Grade 5 | Minnesota K–12 Academic Standards in Mathematics
Correlation to *Eureka Math²®*

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®*, 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* 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 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 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* 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* 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 *Eureka Math²*
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.

Data and Probability

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Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
5.1.1.1 Notice and describe patterns in data-rich situations or given related data sets that are descriptive and comparative. Ask meaningful statistical questions that can be answered with data.	5 Data Talk: Volumes in the Solar System 5 Data Talk: A Trip Around the Sun 5 Data Talk: Astronauts in Space 5 Data Talk: Agriculture in Our States 5 Data Talk: Power from Renewable Energy 5 Data Talk: Our Most Populous Counties 5 Data Talk: American Pastimes 5 Data Talk: Water in the World 5 Data Talk: Space for Sports 5 Data Talk: Blood Types 5 Data Talk: Internet Use Around the US 5 Data Talk: Eye Colors of the US Population 5 Data Talk: A Walk in the Park 5 Data Talk: Changing Matter 5 Data Investigation: US Astronauts 5 Data Investigation: A Typical Night of Sleep 5 Data Investigation: Wind-Power Capacity
5.1.1.2 Compare and contrast between qualitative and quantitative data.	*Supplemental material is necessary to address this standard.*

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
5.1.1.3 Collect and organize data to answer statistical questions and analyze measures of center (mean and median) and variability (range). Represent data in a variety of ways, including technology.	6 M6 Topic A: Understanding Distributions
5.1.1.4 Critically analyze data visualizations using measures of center and variability, including but not limited to double-bar graphs, line graphs and line plots to support a claim and solve situations.	5 M2 Lesson 15: Represent data on a line plot. 5 M2 Lesson 16: Solve problems by using data from a line plot. 5 M2 Lesson 17: Solve problems by equally redistributing a total amount. 5 M6 Lesson 18: Interpret line graphs. 6 M6 Lesson 7: Using the Mean to Describe the Center 6 M6 Lesson 8: The Mean as a Balance Point 6 M6 Lesson 9: Variability in a Data Distribution 6 M6 Lesson 12: Using the Median to Describe the Center
5.1.1.5 Compare and contrast different data displays to determine how the visualizations impact analysis and interpretation.	5 M6 Lesson 17: Plot data in the coordinate plane and analyze relationships. 6 M6 Lesson 6: Selecting a Data Display *All Grade 5 Data Talks address this content.*

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 *Eureka Math²*
5.1.2.1 List outcomes from a probability experiment in a frequency table.	7 M6 Lesson 1: What Is Probability? 7 M6 Lesson 2: Empirical Probability 7 M6 Lesson 3: Outcomes of Chance Experiments 7 M6 Lesson 4: Theoretical Probability
5.12.2 Use a frequency table to record results from an experiment to make predictions. Place predictions on a number line from 0 to 1.	7 M6 Lesson 1: What Is Probability? 7 M6 Lesson 2: Empirical Probability 7 M6 Lesson 3: Outcomes of Chance Experiments 7 M6 Lesson 4: Theoretical Probability

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 *Eureka Math²*
5.2.3.1 Develop, justify and use formulas to determine the area of parallelograms and triangles. Find the areas of polygons that can be decomposed into parallelograms and triangles.	6 M5 Topic A: Areas of Polygons 6 M5 Topic B: Problem Solving with Area

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5.2.3.2 Estimate the area of two-dimensional shapes, both polygons and non-polygons, using tools such as dot or grid paper.	5 M5 Lesson 9: Organize, count, and represent a collection of square tiles. 6 M5 Lesson 8: Areas of Composite Figures in Real-World Situations
5.2.3.3 Use unit cubes to measure volume. Describe a unit cube as a cube with side length 1 unit that 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.
5.2.3.4 Use various strategies to measure the volume and surface area of three-dimensional shapes made of a collection of unit cubes.	5 M5 Topic C: Volume Concepts 5 M5 Topic D: Volume and the Operations of Multiplication and Addition 6 M5 Topic C: Nets and Surface Area
5.2.3.5 Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes. Show that the volume is the same by unit cubes as by multiplying the edge lengths $(l \times w \times h)$ or by multiplying the height by the area of the base.	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.

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 *Eureka Math²*
5.2.4.1 Classify and describe prisms and pyramids by their defining attributes and the number of edges, faces, vertices and bases.	5 M5 Lesson 16: Identify attributes and properties of right rectangular prisms. 6 M5 Lesson 9: Properties of Solids
5.2.4.2 Recognize, draw and compare different nets for prisms, pyramids, cylinders and cones.	6 M5 Lesson 9: Properties of Solids 6 M5 Lesson 10: Discovering Nets of Solids 6 M5 Lesson 11: Constructing Nets of Solids 7 M4 Lesson 19: Surface Area of Cylinders

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 *Eureka Math²*
5.3.5.1 Multiply two multi-digit numbers using an efficient strategy. Strategies include decomposing factors into factors, decomposing factors into sums or using an area model. Justify the chosen strategy using properties of operations and place value.	5 M1 Topic B: Multiplication of Whole Numbers
5.3.5.2 Divide multi-digit numbers by a one-digit or two-digit divisor using efficient and generalizable procedures based on knowledge of place value and the properties of operations that may include partial quotients and standard algorithms. Recognize that quotients can be represented in a variety of ways, including a whole number with a remainder, a fraction, a mixed number or a decimal.	5 M1 Topic C: Division of Whole Numbers 5 M2 Topic A: Fractions and Division 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.
5.3.5.3 Consider the context of a problem involving division to select the most useful form of the quotient and the remainder.	5 M1 Lesson 16: Divide four-digit numbers by two-digit numbers. 5 M1 Lesson 19: Solve multi-step word problems involving multiplication and division. 5 M2 Lesson 4: Solve word problems involving division and fractions. *Supplemental material is necessary to fully address this standard.*

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
5.3.5.4 Solve multi-step contextual situations requiring addition, subtraction, multiplication and division of multi-digit whole numbers. Use various strategies including the inverse relationships between operations, the use of technology and the context of the situation to assess the reasonableness of results.	5 M1 Topic C: Division of Whole Numbers 5 M1 Lesson 4: Estimate products and quotients by using powers of 10 and their multiples. 5 M1 Lesson 19: Solve multi-step word problems involving multiplication and division. 5 M1 Lesson 20: Solve multi-step word problems involving the four operations.
5.3.5.5 Generate equivalent fractions of the forms $\frac{a}{b} = \frac{n \times a}{n \times b}$ and $\frac{a}{b} = \frac{a \div n}{b \div n}$ and justify relationships using visual models.	4 M4 Lesson 8: Generate equivalent fractions with smaller units for unit fractions. 4 M4 Lesson 9: Generate equivalent fractions with smaller units for non-unit fractions. 4 M4 Lesson 10: Generate equivalent fractions with larger units. 4 M4 Lesson 11: Represent equivalent fractions by using tape diagrams, number lines, and multiplication or division. 4 M4 Lesson 12: Generate equivalent fractions for fractions greater than 1 and generate equivalent mixed numbers.
5.3.5.6 Given a value, mentally find 0.1 more or 0.1 less, 0.01 more or 0.01 less and 0.001 more or 0.001 less than the number. Justify reasoning by referencing a visual model.	4 M5 Lesson 3: Represent tenths as a place value unit. 4 M5 Lesson 5: Decompose 1 one and express hundredths in fraction form and decimal form. 4 M5 Lesson 6: Represent hundredths as a place value unit. 4 M5 Lesson 8: Represent decimal numbers in expanded form. *Supplemental material is necessary to address finding 0.001 more or less than a number.*

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
5.3.5.7 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
5.3.5.8 Recognize and flexibly generate equivalences between fractions and decimals to the thousandths place and justify using visual models, place value language and symbols.	5 M4 Lesson 6: Compare decimals to the thousandths place. 5 M4 Lesson 13: Solve word problems involving addition and subtraction of decimal numbers and fractions. 4 M5 Topic A: Exploration of Tenths 4 M5 Topic B: Tenths and Hundredths 4 M5 Topic C: Comparison of Decimal Numbers
5.3.5.9 Compare and order decimal values to the thousandths. Justify using place value language and visual models.	5 M4 Lesson 6: Compare decimal numbers to the thousandths place. 4 M5 Topic C: Comparison of Decimal Numbers
5.3.5.10 Estimate sums and differences of fractions and mixed numbers to the nearest half. Justify reasoning using benchmarks.	5 M2 Lesson 10: Add whole numbers and mixed numbers and add mixed numbers with related units. 5 M2 Lesson 12: Subtract whole numbers from mixed numbers and mixed numbers from whole numbers. 5 M2 Lesson 13: Subtract mixed numbers from mixed numbers with related units.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
5.3.5.11 Fluently add and subtract fractions with unlike denominators (including mixed numbers) and justify using equivalent fractions, visual models and the number line.	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
5.3.5.12 Estimate sums and differences of decimals.	5 M4 Lesson 9: Add decimal numbers by using different methods. 5 M4 Lesson 12: Subtract decimal numbers by using place value understanding.
5.3.5.13 Solve contextual situations using addition and subtraction of positive rational numbers represented as fractions (including mixed numbers) or decimals using visual models, equations and properties of operations.	5 M2 Lesson 11: Add mixed numbers with unrelated units. 5 M2 Lesson 14: Subtract mixed numbers from mixed numbers with unrelated units. 5 M3 Lesson 19: Create and solve one-step word problems involving fractions. 5 M4 Lesson 10: Add decimal numbers by using place value understanding. 5 M4 Lesson 13: Solve word problems involving addition and subtraction of decimal numbers and fractions.
5.3.5.14 Represent multiplication of a whole number of fractional groups, $n \times \frac{a}{b}$, using visual models, including a number line, and explain how the picture shows the product.	4 M4 Lesson 32: Multiply a fraction by a whole number by using the associative property. 4 M4 Lesson 33: Solve word problems involving multiplication of a fraction by a whole number. 4 M4 Lesson 34: Multiply a mixed number by a whole number by using the distributive property.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
5.3.5.15 Represent contextual multiplication situations of a fractional amount of a whole number amount, $\frac{a}{b}$ of a group of n, using visual models, including a number line, and explain how the picture shows the product.	5 M3 Lesson 3: Multiply a whole number by a fraction less than 1. 5 M3 Lesson 9: Multiply fractions by unit fractions by making simpler problems. 5 M3 Lesson 10: Multiply fractions greater than 1 by fractions. 5 M5 Lesson 12: Multiply mixed numbers.
5.3.5.16 Represent contextual measurement situations using division of the form $n \div \left(\frac{a}{b}\right)$ where n is the total and $\frac{a}{b}$ is the amount per group. Use a visual model and explain how the picture shows the number of groups.	5 M3 Lesson 12: Divide a nonzero whole number by a unit fraction to find the number of groups. 5 M3 Lesson 13: Divide a nonzero whole number by a unit fraction to find the size of the group. 5 M3 Lesson 15: Divide by whole numbers and unit fractions. 5 M3 Lesson 16: Reason about the size of quotients of whole numbers and unit fractions and quotients of unit fractions and whole numbers.
5.3.5.17 Solve multi-step contextual situations using addition and subtraction of positive rational numbers. Use various strategies, including the inverse relationships between operations and the context of the situation, to assess the reasonableness of results.	5 M3 Lesson 20: Solve multi-step word problems involving fractions and write equations with parentheses. 5 M3 Lesson 21: Solve multi-step word problems involving fractions. 5 M4 Lesson 13: Solve word problems involving addition and subtraction of decimal numbers and fractions.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
5.3.5.18 Use the four operations to compare and contrast different ways of paying and receiving payments. Identify the advantages and disadvantages of each method of payment, including checks, credit cards, debit cards and electronic payments.	*Supplemental material is necessary to address this standard.*
5.3.5.19 Use the four operations to create an individual or group budget based on wants and needs and explore examples of debt and manageability of debt and its long-term impact.	*Supplemental material is necessary to address this standard.*

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.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
5.3.6.1 Use relational thinking to find a missing value in an open number sentence with addition and subtraction of fractions and decimal expressions. Determine if the equation is true or false and justify the reasoning.	5 M3 Lesson 16: Reason about the size of quotients of whole numbers and unit fractions and quotients of unit fractions and whole numbers. 5 M3 Lesson 17: Solve word problems involving fractions with multiplication and division. 5 M4 Lesson 29: Interpret, evaluate, and compare numerical expressions involving decimals. *Supplemental material is necessary to fully address this standard.*

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
5.3.6.2 Make conjectures and justifications about numerical expressions involving parentheses and the four operations using the properties of operations, properties of algebra, decomposition and composition to generate equivalent numerical expressions.	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 M3 Lesson 18: Compare and evaluate expressions with parentheses. 5 M3 Lesson 22: Evaluate expressions involving nested grouping symbols. 5 M4 Lesson 29: Interpret, evaluate, and compare numerical expressions involving decimals. 5 M4 Lesson 30: Create and solve real-world problems for given numerical expressions involving decimals.

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 *Eureka Math²*
5.3.7.1 Use a rule or table to represent ordered pairs of positive integers and graph these ordered pairs on a coordinate system.	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.

Minnesota K–12 Academic Standards in Mathematics	Aligned Components of *Eureka Math²*
5.3.7.2 Identify and explain apparent relationships between two patterns from given rules, using tables or ordered pairs on a coordinate system.	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.
5.3.7.3 Represent contextual situations by graphing whole and half number points in the first quadrant of the coordinate plane. Interpret coordinate values of points in the context of the situation.	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 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.

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5.3.7.4 Use ratio tables with whole numbers to solve situations with additive and multiplicative reasoning. Interpret multiplication as scaling.	5 M3 Topic A: Multiplication of a Whole Number by a Fraction 5 M3 Topic B: Multiplication of Fractions 6 M1 Lesson 6: Ratio Tables and Double Number Lines 6 M1 Lesson 7: Graphs of Ratio Relationships 6 M1 Lesson 8: Addition Patterns in Ratio Relationships 6 M1 Lesson 9: Multiplication Patterns in Ratio Relationships 6 M1 Lesson 10: Multiplicative Reasoning in Ratio Relationships
5.3.7.5 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.	5 M6 Lesson 19: Reason about visual patterns by using tables and graphs. 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.