
Algebra I | Nebraska's College and Career Ready Standards for Mathematics Correlation to *Eureka Math*²®

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 Math*²®, 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 Math*² 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 Math*² 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 Math*² 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 Math*² 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 Math*² 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.

Nebraska Mathematical Practice	Aligned Components of <i>Eureka Math</i> ²
<p>MP.1 Make sense of problems and persevere in solving them.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p>MP.2 Reason quantitatively and abstractly and consider the reasoning of others.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p>MP.3 Create and use representations to organize, record, and communicate mathematical ideas.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p>MP.4 Analyze mathematical relationships to connect mathematical ideas.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p>MP.5 Explain and justify mathematical ideas using precise mathematical language in written or oral communication.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>

Number: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

HS.N.2 Sets and Operations: Students will use number sets and operations to reason and to solve problems.

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Standards for Mathematics**

Aligned Components of *Eureka Math*²

HS.N.2.a Extend the properties of exponents to rational numbers.	A1 M5 Lesson 9: Unit Fraction Exponents A1 M5 Lesson 10: Rational Exponents
HS.N.2.b Use properties of rational and irrational numbers.	A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations A1 M4 Lesson 17: Rewriting Square Roots

Number: Students will solve problems and reason with number concepts using multiple representations, make connections within math and across disciplines, and communicate their ideas.

HS.N.3 Interpretation and Sense Making: Students will reason abstractly and quantitatively using units to solve problems and interpret results in context.

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HS.N.3.c Use units to assess the validity of an answer in the context of a problem.	A1 M6 Lesson 5: Solar System Models
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Algebra: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

HS.A.1 Algebraic Relationships: Students will demonstrate and represent relationships with functions.

Nebraska's College and Career Ready Standards for Mathematics

Aligned Components of *Eureka Math*²

<p>HS.A.1.a</p> <p>Demonstrate that functions are a well mapped subdomain of relations.</p>	<p>A1 M3 Lesson 1: The Definition of a Function</p>
<p>HS.A.1.b</p> <p>Analyze a relation to determine if it is a function given mapping diagrams, function notation (e.g., $f(x) = x^2$), a table, or a graph.</p>	<p>A1 M3 Lesson 1: The Definition of a Function</p> <p>A1 M3 Lesson 2: Representing, Naming, and Evaluating Functions</p>
<p>HS.A.1.e</p> <p>Define, interpret, and analyze linear, quadratic, absolute value, and exponential functions using the points of interest of the functions and graphing technology.</p>	<p>A1 M3 Lesson 4: The Graph of the Equation $y = f(x)$</p> <p>A1 M3 Lesson 5: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations</p> <p>A1 M3 Lesson 6: Representations of Functions</p> <p>A1 M3 Lesson 15: The Absolute Value Function</p> <p>A1 M4 Lesson 4: Graphs of Quadratic Functions</p> <p>A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form</p> <p>A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form</p> <p>A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions</p> <p>A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts</p> <p>A1 M5 Lesson 11: Graphing Exponential Functions</p> <p>A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1)</p> <p>A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1)</p>

Nebraska's College and Career Ready Standards for Mathematics

Aligned Components of *Eureka Math*²

<p>HS.A.1.f</p> <p>Identify, analyze, and apply transformations of existing functions (including translation and dilation).</p>	<p>A1 M3 Topic D: Transformations of Functions</p> <p>A1 M4 Lesson 20: Art with Transformations</p> <p>A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1)</p> <p>A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1)</p> <p>A1 M5 Lesson 14: Writing Equations for Exponential Functions from Tables or Graphs</p> <p>A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time</p>
<p>HS.A.1.h</p> <p>Describe arithmetic sequences using tables of values and functions in explicit and recursive forms.</p>	<p>A1 M5 Lesson 5: Arithmetic and Geometric Sequences</p> <p>A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences</p>
<p>HS.A.1.i</p> <p>Describe geometric sequences using tables of values and functions in explicit and recursive forms.</p>	<p>A1 M5 Lesson 5: Arithmetic and Geometric Sequences</p> <p>A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences</p> <p>A1 M5 Lesson 7: Sierpinski Triangle</p>

Algebra: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

HS.A.2 Algebraic Processes: Students will apply the operational properties when evaluating rational expressions and solving linear and quadratic equations, and inequalities.

Nebraska's College and Career Ready Standards for Mathematics

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<p>HS.A.2.a</p> <p>Analyze and explain the properties used in solving equations, inequalities, systems of linear equations, systems of linear inequalities, and literal equations.</p>	<p>A1 M1 Lesson 9: Solving Linear Equations in One Variable</p> <p>A1 M1 Lesson 10: Some Potential Dangers When Solving Equations</p> <p>A1 M1 Lesson 11: Writing and Solving Equations in One Variable</p>
<p>HS.A.2.b</p> <p>Generate expressions in equivalent forms by using algebraic properties to make different characteristics or features visible.</p>	<p>A1 M4 Lesson 10: Zeros of Functions</p> <p>A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form</p> <p>A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions</p> <p>A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions</p> <p>A1 M5 Lesson 11: Graphing Exponential Functions</p> <p>A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1)</p>
<p>HS.A.2.c</p> <p>Analyze equations and inequalities to determine and apply efficient methods to solve and use appropriate technology as needed.</p>	<p>A1 M1 Topic B: Solving Equations and Inequalities in One Variable</p> <p>A1 M1 Topic C: Compound Statements Involving Equations and Inequalities in One Variable</p>

Nebraska's College and Career Ready Standards for Mathematics

Aligned Components of *Eureka Math*²

<p>HS.A.2.d</p> <p>Calculate the slope (rate of change) of a line given coordinate points, a graph, or a table of values.</p>	<p>8 M4 Lesson 16: Proportional Relationships and Slope</p> <p>8 M4 Lesson 17: Slopes of Rising Lines</p> <p>8 M4 Lesson 18: Slopes of Falling Lines</p> <p>8 M4 Lesson 19: Using Coordinates to Find Slope</p> <p>8 M4 Topic E: Different Forms of Linear Equations</p> <p>A1 M3 Lesson 3: Creating Linear Equations in Two Variables</p>
<p>HS.A.2.e</p> <p>Write and graph equations of functions (linear, absolute value, quadratic, and exponential) using the points of interest of the function.</p>	<p>A1 M3 Lesson 4: The Graph of the Equation $y = f(x)$</p> <p>A1 M3 Lesson 15: The Absolute Value Function</p> <p>A1 M4 Topic A: Quadratic Functions and Their Graphs</p> <p>A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form</p> <p>A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form</p> <p>A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions</p> <p>A1 M4 Lesson 20: Art with Transformations</p> <p>A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions</p> <p>A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions</p> <p>A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts</p> <p>A1 M5 Lesson 16: Exponential Growth</p> <p>A1 M5 Lesson 17: Exponential Decay</p> <p>A1 M5 Lesson 18: Modeling Populations</p> <p>A1 M5 Topic D: Comparing Linear and Exponential Models</p>

Nebraska's College and Career Ready Standards for Mathematics

Aligned Components of *Eureka Math*²

<p>HS.A.2.f</p> <p>Given a line, write the equation of a line that is parallel or perpendicular to it.</p>	<p>8 M4 Lesson 21: Slope and Parallel Lines</p> <p><i>Supplemental material is necessary to address writing the equation of a line that is perpendicular to a given line.</i></p>
<p>HS.A.2.g</p> <p>Perform and explain operations such as addition, subtraction, multiplication, division, and factoring on polynomials.</p>	<p>A1 M1 Lesson 3: Polynomial Expressions</p> <p>A1 M1 Lesson 4: Adding and Subtracting Polynomial Expressions</p> <p>A1 M1 Lesson 5: Multiplying Polynomial Expressions</p> <p>A1 M1 Lesson 6: Polynomial Identities</p> <p><i>Supplemental material is necessary to address polynomial division.</i></p>

Algebra: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

HS.A.3 Applications: Students will solve authentic problems using nonlinear functions.

Nebraska's College and Career Ready Standards for Mathematics

Aligned Components of *Eureka Math*²

<p>HS.A.3.b</p> <p>Identify, interpret, relate, and graph the factors, x-intercepts, roots, and zeros of polynomial functions using algebraic and graphing methods.</p>	<p>A1 M4 Lesson 10: Zeros of Functions</p> <p>A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form</p> <p>A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions</p>
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Data: Students will solve problems and reason with data/probability using multiple representations, make connections within math and across disciplines, and communicate their ideas.

HS.D.2 Analyze Data and Interpret Results: Students will represent and analyze the data and interpret the results.

Nebraska’s College and Career Ready Standards for Mathematics

Aligned Components of *Eureka Math*²

<p>HS.D.2.e</p> <p>Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data and recognize possible associations and trends in the data.</p>	<p>A1 M2 Topic D: Categorical Data on Two Variables</p>
<p>HS.D.2.f</p> <p>Represent data on two quantitative variables on a scatter plot and describe how the variables are related.</p>	<p>A1 M2 Lesson 15: Relationships Between Quantitative Variables</p> <p>A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data</p>
<p>HS.D.2.g</p> <p>Use technology to develop regression models for linear and non-linear data to predict unobserved outcomes. Interpret slope and y-intercept in the context of the problem.</p>	<p>A1 M2 Lesson 16: Using Lines to Model Bivariate Quantitative Data</p> <p>A1 M2 Lesson 17: Modeling Relationships with a Line</p> <p>A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts</p> <p>A1 M4 Lesson 26: Modeling Data with Quadratic Functions</p> <p>A1 M4 Lesson 27: Search and Rescue Helicopter</p> <p>A1 M6 Topic A: Modeling Bivariate Quantitative Data</p>
<p>HS.D.2.h</p> <p>Measure the strength of association using correlation coefficients for regression curves and interpret their meanings for the model.</p>	<p>A1 M2 Lesson 20: Interpreting Correlation</p> <p>A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data</p>

Nebraska's College and Career Ready Standards for Mathematics

Aligned Components of *Eureka Math*²

<p>HS.D.2.i</p> <p>Use residuals and residual plots to judge the quality of a regression model.</p>	<p>A1 M2 Lesson 18: Calculating and Analyzing Residuals</p> <p>A1 M2 Lesson 19: Analyzing Residuals</p> <p>A1 M6 Topic A: Modeling Bivariate Quantitative Data</p>
<p>HS.D.2.j</p> <p>Recognize and explain when arguments based on data confuse correlation with causation.</p>	<p>A1 M2 Lesson 20: Interpreting Correlation</p> <p>A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data</p>

Algebra: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

AT.A.1 Algebraic Relationships: Students will demonstrate and represent relationships with functions.

Nebraska's College and Career Ready Standards for Mathematics

Aligned Components of *Eureka Math*²

<p>AT.A.1.c</p> <p>Given a function, list the sequence of algebraic transformations that changes a parent function to the given function.</p>	<p>A1 M3 Topic D: Transformations of Functions</p> <p>A1 M4 Lesson 20: Art with Transformations</p> <p>A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1)</p> <p>A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1)</p> <p>A1 M5 Lesson 14: Writing Equations for Exponential Functions from Tables or Graphs</p> <p>A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time</p>
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Algebra: Students will solve problems and reason with algebra using multiple representations, make connections within math and across disciplines, and communicate their ideas.

AT.A.3 Applications: Students will solve authentic problems using nonlinear functions and relations.

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Aligned Components of *Eureka Math*²

<p>AT.A.3.a</p> <p>Analyze and model authentic situations using various non-linear representations and relations with appropriate technology.</p>	<p>A1 M3 Lesson 17: Piecewise Linear Functions in Context</p> <p>A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts</p> <p>A1 M4 Lesson 25: Maximizing Area</p> <p>A1 M4 Lesson 26: Modeling Data with Quadratic Functions</p> <p>A1 M4 Lesson 27: Search and Rescue Helicopter</p> <p>A1 M5 Lesson 8: Exponential Functions</p> <p>A1 M5 Lesson 15: Calculating Interest</p> <p>A1 M6 Topic B: Developing Models for Contexts</p>
<p>AT.A.3.b</p> <p>Analyze and model authentic application situations using various non-linear representations and relations with appropriate technology.</p>	<p>A1 M3 Lesson 17: Piecewise Linear Functions in Context</p> <p>A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts</p> <p>A1 M4 Lesson 25: Maximizing Area</p> <p>A1 M4 Lesson 26: Modeling Data with Quadratic Functions</p> <p>A1 M4 Lesson 27: Search and Rescue Helicopter</p> <p>A1 M5 Lesson 8: Exponential Functions</p> <p>A1 M5 Lesson 15: Calculating Interest</p> <p>A1 M6 Topic B: Developing Models for Contexts</p>