Mathematics I | Arkansas Mathematics 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.

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.

Expressions

Polynomials, Roots, & Exponent Laws

Students simplify algebraic and numerical expressions.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.EX.4 Interpret the parts of expressions such as terms, factors, and coefficients in terms of a real-world context.	Math 1 M1 Lesson 4: Interpreting Linear Expressions

Functions

Domain & Range, Function Notation

Students understand the concept of a function, domain and range, and use function notation; students use function notation to solve problems.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.FN.1 Explain that a function assigns each element in the domain to exactly one element in the range.	Math 1 M3 Lesson 1: The Definition of a Function Math 1 M3 Lesson 2: Interpreting and Using Function Notation Math 1 M3 Lesson 3: Representing, Naming, and Evaluating Functions Math 1 M3 Lesson 4: The Graph of a Function Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ Math 1 M3 Lesson 6: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations Math 1 M3 Lesson 7: Representations of Functions

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.FN.2 Use function notation to represent functions, understanding that if f is a function and x is an element of its domain, then $f(x)$ represents the output of f corresponding to the input x.	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
A1.FN.3 Graph functions given in function notation, understanding that the graph contains the points $(x, f(x))$.	Math 1 M3 Lesson 1: The Definition of a Function Math 1 M3 Lesson 2: Interpreting and Using Function Notation Math 1 M3 Lesson 3: Representing, Naming, and Evaluating Functions Math 1 M3 Lesson 4: The Graph of a Function Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ Math 1 M3 Lesson 6: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations Math 1 M3 Lesson 7: Representations of 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

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.FN.4 Evaluate functions expressed in function notation for one or more elements in their domains (inputs); use function notation to describe a contextual situation.	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

Functions

Construct & Compare

Students construct and compare linear, quadratic, and exponential models and solve problems.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.FN.5 Differentiate between real-world scenarios that can be modeled by exponential or linear functions by determining whether the relationship has a common difference or a common ratio.	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 22: Modeling the Temperature of Objects Cooling Over Time 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

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.FN.6 Compare the growth pattern of exponential to linear or quadratic functions using graphs and tables and recognize how exponential growth exceeds other functions.	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 Lesson 19: Comparing Growth of Functions Math 1 M5 Lesson 20: World Population Prediction Math 1 M5 Lesson 21: A Closer Look at Populations Math 1 M5 Lesson 22: Modeling the Temperature of Objects Cooling Over Time Math 1 M5 Lesson 23: Modeling an Invasive Species Population Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 8: The Deal Math 1 M6 Lesson 9: Solar System Models

Linear Functions, Equations, & Inequalities

Create & Solve

Students create and solve equations that model linear relationships.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.LFE.1 Represent and solve real-world problems, using linear expressions, equations, and inequalities in one variable.	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 12: Solution Sets of Compound Statements Math 1 M1 Lesson 13: Solving and Graphing Compound Inequalities Math 1 M1 Lesson 16: Applying Absolute Value

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.LFE.1 ***continued***	Math 1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables Math 1 M2 Lesson 15: Applications of Linear Inequalities Math 1 M2 Lesson 18: Applications of Systems of Linear Inequalities Math 1 M6 Lesson 10: Designing a Fundraiser
A1.LFE.2 Construct linear functions from arithmetic sequences with and without context.	Math 1 M5 Lesson 5: Arithmetic and Geometric Sequences Math 1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences Math 1 M6 Lesson 8: The Deal
A1.LFE.3 Solve linear formulas for a specified variable.	Math 1 M1 Lesson 10: Rearranging Formulas
A1.LFE.4 Solve linear equations, linear inequalities, and absolute value equations in one variable, including those with rational number coefficients, and variables on both sides of the equal or inequality sign; solve them fluently, explaining the process used.	Math 1 M1 Lesson 3: The Commutative, Associative, and Distributive Properties 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 13: Solving and Graphing Compound Inequalities Math 1 M1 Lesson 14: Solving Absolute Value Equations Math 1 M1 Lesson 15: Solving Absolute Value Inequalities

Linear Functions, Equations, & Inequalities

Interpret Key Features

Students interpret key features of equations that model linear relationships.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.LFE.5 Determine the domain and range of linear functions in mathematical problems.	Math 1 M3 Lesson 1: The Definition of a Function Math 1 M3 Lesson 2: Interpreting and Using Function Notation Math 1 M3 Lesson 3: Representing, Naming, and Evaluating Functions Math 1 M3 Lesson 4: The Graph of a Function Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ Math 1 M3 Lesson 6: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations Math 1 M3 Lesson 7: Representations of Functions
A1.LFE.6 Determine reasonable domain and range values of linear functions representing real-world situations, both continuous and discrete; interpret the solution as reasonable or unreasonable 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
A1.LFE.7 Interpret the key features of a linear and absolute value functions that models a relationship between two quantities in a given context.	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

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.LFE.8 Flexibly use different representations of a linear function, including graphs, tables, and equations.	Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ Math 1 M3 Lesson 6: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations Math 1 M3 Lesson 7: Representations of Functions
A1.LFE.9 Calculate and interpret the rate of change of a linear function represented in a table, graph, or as an equation in context of real-world and mathematical problems.	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

Linear Functions, Equations, & Inequalities

Systems of Equations & Inequalities

Students solve systems of equations and inequalities.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.LFE.11 Solve systems of linear equations by substitution, elimination, and graphing with and without a real-world context; understand that the solutions will be the same regardless of the method for solving.	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 8: Low-Flow Showerhead Math 1 M2 Lesson 9: Systems of Linear Equations in Two Variables Math 1 M2 Lesson 10: A New Way to Solve Systems Math 1 M2 Lesson 11: The Elimination Method Math 1 M2 Lesson 12: Applications of Systems of Equations

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.LFE.13 Explain why a solution to the equation $f(x) = g(x)$ is the x-coordinate where the y-coordinate of $f(x)$ and $g(x)$ are the same using graphs, tables, or approximations. Include cases where $f(x)$ and/or $g(x)$ are linear, quadratic, absolute value, and exponential.	Math 1 M3 Lesson 10: Using Graphs to Solve Equations Math 1 M5 Lesson 11: Solving Equations Containing Exponential Expressions Math 1 M5 Lesson 19: Comparing Growth of Functions
A1.LFE.14 Solve linear inequalities and systems of linear inequalities in two variables by graphing.	Math 1 M2 Lesson 13: Solution Sets of Linear Inequalities in Two Variables Math 1 M2 Lesson 14: Graphing Linear Inequalities in Two Variables 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

Linear Functions, Equations, & Inequalities

Graphing & Transformations

Students graph linear functions, equations, and inequalities.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.LFE.15 Write linear equations that model the relationship between two quantities and produce a graph of the equation.	Math 1 M1 Lesson 2: Looking for Patterns Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ Math 1 M3 Lesson 6: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations 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 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 13: Calculating Interest Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 8: The Deal Math 1 M6 Lesson 9: Solar System Models
A1.LFE.16 Graph linear functions expressed as an equation and show intercepts of the graph without technology.	Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ Math 1 M3 Lesson 6: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations Math 1 M3 Lesson 7: Representations of Functions

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.LFE.18 Graph and generalize the effect of transformations on linear and absolute value functions.	Math 1 M3 Lesson 16: Exploring Transformations of the Graphs of Functions Math 1 M3 Lesson 17: Building New Functions—Translations Math 1 M3 Lesson 18: Building New Functions—Reflections Math 1 M3 Lesson 19: Building New Functions—Vertical Scaling Math 1 M3 Lesson 20: Building New Functions—Horizontal Scaling Math 1 M3 Lesson 21: A Summary of Transforming the Graph of a Function 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
A1.LFE.19 Given the graph of a linear function, explain the effects of the transformation from the parent function, $y = x$.	Math 1 M3 Lesson 16: Exploring Transformations of the Graphs of Functions Math 1 M3 Lesson 17: Building New Functions—Translations Math 1 M3 Lesson 18: Building New Functions—Reflections Math 1 M3 Lesson 19: Building New Functions—Vertical Scaling Math 1 M3 Lesson 20: Building New Functions—Horizontal Scaling Math 1 M3 Lesson 21: A Summary of Transforming the Graph of a Function 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

Linear Functions, Equations, & Inequalities

Statistical Relationships

Students explore linear statistical relationships.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.LFE.20 Write linear functions that provide a reasonable fit to data and use them to make predictions, with and without technology; interpret the slope and y-intercept in context.	Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data Math 1 M2 Lesson 24: Modeling Relationships with a Line Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data 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
A1.LFE.21 Calculate, using technology, the correlation coefficient between two quantitative variables and interpret this quantity as a measure of the strength of the linear association.	Math 1 M2 Lesson 27: Interpreting Correlation Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data
A1.LFE.22 Compare and contrast correlation and causation in real-world problems.	Math 1 M2 Lesson 27: Interpreting Correlation Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data

Quadratic Functions & Equations

Create & Solve

Students create and solve equations that model quadratic relationships.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.QFE.1 Represent and solve real-world problems using quadratic expressions and equations in one variable.	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 16: Applying Absolute Value
A1.QFE.2 Write quadratic equations with real number solutions that model the relationship between two quantities and produce a graph of the equation.	Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable Math 1 M1 Lesson 12: Solution Sets of Compound Statements Math 1 M1 Lesson 13: Solving and Graphing Compound Inequalities Math 1 M1 Lesson 16: Applying Absolute Value 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 4: Proving Conditional Statements Math 1 M2 Lesson 5: Proving Biconditional Statements Math 1 M2 Lesson 8: Low-Flow Showerhead Math 1 M2 Lesson 12: Applications of Systems of Equations Math 1 M2 Lesson 15: Applications of Linear Inequalities Math 1 M2 Lesson 18: Applications of Systems of Linear Inequalities Math 1 M4 Lesson 5: Proving the Perpendicular Criterion Math 1 M6 Lesson 10: Designing a Fundraiser

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.QFE.3 Solve quadratic equations with real number solutions, containing one variable, including those with variables on both sides of the equal sign. Equations should be solved by:	*This standard is addressed by the lessons aligned to its subsection.*
A1.QFE.3.1 Graphing	Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ Math 1 M3 Lesson 6: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations Math 1 M3 Lesson 7: Representations of Functions

Quadratic Functions & Equations

Interpret Key Features

Students interpret key features of equations that model quadratic relationships.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.QFE.4 Determine the domain and range of quadratic functions in mathematical problems.	Math 1 M3 Lesson 1: The Definition of a Function Math 1 M3 Lesson 2: Interpreting and Using Function Notation Math 1 M3 Lesson 3: Representing, Naming, and Evaluating Functions Math 1 M3 Lesson 4: The Graph of a Function Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ Math 1 M3 Lesson 6: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations Math 1 M3 Lesson 7: Representations of Functions

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.QFE.5 Determine reasonable domain and range values of quadratic functions representing real-world situations, both continuous and discrete; interpret the solution as reasonable or unreasonable in context.	Math 1 M3 Lesson 4: The Graph of a Function Math 1 M3 Lesson 13: Modeling Elevation as a Function of Time
A1.QFE.6 Interpret the key features of a quadratic function that models a relationship between two quantities in a given context.	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
A1.QFE.7 Flexibly use different representations of a quadratic function, including graphs, tables, and equations.	Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ Math 1 M3 Lesson 6: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations Math 1 M3 Lesson 7: Representations of Functions Math 1 M3 Lesson 11: Comparing Functions
A1.QFE.8 Explain how each form of a quadratic expression (standard, factored, and vertex form) identifies different key attributes, using the different forms to interpret quantities in context.	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

Quadratic Functions & Equations

Graphing & Transformations

Students graph quadratic functions and explore different transformations of $f(x) = x^2$.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.QFE.10 Graph quadratic functions given as an equation or in function notation, labeling key attributes, without technology.	Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ Math 1 M3 Lesson 6: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations Math 1 M3 Lesson 7: Representations of Functions
A1.QFE.11 Graph and describe the effect of transformations on quadratic functions.	Math 1 M3 Lesson 16: Exploring Transformations of the Graphs of Functions Math 1 M3 Lesson 17: Building New Functions—Translations Math 1 M3 Lesson 18: Building New Functions—Reflections Math 1 M3 Lesson 19: Building New Functions—Vertical Scaling Math 1 M3 Lesson 20: Building New Functions—Horizontal Scaling Math 1 M3 Lesson 21: A Summary of Transforming the Graph of a Function 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
A1.QFE.12 Given the graph of a quadratic function, explain the effects of the transformation from the parent function, $y = x^2$.	Math 1 M3 Lesson 16: Exploring Transformations of the Graphs of Functions Math 1 M3 Lesson 17: Building New Functions—Translations Math 1 M3 Lesson 18: Building New Functions—Reflections Math 1 M3 Lesson 19: Building New Functions—Vertical Scaling Math 1 M3 Lesson 20: Building New Functions—Horizontal Scaling Math 1 M3 Lesson 21: A Summary of Transforming the Graph of a Function 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

Quadratic Functions & Equations

Statistical Relationships

Students explore quadratic statistical relationships.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.QFE.13 Write quadratic functions that provide a reasonable fit to data and use them to make predictions with technology.	Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data 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

Exponential Functions & Equations

Create & Solve

Students create and solve problems that model exponential relationships.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.EFE.1 Represent and solve real-world problems, using exponential equations in one variable.	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 16: Applying Absolute Value
A1.EFE.2 Represent real-world problems (growth, decay, and compound interest), using exponential equations.	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 12: Solution Sets of Compound Statements Math 1 M1 Lesson 13: Solving and Graphing Compound Inequalities Math 1 M1 Lesson 16: Applying Absolute Value Math 1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.EFE.2 ***continued***	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 4: Proving Conditional Statements Math 1 M2 Lesson 5: Proving Biconditional Statements Math 1 M2 Lesson 8: Low-Flow Showerhead Math 1 M2 Lesson 12: Applications of Systems of Equations Math 1 M2 Lesson 15: Applications of Linear Inequalities Math 1 M2 Lesson 18: Applications of Systems of Linear Inequalities Math 1 M4 Lesson 5: Proving the Perpendicular Criterion 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 22: Modeling the Temperature of Objects Cooling Over Time Math 1 M5 Lesson 23: Modeling an Invasive Species Population Math 1 M6 Lesson 10: Designing a Fundraiser
A1.EFE.3 Construct exponential equations from geometric sequences with and without context.	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 Lesson 20: World Population Prediction

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.EFE.3 ***continued***	Math 1 M5 Lesson 21: A Closer Look at Populations Math 1 M5 Lesson 22: Modeling the Temperature of Objects Cooling Over Time Math 1 M5 Lesson 23: Modeling an Invasive Species Population Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 8: The Deal Math 1 M6 Lesson 9: Solar System Models

Exponential Functions & Equations

Interpret Key Features

Students interpret key features of equations that model exponential relationships.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.EFE.4 Determine the domain and range of exponential functions in mathematical problems.	Math 1 M3 Lesson 1: The Definition of a Function Math 1 M3 Lesson 2: Interpreting and Using Function Notation Math 1 M3 Lesson 3: Representing, Naming, and Evaluating Functions Math 1 M3 Lesson 4: The Graph of a Function Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$ Math 1 M3 Lesson 6: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations Math 1 M3 Lesson 7: Representations of Functions

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.EFE.5 Determine reasonable domain and range values of exponential functions representing real-world situations, both continuous and discrete; interpret the solution as reasonable or unreasonable 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
A1.EFE.6 Interpret the key features of an exponential function that models a relationship between two quantities in a given context.	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
A1.EFE.7 Flexibly use different representations of an exponential function, including graphs, tables, and equations.	Math 1 M3 Lesson 11: Comparing Functions 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)

Exponential Functions & Equations

Graphing

Students graph exponential functions.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.EFE.9 Graph exponential functions that model real-world problems (growth, decay, and compound interest), showing key attributes.	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)

Exponential Functions & Equations

Statistical Relationships

Students explore exponential statistical relationships.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.EFE.10 Write exponential functions that provide a reasonable fit to data and use them to make predictions with technology.	Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data 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

Statistics & Probability

Numerical Data

Students summarize and describe distributions.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.SP.1 Use box plots and histograms to determine the statistics appropriate to the shape of the data distribution; compare the center and spread of two or more data sets.	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 M1 Lesson 20: Describing Variability in a Univariate Distribution with Standard Deviation Math 1 M1 Lesson 21: Estimating Variability in Data Distributions Math 1 M1 Lesson 22: Comparing Distributions of Univariate Data Math 1 M6 Lesson 1: Using Data to Edit Digital Photography
A1.SP.2 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points.	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 M1 Lesson 20: Describing Variability in a Univariate Distribution with Standard Deviation Math 1 M1 Lesson 21: Estimating Variability in Data Distributions Math 1 M1 Lesson 22: Comparing Distributions of Univariate Data

Statistics & Probability

Bivariate Data

Students will investigate patterns of association in bivariate data.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
A1.SP.3 Summarize data from two categorical variables in a frequency table; interpret relative frequencies in the context of the data, recognizing data trends and associations.	Math 1 M6 Lesson 4: Summarizing Bivariate Categorical Data with Two-Way Tables Math 1 M6 Lesson 5: Bivariate Categorical Data and Conditional Relative Frequency Tables Math 1 M6 Lesson 6: Conditional Relative Frequencies and Association Math 1 M6 Lesson 7: Analyzing a Historical Event

Lines & Angles

Define & Construct

Students use precise definitions and various construction tools to create geometric figures.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
G.LA.1 Use precise definitions and standard geometric notation for angles, perpendicular lines, parallel lines, and line segments based on the undefined notions of point, line, and distance along a line.	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
G.LA.2 Make formal geometric constructions with a variety of tools and methods including:	Math 1 M4 Lesson 6: Compass and Straightedge Constructions Math 1 M4 Lesson 7: Constructing Perpendicular Lines Math 1 M4 Lesson 8: Reflections of the Plane Math 1 M4 Lesson 10: Rotations of the Plane with Bisected and Copied Angles

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
G.LA.2 ***continued***	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
G.LA.2.1 Congruent segments and angles,	Math 1 M4 Lesson 6: Compass and Straightedge Constructions Math 1 M4 Lesson 7: Constructing Perpendicular Lines Math 1 M4 Lesson 8: Reflections 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 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
G.LA.2.2 Segment and angle bisectors,	Math 1 M4 Lesson 6: Compass and Straightedge Constructions Math 1 M4 Lesson 7: Constructing Perpendicular Lines Math 1 M4 Lesson 8: Reflections 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 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

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
G.LA.2.3 Perpendicular lines and perpendicular bisectors of a line segment,	Math 1 M4 Lesson 6: Compass and Straightedge Constructions Math 1 M4 Lesson 7: Constructing Perpendicular Lines Math 1 M4 Lesson 8: Reflections 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 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
G.LA.2.4 Parallel lines, and	Math 1 M4 Lesson 6: Compass and Straightedge Constructions Math 1 M4 Lesson 7: Constructing Perpendicular Lines Math 1 M4 Lesson 8: Reflections 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 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
G.LA.2.5 An equilateral triangle, a square, and a regular hexagon inscribed in a circle.	Math 1 M4 Lesson 9: Rotations of the Plane Math 1 M4 Lesson 24: Squares Inscribed in Circles Math 1 M4 Lesson 25: Regular Hexagons and Equilateral Triangles Inscribed in Circles

Lines & Angles

Parallel & Perpendicular Lines

Students solve problems involving parallel and perpendicular lines.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
G.LA.5 Prove and apply slope criteria of 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
G.LA.6 Write an equation of a line that is parallel or perpendicular to a given line and passing through a given point.	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

Transformations

Coordinate Plane

Students transform figures on the coordinate plane.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
G.TRF.1 Describe rotations, reflections, and translations as functions that take points in the coordinate plane as inputs and give other points as outputs; write in prime notation.	Math 1 M4 Lesson 1: Geometric Transformations

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
G.TRF.2 Compare transformations that preserve distance and angle (rotations, reflections, and translations) to those that do not (dilations) to develop definitions for congruence and similarity.	Math 1 M4 Lesson 1: Geometric Transformations

Transformations

Plane

Students transform figures and make geometric constructions.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
G.TRF.3 Apply understanding of angles, circles, perpendicular lines, parallel lines, and line segments to develop definitions for rotations, reflections, and translations.	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

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
G.TRF.4 Use geometric constructions to represent rotations, reflections, translations, and dilations in the plane with a variety of tools and methods.	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
G.TRF.5 Given two congruent figures, identify the sequence of transformations that maps one figure to another.	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

Similarities & Congruence

Triangle Congruence

Students apply congruence criteria to solve problems.

Arkansas Mathematics Standards	Aligned Components of *Eureka Math²*
G.SC.4 Explain, using rigid motion transformations, why two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent.	Math 1 M4 Lesson 17: Congruent Triangles
G.SC.5 Develop and apply the criteria for triangle congruence (ASA, SAS, AAS, SSS, and HL) to solve problems and prove geometric relationships.	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