Algebra I | Pennsylvania Core Standards Mathematics 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.

Standards for Mathematical Practice	Aligned Components of *Eureka Math²*
MP.1 Make sense of problems and persevere in solving them.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.2 Reason abstractly and quantitatively.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.3 Construct viable arguments and critique the reasoning of others.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.4 Model with mathematics.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.5 Use appropriate tools strategically.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.6 Attend to precision.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.7 Look for and make use of structure.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.
MP.8 Look for and express regularity in repeated reasoning.	Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.

Numbers and Operations

CC.2.1.HS.F Number and Quantity

Pennsylvania Core Standards Mathematics	Aligned Components of *Eureka Math²*
CC.2.1.HS.F.1 Apply and extend the properties of exponents to solve problems with rational exponents.	A1 M5 Lesson 9: Unit Fraction Exponents A1 M5 Lesson 10: Rational Exponents
CC.2.1.HS.F.2 Apply properties of rational and irrational numbers to solve real-world or mathematical problems.	A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations A1 M4 Lesson 17: Rewriting Square Roots
CC.2.1.HS.F.3 Apply quantitative reasoning to choose and interpret units and scales in formulas, graphs, and data displays.	*Supplemental material is necessary to address this standard.*
CC.2.1.HS.F.4 Use units as a way to understand problems and to guide the solution of multi-step problems.	A1 M6 Lesson 5: Solar System Models
CC.2.1.HS.F.5 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	A1 M6 Lesson 5: Solar System Models

Algebraic Concepts

CC.2.2.HS.D Algebra

Pennsylvania Core Standards Mathematics	Aligned Components of *Eureka Math²*
CC.2.2.HS.D.1 Interpret the structure of expressions to represent a quantity in terms of its context.	A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M5 Lesson 8: Exponential Functions A1 M5 Lesson 16: Exponential Growth A1 M5 Lesson 17: Exponential Decay A1 M5 Lesson 18: Modeling Populations A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time
CC.2.2.HS.D.2 Write expressions in equivalent forms to solve problems.	A1 M1 Lesson 1: The Growing Pattern of Ducks A1 M1 Lesson 2: The Commutative, Associative, and Distributive Properties A1 M1 Lesson 3: Polynomial Expressions A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M4 Topic B: Factoring A1 M4 Lesson 14: Solving Quadratic Equations by Completing the Square A1 M4 Lesson 15: Deriving the Quadratic Formula A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions A1 M5 Lesson 11: Graphing Exponential Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 18: Modeling Populations
CC.2.2.HS.D.3 Extend the knowledge of arithmetic operations and apply to polynomials.	A1 M1 Lesson 3: Polynomial Expressions A1 M1 Lesson 4: Adding and Subtracting Polynomial Expressions A1 M1 Lesson 5: Multiplying Polynomial Expressions A1 M1 Lesson 6: Polynomial Identities

Pennsylvania Core Standards Mathematics	Aligned Components of *Eureka Math²*
CC.2.2.HS.D.5 Use polynomial identities to solve problems.	A1 M1 Lesson 6: Polynomial Identities
CC.2.2.HS.D.6 Extend the knowledge of rational functions to rewrite in equivalent forms.	*Supplemental material is necessary to address this standard.*
CC.2.2.HS.D.7 Create and graph equations or inequalities to describe numbers or relationships.	A1 M1 Lesson 7: Printing Presses A1 M1 Lesson 11: Writing and Solving Equations in One Variable A1 M1 Lesson 13: Solving Linear Inequalities in One Variable A1 M1 Lesson 14: Solution Sets of Compound Statements A1 M1 Lesson 15: Solving and Graphing Compound Inequalities A1 M2 Lesson 3: Creating Linear Equations in Two Variables A1 M2 Lesson 6: Applications of Linear Equations and Inequalities A1 M4 Lesson 9: Creating and Solving Quadratic Equations in One Variable A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 25: Maximizing Area A1 M4 Lesson 26: Modeling Data with Quadratic Functions A1 M4 Lesson 27: Search and Rescue Helicopter A1 M6 Lesson 5: Solar System Models A1 M6 Lesson 6: Designing a Fundraiser
CC.2.2.HS.D.8 Apply inverse operations to solve equations or formulas for a given variable.	A1 M1 Lesson 12: Rearranging Formulas A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations

Pennsylvania Core Standards Mathematics	Aligned Components of *Eureka Math²*
CC.2.2.HS.D.9 Use reasoning to solve equations and justify the solution method.	A1 M1 Lesson 9: Solving Linear Equations in One Variable A1 M1 Lesson 10: Some Potential Dangers When Solving Equations A1 M1 Lesson 11: Writing and Solving Equations in One Variable
CC.2.2.HS.D.10 Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically.	A1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables A1 M2 Lesson 2: Graphing Linear Equations in Two Variables

Algebraic Concepts

CC.2.2.HS.C Functions

Pennsylvania Core Standards Mathematics	Aligned Components of *Eureka Math²*
CC.2.2.HS.C.1 Use the concept and notation of functions to interpret and apply them in terms of their context.	A1 M3 Topic A: Functions and Their Graphs A1 M3 Lesson 16: Step Functions A1 M5 Lesson 1: Exploring Patterns A1 M5 Lesson 2: The Recursive Challenge A1 M5 Lesson 3: Recursive Formulas for Sequences A1 M5 Lesson 4: Explicit Formulas for Sequences A1 M5 Lesson 7: Sierpinski Triangle

Pennsylvania Core Standards Mathematics	Aligned Components of *Eureka Math²*
CC.2.2.HS.C.2 Graph and analyze functions and use their properties to make connections between the different representations.	A1 M3 Lesson 4: The Graph of the Equation $y = f(x)$ A1 M3 Lesson 5: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations A1 M3 Lesson 6: Representations of Functions A1 M3 Topic C: Piecewise-Defined Linear Functions A1 M3 Lesson 19: Building New Functions—Translations A1 M3 Lesson 23: A Summary of Transforming the Graph of a Function A1 M4 Lesson 4: Graphs of Quadratic Functions A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M5 Lesson 11: Graphing Exponential Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1)
CC.2.2.HS.C.3 Write functions or sequences that model relationships between two quantities.	A1 M3 Lesson 17: Piecewise Linear Functions in Context A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 25: Maximizing Area A1 M4 Lesson 26: Modeling Data with Quadratic Functions A1 M4 Lesson 27: Search and Rescue Helicopter A1 M5 Topic A: Arithmetic and Geometric Sequences A1 M5 Lesson 8: Exponential Functions A1 M5 Lesson 15: Calculating Interest A1 M6 Lesson 4: The Deal A1 M6 Lesson 7: World Record Doughnut

Pennsylvania Core Standards Mathematics	Aligned Components of *Eureka Math²*
CC.2.2.HS.C.4 Interpret the effects transformations have on functions and find the inverses of functions.	A1 M3 Topic D: Transformations of Functions A1 M4 Lesson 20: Art with Transformations A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) A1 M5 Lesson 14: Writing Equations for Exponential Functions from Tables or Graphs A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time *Supplemental material is necessary to address inverse functions.*
CC.2.2.HS.C.5 Construct and compare linear, quadratic, and exponential models to solve problems.	A1 M3 Lesson 4: The Graph of the Equation $y = f(x)$ A1 M3 Lesson 5: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations A1 M3 Lesson 6: Representations of Functions A1 M3 Lesson 11: Comparing Functions A1 M4 Lesson 4: Graphs of Quadratic Functions A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 19: Transforming the Graphs of Quadratic Functions A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 24: Another Look at Systems of Equations A1 M5 Lesson 11: Graphing Exponential Functions A1 M5 Lesson 12: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) A1 M5 Lesson 13: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) A1 M5 Lesson 14: Writing Equations for Exponential Functions from Tables or Graphs A1 M5 Topic C: Exponential Growth and Decay

Pennsylvania Core Standards Mathematics	Aligned Components of *Eureka Math²*
CC.2.2.HS.C.5 ***continued***	A1 M5 Topic D: Comparing Linear and Exponential Models A1 M6 Topic A: Modeling Bivariate Quantitative Data A1 M6 Lesson 4: The Deal A1 M6 Lesson 7: World Record Doughnut
CC.2.2.HS.C.6 Interpret functions in terms of the situations they model.	A1 M3 Lesson 7: Exploring Key Features of a Function and Its Graph A1 M3 Lesson 8: Identifying Key Features of a Function and Its Graph A1 M3 Lesson 9: Representing Functions from Verbal Descriptions A1 M3 Lesson 11: Comparing Functions A1 M3 Lesson 12: Mars Curiosity Rover A1 M3 Lesson 13: Modeling Elevation as a Function of Time A1 M4 Lesson 1: Falling Objects A1 M4 Lesson 2: Projectile Motion A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 25: Maximizing Area A1 M5 Lesson 18: Modeling Populations A1 M5 Lesson 19: Analyzing Exponential Growth A1 M5 Lesson 23: Modeling the Temperature of Objects Cooling Over Time A1 M5 Lesson 24: Modeling an Invasive Species Population

Measurement, Data, and Probability

CC.2.4.HS.B Statistics and Probability

Pennsylvania Core Standards Mathematics	Aligned Components of *Eureka Math²*
CC.2.4.HS.B.1 Summarize, represent, and interpret data on a single count or measurement variable.	A1 M1 Topic D: Univariate Data
CC.2.4.HS.B.2 Summarize, represent, and interpret data on two categorical and quantitative variables.	A1 M2 Topic D: Categorical Data on Two Variables
CC.2.4.HS.B.3 Analyze linear models to make interpretations based on the data.	A1 M2 Topic C: Numerical Data on Two Variables
CC.2.4.HS.B.4 Recognize and evaluate random processes underlying statistical experiments.	*Supplemental material is necessary to address this standard.*
CC.2.4.HS.B.5 Make inferences and justify conclusions based on sample surveys, experiments, and observational studies.	*Supplemental material is necessary to address this standard.*
CC.2.4.HS.B.7 Apply the rules of probability to compute probabilities of compound events in a uniform probability model.	*Supplemental material is necessary to address this standard.*