Mathematics I | 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*
9–12.MA.P Learners can analyze, execute, critique, and adapt approaches and solutions when problem-solving in novel situations.	Lessons in every module engage students in math attributes. These are indicated in margin notes included with every lesson.
9–12.MA.C Learners can create connections within and across concepts, using supporting evidence to interpret how they originate, extend, and relate to other learning, ideas, and life experiences.	Lessons in every module engage students in math attributes. These are indicated in margin notes included with every lesson.
9–12.MA.R Learners can reason logically, citing evidence to critique and explain what they see, think, and conclude through exploration, generalization, and validation.	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.

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.NO.3 Choose and interpret the scale and the units in graphs and data displays.	Math 1 M1 Lesson 1: A Powerful Trio Math 1 M3 Lesson 14: Comparing Models for Situations Math 1 M6 Lesson 9: Solar System Models Math 1 M6 Lesson 10: Designing a Fundraiser Math 1 M6 Lesson 11: A Vanishing Sea
9-10.NO.4 Define appropriate quantities and units for the purpose of descriptive modeling.	Math 1 M1 Lesson 1: A Powerful Trio Math 1 M3 Lesson 14: Comparing Models for Situations Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 9: Solar System Models Math 1 M6 Lesson 10: Designing a Fundraiser Math 1 M6 Lesson 11: A Vanishing Sea
9-10.NO.5 Choose a level of accuracy or precision appropriate to limitations on measurement when reporting quantities.	Math 1 M6 Lesson 9: Solar System Models Math 1 M6 Lesson 11: A Vanishing Sea

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.

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.AR.2 Rearrange formulas to isolate a quantity or variable(s) of interest using the same reasoning as in solving equations.	Math 1 M1 Lesson 10: Rearranging Formulas
9-10.AR.3 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear, quadratic, and exponential functions.	Math 1 M1 Lesson 5: Printing Presses Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable Math 1 M1 Lesson 11: Solving Linear Inequalities in One Variable Math 1 M1 Lesson 13: Solving and Graphing Compound Inequalities Math 1 M5 Lesson 5: Arithmetic and Geometric Sequences Math 1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences Math 1 M5 Lesson 7: Exponential Functions Math 1 M5 Lesson 12: Writing Equations for Exponential Functions from Tables or Graphs Math 1 M5 Lesson 14: Exponential Growth Math 1 M5 Lesson 15: Exponential Decay Math 1 M5 Topic D: Comparing Linear and Exponential Models Math 1 M6 Lesson 8: The Deal *Supplemental material is necessary to address creating equations arising from quadratic functions.*

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.AR.4 Create linear and exponential equations in two or more variables to represent relationships between quantities. Graph equations on coordinate axes with appropriate labels and scales.	Math 1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables Math 1 M2 Lesson 2: Graphing Linear Equations in Two Variables Math 1 M2 Lesson 3: Creating Linear Equations in Two Variables Math 1 M2 Lesson 8: Low-Flow Showerhead Math 1 M5 Lesson 11: Solving Equations Containing Exponential Expressions Math 1 M5 Lesson 16: Modeling Populations Math 1 M5 Lesson 18: Analyzing Exponential Growth Math 1 M5 Lesson 22: Modeling the Temperature of Objects Cooling Over Time Math 1 M5 Lesson 23: Modeling an Invasive Species Population
9-10.AR.5 Justify each step in solving a linear equation that may or may not have a solution.	Math 1 M1 Lesson 3: The Commutative, Associative, and Distributive Properties Math 1 M1 Lesson 7: Solving Linear Equations in One Variable Math 1 M1 Lesson 8: Some Potential Dangers When Solving Equations Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable
9-10.AR.6 Solve linear equations and inequalities (to include compound inequalities) in one variable.	Math 1 M1 Lesson 5: Printing Presses Math 1 M1 Lesson 6: Solution Sets of Equations and Inequalities in One Variable Math 1 M1 Lesson 7: Solving Linear Equations in One Variable Math 1 M1 Lesson 8: Some Potential Dangers When Solving Equations Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable Math 1 M1 Lesson 11: Solving Linear Inequalities in One Variable Math 1 M1 Lesson 12: Solution Sets of Compound Statements Math 1 M1 Lesson 13: Solving and Graphing Compound Inequalities

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.AR.7 Solve a system of linear equations graphically and algebraically. Create and solve a system of linear equations in context.	Math 1 M2 Topic B: Systems of Linear Equations in Two Variables
9-10.AR.8 Graph the solution set to a two-variable system of linear inequalities. Create and graph the solution set to a two-variable system of linear inequalities in context.	Math 1 M2 Lesson 16: Solution Sets of Systems of Linear Inequalities Math 1 M2 Lesson 17: Graphing Solution Sets of Systems of Linear Inequalities Math 1 M2 Lesson 18: Applications of Systems of Linear Inequalities Math 1 M6 Lesson 10: Designing a Fundraiser
9-10.AR.9 Solve absolute value equations and inequalities in one or two variables.	Math 1 M1 Lesson 14: Solving Absolute Value Equations Math 1 M1 Lesson 15: Solving Absolute Value Inequalities Math 1 M1 Lesson 16: Applying Absolute Value *Supplemental material is necessary to address solving absolute value equations and inequalities in two variables.*

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.

9-10.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*
9-10.AR.F.1 Determine whether a relationship is a function given a table, graph, or words, identifying x as an element of the domain and $f(x)$ as an element in the range. Determine the domain and range of a function in context.	Math 1 M3 Topic A: Functions and Their Graphs
9-10.AR.F.2 Use function notation, evaluate functions for inputs in their domains and interpret statements that use function notation in context.	Math 1 M3 Lesson 2: Interpreting and Using Function Notation Math 1 M3 Lesson 3: Representing, Naming, and Evaluating Functions Math 1 M3 Lesson 7: Representations of Functions Math 1 M5 Lesson 1: Exploring Patterns Math 1 M5 Lesson 2: The Recursive Challenge Math 1 M5 Lesson 3: Recursive Formulas for Sequences Math 1 M5 Lesson 4: Explicit Formulas for Sequences

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.AR.F.3 Sketch the key features (to include intercepts, maximums, minimums, and lines of symmetry, where applicable) of linear, exponential, and quadratic functions modeling the relationship between two quantities using tables, graphs, written descriptions, and equations.	A1 M4 Lesson 4: Graphs of Quadratic Functions A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions Math 1 M3 Lesson 8: Exploring Key Features of a Function and Its Graph Math 1 M3 Lesson 9: Identifying Key Features of a Function and Its Graph Math 1 M3 Lesson 11: Comparing Functions Math 1 M3 Lesson 12: Sketching Graphs of Functions from Verbal Descriptions Math 1 M3 Lesson 13: Modeling Elevation as a Function of Time Math 1 M3 Lesson 15: Mars Curiosity Rover Math 1 M5 Lesson 8: Graphing Exponential Functions Math 1 M5 Lesson 9: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) Math 1 M5 Lesson 10: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1)
9-10.AR.F.4 Relate the domain of a linear, quadratic, or exponential function to its graph and, where applicable, to the quantitative relationship it describes.	A1 M4 Lesson 2: Projectile Motion A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion Math 1 M3 Lesson 4: The Graph of a Function Math 1 M3 Lesson 13: Modeling Elevation as a Function of Time Math 1 M5 Lesson 8: Graphing Exponential Functions
9-10.AR.F.5 Calculate and interpret the rate of change of linear, quadratic, or exponential functions (presented algebraically or as a table) over specified intervals. Estimate the rate of change from a graph.	A1 M4 Lesson 1: Falling Objects Math 1 M5 Lesson 17: Average Rate of Change Math 1 M5 Lesson 18: Analyzing Exponential Growth Math 1 M5 Lesson 19: Comparing Growth of Functions Math 1 M5 Lesson 23: Modeling an Invasive Species Population

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.AR.F.6 Write a function defined by an expression in different but equivalent forms to reveal and explain the different properties of the function. a. Use appropriate forms of linear, quadratic, and exponential functions to show zeros, extreme values, and symmetry (where applicable) and interpret them in context. b. Use the properties of an exponential function to classify it as growth or decay.	Math 1 M1 Lesson 2: Looking for Patterns Math 1 M5 Topic A: Arithmetic and Geometric Sequences Math 1 M5 Lesson 7: Exponential Functions Math 1 M5 Lesson 11: Solving Equations Containing Exponential Expressions Math 1 M5 Lesson 13: Calculating Interest Math 1 M5 Lesson 14: Exponential Growth Math 1 M5 Lesson 15: Exponential Decay Math 1 M5 Lesson 16: Modeling Populations Math 1 M5 Lesson 20: World Population Prediction Math 1 M5 Lesson 21: A Closer Look at Populations *Supplemental material is necessary to address using appropriate forms of quadratic functions and using properties of exponents.*
9-10.AR.F.7 Compare key features of two linear, exponential, or quadratic functions, each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).	Math 1 M3 Lesson 9: Identifying Key Features of a Function and Its Graph Math 1 M3 Lesson 11: Comparing Functions Math 1 M5 Lesson 19: Comparing Growth of Functions *Supplemental material is necessary to address comparisons of two quadratic functions.*

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.AR.F.8 Identify situations that can be modeled with linear, quadratic, and exponential functions. Justify the most appropriate model for a situation based on the rate of change over equal intervals. Include situations in which a quantity grows or decays.	A1 M4 Lesson 1: Falling Objects Math 1 M5 Lesson 13: Calculating Interest Math 1 M5 Lesson 16: Modeling Populations Math 1 M5 Lesson 18: Analyzing Exponential Growth Math 1 M5 Lesson 20: World Population Prediction Math 1 M5 Lesson 21: A Closer Look at Populations Math 1 M5 Lesson 23: Modeling an Invasive Species Population Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 11: A Vanishing Sea
9-10.AR.F.9 Identify the effect of transformations on the graph of a linear, absolute value, or quadratic function by replacing $f(x)$ with $af(x)$, $f(x-h)$, and $f(x)+k$, for specific values of a, h, and k (both positive and negative). Find the value of a, h, and k given the graph of the function.	A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions Math 1 M3 Topic D: Transformations of Functions Math 1 M5 Lesson 9: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) Math 1 M5 Lesson 10: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) Math 1 M5 Lesson 12: Writing Equations for Exponential Functions from Tables or Graphs
9-10.AR.F.11 Interpret the parameters in a linear, quadratic, or exponential function in context.	Math 1 M1 Lesson 4: Interpreting Linear Expressions Math 1 M5 Lesson 16: Modeling Populations Math 1 M5 Lesson 18: Analyzing Exponential Growth Math 1 M5 Lesson 22: Modeling the Temperature of Objects Cooling Over Time Math 1 M5 Lesson 23: Modeling an Invasive Species Population *Supplemental material is necessary to address interpreting parameters in a quadratic function.*

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.AR.F.12 Identify, using graphs or tables, the solution(s) to linear and exponential functions $f(x) = g(x)$ as x-value(s) that result in equivalent y-values.	Math 1 M3 Lesson 10: Using Graphs to Solve Equations Math 1 M5 Lesson 11: Solving Equations Containing Exponential Expressions

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.

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.GM.1 Know precise definitions and notations of angle, circle, perpendicular line, parallel line, and line segment based on the undefined notions of point, line, and plane.	Math 1 M2 Lesson 6: Proving the Parallel Criterion Math 1 M4 Lesson 2: Translations of the Coordinate Plane Math 1 M4 Lesson 3: Rotations of the Coordinate Plane Math 1 M4 Lesson 5: Proving the Perpendicular Criterion
9-10.GM.2 Represent transformations in the plane. Describe transformations as functions taking points in the plane as inputs and giving other points as outputs. Compare transformations that preserve distance and angle to those that do not (i.e., rigid versus non-rigid motion).	Math 1 M4 Lesson 1: Geometric Transformations

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.GM.3 Describe the rotations and reflections of a triangle, rectangle, parallelogram, trapezoid, or regular polygon that map each figure onto itself or another figure.	Math 1 M4 Lesson 12: Reflective Symmetry and Rotational Symmetry
9-10.GM.4 Develop or verify the characteristics of rotations, reflections, and translations in angles, circles, perpendicular lines, parallel lines, and line segments.	Math 1 M4 Lesson 2: Translations of the Coordinate Plane Math 1 M4 Lesson 3: Rotations of the Coordinate Plane Math 1 M4 Lesson 4: Reflections of the Coordinate Plane Math 1 M4 Lesson 5: Proving the Perpendicular Criterion Math 1 M4 Lesson 8: Reflections of the Plane Math 1 M4 Lesson 9: Rotations of the Plane Math 1 M4 Lesson 10: Rotations of the Plane with Bisected and Copied Angles Math 1 M4 Lesson 11: Translations of the Plane
9-10.GM.5 Draw the image of a figure that has undergone a series of transformations [rotation(s), reflection(s), or translation(s)] of a geometric figure using a variety of methods (e.g., graph paper, tracing paper, or geometry software).	Math 1 M4 Lesson 2: Translations of the Coordinate Plane Math 1 M4 Lesson 3: Rotations of the Coordinate Plane Math 1 M4 Lesson 4: Reflections of the Coordinate Plane Math 1 M4 Lesson 5: Proving the Perpendicular Criterion Math 1 M4 Lesson 13: Sequences of Basic Rigid Motions Math 1 M4 Lesson 14: Transformations of the Coordinate Plane Math 1 M4 Lesson 15: Designs with Rigid Motions Math 1 M4 Lesson 16: Congruent Figures

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.GM.6 Predict the effect of a specified rigid motion on a given figure using geometric descriptions of rigid motions. Determine whether two figures are congruent using the definition of congruence in terms of rigid motions.	Math 1 M4 Lesson 14: Transformations of the Coordinate Plane Math 1 M4 Lesson 16: Congruent Figures
9-10.GM.7 Use the definition of congruence, based on rigid motions, to show two triangles are congruent if and only if their corresponding sides and corresponding angles are congruent.	Math 1 M4 Lesson 17: Congruent Triangles
9-10.GM.8 Prove two triangles are congruent using the congruence theorems.	Math 1 M4 Lesson 17: Congruent Triangles Math 1 M4 Lesson 18: Side–Angle–Side Math 1 M4 Lesson 19: Angle–Angle–Angle and Side–Side–Side Math 1 M4 Lesson 20: Angle–Side–Angle Math 1 M4 Lesson 21: Side–Side–Angle and Hypotenuse–Leg
9-10.GM.12 Make basic geometric constructions (e.g., segment, angle, bisectors, parallel and perpendicular lines) with a variety of tools and methods.	Math 1 M4 Lesson 6: Compass and Straightedge Constructions Math 1 M4 Lesson 7: Constructing Perpendicular Lines Math 1 M4 Lesson 10: Rotations of the Plane with Bisected and Copied Angles Math 1 M4 Lesson 11: Translations of the Plane Math 1 M4 Lesson 22: Validating Triangle and Angle Constructions Math 1 M4 Lesson 23: Validating Perpendicular Line Constructions Math 1 M4 Lesson 26: Sierpinski Triangle

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.GM.13 Apply basic constructions to create polygons such as equilateral triangles, squares, and regular hexagons inscribed in circles.	Math 1 M4 Lesson 6: Compass and Straightedge Constructions Math 1 M4 Lesson 9: Rotations of the Plane Math 1 M4 Lesson 22: Validating Triangle and Angle Constructions Math 1 M4 Lesson 24: Squares Inscribed in Circles Math 1 M4 Lesson 25: Regular Hexagons and Equilateral Triangles Inscribed in Circles Math 1 M4 Lesson 26: Sierpinski Triangle
9-10.GM.27 Develop and verify the slope criteria for parallel and perpendicular lines. Apply the slope criteria for parallel and perpendicular lines to solve problems.	Math 1 M2 Lesson 6: Proving the Parallel Criterion Math 1 M2 Lesson 7: Equations of Parallel and Perpendicular Lines Math 1 M2 Lesson 20: Proving Geometric Theorems Algebraically Math 1 M4 Lesson 5: Proving the Perpendicular Criterion
9-10.GM.30 Compute perimeters of polygons and areas of triangles, parallelograms, trapezoids, and kites using coordinates.	Math 1 M2 Lesson 19: The Distance Formula Math 1 M2 Lesson 21: Using Coordinates to Determine Perimeters and Areas of Figures Math 1 M6 Lesson 11: A Vanishing Sea

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.

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.DPS.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).	Math 1 M1 Lesson 17: Distributions and Their Shapes Math 1 M1 Lesson 18: Describing the Center of a Distribution Math 1 M1 Lesson 19: Using Center to Compare Data Distributions Math 1 M6 Lesson 1: Using Data to Edit Digital Photography

North Dakota Mathematics K–12 Standards	Aligned Components of *Eureka Math²*
9-10.DPS.2 Compare the center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets using statistics appropriate to the shape of the data distribution.	Math 1 M1 Topic D: Univariate Data Math 1 M6 Lesson 1: Using Data to Edit Digital Photography
9-10.DPS.3 Represent data on two quantitative variables on a scatter plot and describe how the variables are related. a. Fit a linear function to the data (with or without technology) if appropriate. b. Compute (using technology) and interpret the correlation coefficient of a linear fit. c. Interpret the meaning of the slope and y-intercept of the linear model in context. d. Interpolate and extrapolate the linear model to predict values.	Math 1 M2 Topic E: Numerical Data on Two Variables Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 11: A Vanishing Sea
9-10.DPS.4 Distinguish between correlation and causation.	Math 1 M2 Lesson 27: Interpreting Correlation Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data