

## Grade 4 | Minnesota K–12 Academic Standards in Mathematics Correlation to *Eureka Math*<sup>2</sup>®

When the original *Eureka Math*<sup>®</sup> curriculum was released, it quickly became the most widely used K–5 mathematics curriculum in the country. Now, the Great Minds<sup>®</sup> teacher–writers have created *Eureka Math*<sup>2</sup>®, 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*<sup>2</sup> 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*<sup>2</sup> 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*<sup>2</sup> 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*<sup>2</sup> 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*<sup>2</sup> add to students’ engagement with the math. The curriculum provides teachers with digital slides for each lesson. In addition, each grade level includes wordless videos that spark students’ interest and curiosity. Students at all levels work through mathematical explorations that help lead to their own mathematical discoveries. Digital lessons and videos provide opportunities for students to wonder, explore, and make sense of mathematics, which contributes to the development of a strong, positive mathematical identity.

Standards for Mathematical Practice	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>MP.1</b> 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.
<b>MP.2</b> Reason abstractly and quantitatively.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
<b>MP.3</b> 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.
<b>MP.4</b> Model with mathematics.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
<b>MP.5</b> Use appropriate tools strategically.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
<b>MP.6</b> Attend to precision.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
<b>MP.7</b> 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.
<b>MP.8</b> 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.

**Data and Probability**

**Data Sciences:** Identify, formulate and investigate statistical questions by collecting data considering cultural perspectives, analyzing and interpreting data and communicating the results.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>4.1.1.1</b>  Notice and describe patterns in data-rich situations or two given related data sets that are descriptive and comparative. Ask meaningful statistical questions that can be answered with data.	<ul style="list-style-type: none"><li>4 Data Talk: The World’s Largest Lakes</li><li>4 Data Talk: State Temperatures Over Time</li><li>4 Data Talk: Greenhouse Gas Emissions</li><li>4 Data Talk: Wind Turbines Over Time</li><li>4 Data Talk: Staying Cool</li><li>4 Data Talk: Oh, Babies!</li><li>4 Data Talk: Missed Field Goals in Basketball</li><li>4 Data Talk: Visiting Our National Memorials</li><li>4 Data Talk: Fastest Roller Coasters</li><li>4 Data Talk: Big Brown Bears</li><li>4 Data Talk: Baby Teeth</li><li>4 Data Talk: Where Do People Work?</li><li>4 Data Talk: My Beating Heart</li><li>4 Data Talk: Seven Summits</li><li>4 Data Investigation: Weather Forecasts</li><li>4 Data Investigation: Ramp Heights</li><li>4 Data Investigation: Local Landmarks</li></ul>

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>4.1.1.2</b> Collect and organize data to answer a statistical question, analyze variability and address missing, incomplete and bias in data. Represent data in a variety of ways, including technology	4 M4 Lesson 30: Represent data on a line plot. <i>All Grade 4 Data Investigations address this standard.</i>
<b>4.1.1.3</b> Make predictions and recognize that how the data was collected impacts the reliability of predictions.	<i>Supplemental material is necessary to address this standard.</i>
<b>4.1.1.4</b> Critically analyze data visualizations, including tables, double bar graphs, timelines, line plots or spreadsheets to support a claim and solve contextual situations.	4 M4 Lesson 29: Solve problems by using data from a line plot. 5 M2 Topic D: Problem Solving and Line Plots with Fractional Measurements <i>All Grade 4 Data Talks address this standard.</i>

**Data and Probability**

**Chance and Uncertainty:** Apply and explain the concepts of probability to interpret data, generate questions, predict and make informed decisions to solve problems and communicate ideas.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>4.1.2.1</b> Classify probability events involving dice, coins, spinners with equal and unequal partitions and blocks in a bag as impossible, certain, likely, unlikely and equally likely.	<i>Supplemental material is necessary to address this standard.</i>
<b>4.1.2.2</b> Use a number line to connect the values of 0 to impossible, $\frac{1}{2}$ to equally likely, and 1 to certain. Approximate locations on the number line where likely and unlikely would occur based on the situation.	<i>Supplemental material is necessary to address this standard.</i>

**Spatial Reasoning**

**Measurement:** Investigate measurement using a variety of tools, units, systems, processes and techniques in various cultures. Explain and reason with attributes, estimations and formulas to communicate measurement(s) and relationships effectively. Justify decisions and consider the reasonableness of the measurement.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>4.2.3.1</b> Classify angles as acute, right and obtuse by estimation, comparison with a right angle and by measurement.	4 M6 Lesson 2: Identify right, acute, obtuse, and straight angles. 4 M6 Lesson 3: Draw right, acute, obtuse, and straight angles. 4 M6 Topic B: Angle Measurement

**Minnesota K–12 Academic Standards in Mathematics**

**Aligned Components of *Eureka Math*<sup>2</sup>**

<p><b>4.2.3.2</b></p> <p>Determine lengths to the nearest sixteenth of an inch when measuring with inches and to the nearest tenth of a centimeter when measuring in centimeters.</p>	<p>4 M6 L17: Recognize, identify, and draw lines of symmetry.</p> <p>4 M6 L18: Analyze and classify triangles based on side length, angle measures, or both.</p> <p>4 M6 L19: Construct and classify triangles based on given attributes.</p> <p><i>Supplemental material is necessary to address measuring to the nearest sixteenth of an inch.</i></p>
<p><b>4.2.3.3</b></p> <p>Measure angles with a protractor.</p>	<p>4 M6 Topic B: Angle Measurement</p>
<p><b>4.2.3.4</b></p> <p>Determine the perimeter and area of two-dimensional figures and label with appropriate units.</p>	<p>4 M2 Lesson 3: Investigate and use a formula for the area of a rectangle.</p> <p>4 M2 Lesson 7: Multiply by using an area model and the distributive property.</p> <p>4 M2 Lesson 18: Investigate and use formulas for the perimeter of a rectangle.</p> <p>4 M2 Lesson 19: Apply area and perimeter formulas to solve problems.</p> <p>4 M2 Lesson 20: Solve word problems involving additive and multiplicative comparisons.</p>
<p><b>4.2.3.5</b></p> <p>Find the areas of geometric figures that can be decomposed into rectangular shapes using tools like dot or grid paper. Label area measurements using square units.</p>	<p>3 M4 Lesson 10: Compose large rectangles and reason about their areas.</p> <p>3 M4 Lesson 11: Decompose to find the total area of a rectangle.</p> <p>3 M4 Lesson 14: Reason to find the area of composite shapes by using grids.</p> <p>3 M4 Lesson 15: Reason to find the area of composite shapes by using rectangles.</p> <p>3 M4 Lesson 17: Apply area concepts to a real-world context.</p> <p>3 M4 Lesson 18: Find the area of shapes and represent area data on a line plot.</p> <p>3 M4 Lesson 19: Apply area concepts to complete a multi-part task.</p> <p>4 M2 Lesson 3: Investigate and use a formula for the area of a rectangle.</p> <p>4 M2 Lesson 7: Multiply by using an area model and the distributive property.</p>

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>4.2.3.6</b> Explain why the area of a rectangle can be calculated by multiplying the length by the width and use the formula $A = l \times w$ to calculate the area of rectangles with whole number side lengths.	4 M2 Lesson 3: Investigate and use a formula for the area of a rectangle. 4 M2 Lesson 7: Multiply by using an area model and the distributive property.
<b>4.2.3.7</b> Make change up to \$20 with place values, using \$ and ¢ symbols appropriately.	4 M5 Lesson 1: Organize, count, and represent a collection of money. 4 M5 Lesson 13: Apply fraction equivalence to add mixed numbers with tenths and hundredths. 2 M5 Topic A: Problem Solving with Coins and Bills 3 M1 Lesson 22: Represent and solve two-step word problems using the properties of multiplication. 3 M6 Lesson 7: Count coins and create money word problems. 3 M6 Lesson 24: Organize, count, and represent a collection of objects.

## Spatial Reasoning

**Geometry:** Analyze characteristics of geometric shapes to make mathematical arguments and justifications about geometric relationships. Use visualization and geometric modeling to compare, solve problems and communicate ideas.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>4.2.4.1</b> Draw points, line segments, rays, lines, angles and perpendicular and parallel lines. Identify these in two-dimensional figures.	4 M6 Topic A: Lines and Angles 4 M6 Lesson 10: Use $180^\circ$ protractors to measure angles. 4 M6 Lesson 11: Estimate and measure angles with a $180^\circ$ protractor. 4 M6 Lesson 12: Use a protractor to draw angles up to $180^\circ$ . 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.
<b>4.2.4.2</b> Create representations of triangles given the relationships among the sides (scalene, isosceles, equilateral) and the angles (acute, right, obtuse).	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.
<b>4.2.4.3</b> Sort and classify quadrilaterals in a hierarchy, including squares, rectangles, trapezoids, rhombuses, parallelograms and kites. Understand that attributes belonging to a category of two-dimensional figures also belong to all subcategories of that category.	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.



Minnesota K–12 Academic Standards in Mathematics	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>4.2.4.4</b> Create a representation and describe the front, top and side views of three-dimensional figures composed of cubes and rectangular prisms.	5 M5 Lesson 16: Identify attributes and properties of right rectangular prisms. <i>Supplemental material is necessary to address this standard.</i>
<b>4.2.4.5</b> Draw the nets of cubes. Recognize nets that will and will not form cubes.	6 M5 Lesson 9: Properties of Solids 6 M5 Lesson 10: Discovering Nets of Solids 6 M5 Lesson 11: Constructing Nets of Solids

## Patterns and Relationships

**Number Relationships:** Describe, Interpret and use quantities, relationships between quantities, representations of quantities, and number systems. Describe operations and the relationship between operations. Use strategies and procedures accurately, efficiently and flexibly. Assess the reasonableness of the results.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>4.3.5.1</b> Recognize that in a multi-digit whole number, a digit in one place represents 10 times what it represents in the place to its right.	4 M1 Lesson 6: Demonstrate that a digit represents 10 times the value of what it represents in the place to its right. 5 M1 Lesson 1: Relate adjacent place value units by using place value understanding.
<b>4.3.5.2</b> Compare and order whole numbers from 0 to 1,000,000 with place value understanding, number lines and other tools using $>$ , $=$ and $<$ symbols to record the results of comparisons	4 M1 Lesson 9: Compare numbers within 1,000,000 by using $>$ , $=$ , and $<$ . 4 M1 Lesson 20: Subtract by using the standard algorithm, decomposing larger units multiple times. 4 M1 Lesson 21: Solve two-step word problems by using addition and subtraction. 4 M2 Lesson 23: Determine whether a whole number is a multiple of another number. 4 M2 Lesson 24: Recognize that a number is a multiple of each of its factors. 3 M2 Lesson 9: Round two-digit numbers to the nearest ten on the vertical number line.
<b>4.3.5.3</b> Estimate sums and differences, within 1,000,000, using strategies based on place value, approximation and properties of operations.	4 M1 Lesson 15: Apply estimation to real-world situations by using rounding. 4 M1 Topic D: Multi-Digit Whole Number Addition and Subtraction

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<p><b>4.3.5.4</b></p> <p>Estimate products and quotients of multi-digit whole numbers by using simple multiplicative relationships, approximation and place value to assess the reasonableness of results.</p>	<p>4 M2 Lesson 13: Divide three-digit numbers by one-digit numbers by using an area model.</p> <p>4 M3 Lesson 13: Multiply two-digit numbers by two-digit multiples of 10.</p> <p>4 M3 Lesson 22: Represent, estimate, and solve division word problems.</p> <p>4 M3 Lesson 23: Solve multi-step word problems and interpret remainders.</p> <p>4 M3 Lesson 24: Solve multi-step word problems and assess the reasonableness of solutions.</p>
<p><b>4.3.5.5</b></p> <p>Fluently multiply two numbers from 0 to 12 using flexible strategies based on the associative, commutative and distributive properties of multiplication.</p>	<p>4 M1 Lesson 1: Interpret multiplication as multiplicative comparison.</p> <p>4 M1 Lesson 3: Describe relationships between measurements by using multiplicative comparison.</p> <p>4 M1 Lesson 4: Represent the composition of larger units of money by using multiplicative comparison.</p> <p>4 M2 Topic B: Multiplication of Tens and Ones by One-Digit Numbers</p> <p>3 M1 Lesson 12: Demonstrate the commutative property of multiplication using a unit of 4.</p> <p>3 M1 Lesson 14: Demonstrate the distributive property using units of 2, 3, 4, 5, and 10.</p> <p>3 M1 Lesson 19: Use the distributive property to break apart multiplication problems into known facts.</p> <p>3 M1 Lesson 21: Compose and decompose arrays to create expressions with three factors.</p> <p>3 M1 Lesson 22: Represent and solve two-step word problems using the properties of multiplication.</p> <p>3 M1 Lesson 23: Represent and solve two-step word problems using drawings and equations.</p> <p>3 M3 Lesson 14: Apply strategies and identify patterns to multiply with units of 9.</p> <p>3 M3 Lesson 17: Identify and complete patterns with input–output tables.</p>

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>4.3.5.6</b></p> <p>Use place value language to describe how to multiply a number by 10, 100 and 1,000.</p>	<p>4 M1 Lesson 4: Represent the composition of larger units of money by using multiplicative comparison.</p> <p>4 M1 Lesson 5: Organize, count, and represent a collection of objects.</p> <p>4 M1 Lesson 6: Demonstrate that a digit represents 10 times the value of what it represents in the place to its right.</p> <p>4 M1 Lesson 7: Write numbers to 1,000,000 in unit form and expanded form by using place value structure.</p> <p>4 M3 Lesson 2: Multiply by multiples of 100 and 1,000</p>
<p><b>4.3.5.7</b></p> <p>Flexibly decompose numbers into addends or factors to multiply two two-digit numbers and multiply a one-digit number, by up to a four-digit number. Justify the strategy using equations, rectangular arrays and area models</p>	<p>4 M2 Lesson 1: Multiply multiples of 10 by one-digit numbers by using the associative property of multiplication.</p> <p>4 M2 Topic B: Multiplication of Tens and Ones by One-Digit Numbers</p> <p>4 M3 Lesson 2: Multiply by multiples of 100 and 1,000.</p> <p>4 M3 Lesson 3: Multiply a two-digit multiple of 10 by a two-digit multiple of 10.</p> <p>4 M3 Topic C: Multiplication of up to Four-Digit Numbers by One-Digit Numbers</p> <p>4 M3 Topic D: Multiplication of Two-Digit Numbers by Two-Digit Numbers</p>
<p><b>4.3.5.8</b></p> <p>Solve contextual situations using division with dividends up to the thousands place and using one-digit divisors. Strategies may include using visual models, partial quotients, the commutative, associative and distributive properties and repeated subtraction.</p>	<p>4 M2 Lesson 2: Divide two- and three-digit multiples of 10 by one-digit numbers.</p> <p>4 M2 Topic C: Division of Tens and Ones by One-Digit Numbers</p> <p>4 M3 Lesson 1: Divide multiples of 100 and 1,000.</p> <p>4 M3 Topic B: Division of Thousands, Hundreds, Tens, and Ones</p> <p>4 M3 Lesson 21: Find whole-number quotients and remainders.</p> <p>4 M3 Lesson 22: Represent, estimate, and solve division word problems.</p>

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<p><b>4.3.5.9</b></p> <p>Solve multi-step contextual situations requiring the use of addition, subtraction and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of technology and the context of the situation to assess the reasonableness of results.</p>	<p>4 M1 Lesson 15: Apply estimation to real-world situations by using rounding.</p> <p>4 M1 Lesson 16: Add by using the standard algorithm.</p> <p>4 M1 Lesson 17: Solve multi-step addition word problems by using the standard algorithm.</p> <p>4 M1 Lesson 21: Solve two-step word problems by using addition and subtraction.</p> <p>4 M1 Lesson 22: Solve multi-step word problems by using addition and subtraction.</p> <p>4 M3 Lesson 23: Solve multi-step word problems and interpret remainders.</p> <p>4 M3 Lesson 24: Solve multi-step word problems and assess the reasonableness of solutions.</p>
<p><b>4.3.5.10</b></p> <p>Read, write, represent and plot on a number line fractional values between 0 and 3, including mixed numbers and fractions greater than 1 with denominators of 2, 3, 4, 5, 6, 8, 10 and 12. Express whole numbers as fractions and recognize fractions that are equivalent to whole numbers.</p>	<p>4 M4 Topic A: Fraction Decomposition and Equivalence</p> <p>4 M4 Lesson 7: Rename fractions as a sum of equivalent smaller unit fractions.</p> <p>4 M4 Lesson 11: Represent equivalent fractions by using tape diagrams, number lines, and multiplication or division.</p> <p>4 M4 Lesson 12: Generate equivalent fractions for fractions greater than 1 and generate equivalent mixed numbers.</p>
<p><b>4.3.5.11</b></p> <p>Explain why a fraction <math>\frac{a}{b}</math> is equivalent to the product <math>a \times \frac{1}{b}</math> using visual models and language.</p>	<p>4 M4 Lesson 31: Decompose non-unit fractions into a product of a whole number and a unit fraction.</p> <p>4 M4 Lesson 32: Multiply a fraction by a whole number by using the associative property.</p> <p>4 M4 Lesson 33: Solve word problems involving multiplication of a fraction by a whole number.</p> <p>4 M4 Lesson 34: Multiply a mixed number by a whole number by using the distributive property.</p>

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<p><b>4.3.5.12</b></p> <p>Explain why a fraction <math>\frac{a}{b}</math> is equivalent to a fraction <math>\frac{n \times a}{n \times b}</math> by using visual models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.</p>	<p>4 M4 Lesson 8: Generate equivalent fractions with smaller units for unit fractions.</p> <p>4 M4 Lesson 9: Generate equivalent fractions with smaller units for non-unit fractions.</p> <p>4 M4 Lesson 10: Generate equivalent fractions with larger units.</p> <p>4 M4 Lesson 11: Represent equivalent fractions by using tape diagrams, number lines, and multiplication or division.</p> <p>4 M4 Lesson 12: Generate equivalent fractions for fractions greater than 1 and generate equivalent mixed numbers.</p>
<p><b>4.3.5.13</b></p> <p>Compare and order fractions between 0 and 3 and justify reasoning using pictures, position on a number line and selecting, when appropriate, among strategies such as using a common numerator, referencing a benchmark and using a common denominator.</p>	<p>4 M4 Topic C: Compare Fractions</p>
<p><b>4.3.5.14</b></p> <p>Recognize the relationship between decimals and fractions. Read and write decimals and fractions in both decimal and fraction notations using words, symbols and expanded form. Recall the fraction and decimal equivalent forms of one-half, one-quarter and three-quarters</p>	<p>4 M5 Topic A: Exploration of Tenths</p> <p>4 M5 Topic B: Tenths and Hundredths</p>

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<p><b>4.3.5.15</b></p> <p>Compare and order decimal values to the hundredths and justify using place value language, a number line and models such as dimes, pennies, <math>10 \times 10</math> grids and base 10 blocks. Use place value concepts to name and model equivalent forms of decimal values.</p>	<p>4 M5 Topic C: Comparison of Decimal Numbers</p> <p>5 M4 Lesson 6: Compare decimal numbers to the thousandths place.</p>
<p><b>4.3.5.16</b></p> <p>Use visual models to add and subtract fractions with denominators of 2, 4 and 8 with results up to 2.</p>	<p>4 M4 Topic A: Fraction Decomposition and Equivalence</p> <p>4 M4 Lesson 7: Rename fractions as a sum of equivalent smaller unit fractions.</p> <p>4 M4 Lesson 19: Add and subtract fractions with like units.</p> <p>4 M4 Lesson 20: Subtract a fraction from a whole number.</p> <p>4 M4 Lesson 21: Solve addition and subtraction word problems and estimate the reasonableness of the answers.</p> <p>4 M4 Lesson 23: Add a fraction to a mixed number.</p> <p>4 M4 Lesson 24: Add a mixed number to a mixed number.</p> <p>4 M4 Lesson 25: Subtract a fraction from a mixed number, part 1.</p> <p>4 M4 Lesson 26: Subtract a fraction from a mixed number, part 2.</p> <p>4 M4 Lesson 27: Subtract a mixed number from a mixed number.</p>
<p><b>4.3.5.17</b></p> <p>Use the four operations to make financial decisions based on income, spending, saving, credit and charitable giving.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>

Patterns and Relationships

**Equivalence and Relational Thinking:** Use concepts and properties of equivalence and relational thinking to represent and compare numerical expressions, proportional relationships, algebraic expressions and equations.

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<p><b>4.3.6.1</b></p> <p>Use relational thinking to find a missing value in an open number sentence with multi-digit whole number multiplication and division expressions. Determine if the equation is true or false and justify your reasoning.</p>	<p>4 M1 Lesson 6: Demonstrate that a digit represents 10 times the value of what it represents in the place to its right.</p> <p>3 M1 Lesson 14: Demonstrate the distributive property using units of 2, 3, 4, 5, and 10.</p> <p>3 M1 Lesson 15: Model division as an unknown factor problem.</p> <p>3 M3 Lesson 15: Reason about and explain patterns of multiplication and division with units of 1 and 0.</p>
<p><b>4.3.6.2</b></p> <p>Make conjectures and justifications using the distributive property to justify multi-digit multiplication with true/false and open number equations.</p>	<p>4 M2 Lesson 5: Multiply by using place value strategies and the distributive property.</p> <p>4 M2 Lesson 6: Multiply with regrouping by using place value strategies and the distributive property.</p> <p>4 M2 Lesson 7: Multiply by using an area model and the distributive property.</p> <p>4 M2 Lesson 8: Multiply by applying the distributive property and write equations.</p> <p>4 M3 Lesson 9: Apply place value strategies to multiply three-digit numbers by one-digit numbers.</p> <p>4 M3 Lesson 10: Apply place value strategies to multiply four-digit numbers by one-digit numbers.</p> <p>4 M3 Lesson 12: Multiply by using various recording methods in vertical form.</p> <p>4 M2 Topic D: Multiplication of Two-Digit Numbers by Two-Digit Numbers</p>



## Patterns and Relationships

**Patterns and Relationships: Represent and connect mathematical patterns and relationships using verbal descriptions, generalizations, tables and graphs. Use representations to generate questions, make predictions and solve mathematical problems.**

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>4.3.7.1</b> Develop an explicit rule that generalizes a visual pattern relating the figure number with the number of items in that figure. Use the rule to find the number of items in figure $n$ .	4 M1 Lesson 1: Interpret multiplication as multiplicative comparison. 4 M1 Lesson 2: Solve multiplicative comparison problems with unknowns in various positions. 4 M2 Lesson 26: Use relationships within a pattern to find an unknown term in the sequence. 5 M6 Lesson 19: Reason about visual patterns by using tables and graphs.
<b>4.3.7.2</b> Use words to write a rule for multiplicative patterns and solve contextual situations. Compare and contrast patterns or rules that are additive and multiplicative, using a variety of strategies including tables, drawings and algebraic equations with a symbol for the unknown number to represent the situation.	4 M1 Topic A: Multiplication as Multiplicative Comparison 4 M2 Lesson 20: Solve word problems involving additive and multiplicative comparisons.
<b>4.3.7.3</b> Generate a number or shape pattern that follows a given descriptive rule. Identify and explain apparent features of the pattern that were not explicit in the rule itself.	4 M2 Lesson 26: Use relationships within a pattern to find an unknown term in the sequence. 3 M3 Lesson 14: Apply strategies and identify patterns to multiply with units of 9. 3 M3 Lesson 15: Reason about and explain patterns of multiplication and division with units of 1 and 0. 3 M3 Lesson 16: Identify patterns by using the multiplication table. 3 M3 Lesson 17: Identify and complete patterns with input–output tables. 5 M6 Lesson 19: Reason about visual patterns by using tables and graphs.