Grade 8 | North Dakota Mathematics K–12 Standards 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.

Math Attributes	Aligned Components of *Eureka Math²*
6–8.MA.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.	Lessons in every module engage students in math attributes. These are indicated in margin notes included with every lesson.
6–8.MA.C Learners can create connections within and across concepts and provide examples of how they relate to other learning and ideas using supporting evidence.	Lessons in every module engage students in math attributes. These are indicated in margin notes included with every lesson.
6–8.MA.R Learners can reason logically, citing evidence to evaluate and explain what they see, think, and conclude through exploration and justification.	Lessons in every module engage students in math attributes. These are indicated in margin notes included with every lesson.

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 *Eureka Math²*
8.NO.NS.1 Compare and classify real numbers within the real number system.	8 M1 Lesson 22: Familiar and Not So Familiar Numbers
8.NO.NS.2 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.	8 M1 Lesson 21: Approximating Values of Roots and π^2 8 M1 Lesson 23: Ordering Irrational Numbers
8.NO.NS.3 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.	8 M1 Topic A: Introduction to Scientific Notation 8 M1 Topic B: Properties and Definitions of Exponents

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 *Eureka Math²*
8.NO.O.1 Evaluate mentally the square roots of perfect squares up to 225 and cube roots of perfect cubes up to 1,000.	8 M1 Lesson 16: Perfect Squares and Perfect Cubes 8 M1 Lesson 17: Solving Equations with Squares and Cubes 8 M1 Lesson 20: Square Roots 8 M1 Lesson 24: Revisiting Equations with Squares and Cubes
8.NO.O.2 Add, subtract, multiply, and divide rational numbers using strategies or procedures.	7 M2 Topic A: Adding Rational Numbers 7 M2 Topic B: Subtracting Rational Numbers 7 M2 Topic C: Multiplying Rational Numbers 7 M2 Lesson 18: Understanding Negative Divisors

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 *Eureka Math²*
8.AR.EE.1 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.	8 M1 Topic B: Properties and Definitions of Exponents
8.AR.EE.2 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 nonnegative rational number.	8 M1 Lesson 16: Perfect Squares and Perfect Cubes 8 M1 Lesson 17: Solving Equations with Squares and Cubes 8 M1 Lesson 20: Square Roots 8 M1 Lesson 24: Revisiting Equations with Squares and Cubes
8.AR.EE.3 Explain the characteristics of a linear relationship, including identifying the slope and y-intercept in tables, graphs, equations, and descriptions.	8 M4 Topic C: Linear Equations in Two Variables 8 M4 Topic E: Different Forms of Linear Equations 8 M4 Topic F: Graphing and Writing Linear Equations

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
8.AR.EE.4 Represent linear relationships using tables, graphs, equations, and descriptions when given a relationship in one of these forms.	8 M4 Lesson 15: Comparing Proportional Relationships 8 M4 Lesson 16: Proportional Relationships and Slope 8 M4 Lesson 22: Point-Slope Form of the Equation of a Line 8 M4 Lesson 23: Comparing Equations in Different Forms 8 M4 Lesson 24: The Patterns, the Pops, and the Pastries 8 M4 Lesson 25: Lines, Lines, and More Lines 8 M4 Lesson 26: Linear Equations from Word Problems
8.AR.EE.5 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.	8 M4 Lesson 7: Linear Equations with More Than One Solution 8 M4 Lesson 8: Another Possible Number of Solutions 8 M4 Lesson 9: Writing Linear Equations 8 M4 Lesson 10: Using Linear Equations to Solve Real-World Problems 8 M5 Topic A: Solving Systems of Linear Equations Graphically 8 M5 Topic B: Solving Systems of Linear Equations Algebraically
8.AR.EE.6 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 nonnegative rational number.	*Supplemental material is necessary to address this standard.*

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
8.AR.EE.7 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.	A1 M1 Lesson 7: Printing Presses A1 M1 Lesson 8: Solution Sets for Equations and Inequalities in One Variable A1 M1 Lesson 13: Solving Linear Inequalities in One Variable A1 M1 Lesson 15: Solving and Graphing Compound Inequalities
8.AR.EE.8 Graph linear inequalities in two variables on a coordinate plane. Interpret the possible solutions in the context of authentic problems.	A1 M2 Lesson 4: Solution Sets of Linear Inequalities in Two Variables A1 M2 Lesson 5: Graphing Linear Inequalities in Two Variables A1 M2 Lesson 12: Solution Sets of Systems of Linear Inequalities A1 M2 Lesson 13: Graphing Solution Sets of Systems of Linear Inequalities A1 M2 Lesson 14: Applications of Systems of Linear Inequalities A1 M6 Lesson 6: Designing a Fundraiser

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 *Eureka Math²*
8.AR.F.1 Defend whether a relation is a function from various representations using appropriate function language.	8 M6 Lesson 1: Motion and Speed 8 M6 Lesson 2: Definition of a Function 8 M6 Lesson 4: More Examples of Functions 8 M6 Lesson 5: Graphs of Functions and Equations

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
8.AR.F.2 Compare and contrast properties of two linear functions, each represented in a different way (algebraically, graphically, numerically in tables, and/or by descriptions).	8 M6 Lesson 7: Interpreting Rate of Change and Initial Value 8 M6 Lesson 8: Comparing Functions
8.AR.F.3 Compare and contrast linear and nonlinear functions represented in different ways (algebraically, graphically, numerically in tables, and/or by descriptions).	8 M6 Lesson 7: Interpreting Rate of Change and Initial Value 8 M6 Lesson 8: Comparing Functions
8.AR.F.4 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.	8 M4 Lesson 15: Comparing Proportional Relationships 8 M4 Lesson 16: Proportional Relationships and Slope 8 M6 Lesson 6: Linear Functions and Rate of Change 8 M6 Lesson 7: Interpreting Rate of Change and Initial Value 8 M6 Lesson 25: Applications of Volume
8.AR.F.5 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.	8 M6 Lesson 9: Increasing and Decreasing Functions 8 M6 Lesson 10: Graphs of Nonlinear Functions

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 *Eureka Math²*
8.GM.AV.1 Apply given formulas to solve problems involving the volume of cones, cylinders, and spheres, including authentic problems.	8 M6 Topic E: Volume

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 *Eureka Math²*
8.GM.GF.1 Perform single transformations to a figure on the coordinate plane and determine whether the figures are congruent or similar.	8 M2 Lesson 4: Translations and Reflections on the Coordinate Plane 8 M2 Lesson 6: Rotations on the Coordinate Plane 8 M3 Topic A: Dilations 8 M3 Topic B: Properties of Dilations

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
8.GM.GF.2 Describe the characteristics of transformations on the coordinate plane using transformation language.	8 M2 Lesson 4: Translations and Reflections on the Coordinate Plane 8 M2 Lesson 6: Rotations on the Coordinate Plane 8 M2 Lesson 8: Sequencing the Rigid Motions 8 M2 Lesson 9: Ordering Sequences of Rigid Motions 8 M3 Lesson 8: Dilations on the Coordinate Plane 8 M3 Lesson 9: Describing Dilations 8 M3 Lesson 10: Sequencing Transformations
8.GM.GF.3 Name the type of transformation(s) needed to map a pre-image to its image.	8 M2 Topic B: Rigid Motions and Congruent Figures
8.GM.GF.4 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.	8 M2 Topic C: Angle Relationships 8 M3 Lesson 12: Exploring Angles in Similar Triangles 8 M3 Lesson 13: Similar Triangles 8 M3 Lesson 14: Using Similar Figures to Find Unknown Side Lengths 8 M3 Lesson 15: Applications of Similar Figures 8 M3 Lesson 16: Similar Right Triangles

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
8.GM.GF.5 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.	8 M1 Lesson 18: The Pythagorean Theorem 8 M1 Lesson 19: Using the Pythagorean Theorem 8 M1 Lesson 20: Square Roots 8 M2 Lesson 19: Using the Pythagorean Theorem and Its Converse 8 M2 Lesson 21: Applying the Pythagorean Theorem 8 M2 Lesson 22: On the Right Path 8 M3 Lesson 16: Similar Right Triangles
8.GM.GF.6 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.	8 M1 Lesson 18: The Pythagorean Theorem 8 M1 Lesson 19: Using the Pythagorean Theorem 8 M1 Lesson 20: Square Roots 8 M2 Lesson 19: Using the Pythagorean Theorem and Its Converse 8 M2 Lesson 20: Distance in the Coordinate Plane 8 M2 Lesson 21: Applying the Pythagorean Theorem 8 M2 Lesson 22: On the Right Path 8 M3 Lesson 16: Similar Right Triangles

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 *Eureka Math²*
8.DPS.D.1 Interpret scatter plots for bivariate measurement data to investigate patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	8 M6 Lesson 11: Scatter Plots 8 M6 Lesson 12: Patterns in Scatter Plots
8.DPS.D.2 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.	8 M6 Lesson 13: Informally Fitting a Line to Data 8 M6 Lesson 15: Linear Models
8.DPS.D.3 Solve authentic problems in the context of bivariate measurement data by interpreting the slope and intercept(s) and making predictions using a linear model.	8 M6 Lesson 6: Linear Functions and Rate of Change 8 M6 Lesson 7: Interpreting Rate of Change and Initial Value 8 M6 Lesson 14: Determining an Equation of a Line Fit to Data 8 M6 Lesson 15: Linear Models 8 M6 Lesson 16: Using the Investigative Process 8 M6 Lesson 17: Analyzing the Model
8.DPS.D.4 Construct and interpret a two-way table summarizing bivariate categorical data collected from the same subjects.	8 M6 Topic D: Bivariate Categorical Data