Grade 5 | Tennessee Academic Standards for Mathematics Correlation to *Eureka Math²® Tennessee Edition*

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 Math²® Tennessee Edition*, 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 Math² Tennessee Edition* 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 Math² Tennessee Edition 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 Math² Tennessee Edition 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 Math² Tennessee Edition* 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 Math² Tennessee Edition* 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
MP.1 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 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 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 Model with mathematics.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.5 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 Attend to precision.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.7 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 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.

Operations and Algebraic Thinking
5.OA.A Write and interpret numerical expressions.

Tennessee Academic Standards for Mathematics	Aligned Components
5.OA.A.1 Use parentheses and/or brackets in numerical expressions involving whole numbers and evaluate expressions having these symbols using the conventional order by applying the Order of Operations.	5 M1 Lesson 7: Multiply by using familiar methods. 5 M1 Lesson 8: Multiply two- and three-digit numbers by two-digit numbers by using the distributive property. 5 M1 Topic D: Multi-Step Problems with Whole Numbers
5.OA.A.2 Write numerical expressions that record calculations with numbers and interpret numerical expressions without evaluating them.	5 M1 Topic D: Multi-Step Problems with Whole Numbers

Operations and Algebraic Thinking
5.OA.B Analyze patterns and relationships.

Tennessee Academic Standards for Mathematics	Aligned Components
5.OA.B.3 Generate two numerical patterns using two given rules.	5 M6 Lesson 7: Generate number patterns to form ordered pairs. 5 M6 Lesson 8: Identify addition and subtraction relationships between corresponding terms in number patterns. 5 M6 Lesson 9: Identify multiplication and division relationships between corresponding terms in number patterns. 5 M6 Lesson 11: Draw lines in the coordinate plane and identify points on the lines. 5 M6 Lesson 20: Reason about patterns in real-world situations.

Tennessee Academic Standards for Mathematics	Aligned Components
5.OA.B.3.a Identify relationships between corresponding terms in two numerical patterns.	*Supplemental material is necessary to address this standard.*
5.OA.B.3.b Form ordered pairs (limited to first quadrant) consisting of corresponding terms from two numerical patterns and graph the ordered pairs on a coordinate plane.	*Supplemental material is necessary to address this standard.*

Number and Operations in Base Ten

5.NBT.A Understand the place value system.

Tennessee Academic Standards for Mathematics	Aligned Components
5.NBT.A.1 Recognize 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.	5 M1 Lesson 1: Relate adjacent place value units by using place value understanding. 5 M1 Lesson 2: Multiply and divide by 10, 100, and 1,000 and identify patterns in the products and quotients. 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 4: Relate the values of digits in a decimal number by using place value understanding.

Tennessee Academic Standards for Mathematics	Aligned Components
5.NBT.A.2 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.	5 M1 Lesson 2: Multiply and divide by 10, 100, and 1,000 and identify patterns in the products and quotients. 5 M1 Lesson 3: Use exponents to multiply and divide by powers of 10. 5 M1 Lesson 4: Estimate products and quotients by using powers of 10 and their multiples. 5 M4 Lesson 5: Multiply and divide decimal numbers by powers of 10.
5.NBT.A.3 Read and write decimals to thousandths using standard form, word form, and expanded notation (e.g., the expanded notation of 347.392 is written as $(3 \times 100) + (4 \times 10) + (7 \times 1) + (3 \times (\frac{1}{10})) + (9 \times (\frac{1}{100})) + (2 \times (\frac{1}{1,000})))$. Compare two decimals to thousandths based on meanings of the digits in each place and use the symbols $>$, $=$, and $<$ to show the relationship.	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.
5.NBT.A.4 Round decimals to the nearest hundredth, tenth, or whole number using understanding of place value, and use a number line to explain how the number was rounded.	5 M4 Lesson 7: Round decimal numbers to the nearest one, tenth, or hundredth. 5 M4 Lesson 8: Round decimal numbers to any place value unit.

Number and Operations in Base Ten
5.NBT.B Perform operations with multi-digit whole numbers and with decimals to hundredths.

Tennessee Academic Standards for Mathematics	Aligned Components
5.NBT.B.5 Fluently multiply multi-digit whole numbers (up to three-digit by four-digit factors) using efficient strategies and algorithms.	5 M1 Topic B: Multiplication of Whole Numbers
5.NBT.B.6 Find whole-number quotients and remainders of whole numbers 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. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.	5 M1 Topic C: Division of Whole Numbers
5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between operations. Assess the reasonableness of answers using estimation strategies.	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
5.NF.A Use equivalent fractions as a strategy to add and subtract fractions.

Tennessee Academic Standards for Mathematics	Aligned Components
5.NF.A.1 Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators.	5 M2 Lesson 7: Add and subtract fractions with related units by finding equivalent fractions numerically. 5 M2 Lesson 8: Add and subtract fractions with unrelated units by finding equivalent fractions pictorially. 5 M2 Lesson 9: Add and subtract fractions with unrelated units by finding equivalent fractions numerically. 5 M2 Topic C: Addition and Subtraction of Fractions, Whole Numbers, and Mixed Numbers
5.NF.A.2 Solve contextual problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers.	5 M2 Topic C: Addition and Subtraction of Fractions, Whole Numbers, and Mixed Numbers 5 M2 Lesson 17: Solve problems by equally redistributing a total amount.

Number and Operations—Fractions

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

Tennessee Academic Standards for Mathematics	Aligned Components
5.NF.B.3 Interpret a fraction as division of the numerator by the denominator $\left(\frac{a}{b} = a \div b\right)$. For example, $\frac{3}{4} = 3 \div 4$ so when 3 wholes are shared equally among 4 people, each person has a share of size $\frac{3}{4}$. Solve contextual problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers by using visual fraction models or equations to represent the problem.	5 M2 Topic A: Fractions and Division
5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction by a whole number or a fraction by a fraction.	5 M3 Lesson 3: Multiply a fraction less than 1 by a whole number. 5 M3 Lesson 8: Multiply unit fractions by fractions by making simpler problems. 5 M3 Lesson 9: Multiply fractions greater than 1 by fractions. 5 M5 Lesson 12: Multiply mixed numbers.
5.NF.B.4.a Interpret the product $\frac{a}{b} \times q$ as $a \times (q \div b)$ (partition the quantity q into b equal parts and then multiply by a). Interpret the product $\frac{a}{b} \times q$ as $(a \times q) \div b$ (multiply a times the quantity q and then partition the product into b equal parts).	5 M3 Topic A: Multiplication of a Whole Number by a Fraction 5 M3 Lesson 6: Multiply unit fractions by fractions less than 1 pictorially. 5 M3 Lesson 7: Multiply fractions less than 1 pictorially. 5 M3 Lesson 10: Multiply fractions.

Tennessee Academic Standards for Mathematics	Aligned Components
5.NF.B.4.b Find the area of a rectangle with fractional side lengths by tiling it 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.	5 M5 Lesson 8: Find areas of square tiles with fraction side lengths by relating the tile to a unit square. 5 M5 Lesson 9: Organize, count, and represent a collection of square tiles. 5 M5 Lesson 10: Find the area of a rectangle with fraction side lengths by relating the rectangle to a unit square. 5 M5 Lesson 11: Find areas of rectangles with fraction side lengths by using multiplication. 5 M5 Lesson 12: Multiply mixed numbers. 5 M5 Lesson 13: Solve mathematical problems involving areas of composite figures with mixed-number side lengths. 5 M5 Lesson 14: Solve real-world problems involving areas of composite figures with mixed-number side lengths. 5 M6 Lesson 15: Use the coordinate plane to reason about perimeters and areas of rectangles.
5.NF.B.5 Interpret multiplication as scaling (resizing).	*Supplemental material is necessary to address this standard.*
5.NF.B.5.a 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.	5 M3 Lesson 3: Multiply a fraction less than 1 by a whole number. 5 M3 Lesson 4: Multiply a fraction by a whole number. 5 M3 Topic B: Multiplication of Fractions

Tennessee Academic Standards for Mathematics	Aligned Components
5.NF.B.5.b Explain why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explain why multiplying a given number by a fraction between 0 and 1 results in a product less than the given number; and relate the principle of fraction equivalence $\frac{a}{b} = \left(\frac{a \times n}{b \times n}\right)$ to the effect of multiplying $\frac{a}{b}$ by 1.	5 M3 Lesson 1: Find fractions of a set with arrays. 5 M3 Lesson 2: Interpret fractions as division to find fractions of a set with tape diagrams and number lines. 5 M3 Lesson 4: Multiply a fraction by a whole number. 5 M3 Lesson 5: Convert larger customary measurement units to smaller measurement units. 5 M3 Topic B: Multiplication of Fractions
5.NF.B.6 Solve real-world problems involving multiplication of fractions and mixed numbers by using visual fraction models or equations to represent the problem.	5 M3 Lesson 17: Solve word problems involving fractions with multiplication and division. 5 M3 Lesson 19: Solve multi-step word problems involving fractions. 5 M5 Lesson 14: Solve real-world problems involving areas of composite figures with mixed-number side lengths. 5 M5 Lesson 15: Solve multi-step word problems involving multiplication of mixed numbers.
5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.	*Supplemental material is necessary to address this standard.*

Tennessee Academic Standards for Mathematics	Aligned Components
5.NF.B.7.a Interpret division of a unit fraction by a non-zero whole number and compute such quotients.	5 M3 Lesson 13: Divide a unit fraction by a nonzero whole number. 5 M3 Lesson 14: Divide by whole numbers and unit fractions. 5 M3 Lesson 15: Reason about the size of quotients of whole numbers and unit fractions and quotients of unit fractions and whole numbers. 5 M3 Lesson 18: Create and solve one-step word problems involving fractions.
5.NF.B.7.b Interpret division of a whole number by a unit fraction and compute such quotients.	5 M3 Lesson 11: Divide a nonzero whole number by a unit fraction to find the number of groups. 5 M3 Lesson 12: Divide a nonzero whole number by a unit fraction to find the size of the group. 5 M3 Lesson 14: Divide by whole numbers and unit fractions. 5 M3 Lesson 15: Reason about the size of quotients of whole numbers and unit fractions and quotients of unit fractions and whole numbers. 5 M3 Lesson 18: Create and solve one-step word problems involving fractions.
5.NF.B.7.c Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions and non-unit fractions by using visual fraction models and equations to represent the problem.	5 M3 Lesson 11: Divide a nonzero whole number by a unit fraction to find the number of groups. 5 M3 Lesson 12: Divide a nonzero whole number by a unit fraction to find the size of the group. 5 M3 Lesson 13: Divide a unit fraction by a nonzero whole number. 5 M3 Lesson 14: Divide by whole numbers and unit fractions. 5 M3 Lesson 16: Divide whole numbers by non-unit fractions. 5 M3 Lesson 17: Solve word problems involving fractions with multiplication and division. 5 M3 Lesson 18: Create and solve one-step word problems involving fractions. 5 M3 Lesson 19: Solve multi-step word problems involving fractions.

Measurement and Data

5.MD.A Convert like measurement units within a given measurement system from a larger unit to a smaller unit.

Tennessee Academic Standards for Mathematics	Aligned Components
5.MD.A.1 Convert customary and metric measurement units within a single system by expressing measurements of a larger unit in terms of a smaller unit. Use these conversions to solve multi-step real-world problems involving distances, intervals of time, liquid volumes, masses of objects, and money (including problems involving simple fractions or decimals).	5 M1 Lesson 5: Convert measurements and describe relationships between metric units. 5 M1 Lesson 6: Solve multi-step word problems by using metric measurement conversion. 5 M3 Lesson 5: Convert larger customary measurement units to smaller measurement units. 5 M4 Topic E: Applications of Decimals

Measurement and Data

5.MD.B Represent and interpret data.

Tennessee Academic Standards for Mathematics	Aligned Components
5.MD.B.2 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}, \frac{1}{4}, \frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots.	5 M2 Topic D: Problem Solving and Line Plots with Fractional Measurements

Measurement and Data

5.MD.C Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.

Tennessee Academic Standards for Mathematics	Aligned Components
5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement.	5 M5 Lesson 16: Identify attributes and properties of right rectangular prisms. 5 M5 Lesson 17: Find the volume of right rectangular prisms by packing with unit cubes and counting. 5 M5 Lesson 19: Compose and decompose right rectangular prisms to find their volume by using layers. 5 M5 Lesson 20: Interpret volume as filling. 5 M5 Lesson 21: Relate volumes of solids and liquid volume.
5.MD.C.3.a Understand that a cube with side length 1 unit, called a "unit cube," is said to have "one cubic unit" of volume and can be used to measure volume.	5 M5 Lesson 16: Identify attributes and properties of right rectangular prisms. 5 M5 Lesson 17: Find the volume of right rectangular prisms by packing with unit cubes and counting. 5 M5 Lesson 19: Compose and decompose right rectangular prisms to find their volume by using layers. 5 M5 Lesson 20: Interpret volume as filling. 5 M5 Lesson 21: Relate volumes of solids and liquid volume.
5.MD.C.3.b Understand that a solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units.	5 M5 Lesson 16: Identify attributes and properties of right rectangular prisms. 5 M5 Lesson 17: Find the volume of right rectangular prisms by packing with unit cubes and counting. 5 M5 Lesson 19: Compose and decompose right rectangular prisms to find their volume by using layers. 5 M5 Lesson 20: Interpret volume as filling. 5 M5 Lesson 21: Relate volumes of solids and liquid volume.

Tennessee Academic Standards for Mathematics	Aligned Components
5.MD.C.4 Measure volume by counting unit cubes, using cubic centimeters, cubic inches, cubic feet, and improvised units.	5 M5 Lesson 17: Find the volume of right rectangular prisms by packing with unit cubes and counting. 5 M5 Lesson 18: Find the volume of right rectangular prisms by packing with improvised units. 5 M5 Lesson 19: Compose and decompose right rectangular prisms to find their volume by using layers. 5 M5 Lesson 21: Relate volumes of solids and liquid volume.
5.MD.C.5 Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume of right rectangular prisms.	5 M5 Lesson 22: Find the volumes of right rectangular prisms by using the area of the base. 5 M5 Lesson 24: Solve word problems involving volumes of right rectangular prisms.
5.MD.C.5.a 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, equivalently by multiplying the height by the area of the base. Represent whole-number products of three factors as volumes (e.g., to represent the associative property of multiplication).	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.

Tennessee Academic Standards for Mathematics	Aligned Components
5.MD.C.5.b Know and apply the formulas $V = l \times w \times h$ and $V = B \times h$ (where B represents the area of the base) for rectangular prisms with whole number edge lengths in the context of solving real-world and mathematical problems.	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. 5 M5 Lesson 25: Find the volumes of solid figures composed of right rectangular prisms. 5 M5 Lesson 26: Solve word problems involving perimeter, area, and volume. 5 M5 Lesson 27: Apply concepts and formulas of volume to design a sculpture by using right rectangular prisms, part 1. 5 M5 Lesson 28: Apply concepts and formulas of volume to design a sculpture by using right rectangular prisms, part 2.
5.MD.C.5.c Recognize volume as additive. 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.	5 M5 Lesson 24: Solve word problems involving volumes of right rectangular prisms. 5 M5 Lesson 25: Find the volumes of solid figures composed of right rectangular prisms. 5 M5 Lesson 26: Solve word problems involving perimeter, area, and volume. 5 M5 Lesson 27: Apply concepts and formulas of volume to design a sculpture by using right rectangular prisms, part 1. 5 M5 Lesson 28: Apply concepts and formulas of volume to design a sculpture by using right rectangular prisms, part 2.

Geometry
5.G.A Graph points on the coordinate plane to solve real-world and mathematical problems.

Tennessee Academic Standards for Mathematics	Aligned Components
5.G.A.1 Graph ordered pairs and label points using the first quadrant of the coordinate plane. Understand in the ordered pair that the first number indicates the horizontal distance traveled along the x-axis from the origin and the second number indicates the vertical distance traveled along the y-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).	5 M6 Lesson 1: Construct a coordinate system on a line. 5 M6 Lesson 2: Construct a coordinate system in a plane. 5 M6 Lesson 3: Identify and plot points by using ordered pairs.
5.G.A.2 Represent real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation.	5 M6 Lesson 4: Describe the distance and direction between points in the coordinate plane. 5 M6 Lesson 5: Identify properties of horizontal and vertical lines. 5 M6 Lesson 6: Use properties of horizontal and vertical lines to solve problems. 5 M6 Lesson 7: Generate number patterns to form ordered pairs. 5 M6 Lesson 8: Identify addition and subtraction relationships between corresponding terms in number patterns. 5 M6 Lesson 9: Identify multiplication and division relationships between corresponding terms in number patterns. 5 M6 Topic C: Solve Mathematical Problems in the Coordinate Plane 5 M6 Lesson 16: Interpret graphs that represent real-world situations. 5 M6 Lesson 17: Plot data in the coordinate plane and analyze relationships. 5 M6 Lesson 18: Interpret line graphs. 5 M6 Lesson 20: Reason about patterns in real-world situations.

Geometry
5.G.B Classify two-dimensional figures into categories based on their properties.

Tennessee Academic Standards for Mathematics	Aligned Components
5.G.B.3 Classify two-dimensional figures in a hierarchy based on properties. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	5 M5 Topic A: Drawing, Analysis, and Classification of Two-Dimensional Figures 5 M6 Lesson 12: Graph and classify quadrilaterals in the coordinate plane.