
Grade 8 | 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

Math Attributes	Aligned Components of <i>Eureka Math</i>
<p>6–8.MA.P</p> <p>Learners can analyze information and formulate a flexible, systematic plan to problem-solve authentic situations and reflect on the reasonableness of the solution, making revisions when necessary.</p>	<p>Lessons in every module engage students in math attributes. These are indicated in margin notes included with every lesson.</p>
<p>6–8.MA.C</p> <p>Learners can create connections within and across concepts and provide examples of how they relate to other learning and ideas using supporting evidence.</p>	<p>Lessons in every module engage students in math attributes. These are indicated in margin notes included with every lesson.</p>
<p>6–8.MA.R</p> <p>Learners can reason logically, citing evidence to evaluate and explain what they see, think, and conclude through exploration and justification.</p>	<p>Lessons in every module engage students in math attributes. These are indicated in margin notes included with every lesson.</p>

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.

8.NO.NS Number Systems: Learners will expand their knowledge of the number system to create connections and solve problems within and across concepts.

North Dakota Mathematics K–12 Standards	Aligned Components of <i>Eureka Math</i>
<p>8.NO.NS.1</p> <p>Compare and classify real numbers within the real number system.</p>	<p>G8 M7 Lesson 8: The Long Division Algorithm</p> <p><i>Supplemental material is necessary to address classification of real numbers that are subsets of rational numbers.</i></p>
<p>8.NO.NS.2</p> <p>Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them on a number line diagram, and estimate the value of irrational expressions involving one operation.</p>	<p>G8 M7 Lesson 1: The Pythagorean Theorem</p> <p>G8 M7 Lesson 2: Square Roots</p> <p>G8 M7 Lesson 3: Existence and Uniqueness of Square Roots and Cube Roots</p> <p>G8 M7 Lesson 11: The Decimal Expansion of Some Irrational Numbers</p> <p>G8 M7 Lesson 13: Comparing Irrational Numbers</p> <p>G8 M7 Lesson 14: Decimal Expansion of π</p>
<p>8.NO.NS.3</p> <p>Use scientific notation to represent very large or very small quantities. Interpret scientific notation generated by technology. Compare and order numbers in both scientific and standard notation.</p>	<p>G8 M1 Lesson 9: Scientific Notation</p> <p>G8 M1 Lesson 10: Operations with Numbers in Scientific Notation</p> <p>G8 M1 Lesson 11: Efficacy of Scientific Notation</p> <p>G8 M1 Lesson 12: Choice of Unit</p> <p>G8 M1 Lesson 13: Comparison of Numbers Written in Scientific Notation and Interpreting Scientific Notation Using Technology</p>

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.

8.NO.O Operations: Learners will expand their computational fluency to create connections and solve problems within and across concepts.

North Dakota Mathematics K–12 Standards	Aligned Components of <i>Eureka Math</i>
<p>8.NO.O.1</p> <p>Evaluate mentally the square roots of perfect squares up to 225 and cube roots of perfect cubes up to 1,000.</p>	<p>G8 M7 Lesson 2: Square Roots</p> <p><i>Supplemental material is necessary to address mentally evaluating square roots and cube roots.</i></p>
<p>8.NO.O.2</p> <p>Add, subtract, multiply, and divide rational numbers using strategies or procedures.</p>	<p>G7 M2 Topic A: Addition and Subtraction of Integers and Rational Numbers</p> <p>G7 M2 Topic B: Multiplication and Division of Integers and Rational Numbers</p>

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.

8.AR.EE Expressions and Equations: Learners will look for, generate, and make sense of patterns, relationships, and algebraic symbols to represent mathematical models while adapting approaches in novel situations.

North Dakota Mathematics K–12 Standards	Aligned Components of <i>Eureka Math</i>
<p>8.AR.EE.1</p> <p>Explain the relationship between repeated multiplication and the properties of integer exponents. Apply a single exponent property to generate equivalent numeric and algebraic expressions that include numerical coefficients.</p>	<p>G8 M1 Topic A: Exponential Notation and Properties of Integer Exponents</p>
<p>8.AR.EE.2</p> <p>Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a non-negative rational number.</p>	<p>G8 M7 Lesson 2: Square Roots</p> <p>G8 M7 Lesson 3: Existence and Uniqueness of Square Roots and Cube Roots</p> <p>G8 M7 Lesson 5: Solving Equations with Radicals</p>
<p>8.AR.EE.3</p> <p>Explain the characteristics of a linear relationship, including identifying the slope and y-intercept in tables, graphs, equations, and descriptions.</p>	<p>G8 M4 Topic B: Linear Equations in Two Variables and Their Graphs</p> <p>G8 M4 Topic C: Slope and Equations of Lines</p>

North Dakota Mathematics K–12 Standards	Aligned Components of <i>Eureka Math</i>
<p>8.AR.EE.4</p> <p>Represent linear relationships using tables, graphs, equations, and descriptions when given a relationship in one of these forms.</p>	<p>G8 M4 Topic B: Linear Equations in Two Variables and Their Graphs</p> <p>G8 M4 Topic C: Slope and Equations of Lines</p>
<p>8.AR.EE.5</p> <p>Solve linear equations with rational number coefficients and variables on both sides, including equations that require using the distributive property and/or combining and collecting like terms. Interpret the number of solutions. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions.</p>	<p>G8 M4 Topic A: Writing and Solving Linear Equations</p>
<p>8.AR.EE.6</p> <p>Read, write, and evaluate numerical and algebraic expressions including expressions involving absolute value. Solve and graph equations of the form $x = r$ where r is a non-negative rational number.</p>	<p><i>Supplemental material is necessary to address this standard.</i></p>

North Dakota Mathematics K–12 Standards	Aligned Components of <i>Eureka Math</i>
<p>8.AR.EE.7</p> <p>Solve and graph inequalities in one variable with rational number coefficients and variables on both sides, including inequalities that require using the distributive property and/or combining like terms.</p>	<p>Algebra I M1 Lesson 11: Solution Sets for Equations and Inequalities</p> <p>Algebra I M1 Lesson 14: Solving Inequalities</p> <p>Algebra I M1 Lesson 16: Solving and Graphing Inequalities Joined by “And” or “Or”</p>
<p>8.AR.EE.8</p> <p>Graph linear inequalities in two variables on a coordinate plane. Interpret the possible solutions in the context of authentic problems.</p>	<p>Algebra I M1 Lesson 21: Solution Sets to Inequalities with Two Variables</p>

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.

8.AR.F Functions: Learners will develop a foundational knowledge of functions and use them to model relationships between quantities.

North Dakota Mathematics K–12 Standards	Aligned Components of <i>Eureka Math</i>
<p>8.AR.F.1</p> <p>Defend whether a relation is a function from various representations using appropriate function language.</p>	<p>G8 M5 Lesson 1: The Concept of a Function</p> <p>G8 M5 Lesson 2: Formal Definition of a Function</p> <p>G8 M5 Lesson 4: More Examples of Functions</p> <p>G8 M5 Lesson 5: Graphs of Functions and Equations</p> <p>G8 M5 Lesson 6: Graphs of Linear Functions and Rate of Change</p> <p>G8 M5 Lesson 8: Graphs of Simple Nonlinear Functions</p>

**North Dakota Mathematics
K–12 Standards**

Aligned Components of *Eureka Math*

<p>8.AR.F.2</p> <p>Compare and contrast properties of two linear functions, each represented in a different way (algebraically, graphically, numerically in tables, and/or by descriptions).</p>	<p>G8 M5 Lesson 7: Comparing Linear Functions and Graphs</p>
<p>8.AR.F.3</p> <p>Compare and contrast linear and nonlinear functions represented in different ways (algebraically, graphically, numerically in tables, and/or by descriptions).</p>	<p>G8 M5 Lesson 8: Graphs of Simple Nonlinear Functions</p>
<p>8.AR.F.4</p> <p>Model a linear function between two quantities by creating a table, graph, and equation. Interpret the rate of change and initial value of a linear function in terms of the situation it models.</p>	<p>G8 M4 Lesson 10: A Critical Look at Proportional Relationships</p> <p>G8 M4 Lesson 11: Constant Rate</p> <p>G8 M4 Lesson 12: Linear Equations in Two Variables</p> <p>G8 M4 Lesson 22: Constant Rates Revisited</p> <p>G8 M6 Lesson 1: Modeling Linear Relationships</p> <p>G8 M6 Lesson 2: Interpreting Rate of Change and Initial Value</p> <p>G8 M6 Lesson 3: Representations of a Line</p>

North Dakota Mathematics K–12 Standards	Aligned Components of <i>Eureka Math</i>
<p>8.AR.F.5</p> <p>Describe qualitatively the functional relationship between two quantities by analyzing a graph including where the function is constant, increasing, or decreasing; linear or nonlinear; and discrete or continuous. Create a graph that exhibits the qualitative features of a function described.</p>	<p>G8 M6 Lesson 2: Interpreting Rate of Change and Initial Value</p> <p>G8 M6 Lesson 3: Representations of a Line</p> <p>G8 M6 Lesson 4: Increasing and Decreasing Functions</p> <p>G8 M6 Lesson 5: Increasing and Decreasing Functions</p>

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.

8.GM.AV Area and Volume: Learners will use visualization and spatial reasoning to solve problems involving area, surface area, and volume of geometric figures.

North Dakota Mathematics K–12 Standards	Aligned Components of <i>Eureka Math</i>
<p>8.GM.AV.1</p> <p>Apply given formulas to solve problems involving the volume of cones, cylinders, and spheres, including authentic problems.</p>	<p>G8 M5 Topic B: Volume</p> <p>G8 M7 Lesson 19: Cones and Spheres</p> <p>G8 M7 Lesson 20: Truncated Cones</p> <p>G8 M7 Lesson 21: Volume of Composite Solids</p> <p>G8 M7 Lesson 22: Average Rate of Change</p>

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.

8.GM.GF Geometric Figures: Learners will use visualization, spatial reasoning, and geometric modeling to investigate the characteristics of figures, perform transformations, and construct logical arguments.

North Dakota Mathematics K–12 Standards	Aligned Components of <i>Eureka Math</i>
<p>8.GM.GF.1</p> <p>Perform single transformations to a figure on the coordinate plane and determine whether the figures are congruent or similar.</p>	<p>G8 M3 Lesson 3: Examples of Dilations</p> <p>G8 M3 Lesson 6: Dilations on the Coordinate Plane</p> <p>G8 M3 Lesson 8: Similarity</p>
<p>8.GM.GF.2</p> <p>Describe the characteristics of transformations on the coordinate plane using transformation language.</p>	<p>G8 M2 Lesson 6: Rotations of 180 Degrees</p> <p>G8 M3 Lesson 6: Dilations on the Coordinate Plane</p>
<p>8.GM.GF.3</p> <p>Name the type of transformation needed to map a pre-image to its image.</p>	<p>G8 M2 Topic A: Definitions and Properties of the Basic Rigid Motions</p> <p>G8 M3 Topic A: Dilation</p>
<p>8.GM.GF.4</p> <p>Describe the following angle-pair relationships: interior and exterior angles of triangles and angles formed when a transversal cuts parallel lines or intersecting lines. Solve for an unknown angle in a figure by applying facts about these angles.</p>	<p>G8 M2 Lesson 12: Angles Associated with Parallel Lines</p> <p>G8 M2 Lesson 13: Angle Sum of a Triangle</p> <p>G8 M2 Lesson 14: More on the Angles of a Triangle</p>

**North Dakota Mathematics
K–12 Standards**

Aligned Components of *Eureka Math*

<p>8.GM.GF.5</p> <p>Describe the relationship between the leg lengths and the hypotenuse length of a right triangle. Determine whether a triangle is a right triangle using this relationship.</p>	<p>G8 M2 Topic D: The Pythagorean Theorem</p> <p>G8 M3 Topic C: The Pythagorean Theorem</p> <p>G8 M7 Lesson 1: The Pythagorean Theorem</p>
<p>8.GM.GF.6</p> <p>Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in two and three dimensions on and off a coordinate plane, including authentic problems.</p>	<p>G8 M2 Topic D: The Pythagorean Theorem</p> <p>G8 M3 Topic C: The Pythagorean Theorem</p> <p>G8 M7 Lesson 1: The Pythagorean Theorem</p> <p>G8 M7 Lesson 17: Distance on the Coordinate Plane</p> <p>G8 M7 Lesson 18: Applications of the Pythagorean Theorem</p> <p>G8 M7 Lesson 19: Cones and Spheres</p> <p>G8 M7 Lesson 23: Nonlinear Motion</p>

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.

8.DPS.D Data Analysis: Learners will ask and answer questions by collecting, organizing, and displaying relevant data, drawing inferences and conclusions, and making predictions.

North Dakota Mathematics K–12 Standards	Aligned Components of <i>Eureka Math</i>
<p>8.DPS.D.1</p> <p>Interpret scatter plots for bivariate measurement data to investigate patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.</p>	<p>G8 M6 Topic C: Linear and Nonlinear Models</p>
<p>8.DPS.D.2</p> <p>Draw an informal trend line on a given scatter plot with a linear association and justify its fit by describing the closeness of the data points to the line.</p>	<p>G8 M6 Lesson 8: Informally Fitting a Line</p> <p>G8 M6 Lesson 9: Determining the Equation of a Line Fit to Data</p> <p>G8 M6 Lesson 11: Using Linear Models in a Data Context</p> <p>G8 M6 Lesson 12: Nonlinear Models in a Data Context</p>
<p>8.DPS.D.3</p> <p>Solve authentic problems in the context of bivariate measurement data by interpreting the slope and intercept(s) and making predictions using a linear model.</p>	<p>G8 M6 Topic C: Linear and Nonlinear Models</p>
<p>8.DPS.D.4</p> <p>Construct and interpret a two-way table summarizing bivariate categorical data collected from the same subjects.</p>	<p>G8 M6 Topic D: Bivariate Categorical Data</p>