Mathematics I | Indiana Academic 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.

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

Data Analysis and Statistics

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
AI.DS.3 Use technology to find a linear function that models a relationship between two quantitative variables to make predictions, and interpret the slope and y-intercept. Using technology, compute and interpret the correlation coefficient.	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 25: Calculating and Analyzing Residuals Math 1 M2 Lesson 27: Interpreting Correlation 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
AI.DS.4 Describe the differences between correlation and causation.	Math 1 M2 Lesson 27: Interpreting Correlation Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data
AI.DS.5 Summarize bivariate categorical data in two-way frequency tables. Interpret relative frequencies in the contexts of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in data.	Math 1 M6 Topic B: Modeling with Categorical Data

Functions

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
AI.F.1 Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. Understand that if f is a function and x is an element of its domain, then $f(x)$ denotes the output of f corresponding to the input x. Understand the graph of f is the graph of the equation $y = f(x)$ with points of the form $(x, f(x))$.	Math 1 M3 Topic A: Functions and Their Graphs
AI.F.2 Evaluate functions for given elements of its domain, and interpret statements in function notation in terms of a 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
AI.F.3 Identify the domain and range of relations represented in tables, graphs, verbal descriptions, and equations.	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 *Supplemental material is necessary to address the term* relation*.*

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
AI.F.4 Describe, qualitatively, the functional relationship between two quantities by analyzing key features of a graph. Sketch a graph that exhibits given key features of a function that has been verbally described, including intercepts, where the function is increasing or decreasing, where the function is positive or negative, and any relative maximum or minimum values, Identify the independent and dependent variables.	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

Linear Equations, Inequalities, and Functions

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
AI.L.1 Represent real-world problems using linear equations and inequalities in one variable, including those with rational number coefficients and variables on both sides of the equal sign. Solve them fluently, explaining the process used and justifying the choice of a solution method.	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

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
AI.L.2 Solve compound linear inequalities in one variable, and represent and interpret the solution on a number line. Write a compound linear inequality given its number line representation.	Math 1 M1 Lesson 12: Solution Sets of Compound Statements Math 1 M1 Lesson 13: Solving and Graphing Compound Inequalities
AI.L.3 Represent linear functions as graphs from equations (with and without technology), equations from graphs, and equations from tables and other given information (e.g., from a given point on a line and the slope of the line). Find the equation of a line, passing through a given point, that is parallel or perpendicular to a given line.	Math 1 M2 Lesson 7: Equations of Parallel and Perpendicular Lines 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 7: Representations of Functions
AI.L.6 Represent real-world problems using linear inequalities in two variables and solve such problems; interpret the solution set and determine whether it is reasonable. Graph the solutions to a linear inequality in two variables as a half-plane.	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 15: Applications of Linear Inequalities
AI.L.7 Solve linear and quadratic equations and formulas for a specified variable to highlight a quantity of interest, using the same reasoning as in solving equations.	Math 1 M1 Lesson 10: Rearranging Formulas *Supplemental material is necessary to address quadratic equations for this standard.*

Systems of Linear Equations and Inequalities

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
AI.SEI.1 Understand the relationship between a solution of a system of two linear equations in two variables and the graphs of the corresponding lines. Solve pairs of linear equations in two variables by graphing; approximate solutions when the coordinates of the solution are non-integer numbers.	Math 1 M2 Lesson 9: Systems of Linear Equations in Two Variables Math 1 M2 Lesson 12: Applications of Systems of Equations
AI.SEI.2 Verify that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions, including cases with no solution and infinitely many solutions. Solve systems of two linear equations algebraically using elimination and substitution methods.	Math 1 M2 Topic B: Systems of Linear Equations in Two Variables
AI.SEI.3 Write a system of two linear equations in two variables that represents a real-world problem and solve the problem with and without technology. Interpret the solution and determine whether the solution is reasonable.	Math 1 M2 Lesson 8: Low-Flow Showerhead Math 1 M2 Lesson 12: Applications of Systems of Equations

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
AI.SEI.4 Represent real-world problems using a system of two linear inequalities in two variables. Graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes with and without technology. Interpret the solution set and determine whether it is reasonable.	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

Quadratic and Exponential Equations and Functions

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
AI.QE.1 Distinguish between situations that can be modeled with linear functions and with exponential functions. Understand that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. Compare linear functions and exponential functions that model real-world situations using tables, graphs, and equations.	Math 1 M3 Lesson 11: Comparing Functions Math 1 M5 Lesson 13: Calculating Interest Math 1 M5 Lesson 16: Modeling Populations Math 1 M5 Lesson 18: Analyzing Exponential Growth Math 1 M5 Lesson 20: World Population Prediction Math 1 M5 Lesson 21: A Closer Look at Populations Math 1 M5 Lesson 23: Modeling an Invasive Species Population Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 11: A Vanishing Sea

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
AI.QE.2 Represent real-world and other mathematical problems that can be modeled with simple exponential functions using tables, graphs, and equations of the form $y = ab^x$ (for integer values of $x > 1$, rational values of $b > 0$ and $b \neq 1$) with and without technology; interpret the values of a and b.	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 16: Modeling Populations Math 1 M5 Lesson 18: Analyzing Exponential Growth Math 1 M5 Topic D: Comparing Linear and Exponential Models Math 1 M6 Lesson 3: Analyzing Paint Splatters Math 1 M6 Lesson 8: The Deal
AI.QE.6 Graph exponential and quadratic functions with and without technology. Identify and describe key features, such as zeros, lines of symmetry, and extreme values in real-world and other mathematical problems involving quadratic functions with and without technology; interpret the results in the real-world contexts.	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) *Supplemental material is necessary to address quadratic functions for this standard.*

Data Analysis, Statistics, and Probability

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
AII.DSP.2 Interpret and compare univariate data using measures of center (mean and median) and spread (range, inter-quartile range, standard deviation, and variance). Understand the effects of outliers on the statistical summary of the data.	Math 1 M1 Topic D: Univariate Data

Functions

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
AII.F.4 Explore and describe the effect on the graph of $f(x)$ by replacing $f(x)$ with $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of k (both positive and negative) with and without technology. Find the value of k given the graph of $f(x)$ and the graph of $f(x) + k$, $kf(x)$, $f(kx)$, or $f(x + k)$.	Math 1 M3 Topic D: Transformations of Functions Math 1 M5 Lesson 9: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) Math 1 M5 Lesson 10: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) Math 1 M5 Lesson 12: Writing Equations for Exponential Functions from Tables or Graphs

Exponential and Logarithmic Equations and Functions

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
AII.EL.2 Identify the percent rate of change in exponential functions. Classify them as representing exponential growth or decay.	Math 1 M5 Lesson 14: Exponential Growth Math 1 M5 Lesson 15: Exponential Decay

Polynomial, Rational, and Other Equations and Functions

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
AII.PR.4 Solve absolute value linear equations and inequalities in one variable.	Math 1 M1 Lesson 14: Solving Absolute Value Equations Math 1 M1 Lesson 15: Solving Absolute Value Inequalities Math 1 M1 Lesson 16: Applying Absolute Value

Logic and Proofs

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
G.LP.2 Use precise definitions for angle, circle, perpendicular lines, parallel lines, and line segment, based on the undefined notions of point, line, and plane. Use standard geometric notation.	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

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
G.LP.3 State, use, and examine the validity of the converse, inverse, and contrapositive of conditional ("if–then") and biconditional ("if and only if") statements.	Math 1 M2 Lesson 4: Proving Conditional Statements Math 1 M2 Lesson 5: Proving Biconditional Statements *Supplemental material is necessary address the inverse and contrapositive of a conditional statement.*
G.LP.4 Understand that proof is the means used to demonstrate whether a statement is true or false mathematically. Develop geometric proofs, including those involving coordinate geometry, using two-column, paragraph, and flow chart formats.	Math 1 M2 Lesson 4: Proving Conditional Statements Math 1 M2 Lesson 5: Proving Biconditional Statements Math 1 M2 Lesson 6: Proving the Parallel Criterion Math 1 M2 Topic D: Algebraic Proofs of Geometric Theorems Math 1 M4 Lesson 5: Proving the Perpendicular Criterion 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

Points, Lines, and Angles

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
G.PL.2 Explore the relationships of the slopes of parallel and perpendicular lines. Determine if a pair of lines are parallel, perpendicular, or neither by comparing the slopes in coordinate graphs and equations.	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.PL.3 Use tools to explain and justify the process to construct congruent segments and angles, angle bisectors, perpendicular bisectors, altitudes, medians, and parallel and perpendicular lines.	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 *Supplemental material is necessary to address altitudes and medians for this standard.*
G.PL.4 Develop the distance formula using the Pythagorean Theorem. Find the lengths and midpoints of line segments in the two-dimensional coordinate system.	Math 1 M2 Lesson 19: The Distance Formula *Supplemental material is necessary to address midpoints for this standard.*

Triangles

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
G.T.2 Explore and explain how the criteria for triangle congruence (ASA, SAS, AAS, SSS, and HL) follow from the definition of congruence in terms of rigid motions.	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 *Supplemental material is necessary to address AAS for this standard.*
G.T.3 Use tools to explain and justify the process to construct congruent triangles.	Math 1 M4 Lesson 17: Congruent Triangles Math 1 M4 Lesson 18: Side–Angle–Side Math 1 M4 Lesson 19: Angle–Angle–Angle and Side–Side–Side Math 1 M4 Lesson 20: Angle–Side–Angle Math 1 M4 Lesson 21: Side–Side–Angle and Hypotenuse–Leg Math 1 M4 Lesson 22: Validating Triangle and Angle Constructions

Quadrilaterals and Other Polygons

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
G.QP.2 Prove that given quadrilaterals are parallelograms, rhombuses, rectangles, squares, kites, or trapezoids. Include coordinate proofs of quadrilaterals in the coordinate plane.	Math 1 M2 Lesson 20: Proving Geometric Theorems Algebraically

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
G.QP.4 Identify types of symmetry of polygons, including line, point, rotational, and self-congruences.	Math 1 M4 Lesson 12: Reflective Symmetry and Rotational Symmetry *Supplemental material is necessary to address self-congruences for this standard.*
G.QP.5 Compute perimeters and areas of polygons in the coordinate plane to solve real-world and other mathematical problems.	Math 1 M2 Lesson 21: Using Coordinates to Determine Perimeters and Areas of Figures Math 1 M6 Lesson 11: A Vanishing Sea

Transformations

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
G.TR.1 Use geometric descriptions of rigid motions to transform figures and to predict and describe the results of translations, reflections and rotations on a given figure. Describe a motion or series of motions that will show two shapes are congruent.	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 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

Sequences and Series

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
PC.SS.1 Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.	Math 1 M5 Topic A: Arithmetic and Geometric Sequences
PC.SS.2 Write arithmetic and geometric sequences both recursively and with an explicit formula; use them to model situations and translate between the two forms.	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

Numeracy

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
QR.N.5 Perform accurate and efficient calculations using large and small numbers in different forms, to an appropriate precision, with and without technology. Include calculations in context, such as ratios representing water use per capita for a large population.	Math 1 M6 Lesson 9: Solar System Models Math 1 M6 Lesson 11: A Vanishing Sea

Statistics

Indiana Academic Standards for Mathematics	Aligned Components of *Eureka Math²*
QR.S.6 Summarize, represent, and interpret data sets on a single count or measurement variable using plots and statistics appropriate to the shape of the data distribution to represent it.	Math 1 M1 Topic D: Univariate Data Math 1 M6 Lesson 1: Using Data to Edit Digital Photography