Algebra I | Georgia State Standards for 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.

Mathematical Modeling

A.MM.1 Apply mathematics to real-life situations; model real-life phenomena using mathematics.

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.MM.1.1 Explain applicable, mathematical problems using a mathematical model.	A1 M4 Lesson 25: Maximizing Area A1 M5 Topic D: Comparing Linear and Exponential Models A1 M6 Topic A: Modeling Bivariate Quantitative Data A1 M6 Topic B: Developing Models for Contexts
A.MM.1.2 Create mathematical models to explain phenomena that exist in the natural sciences, social sciences, liberal arts, fine and performing arts, and/or humanities domains.	A1 M4 Lesson 25: Maximizing Area A1 M6 Topic A: Modeling Bivariate Quantitative Data A1 M6 Topic B: Developing Models for Contexts *Supplemental material is necessary to fully address this standard.*
A.MM.1.3 Use units of measure (linear, area, capacity, rates, and time) as a way to make sense of conceptual problems; identify, use, and record appropriate units of measure within the given framework, within data displays, and on graphs; convert units and rates using proportional reasoning given a conversion factor; use units within multi-step problems and formulas; interpret units of input and resulting units of output.	A1 M2 Lesson 7: Low-Flow Showerhead A1 M3 Lesson 12: Mars Curiosity Rover A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts A1 M4 Lesson 25: Maximizing Area A1 M6 Lesson 1: Analyzing Paint Splatters A1 M6 Lesson 5: Solar System Models A1 M6 Lesson 7: World Record Doughnut

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.MM.1.4 Use various mathematical representations and structures with this information to represent and solve real-life problems.	A1 M1 Lesson 7: Printing Presses A1 M2 Lesson 7: Low-Flow Showerhead A1 M3 Lesson 12: Mars Curiosity Rover A1 M4 Topic D: Modeling with Quadratic Functions A1 M5 Lesson 18: Modeling Populations A1 M5 Topic D: Comparing Linear and Exponential Models A1 M6 Topic A: Modeling Bivariate Quantitative Data A1 M6 Topic B: Developing Models for Contexts
A.MM.1.5 Define appropriate quantities for the purpose of descriptive modeling.	A1 M4 Lesson 25: Maximizing Area A1 M6 Lesson 5: Solar System Models

Functional & Graphical Reasoning

A.FGR.2 Construct and interpret arithmetic sequences as functions, algebraically and graphically, to model and explain real-life phenomena. Use formal notation to represent linear functions and the key characteristics of graphs of linear functions, and informally compare linear and non-linear functions using parent graphs.

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.FGR.2.1 Use mathematically applicable situations algebraically and graphically to build and interpret arithmetic sequences as functions whose domain is a subset of the integers.	A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.FGR.2.2 Construct and interpret the graph of a linear function that models real-life phenomena and represent key characteristics of the graph using formal notation.	A1 M3 Lesson 6: Representations of Functions
A.FGR.2.3 Relate the domain and range of a linear function to its graph and, where applicable, to the quantitative relationship it describes. Use formal interval and set notation to describe the domain and range of linear functions.	A1 M3 Lesson 3: The Graph of a Function A1 M3 Lesson 13: Modeling Elevation as a Function of Time A1 M3 Lesson 16: Step Functions A1 M4 Lesson 2: Projectile Motion A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts *Supplemental material is necessary to address interval notation and range.*
A.FGR.2.4 Use function notation to build and evaluate linear functions for inputs in their domains and interpret statements that use function notation in terms of a mathematical framework.	A1 M3 Lesson 2: Representing, Naming, and Evaluating Functions A1 M3 Lesson 6: Representations of Functions

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.FGR.2.5 Analyze the difference between linear functions and nonlinear functions by informally analyzing the graphs of various parent functions (linear, quadratic, exponential, absolute value, square root, and cube root parent curves).	A1 M5 Lesson 15: Calculating Interest A1 M5 Lesson 18: Modeling Populations A1 M5 Lesson 21: World Population Prediction A1 M5 Lesson 22: A Closer Look at Populations A1 M5 Lesson 24: Modeling an Invasive Species Population A1 M6 Topic A: Modeling Bivariate Quantitative Data *Supplemental material is necessary to fully address this standard.*

Functional & Graphical Reasoning

A.FGR.7 Construct and interpret quadratic functions from data points to model and explain real-life phenomena; describe key characteristics of the graph of a quadratic function to explain a mathematically applicable situation for which the graph serves as a model.

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.FGR.7.1 Use function notation to build and evaluate quadratic functions for inputs in their domains and interpret statements that use function notation in terms of a given framework.	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

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.FGR.7.2 Identify the effect on the graph generated by a quadratic function when replacing $f(x)$ with $f(x) + k$, and $kf(x)$, for specific values of k (both positive and negative); find the value of k given the graphs.	A1 M4 Lesson 20: Art with Transformations
A.FGR.7.3 Graph and analyze the key characteristics of quadratic functions.	A1 M4 Topic A: Quadratic Functions and Their Graphs 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 M4 Lesson 25: Maximizing Area
A.FGR.7.4 Relate the domain and range of a quadratic 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 A1 M4 Lesson 23: Creating Equations of Quadratic Functions to Model Contexts

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.FGR.7.5 Rewrite a quadratic function representing a mathematically applicable situation to reveal the maximum or minimum value of the function it defines. Explain what the value describes in context.	A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions *Supplemental material is necessary to fully address this standard.*
A.FGR.7.6 Create quadratic functions in two variables to represent relationships between quantities; graph quadratic functions on the coordinate axes with labels and scales.	A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form 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
A.FGR.7.7 Estimate, calculate, and interpret the average rate of change of a quadratic function and make comparisons to the average rate of change of linear functions.	A1 M4 Lesson 1: Falling Objects A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form
A.FGR.7.8 Write a function defined by a quadratic expression in different but equivalent forms to reveal and explain different properties of the function.	A1 M4 Lesson 10: Zeros of Functions A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions
A.FGR.7.9 Compare characteristics of two functions each represented in a different way.	A1 M3 Lesson 11: Comparing Functions A1 M4 Lesson 12: Using Symmetry to Graph Quadratic Functions from Standard Form A1 M4 Lesson 21: Completing the Square to Graph Quadratic Functions

Functional & Graphical Reasoning

A.FGR.9 Construct and analyze the graph of an exponential function to explain a mathematically applicable situation for which the graph serves as a model; compare exponential with linear and quadratic functions.

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.FGR.9.1 Use function notation to build and evaluate exponential functions for inputs in their domains and interpret statements that use function notation in terms of a context.	A1 M5 Lesson 16: Exponential Growth A1 M5 Lesson 17: Exponential Decay A1 M5 Topic D: Comparing Linear and Exponential Models
A.FGR.9.2 Graph and analyze the key characteristics of simple exponential functions based on mathematically applicable situations.	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)
A.FGR.9.3 Identify the effect on the graph generated by an exponential function when replacing $f(x)$ with $f(x) + k$, and $kf(x)$, for specific values of k (both positive and negative); find the value of k given the graphs.	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
A.FGR.9.4 Use mathematically applicable situations algebraically and graphically to build and interpret geometric sequences as functions who domain is a subset of the integers.	A1 M5 Lesson 5: Arithmetic and Geometric Sequences A1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.FGR.9.5 Compare characteristics of two functions each represented in a different way.	A1 M3 Lesson 11: Comparing Functions

Geometric & Spatial Reasoning

A.GSR.3 Solve problems involving distance, midpoint, slope, area, and perimeter to model and explain real-life phenomena.

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.GSR.3.1 Solve real-life problems involving slope, parallel lines, perpendicular lines, area, and perimeter.	*Supplemental material is necessary to address this standard.*
A.GSR.3.2 Apply the distance formula, midpoint formula, and slope of line segments to solve real-world problems.	8 M2 Lesson 22: On the Right Path *Supplemental material is necessary to address this standard.*

Patterning & Algebraic Reasoning

A.PAR.4 Create, analyze, and solve linear inequalities in two variables and systems of linear inequalities to model real-life phenomena.

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.PAR.4.1 Create and solve linear inequalities in two variables to represent relationships between quantities including mathematically applicable situations; graph inequalities on coordinate axes with labels and scales.	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 6: Applications of Linear Equations and Inequalities
A.PAR.4.2 Represent constraints of linear inequalities and interpret data points as possible or not possible.	A1 M1 Lesson 15: Solving and Graphing Compound Inequalities A1 M2 Lesson 6: Applications of Linear Equations and Inequalities *Supplementary material is necessary to fully address this standard.*
A.PAR.4.3 Solve systems of linear inequalities by graphing, including systems representing a mathematically applicable situation.	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

Patterning & Algebraic Reasoning

A.PAR.6 Build quadratic expressions and equations to represent and model real-life phenomena; solve quadratic equations in mathematically applicable situations.

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.PAR.6.1 Interpret quadratic expressions and parts of a quadratic expression that represent a quantity in terms of its context.	A1 M4 Lesson 3: Analyzing Functions That Model Projectile Motion
A.PAR.6.2 Fluently choose and produce an equivalent form of a quadratic expression to reveal and explain properties of the quantity represented by the expression.	A1 M4 Lesson 10: Zeros of Functions A1 M4 Lesson 11: Graphing Quadratic Functions from Factored Form A1 M4 Lesson 22: A Summary of Graphing Quadratic Functions
A.PAR.6.3 Create and solve quadratic equations in one variable and explain the solution in the framework of applicable phenomena.	A1 M4 Lesson 5: Solving Equations That Contain Factored Expressions A1 M4 Lesson 6: Solving Quadratic Equations by Factoring: Identities and Guess and Check A1 M4 Lesson 7: Solving Quadratic Equations by Factoring: Splitting the Linear Term A1 M4 Lesson 8: A Summary of Solving Quadratic Equations by Factoring A1 M4 Lesson 9: Creating and Solving Quadratic Equations in One Variable A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations A1 M4 Lesson 14: Solving Quadratic Equations by Completing the Square A1 M4 Lesson 15: Deriving the Quadratic Formula A1 M4 Lesson 16: Solving Quadratic Equations A1 M4 Lesson 18: The Quadratic Formula and Zeros of a Function

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.PAR.6.4 Represent constraints by quadratic equations and interpret data points as possible or not possible in a modeling framework.	A1 M6 Lesson 1: Analyzing Paint Splatters A1 M6 Lesson 2: Using Residual Plots to Select Models for Data *Supplemental material is necessary to fully address this standard.*

Patterning & Algebraic Reasoning

A.PAR.8 Create and analyze exponential expressions and equations to represent and model real-life phenomena; solve exponential equations in mathematically applicable situations.

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.PAR.8.1 Interpret exponential expressions and parts of an exponential expression that represent a quantity in terms of its framework.	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
A.PAR.8.2 Create exponential equations in one variable and use them to solve problems, including mathematically applicable situations.	*Supplemental material is necessary to address this standard.*

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.PAR.8.3 Create exponential equations in two variables to represent relationships between quantities, including in mathematically applicable situations; graph equations on coordinate axes with labels and scales.	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 16: Exponential Growth A1 M5 Lesson 17: Exponential Decay A1 M5 Lesson 18: Modeling Populations A1 M5 Topic D: Comparing Linear and Exponential Models A1 M6 Lesson 2: Using Residual Plots to Select Models for Data A1 M6 Lesson 3: Populations of US Cities
A.PAR.8.4 Represent constraints by exponential equations and interpret data points as possible or not possible in a modeling environment.	A1 M6 Lesson 2: Using Residual Plots to Select Models for Data A1 M6 Lesson 3: Populations of US Cities *Supplemental material is necessary to fully address this standard.*

Numerical Reasoning

A.NR.5 Investigate rational and irrational numbers and rewrite expressions involving square roots and cube roots.

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.NR.5.1 Rewrite algebraic and numeric expressions involving radicals.	A1 M4 Lesson 17: Rewriting Square Roots *Supplemental material is necessary to address algebraic expressions.*

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.NR.5.2 Using numerical reasoning, show and explain that the sum or product of rational numbers is rational, the sum of a rational number and an irrational number is irrational, and the product of a nonzero rational number and an irrational number is irrational.	A1 M4 Lesson 13: Using Square Roots to Solve Quadratic Equations A1 M4 Lesson 17: Rewriting Square Roots

Data & Statistical Reasoning

A.DSR.10 Collect, analyze, and interpret univariate quantitative data to answer statistical investigative questions that compare groups to solve real-life problems; Represent bivariate data on a scatter plot and fit a function to the data to answer statistical questions and solve real-life problems.

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.DSR.10.1 Use statistics appropriate to the shape of the data distribution to compare and represent center (median and mean) and variability (interquartile range, standard deviation) of two or more distributions by hand and using technology.	A1 M1 Topic D: Univariate Data
A.DSR.10.2 Interpret differences in shape, center, and variability of the distributions based on the investigation, accounting for possible effects of extreme data points (outliers).	A1 M1 Topic D: Univariate Data

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
A.DSR.10.3 Represent data on two quantitative variables on a scatter plot and describe how the variables are related.	A1 M2 Lesson 15: Relationships Between Quantitative Variables A1 M2 Lesson 17: Modeling Relationships with a Line A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data
A.DSR.10.4 Interpret the slope (predicted rate of change) and the intercept (constant term) of a linear model based on the investigation of the data.	A1 M2 Lesson 16: Using Lines to Model Bivariate Quantitative Data A1 M2 Lesson 17: Modeling Relationships with a Line A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data
A.DSR.10.5 Calculate the line of best fit and interpret the correlation coefficient, r, of a linear fit using technology. Use r to describe the strength of the goodness of fit of the regression. Use the linear function to make predictions and assess how reasonable the prediction is in context.	A1 M2 Lesson 17: Modeling Relationships with a Line A1 M2 Lesson 18: Calculating and Analyzing Residuals A1 M2 Lesson 20: Interpreting Correlation A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data
A.DSR.10.6 Decide which type of function is most appropriate by observing graphed data.	A1 M6 Topic A: Modeling Bivariate Quantitative Data
A.DSR.10.7 Distinguish between correlation and causation.	A1 M2 Lesson 20: Interpreting Correlation A1 M2 Lesson 21: Analyzing Bivariate Quantitative Data

Data & Statistical Reasoning; Probabilistic Reasoning

G.DSR.11 Examine real-life situations presented in a two-way frequency table to calculate probabilities, to model categorical data, and to explain real-life phenomena.

Georgia State Standards for Mathematics	Aligned Components of *Eureka Math²*
G.DSR.11.1 Construct and summarize categorical data for two categories in two-way frequency tables.	A1 M2 Topic D: Categorical Data on Two Variables