Grade 5 | North Dakota Mathematics K–12 Standards Correlation to *Eureka Math*®

About *Eureka Math*

Created by Great Minds®, a mission-driven Public Benefit Corporation, *Eureka Math*® helps teachers deliver unparalleled math instruction that provides students with a deep understanding and fluency in math. Crafted by teachers and math scholars, the curriculum carefully sequences the mathematical progressions to maximize coherence from Prekindergarten through Precalculus—a principle tested and proven to be essential in students' mastery of math.

Teachers and students using *Eureka Math* find the trademark "Aha!" moments in *Eureka Math* to be a source of joy and inspiration, lesson after lesson, year after year.

Aligned

Great Minds offers detailed analyses that demonstrate how each grade of *Eureka Math* aligns with specific state standards. Access these free alignment studies at greatminds.org/state-studies.

Data

Schools and districts nationwide are experiencing student growth and impressive test scores after using *Eureka Math*. See their stories and data at greatminds.org/data.

Full Suite of Resources

Great Minds offers the *Eureka Math* curriculum as PDF downloads for free, noncommercial use. Access the free PDFs at greatminds.org/math/curriculum.

The teacher–writers who created the curriculum have also developed essential resources, available only from Great Minds, including the following:

- Printed material in English and Spanish
- Digital resources
- Professional development
- Classroom tools and manipulatives
- Teacher support materials
- Parent resources

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Math Attributes	Aligned Components of *Eureka Math*
3–5.MA.P Learners can develop and carry out a logical plan to problem-solve situations, reflect on the reasonableness of solutions, and explore alternate strategies with guidance.	Lessons in every module engage students in math attributes. These are indicated in margin notes included with every lesson.
3–5.MA.C Learners can make connections and summarize related ideas using supporting evidence.	Lessons in every module engage students in math attributes. These are indicated in margin notes included with every lesson.
3–5.MA.R Learners can reason logically based on experience and knowledge, citing evidence to support their reasoning and conclusions.	Lessons in every module engage students in math attributes. These are indicated in margin notes included with every lesson.

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Number and Operations: Learners will develop a foundational understanding of the number system, operations, and computational fluency to create connections and solve problems within and across concepts.

5.NO.CC Counting and Cardinality: Learners will understand the relationship between numerical symbols, names, quantities, and counting sequences.

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.NO.CC.1 Read and write decimals to the thousandths including standard, word, and expanded forms.	G5 M1 Lesson 5: Name decimal fractions in expanded, unit, and word forms by applying place value reasoning. G5 M1 Topic D: Adding and Subtracting Decimals G5 M1 Topic E: Multiplying Decimals G5 M6 Lesson 28: Solidify fluency with Grade 5 skills.

Number and Operations: Learners will develop a foundational understanding of the number system, operations, and computational fluency to create connections and solve problems within and across concepts.

5.NO.NBT Base Ten: Learners will understand the place value structure of the base-ten number system and represent, compare, and perform operations with multi-digit whole numbers and decimals.

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.NO.NBT.1 Understand that in a multi-digit whole number, a digit in one place represents ten 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.	G5 M1 Lesson 1: Reason concretely and pictorially using place value understanding to relate adjacent base ten units from millions to thousandths. G5 M1 Lesson 2: Reason abstractly using place value understanding to relate adjacent base ten units from millions to thousandths. G5 M2 Topic A: Mental Strategies for Multi-Digit Whole Number Multiplication G5 M2 Lesson 16: Use divide by 10 patterns for multi-digit whole number division.

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North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.NO.NBT.2 Compare two decimals to the thousandths place using symbols >, <, and =. Justify comparisons based on the value of the digits.	G5 M1 Lesson 6: Compare decimal fractions to the thousandths using like units, and express comparisons with >, <, =. G5 M6 Lesson 28: Solidify fluency with Grade 5 skills.
5.NO.NBT.3 Apply place value understanding to round decimals to any place.	G5 M1 Topic C: Place Value and Rounding Decimal Fractions G5 M6 Lesson 28: Solidify fluency with Grade 5 skills.
5.NO.NBT.4 Multiply multi-digit whole numbers using strategies flexibly, including the algorithm.	G5 M2 Lesson 5: Connect visual models and the distributive property to partial products of the standard algorithm without renaming. G5 M2 Lesson 6: Connect area models and the distributive property to partial products of the standard algorithm with renaming. G5 M2 Lesson 7: Connect area models and the distributive property to partial products of the standard algorithm with renaming. G5 M2 Lesson 8: Fluently multiply multi-digit whole numbers using the standard algorithm and using estimation to check for reasonableness of the product. G5 M2 Lesson 9: Fluently multiply multi-digit whole numbers using the standard algorithm to solve multi-step word problems. G5 M2 Lesson 13: Use whole number multiplication to express equivalent measurements. G5 M2 Lesson 15: Solve two-step word problems involving measurement conversions. G5 M6 Lesson 26: Solidify writing and interpreting numerical expressions.

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North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.NO.NBT.5 Use concrete models, drawings, place value strategies, properties of operations and/or relationships to add, subtract, and multiply decimals to hundredths.	G5 M1 Topic D: Adding and Subtracting Decimals G5 M1 Topic E: Multiplying Decimals G5 M2 Topic C: Decimal Multi-Digit Multiplication G5 M2 Topic D: Measurement Word Problems with Whole Number and Decimal Multiplication G5 M4 Lesson 17: Relate decimal and fraction multiplication. G5 M4 Lesson 18: Relate decimal and fraction multiplication. G5 M6 Lesson 26: Solidify writing and interpreting numerical expressions. G5 M6 Lesson 28: Solidify fluency with Grade 5 skills.
5.NO.NBT.6 Find whole-number quotients and remainders with up to four-digit dividends and two-digit divisors using place value strategies. Show and justify the calculation by using equations, rectangular arrays, and/or area models.	G5 M2 Topic E: Mental Strategies for Multi-Digit Whole Number Division G5 M2 Topic F: Partial Quotients and Multi-Digit Whole Number Division G5 M2 Lesson 28: Solve division word problems involving multi-digit division with group size unknown and the number of groups unknown. G5 M6 Lesson 26: Solidify writing and interpreting numerical expressions.
5.NO.NBT.7 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10. 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.	G5 M1 Lesson 3: Use exponents to name place value units and explain patterns in the placement of the decimal point. G5 M1 Lesson 4: Use exponents to denote powers of 10 with application to metric conversions. G5 M1 Lesson 12: Multiply a decimal fraction by single-digit whole numbers, including using estimation to confirm the placement of the decimal point. G5 M2 Topic A: Mental Strategies for Multi-Digit Whole Number Multiplication G5 M2 Lesson 16: Use divide by 10 patterns for multi-digit whole number division. G5 M2 Lesson 24: Divide decimal dividends by multiples of 10, reasoning about the placement of the decimal point and making connections to a written method.

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Number and Operations: Learners will develop a foundational understanding of the number system, operations, and computational fluency to create connections and solve problems within and across concepts.

5.NO.NF Fractions: Learners will understand fractions and equivalency to represent, compare, and perform operations of fractions and decimals.

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.NO.NF.1 Generate equivalent forms of commonly used fractions and decimals (e.g., halves, fourths, fifths, tenths).	G5 M4 Lesson 21: Explain the size of the product, and relate fraction and decimal equivalence to multiplying a fraction by 1. *Supplemental material is necessary to fully address this standard.*
5.NO.NF.2 Explain why multiplying a given number by a fraction greater than one results in a product greater than the given number and explain why multiplying a given number by a fraction less than one results in a product smaller than the given number.	G5 M4 Lesson 21: Explain the size of the product, and relate fraction and decimal equivalence to multiplying a fraction by 1. G5 M4 Lesson 22: Compare the size of the product to the size of the factors. G5 M4 Lesson 23: Compare the size of the product to the size of the factors.
5.NO.NF.3 Solve authentic word problems by adding and subtracting fractions and mixed numbers with unlike denominators using visual fraction models and equations.	G4 M5 Lesson 20: Use visual models to add two fractions with related units using the denominators 2, 3, 4, 5, 6, 8, 10, and 12. G4 M5 Lesson 21: Use visual models to add two fractions with related units using the denominators 2, 3, 4, 5, 6, 8, 10, and 12. G4 M5 Lesson 29: Estimate sums and differences using benchmark numbers. G5 M3 Topic B: Making Like Units Pictorially G5 M3 Topic C: Making Like Units Numerically G5 M3 Topic D: Further Applications G5 M6 Topic E: Multi-Step Word Problems

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North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.NO.NF.3 ***continued***	G5 M6 Lesson 26: Solidify writing and interpreting numerical expressions. G5 M6 Lesson 27: Solidify writing and interpreting numerical expressions.
5.NO.NF.4 Solve authentic word problems by multiplying fractions and mixed numbers using visual fraction models and equations.	G5 M4 Lesson 11: Solve and create fraction word problems involving addition, subtraction, and multiplication. G5 M4 Lesson 12: Solve and create fraction word problems involving addition, subtraction, and multiplication. G5 M4 Lesson 16: Solve word problems using tape diagrams and fraction-by-fraction multiplication. G5 M4 Lesson 24: Solve word problems using fraction and decimal multiplication. G5 M5 Lesson 14: Solve real-world problems involving area of figures with fractional side lengths using visual models and/or equations. G5 M5 Lesson 15: Solve real-world problems involving area of figures with fractional side lengths using visual models and/or equations. G5 M6 Topic E: Multi-Step Word Problems

Algebraic Reasoning: Learners will look for, generate, and make sense of patterns, relationships, and algebraic symbols to represent mathematical models while adopting approaches and solutions in novel situations.

5.AR.OA Operations and Algebraic Thinking: Learners will analyze patterns and relationships to generate and interpret numerical expressions.

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.AR.OA.1 Automatically multiply and divide through 12×12.	*Supplemental material is necessary to address this standard.*

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North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.AR.OA.2 Analyze problems using the order of operations to solve and evaluate expressions while justifying thinking.	G5 M2 Lesson 3: Write and interpret numerical expressions, and compare expressions using a visual model. G5 M2 Lesson 4: Convert numerical expressions into unit form as a mental strategy for multi-digit multiplication. G5 M4 Lesson 10: Compare and evaluate expressions with parentheses. G5 M4 Lesson 32: Interpret and evaluate numerical expressions including the language of scaling and fraction division. G5 M6 Lesson 26: Solidify writing and interpreting numerical expressions. G5 M6 Lesson 27: Solidify writing and interpreting numerical expressions. G6 M4 Topic B: Special Notations of Operations
5.AR.OA.3 Write simple expressions that record calculations with numbers. Interpret numerical expressions without evaluating them.	G5 M2 Lesson 3: Write and interpret numerical expressions, and compare expressions using a visual model. G5 M2 Lesson 4: Convert numerical expressions into unit form as a mental strategy for multi-digit multiplication. G5 M4 Lesson 10: Compare and evaluate expressions with parentheses. G5 M4 Lesson 32: Interpret and evaluate numerical expressions including the language of scaling and fraction division. G5 M6 Lesson 7: Plot points, use them to draw lines in the plane, and describe patterns within the coordinate pairs. G5 M6 Lesson 8: Generate a number pattern from a given rule, and plot the points. G5 M6 Lesson 9: Generate two number patterns from given rules, plot the points, and analyze the patterns. G5 M6 Lesson 26: Solidify writing and interpreting numerical expressions. G5 M6 Lesson 27: Solidify writing and interpreting numerical expressions.

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North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.AR.OA.4 Find factor pairs and multiples within the range of $1–100$ while classifying numbers as prime or composite.	G4 M3 Topic F: Reasoning with Divisibility G4 M7 Lesson 18: Practice and solidify Grade 4 vocabulary.
5.AR.OA.5 Generate two numerical patterns using two given rules and form ordered pairs consisting of corresponding terms from the two patterns. (Graphing on a coordinate plane).	G5 M6 Topic B: Patterns in the Coordinate Plane and Graphing Number Patterns from Rules G5 M6 Lesson 18: Draw symmetric figures on the coordinate plane. G5 M6 Lesson 31: Explore the Fibonacci sequence. G5 M6 Lesson 32: Explore patterns in saving money.

Geometry and Measurement: Learners will use visualization, spatial reasoning, geometric modeling, and measurement to investigate the characteristics of figures, perform transformations, and construct logical arguments.

5.GM.G Geometry: Learners will compose and classify figures and shapes based on attributes and properties; represent and solve problems using a coordinate plane.

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.GM.G.1 Classify two-dimensional figures in a hierarchy based on properties.	G5 M5 Lesson 20: Classify two-dimensional figures in a hierarchy based on properties. G5 M5 Lesson 21: Draw and identify varied two-dimensional figures from given attributes.

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North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.GM.G.2 Identify the x-coordinate and y-coordinate to graph and name points in the first quadrant of the coordinate plane.	G5 M6 Topic A: Coordinate Systems G5 M6 Lesson 7: Plot points, use them to draw lines in the plane, and describe patterns within the coordinate pairs. G5 M6 Lesson 14: Construct parallel line segments, and analyze relationships of the coordinate pairs. G5 M6 Lesson 16: Construct perpendicular line segments, and analyze relationships of the coordinate pairs.
5.GM.G.3 Form ordered pairs and graph points in the first quadrant on the coordinate plane to solve authentic word problems.	G5 M6 Lesson 14: Construct parallel line segments, and analyze relationships of the coordinate pairs. G5 M6 Lesson 16: Construct perpendicular line segments, and analyze relationships of the coordinate pairs. G5 M6 Lesson 19: Plot data on line graphs and analyze trends. G5 M6 Lesson 20: Use coordinate systems to solve real world problems.

Geometry and Measurement: Learners will use visualization, spatial reasoning, geometric modeling, and measurement to investigate the characteristics of figures, perform transformations, and construct logical arguments.

5.GM.M Measurement: Learners will represent and calculate measurement data, including time, money, and geometric measurement, and convert like measurement units within a given system.

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.GM.M.1 Generate conversions among different-sized standard measurement units within a given measurement system, both customary and metric systems. Use these conversions in solving multi-step, authentic word problems.	G5 M1 Lesson 4: Use exponents to denote powers of 10 with application to metric conversions. G5 M2 Topic D: Measurement Word Problems with Whole Number and Decimal Multiplication G5 M4 Lesson 8: Relate a fraction of a set to the repeated addition interpretation of fraction multiplication. G5 M4 Lesson 9: Find a fraction of a measurement, and solve word problems. G5 M4 Lesson 19: Convert measures involving whole numbers, and solve multi-step word problems.

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North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.GM.M.1 ***continued***	G5 M4 Lesson 20: Convert mixed unit measurements, and solve multi-step word problems. G5 M6 Lesson 21: Make sense of complex, multi-step problems, and persevere in solving them. Share and critique peer solutions. G5 M6 Lesson 28: Solidify fluency with Grade 5 skills.
5.GM.M.2 Find the area and perimeter of a rectangle, including connected rectangular figures, with fractional side lengths.	G5 M5 Topic C: Area of Rectangular Figures with Fractional Side Lengths
5.GM.M.3 Recognize volume as an attribute of rectangular prisms and measure volume by counting unit cubes.	G5 M5 Topic A: Concepts of Volume G5 M6 Lesson 29: Solidify the vocabulary of geometry. G5 M6 Lesson 30: Solidify the vocabulary of geometry.

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Data, Probability, and Statistics: Learners will ask and answer questions by collecting, organizing, and displaying relevant data, drawing inferences and conclusions, making predictions, and understanding and applying basic concepts of probability.

5.DPS.D Data: Learners will represent and interpret data.

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math*
5.DPS.D.1 Generate data and create line plots to display a data set of unit fractions $\left(\frac{1}{2}, \frac{1}{4}, \frac{1}{8}\right)$. Use grade-level operations for fractions to solve problems involving information presented in line plots.	G5 M4 Topic A: Line Plots of Fraction Measurements
5.DPS.D.2 Utilize graphs and diagrams to represent, analyze, and solve authentic word problems using information presented in one or more tables or line plots including whole numbers, fractions, and decimals.	G5 M4 Topic A: Line Plots of Fraction Measurements G5 M6 Lesson 19: Plot data on line graphs and analyze trends. G5 M6 Lesson 20: Use coordinate systems to solve real world problems. *Supplemental material is necessary to fully address this standard.*

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