
Grade 5 | Indiana Academic Standards for 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.

Process Standards for Mathematics

Aligned Components of *Eureka Math*²

PS.1: Make sense of problems and persevere in solving them.

Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway, rather than simply jumping into a solution attempt. They consider analogous problems and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” and “Is my answer reasonable?” They understand the approaches of others to solving complex problems and identify correspondences between different approaches. Mathematically proficient students understand how mathematical ideas interconnect and build on one another to produce a coherent whole.

While lessons in every module engage students in making sense of problems and persevering in solving them, this mathematical practice is specifically addressed in the following modules:

5 M4: Place Value Concepts for Decimal Operations

5 M5: Addition and Multiplication with Area and Volume

PS.2: Reason abstractly and quantitatively.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.

While lessons in every module engage students in reasoning abstractly and quantitatively, this mathematical practice is specifically addressed in the following modules:

5 M1: Place Value Concepts for Multiplication and Division with Whole Numbers

5 M5: Addition and Multiplication with Area and Volume

Process Standards for Mathematics**Aligned Components of *Eureka Math*²****PS.3: Construct viable arguments and critique the reasoning of others.**

Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They analyze situations by breaking them into cases and recognize and use counterexamples. They organize their mathematical thinking, justify their conclusions and communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. They justify whether a given statement is true always, sometimes, or never. Mathematically proficient students participate and collaborate in a mathematics community. They listen to or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

While lessons in every module engage students in constructing viable arguments and critiquing the reasoning of others, this mathematical practice is specifically addressed in the following modules:

5 M3: Multiplication and Division with Fractions

5 M6: Foundations to Geometry in the Coordinate Plane

Process Standards for Mathematics

Aligned Components of *Eureka Math*²

<p>PS.4: Model with mathematics.</p> <p>Mathematically proficient students apply the mathematics they know to solve problems arising in everyday life, society, and the workplace using a variety of appropriate strategies. They create and use a variety of representations to solve problems and to organize and communicate mathematical ideas. Mathematically proficient students apply what they know and are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.</p>	<p>While lessons in every module engage students in modeling with mathematics, this mathematical practice is specifically addressed in the following modules:</p> <p>5 M3: Multiplication and Division with Fractions</p>
<p>PS.5: Use appropriate tools strategically.</p> <p>Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Mathematically proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. Mathematically proficient students identify relevant external mathematical resources, such as digital content, and use them to pose or solve problems. They use technological tools to explore and deepen their understanding of concepts and to support the development of learning mathematics. They use technology to contribute to concept development, simulation, representation, reasoning, communication and problem solving.</p>	<p>While lessons in every module engage students in using appropriate tools strategically, this mathematical practice is specifically addressed in the following modules:</p> <p>5 M2: Addition and Subtraction with Fractions</p> <p>5 M4: Place Value Concepts for Decimal Operations</p> <p>5 M6: Foundations to Geometry in the Coordinate Plane</p>

Process Standards for Mathematics

Aligned Components of *Eureka Math*²

<p>PS.6: Attend to precision.</p> <p>Mathematically proficient students communicate precisely to others. They use clear definitions, including correct mathematical language, in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They express solutions clearly and logically by using the appropriate mathematical terms and notation. They specify units of measure and label axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently and check the validity of their results in the context of the problem. They express numerical answers with a degree of precision appropriate for the problem context.</p>	<p>While lessons in every module engage students in attending to precision, this mathematical practice is specifically addressed in the following modules:</p> <ul style="list-style-type: none"> 5 M1: Place Value Concepts for Multiplication and Division with Whole Numbers 5 M3: Multiplication and Division with Fractions 5 M4: Place Value Concepts for Decimal Operations
<p>PS.7: Look for and make use of structure.</p> <p>Mathematically proficient students look closely to discern a pattern or structure. They step back for an overview and shift perspective. They recognize and use properties of operations and equality. They organize and classify geometric shapes based on their attributes. They see expressions, equations, and geometric figures as single objects or as being composed of several objects.</p>	<p>While lessons in every module engage students in looking for and making use of structure, this mathematical practice is specifically addressed in the following modules:</p> <ul style="list-style-type: none"> 5 M2: Addition and Subtraction with Fractions 5 M4: Place Value Concepts for Decimal Operations 5 M6: Foundations to Geometry in the Coordinate Plane
<p>PS.8: Look for and express regularity in repeated reasoning.</p> <p>Mathematically proficient students notice if calculations are repeated and look for general methods and shortcuts. They notice regularity in mathematical problems and their work to create a rule or formula. Mathematically proficient students maintain oversight of the process, while attending to the details as they solve a problem. They continually evaluate the reasonableness of their intermediate results.</p>	<p>While lessons in every module engage students in looking for and expressing regularity in repeated reasoning, this mathematical practice is specifically addressed in the following modules:</p> <ul style="list-style-type: none"> 5 M4: Place Value Concepts for Decimal Operations 5 M6: Foundations to Geometry in the Coordinate Plane

Strands	Indiana Academic Standards for Mathematics	Aligned Components of <i>Eureka Math</i> ²
Number Sense	<p>5.NS.1</p> <p>Use a number line to compare and order fractions, mixed numbers, and decimals to thousandths. Write the results using $>$, $=$, and $<$ symbols.</p>	<p>4 M4 Lesson 14: Compare fractions with related denominators.</p> <p>4 M4 Lesson 15: Compare fractions with related numerators.</p> <p>4 M4 Lesson 17: Apply fraction comparison strategies to compare fractions greater than 1.</p> <p>5 M4 Lesson 6: Compare decimal numbers to the thousandths place.</p>
	<p>5.NS.2</p> <p>Explain different interpretations of fractions, including: as parts of a whole, parts of a set, and division of whole numbers by whole numbers.</p>	<p>5 M2 Topic A: Fractions and Division</p> <p>5 M3 Topic A: Multiplication of a Whole Number by a Fraction</p>
	<p>5.NS.3</p> <p>Recognize the relationship 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 inversely, a digit in one place represents $\frac{1}{10}$ of what it represents in the place to its left.</p>	<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 M4 Topic A: Understanding Decimal Numbers with Place Value and Fraction Thinking</p>
	<p>5.NS.4</p> <p>Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and 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.</p>	<p>5 M1 Topic A: Place Value Understanding for Whole Numbers</p>
	<p>5.NS.5</p> <p>Use place value understanding to round decimal numbers up to thousandths to any given place value.</p>	<p>5 M4 Lesson 7: Round decimal numbers to the nearest one, tenth, or hundredth.</p> <p>5 M4 Lesson 8: Round decimal numbers to any place value unit.</p>

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	<p>5.NS.6</p> <p>Understand, interpret, and model percents as part of a hundred (e.g., by using pictures, diagrams, and other visual models).</p>	<p>6 M1 Lesson 22: Introduction to Percents</p> <p>6 M1 Lesson 23: Finding the Percent</p>
<p>Computation</p>	<p>5.C.1</p> <p>Multiply multi-digit whole numbers fluently using a standard algorithmic approach.</p>	<p>5 M1 Topic B: Multiplication of Whole Numbers</p>
	<p>5.C.2</p> <p>Find whole-number quotients and remainders with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Describe the strategy and explain the reasoning used.</p>	<p>5 M1 Topic C: Division of Whole Numbers</p>
	<p>5.C.3</p> <p>Compare 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.</p>	<p>5 M3 Lesson 3: Multiply a whole number by a fraction less than 1.</p> <p>5 M3 Lesson 4: Multiply a whole number by a fraction.</p> <p>5 M3 Topic B: Multiplication of Fractions</p>
	<p>5.C.4</p> <p>Add and subtract fractions with unlike denominators, including mixed numbers.</p>	<p>5 M2 Topic B: Addition and Subtraction of Fractions by Making Like Units</p> <p>5 M2 Topic C: Addition and Subtraction of Fractions, Whole Numbers, and Mixed Numbers</p>

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	<p>5.C.5</p> <p>Use visual fraction models and numbers to multiply a fraction by a fraction or a whole number.</p>	<p>4 M4 Topic F: Repeated Addition of Fractions as Multiplication</p> <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 19: Create and solve one-step word problems involving fractions.</p>
	<p>5.C.6</p> <p>Explain why multiplying a positive number by a fraction greater than one results in a product greater than the given number. Explain why multiplying a positive number by a fraction less than 1 results in a product smaller than the given number. Relate the principle of fraction equivalence, $\frac{a}{b} = \frac{n \times a}{n \times b}$, to the effect of multiplying $\frac{a}{b}$ by one.</p>	<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 M5 Lesson 9: Organize, count, and represent a collection of square tiles.</p> <p>5 M5 Lesson 10: Find the area of a rectangle with fraction side lengths by relating the rectangle to a unit square.</p>
	<p>5.C.7</p> <p>Use visual fraction models and numbers to divide a unit fraction by a non-zero whole number and to divide a whole number by a unit fraction.</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.C.8</p> <p>Add, subtract, multiply, and divide decimals to hundredths, using models or drawings and strategies based on place value or the properties of operations. Describe the strategy and explain the reasoning.</p>	<p>5 M4: Place Value Concepts for Decimal Operations</p>

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	<p>5.C.9</p> <p>Evaluate expressions with parentheses or brackets involving whole numbers using the commutative properties of addition and multiplication, associative properties of addition and multiplication, and distributive property.</p>	<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 M5 Lesson 23: Find the volumes of right rectangular prisms by multiplying the edge lengths.</p> <p>5 M5 Lesson 24: Solve word problems involving volumes of right rectangular prisms.</p>
<p>Algebraic Thinking</p>	<p>5.AT.1</p> <p>Solve real-world problems involving multiplication and division of whole numbers (e.g. by using equations to represent the problem). In division problems that involve a remainder, explain how the remainder affects the solution to the problem.</p>	<p>4 M3 Topic F: Remainders, Estimating, and Problem Solving</p> <p>5 M1 Lesson 6: Solve multi-step word problems by using metric measurement conversion.</p> <p>5 M1 Lesson 19: Solve multi-step word problems involving multiplication and division.</p> <p>5 M1 Lesson 20: Solve multi-step word problems involving the four operations.</p>
	<p>5.AT.2</p> <p>Solve real-world problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators (e.g., by using visual fraction models and equations to represent the problem). Use benchmark fractions and number sense of fractions to estimate mentally and assess whether the answer is reasonable.</p>	<p>5 M2 Lesson 11: Add mixed numbers with unrelated units.</p> <p>5 M2 Lesson 14: Subtract mixed numbers from mixed numbers with unrelated units.</p>

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	<p>5.AT.3</p> <p>Solve real-world problems involving multiplication of fractions, including mixed numbers (e.g., by using visual fraction models and equations to represent the problem).</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 Lesson 14: Solve real-world problems involving areas of composite figures with mixed-number side lengths.</p> <p>5 M5 Lesson 15: Solve multi-step word problems involving multiplication of mixed numbers.</p>
	<p>5.AT.4</p> <p>Solve real-world problems involving division of unit fractions by non-zero whole numbers, and division of whole numbers by unit fractions (e.g., by using visual fraction 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 Topic D: Multi-Step Problems with Fractions</p>

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	<p>5.AT.5</p> <p>Solve real-world problems involving addition, subtraction, multiplication, and division with decimals to hundredths, including problems that involve money in decimal notation (e.g. by using equations, models or drawings and strategies based on place value or properties of operations to represent the problem).</p>	<p>5 M4 Lesson 12: Subtract decimal numbers by using place value understanding.</p> <p>5 M4 Lesson 13: Solve word problems involving addition and subtraction of decimal numbers and fractions.</p> <p>5 M4 Lesson 19: Multiply a decimal number by a decimal number.</p> <p>5 M4 Lesson 22: Divide decimal numbers to hundredths by two-digit whole numbers.</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 26: Solve a real-world problem involving metric measurements.</p> <p><i>Supplemental material is necessary to address word problems involving money.</i></p>
	<p>5.AT.6</p> <p>Graph points with whole number coordinates on a coordinate plane. Explain how the coordinates relate the point as the distance from the origin on each 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).</p>	<p>5 M6 Topic A: Coordinate Systems</p>
	<p>5.AT.7</p> <p>Represent real-world problems and equations by graphing ordered pairs in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.</p>	<p>5 M6: Foundations to Geometry in the Coordinate Plane</p>

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	<p>5.AT.8 Define and use up to two variables to write linear expressions that arise from real-world problems, and evaluate them for given values.</p>	<p>6 M4 Topic B: Expressions and Real-World Problems 6 M4 Lesson 17: Equations and Solutions</p>
<p>Geometry</p>	<p>5.G.1 Identify, describe, and draw triangles (right, acute, obtuse) and circles using appropriate tools (e.g., ruler or straightedge, compass and technology). Understand the relationship between radius and diameter.</p>	<p>4 M6 Lesson 18: Analyze and classify triangles based on side length, angle measures, or both. 4 M6 Lesson 19: Construct and classify triangles based on given attributes. 7 M4 Lesson 9: Constructing a Circle</p>
	<p>5.G.2 Identify and classify polygons including quadrilaterals, pentagons, hexagons, and triangles (equilateral, isosceles, scalene, right, acute and obtuse) based on angle measures and sides. Classify polygons in a hierarchy based on properties.</p>	<p>4 M6 Lesson 18: Analyze and classify triangles based on side length, angle measures, or both. 4 M6 Lesson 19: Construct and classify triangles based on given attributes. 4 M6 Lesson 20: Sort polygons based on a given rule. 5 M5 Topic A: Drawing, Analysis, and Classification of Two-Dimensional Figures 5 M6 Lesson 12: Graph and classify quadrilaterals in the coordinate plane.</p>

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Measurement	<p>5.M.1</p> <p>Convert among different-sized standard measurement units within a given measurement system and use these conversions in solving multi-step real-world problems.</p>	5 M5 Topic B: Areas of Rectangular Figures with Fraction Side Lengths
	<p>5.M.2</p> <p>Find the area of a rectangle with fractional side lengths by modeling with unit squares of the appropriate unit fraction side lengths and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles and represent fraction products as rectangular areas.</p>	5 M5 Topic B: Areas of Rectangular Figures with Fraction Side Lengths
	<p>5.M.3</p> <p>Develop and use formulas for the area of triangles, parallelograms and trapezoids. Solve real-world and other mathematical problems that involve perimeter and area of triangles, parallelograms and trapezoids, using appropriate units for measures.</p>	6 M5 Topic A: Areas of Polygons 6 M5 Topic B: Problem Solving with Area
	<p>5.M.4</p> <p>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 or multiplying the height by the area of the base.</p>	5 M5 Topic C: Volume Concepts 5 M5 Lesson 22: Find the volumes of right rectangular prisms by using the area of the base. 5 M5 Lesson 23: Find the volumes of right rectangular prisms by multiplying the edge lengths.

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	<p>5.M.5</p> <p>Apply the formulas $V = l \times w \times h$ and $V = B \times h$ for right rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve real-world problems and other mathematical problems.</p>	<p>5 M5 Topic D: Volume and the Operations of Multiplication and Addition</p>
	<p>5.M.6</p> <p>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 and other mathematical problems.</p>	<p>5 M5 Topic D: Volume and the Operations of Multiplication and Addition</p>
<p>Data Analysis</p>	<p>5.DS.1</p> <p>Formulate questions that can be addressed with data and make predictions about the data. Use observations, surveys, and experiments to collect, represent, and interpret the data using tables (including frequency tables), line plots, bar graphs, and line graphs. Recognize the differences in representing categorical and numerical data.</p>	<p>5 M2 Topic D: Problem Solving and Line Plots with Fractional Measurements</p> <p>5 M6 Lesson 18: Interpret line graphs.</p> <p><i>Supplemental material is needed to fully address collection of data.</i></p>
	<p>5.DS.2</p> <p>Understand and use measures of center (mean and median) and frequency (mode), to describe a data set.</p>	<p>6 M6 Lesson 7: Using the Mean to Describe the Center</p> <p>6 M6 Lesson 8: The Mean as a Balance Point</p> <p>6 M6 Lesson 12: Using the Median to Describe the Center</p> <p><i>Supplemental material is needed to address mode.</i></p>