multiply a whole number by a fraction less than 1.<br>5 M3 Lesson 4: Multiply a whole number by a fraction.<br>5 M3 Lesson 5: Convert larger customary measurement units to smaller measurement units.<br>5 M3 Lesson 6: Convert smaller customary measurement units to larger measurement units.<br>5 M3 Lesson 7: Multiply fractions less than 1 by unit fractions pictorially.<br>5 M3 Lesson 8: Multiply fractions less than 1 pictorially.<br>5 M3 Lesson 9: Multiply fractions by unit fractions by making simpler problems.<br>5 M3 Lesson 10: Multiply fractions greater than 1 by fractions.<br>5 M3 Lesson 11: Multiply fractions.<br>5 M3 Lesson 12: Divide a nonzero whole number by a unit fraction to find the number of groups.<br>5 M3 Lesson 13: Divide a nonzero whole number by a unit fraction to find the size of the group.<br>5 M3 Lesson 14: Divide a unit fraction by a nonzero whole number.<br>5 M3 Lesson 15: Divide by whole numbers and unit fractions.<br>5 M3 Lesson 16: Reason about the size of quotients of whole numbers and unit fractions and quotients of unit fractions and whole numbers.<br>5 M3 Lesson 17: Solve word problems involving fractions with multiplication and division.<br>5 M3 Lesson 19: Create and solve one-step word problems involving fractions. |

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| **CC.2.1.5.C.2** ***continued*** | 5 M3 Lesson 20: Solve multi-step word problems involving fractions and write equations with parentheses.<br>5 M3 Lesson 21: Solve multi-step word problems involving fractions.<br>5 M5 Lesson 8: Find areas of square tiles with fraction side lengths by relating the tile to a unit square.<br>5 M5 Lesson 9: Organize, count, and represent a collection of square tiles.<br>5 M5 Lesson 10: Find the area of a rectangle with fraction side lengths by relating the rectangle to a unit square.<br>5 M5 Lesson 11: Find areas of rectangles with fraction side lengths by using multiplication.<br>5 M5 Lesson 12: Multiply mixed numbers.<br>5 M5 Lesson 13: Solve mathematical problems involving areas of composite figures with mixed-number side lengths.<br>5 M5 Lesson 14: Solve real-world problems involving areas of composite figures with mixed-number side lengths.<br>5 M5 Lesson 15: Solve multi-step word problems involving multiplication of mixed numbers.<br>5 M6 Lesson 15: Use the coordinate plane to reason about perimeters and areas of rectangles. |

## Algebraic Concepts

**CC.2.2.5.A Operations and Algebraic Thinking**

| Pennsylvania Core Standards Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **CC.2.2.5.A.1**<br>Interpret and evaluate numerical expressions using order of operations. | 5 M1 Lesson 7: Multiply by using familiar methods.<br>5 M1 Lesson 8: Multiply two- and three-digit numbers by two-digit numbers by using the distributive property.<br>5 M1 Lesson 17: Write, interpret, and compare numerical expressions.<br>5 M1 Lesson 18: Create and solve real-world problems for given numerical expressions.<br>5 M1 Lesson 19: Solve multi-step word problems involving multiplication and division.<br>5 M1 Lesson 20: Solve multi-step word problems involving the four operations.<br>5 M1 Lesson 21: Express a composite number to $50$ as a product of its prime factors.<br>5 M3 Lesson 12: Divide a nonzero whole number by a unit fraction to find the number of groups.<br>5 M3 Lesson 16: Reason about the size of quotients of whole numbers and unit fractions and quotients of unit fractions and whole numbers.<br>5 M3 Lesson 18: Compare and evaluate expressions with parentheses.<br>5 M3 Lesson 22: Evaluate expressions involving nested grouping symbols.<br>5 M4 Lesson 29: Interpret, evaluate, and compare numerical expressions involving decimals.<br>5 M4 Lesson 30: Create and solve real-world problems for given numerical expressions involving decimals. |
| **CC.2.2.5.A.4**<br>Analyze patterns and relationships using two rules. | 5 M6 Lesson 7: Generate number patterns to form ordered pairs.<br>5 M6 Lesson 8: Identify addition and subtraction relationships between corresponding terms in number patterns.<br>5 M6 Lesson 9: Identify multiplication and division relationships between corresponding terms in number patterns.<br>5 M6 Lesson 11: Draw lines in the coordinate plane and identify points on the lines.<br>5 M6 Lesson 20: Reason about patterns in real-world situations. |

## Geometry

**CC.2.3.5.A Geometry**

| Pennsylvania Core Standards Mathematics | Aligned Components of *Eureka Math²* |
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| **CC.2.3.5.A.1**<br>Graph points in the first quadrant on the coordinate plane and interpret these points when solving real-world and mathematical problems. | 5 M6 Lesson 1: Construct a coordinate system on a line.<br>5 M6 Lesson 2: Construct a coordinate system in a plane.<br>5 M6 Lesson 3: Identify and plot points by using ordered points.<br>5 M6 Lesson 4: Describe the distance and direction between points in the coordinate plane.<br>5 M6 Lesson 5: Identify properties of horizontal and vertical lines.<br>5 M6 Lesson 6: Use properties of horizontal and vertical lines to solve problems.<br>5 M6 Lesson 7: Generate number patterns to form ordered pairs.<br>5 M6 Lesson 8: Identify addition and subtraction relationships between corresponding terms in number patterns.<br>5 M6 Lesson 9: Identify multiplication and division relationships between corresponding terms in number patterns.<br>5 M6 Lesson 11: Draw lines in the coordinate plane and identify points on the lines.<br>5 M6 Lesson 12: Graph and classify quadrilaterals in the coordinate plane.<br>5 M6 Lesson 13: Draw symmetric figures in the coordinate plane.<br>5 M6 Lesson 14: Solve mathematical problems with rectangles in the coordinate plane.<br>5 M6 Lesson 15: Use the coordinate plane to reason about perimeters and areas of rectangles.<br>5 M6 Lesson 16: Interpret graphs that represent real-world situations.<br>5 M6 Lesson 17: Plot data in the coordinate plane and analyze relationships.<br>5 M6 Lesson 18: Interpret line graphs.<br>5 M6 Lesson 20: Reason about patterns in real-world situations. |

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| **CC.2.3.5.A.2**<br>Classify two-dimensional figures into categories based on an understanding of their properties. | 5 M5 Lesson 1: Analyze hierarchies and identify properties of quadrilaterals.<br>5 M5 Lesson 2: Classify trapezoids based on their properties.<br>5 M5 Lesson 3: Classify parallelograms based on their properties.<br>5 M5 Lesson 4: Classify rectangles and rhombuses based on their properties.<br>5 M5 Lesson 5: Classify kites and squares based on their properties.<br>5 M5 Lesson 6: Identify quadrilaterals from given properties.<br>5 M5 Lesson 7: Classify quadrilaterals in a hierarchy based on properties.<br>5 M6 Lesson 12: Graph and classify quadrilaterals in the coordinate plane. |

## Measurement, Data, and Probability

**CC.2.4.5.A Measurement and Data**

| Pennsylvania Core Standards Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **CC.2.4.5.A.1**<br>Solve problems using conversions within a given measurement system. | 5 M1 Lesson 5: Convert measurements and describe relationships between metric units.<br>5 M1 Lesson 6: Solve multi-step word problems by using metric measurement conversion.<br>5 M3 Lesson 5: Convert larger customary measurement units to smaller measurement units.<br>5 M3 Lesson 6: Convert smaller customary measurement units to larger measurement units.<br>5 M4 Lesson 26: Solve a real-world problem involving metric measurements.<br>5 M4 Lesson 27: Convert metric measurements involving decimals.<br>5 M4 Lesson 28: Convert customary measurements involving decimals. |
| **CC.2.4.5.A.2**<br>Represent and interpret data using appropriate scale. | 5 M2 Lesson 15: Represent data on a line plot.<br>5 M2 Lesson 16: Solve problems by using data from a line plot.<br>5 M2 Lesson 17: Solve problems by equally redistributing a total amount. |

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| **CC.2.4.5.A.4**<br>Solve problems involving computation of fractions using information provided in a line plot. | 5 M2 Lesson 15: Represent data on a line plot.<br>5 M2 Lesson 16: Solve problems by using data from a line plot.<br>5 M2 Lesson 17: Solve problems by equally redistributing a total amount. |
| **CC.2.4.5.A.5**<br>Apply concepts of volume to solve problems and relate volume to multiplication and to addition. | 5 M5 Lesson 16: Identify attributes and properties of right rectangular prisms.<br>5 M5 Lesson 17: Find the volume of right rectangular prisms by packing with unit cubes and counting.<br>5 M5 Lesson 18: Find the volume of right rectangular prisms by packing with improvised units.<br>5 M5 Lesson 19: Compose and decompose right rectangular prisms to find their volume by using layers.<br>5 M5 Lesson 20: Interpret volume as filling.<br>5 M5 Lesson 21: Relate volumes of solids and liquid volume.<br>5 M5 Lesson 22: Find the volumes of right rectangular prisms by using the area of the base.<br>5 M5 Lesson 23: Find the volumes of right rectangular prisms by multiplying the edge lengths.<br>5 M5 Lesson 24: Solve word problems involving volumes of right rectangular prisms.<br>5 M5 Lesson 25: Find the volumes of solid figures composed of right rectangular prisms.<br>5 M5 Lesson 26: Solve word problems involving perimeter, area, and volume.<br>5 M5 Lesson 27: Apply concepts and formulas of volume to design a sculpture by using right rectangular prisms, part 1.<br>5 M5 Lesson 28: Apply concepts and formulas of volume to design a sculpture by using right rectangular prisms, part 2. |