# EUREKA MATH²®

GREAT MINDS™

# Mathematics I | West Virginia College- and Career-Readiness 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.

| Mathematical Habits of Mind | Aligned Components of *Eureka Math²* |
|---|---|
| **MHM1.** Make sense of problems and persevere in solving them. | Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson. |
| **MHM2.** Reason abstractly and quantitatively. | Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson. |
| **MHM3.** Construct viable arguments and critique the reasoning of others. | Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson. |
| **MHM4.** Model with mathematics. | Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson. |
| **MHM5.** Use appropriate tools strategically. | Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson. |
| **MHM6.** Attend to precision. | Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson. |
| **MHM7.** Look for and make use of structure. | Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson. |
| **MHM8.** Look for and express regularity in repeated reasoning. | Lessons in every module engage students in mathematical habits of mind. These are indicated in margin notes included with every lesson. |

## Relationships Between Quantities
**Reason quantitatively and use units to solve problems.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.1**<br><br>Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. | Math 1 M1 Lesson 1: A Powerful Trio<br>Math 1 M3 Lesson 14: Comparing Models for Situations<br>Math 1 M6 Lesson 9: Solar System Models<br>Math 1 M6 Lesson 10: Designing a Fundraiser<br>Math 1 M6 Lesson 11: A Vanishing Sea |
| **M.1HS.2**<br><br>Define appropriate quantities for the purpose of descriptive modeling. | Math 1 M1 Lesson 1: A Powerful Trio<br>Math 1 M3 Lesson 14: Comparing Models for Situations<br>Math 1 M6 Lesson 3: Analyzing Paint Splatters<br>Math 1 M6 Lesson 9: Solar System Models<br>Math 1 M6 Lesson 10: Designing a Fundraiser |
| **M.1HS.3**<br><br>Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. | Math 1 M6 Lesson 9: Solar System Models<br>Math 1 M6 Lesson 11: A Vanishing Sea |

# Relationships Between Quantities

**Interpret the structure of expressions.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.4** <br><br> Interpret expressions that represent a quantity in terms of its context. | *This standard is fully addressed by the lessons aligned to its subsections.* |
| **M.1HS.4.a** <br><br> Interpret parts of an expression, such as terms, factors, and coefficients. | Math 1 M1 Lesson 4: Interpreting Linear Expressions |
| **M.1HS.4.b** <br><br> Interpret complicated expressions by viewing one or more of their parts as a single entity. | Math 1 M5 Lesson 7: Exponential Functions <br><br> Math 1 M5 Lesson 14: Exponential Growth <br><br> Math 1 M5 Lesson 15: Exponential Decay <br><br> Math 1 M5 Lesson 16: Modeling Populations <br><br> Math 1 M5 Lesson 22: Modeling the Temperature of Objects Cooling Over Time |

# Relationships Between Quantities

**Create equations that describe numbers or relationships.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
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| **M.1HS.5**<br><br>Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions and simple rational and exponential functions. | Math 1 M1 Lesson 5: Printing Presses<br><br>Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable<br><br>Math 1 M1 Lesson 11: Solving Linear Inequalities in One Variable<br><br>Math 1 M1 Lesson 16: Applying Absolute Value<br><br>Math 1 M5 Lesson 11: Solving Equations Containing Exponential Expressions<br><br>*Supplemental material is necessary to address quadratic and simple rational functions for this standard.* |
| **M.1HS.6**<br><br>Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. | Math 1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables<br><br>Math 1 M2 Lesson 2: Graphing Linear Equations in Two Variables<br><br>Math 1 M2 Lesson 3: Creating Linear Equations in Two Variables<br><br>Math 1 M2 Lesson 4: Proving Conditional Statements<br><br>Math 1 M2 Lesson 5: Proving Biconditional Statements<br><br>Math 1 M2 Lesson 8: Low-Flow Showerhead<br><br>Math 1 M2 Lesson 12: Applications of Systems of Equations<br><br>Math 1 M4 Lesson 5: Proving the Perpendicular Criterion |

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.7**<br><br>Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context. | Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable<br><br>Math 1 M1 Lesson 12: Solution Sets of Compound Statements<br><br>Math 1 M1 Lesson 13: Solving and Graphing Compound Inequalities<br><br>Math 1 M1 Lesson 16: Applying Absolute Value<br><br>Math 1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables<br><br>Math 1 M2 Lesson 15: Applications of Linear Inequalities<br><br>Math 1 M2 Lesson 18: Applications of Systems of Linear Inequalities<br><br>Math 1 M6 Lesson 10: Designing a Fundraiser |
| **M.1HS.8**<br><br>Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. | Math 1 M1 Lesson 10: Rearranging Formulas |

## Linear and Exponential Relationships

**Represent and solve equations and inequalities graphically.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.9**<br><br>Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line). | Math 1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables<br><br>Math 1 M2 Lesson 2: Graphing Linear Equations in Two Variables |

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.10**<br><br>Explain why the $x$-coordinates of the points where the graphs of the equations $y = f(x)$ and $y = g(x)$ intersect are the solutions of the equation $f(x) = g(x)$; find the solutions approximately, (e.g., using technology to graph the functions, make tables of values, or find successive approximations). Include cases where $f(x)$ and/or $g(x)$ are linear, polynomial, rational, absolute value, exponential, and logarithmic functions. | Math 1 M3 Lesson 10: Using Graphs to Solve Equations<br><br>Math 1 M5 Lesson 11: Solving Equations Containing Exponential Expressions<br><br>Math 1 M5 Lesson 19: Comparing Growth of Functions<br><br>*Supplemental material is necessary to address polynomial, rational, and logarithmic functions for this standard.* |
| **M.1HS.11**<br><br>Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality) and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes. | Math 1 M2 Lesson 13: Solution Sets of Linear Inequalities in Two Variables<br><br>Math 1 M2 Lesson 14: Graphing Linear Inequalities in Two Variables<br><br>Math 1 M2 Lesson 16: Solution Sets of Systems of Linear Inequalities<br><br>Math 1 M2 Lesson 17: Graphing Solution Sets of Systems of Linear Inequalities<br><br>Math 1 M2 Lesson 18: Applications of Systems of Linear Inequalities<br><br>Math 1 M6 Lesson 10: Designing a Fundraiser |

# Linear and Exponential Relationships
**Understand the concept of a function and use function notation.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.12**<br><br>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. 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 $x$. The graph of $f$ is the graph of the equation $y = f(x)$. | Math 1 M3 Topic A: Functions and Their Graphs |
| **M.1HS.13**<br><br>Use function notation, evaluate functions for inputs in their domains and interpret statements that use function notation in terms of a context. | Math 1 M3 Lesson 2: Interpreting and Using Function Notation<br><br>Math 1 M3 Lesson 3: Representing, Naming, and Evaluating Functions<br><br>Math 1 M3 Lesson 7: Representations of Functions<br><br>Math 1 M5 Lesson 1: Exploring Patterns<br><br>Math 1 M5 Lesson 2: The Recursive Challenge<br><br>Math 1 M5 Lesson 3: Recursive Formulas for Sequences<br><br>Math 1 M5 Lesson 4: Explicit Formulas for Sequences |
| **M.1HS.14**<br><br>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 |

## Linear and Exponential Relationships
**Interpret functions that arise in applications in terms of a context.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.15** <br><br> For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities and sketch graphs showing key features given a verbal description of the relationship. Key features include: intercepts; intervals where the function is increasing, decreasing, positive or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. | Math 1 M3 Lesson 8: Exploring Key Features of a Function and Its Graph <br><br> Math 1 M3 Lesson 9: Identifying Key Features of a Function and Its Graph <br><br> Math 1 M3 Lesson 11: Comparing Functions <br><br> Math 1 M3 Lesson 12: Sketching Graphs of Functions from Verbal Descriptions <br><br> Math 1 M3 Lesson 13: Modeling Elevation as a Function of Time <br><br> Math 1 M3 Lesson 15: Mars Curiosity Rover |
| **M.1HS.16** <br><br> Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. | Math 1 M3 Lesson 4: The Graph of a Function <br><br> Math 1 M3 Lesson 13: Modeling Elevation as a Function of Time |
| **M.1HS.17** <br><br> Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph. | Math 1 M5 Lesson 17: Average Rate of Change <br><br> Math 1 M5 Lesson 18: Analyzing Exponential Growth <br><br> Math 1 M5 Lesson 19: Comparing Growth of Functions <br><br> Math 1 M5 Lesson 23: Modeling an Invasive Species Population |

## Linear and Exponential Relationships
**Analyze functions using different representations.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.18**<br><br>Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases. | *This standard is addressed by the lessons aligned to its subsections.* |
| **M.1HS.18.a**<br><br>Graph linear and quadratic functions and show intercepts, maxima, and minima. | Math 1 M3 Lesson 5: The Graph of the Equation $y = f(x)$<br><br>Math 1 M3 Lesson 6: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations<br><br>Math 1 M3 Lesson 7: Representations of Functions<br><br>*Supplemental material is necessary to address quadratic functions for this standard.* |
| **M.1HS.18.b**<br><br>Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude. | Math 1 M5 Lesson 8: Graphing Exponential Functions<br><br>Math 1 M5 Lesson 9: Using Transformations to Graph Exponential Functions (Bases Greater Than 1)<br><br>Math 1 M5 Lesson 10: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1)<br><br>*Supplemental material is necessary to address logarithmic and trigonometric functions for this standard.* |
| **M.1HS.19**<br><br>Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). | Math 1 M3 Lesson 11: Comparing Functions |

## Linear and Exponential Relationships

**Build a function that models a relationship between two quantities.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.20**<br><br>Write a function that describes a relationship between two quantities. | Math 1 M6 Lesson 3: Analyzing Paint Splatters<br><br>Math 1 M6 Lesson 9: Solar System Models |
| **M.1HS.20.a**<br><br>Determine an explicit expression, a recursive process or steps for calculation from a context. | Math 1 M1 Lesson 2: Looking for Patterns<br><br>Math 1 M5 Topic A: Arithmetic and Geometric Sequences<br><br>Math 1 M5 Lesson 7: Exponential Functions<br><br>Math 1 M5 Lesson 13: Calculating Interest<br><br>Math 1 M6 Lesson 3: Analyzing Paint Splatters<br><br>Math 1 M6 Lesson 8: The Deal<br><br>Math 1 M6 Lesson 9: Solar System Models |
| **M.1HS.20.b**<br><br>Combine standard function types using arithmetic operations. | Math 1 M6 Lesson 8: The Deal |
| **M.1HS.21**<br><br>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<br><br>Math 1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences<br><br>Math 1 M6 Lesson 8: The Deal |

## Linear and Exponential Relationships
**Build new functions from existing functions.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.22** <br><br> Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $kf(x)$, $f(kx)$, and $f(x + k)$ for specific values of $k$ (both positive and negative); find the value of $k$ given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology. Include recognizing even and odd functions from their graphs and algebraic expressions for them. | Math 1 M3 Topic D: Transformations of Functions <br><br> Math 1 M5 Lesson 9: Using Transformations to Graph Exponential Functions (Bases Greater Than 1) <br><br> Math 1 M5 Lesson 10: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1) <br><br> Math 1 M5 Lesson 12: Writing Equations for Exponential Functions from Tables or Graphs <br><br> *Supplemental material is necessary to address even and odd functions for this standard.* |

## Linear and Exponential Relationships

**Construct and compare linear, quadratic, and exponential models and solve problems.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.23**<br><br>Distinguish between situations that can be modeled with linear functions and with exponential functions. | Math 1 M5 Lesson 13: Calculating Interest<br><br>Math 1 M5 Lesson 16: Modeling Populations<br><br>Math 1 M5 Lesson 20: World Population Prediction<br><br>Math 1 M5 Lesson 21: A Closer Look at Populations<br><br>Math 1 M5 Lesson 23: Modeling an Invasive Species Population<br><br>Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data<br><br>Math 1 M6 Lesson 3: Analyzing Paint Splatters<br><br>Math 1 M6 Lesson 11: A Vanishing Sea |
| **M.1HS.23.a**<br><br>Prove that linear functions grow by equal differences over equal intervals; exponential functions grow by equal factors over equal intervals. | Math 1 M5 Lesson 18: Analyzing Exponential Growth |
| **M.1HS.23.b**<br><br>Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. | Math 1 M5 Lesson 20: World Population Prediction<br><br>Math 1 M5 Lesson 21: A Closer Look at Populations |
| **M.1HS.23.c**<br><br>Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. | Math 1 M5 Lesson 20: World Population Prediction<br><br>Math 1 M5 Lesson 21: A Closer Look at Populations |

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.24**<br><br>Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input–output pairs (include reading these from a table). | Math 1 M5 Lesson 7: Exponential Functions<br><br>Math 1 M5 Lesson 12: Writing Equations for Exponential Functions from Tables or Graphs<br><br>Math 1 M5 Lesson 14: Exponential Growth<br><br>Math 1 M5 Lesson 15: Exponential Decay<br><br>Math 1 M5 Topic D: Comparing Linear and Exponential Models<br><br>Math 1 M6 Lesson 3: Analyzing Paint Splatters<br><br>Math 1 M6 Lesson 8: The Deal<br><br>Math 1 M6 Lesson 9: Solar System Models |
| **M.1HS.25**<br><br>Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function. | Math 1 M5 Lesson 19: Comparing Growth of Functions<br><br>*Supplemental material is necessary to address quadratic functions (and more generally, polynomial functions) for this standard.* |

## Linear and Exponential Relationships

**Interpret expressions for functions in terms of the situation they model.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.26**<br><br>Interpret the parameters in a linear or exponential function in terms of a context. | Math 1 M5 Lesson 16: Modeling Populations<br><br>Math 1 M5 Lesson 18: Analyzing Exponential Growth<br><br>Math 1 M5 Lesson 22: Modeling the Temperature of Objects Cooling Over Time<br><br>Math 1 M5 Lesson 23: Modeling an Invasive Species Population |

## Reasoning with Equations

**Understand solving equations as a process of reasoning and explain the reasoning.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
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| **M.1HS.27**<br><br>Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. | Math 1 M1 Lesson 3: The Commutative, Associative, and Distributive Properties<br><br>Math 1 M1 Lesson 7: Solving Linear Equations in One Variable<br><br>Math 1 M1 Lesson 8: Some Potential Dangers When Solving Equations<br><br>Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable |

## Reasoning with Equations

**Solve equations and inequalities in one variable.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
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| **M.1HS.28**<br><br>Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. | Math 1 M1 Lesson 5: Printing Presses<br><br>Math 1 M1 Lesson 6: Solution Sets of Equations and Inequalities in One Variable<br><br>Math 1 M1 Lesson 7: Solving Linear Equations in One Variable<br><br>Math 1 M1 Lesson 8: Some Potential Dangers When Solving Equations<br><br>Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable<br><br>Math 1 M1 Lesson 11: Solving Linear Inequalities in One Variable<br><br>Math 1 M1 Lesson 13: Solving and Graphing Compound Inequalities<br><br>Math 1 M1 Lesson 14: Solving Absolute Value Equations<br><br>Math 1 M1 Lesson 15: Solving Absolute Value Inequalities |

## Reasoning with Equations
**Solve systems of equations.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
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| **M.1HS.29**<br><br>Prove 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. | Math 1 M2 Lesson 10: A New Way to Solve Systems |
| **M.1HS.30**<br><br>Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. | Math 1 M2 Topic B: Systems of Linear Equations in Two Variables |

## Descriptive Statistics
**Summarize, represent, and interpret data on a single count or measurement variable.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
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| **M.1HS.31**<br><br>Represent data with plots on the real number line (dot plots, histograms, and box plots). | Math 1 M1 Lesson 17: Distributions and Their Shapes<br><br>Math 1 M1 Lesson 18: Describing the Center of a Distribution<br><br>Math 1 M1 Lesson 19: Using Center to Compare Data Distributions<br><br>Math 1 M6 Lesson 1: Using Data to Edit Digital Photography |

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.32**<br><br>Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets. | Math 1 M1 Topic D: Univariate Data<br><br>Math 1 M6 Lesson 1: Using Data to Edit Digital Photography |
| **M.1HS.33**<br><br>Interpret differences in shape, center and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). | Math 1 M1 Topic D: Univariate Data |

## Descriptive Statistics

**Summarize, represent, and interpret data on two categorical and quantitative variables.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.34**<br><br>Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal and conditional relative frequencies). Recognize possible associations and trends in the data. | Math 1 M6 Topic B: Modeling with Categorical Data |

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.35**<br><br>Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. | Math 1 M2 Lesson 22: Relationships Between Quantitative Variables<br><br>Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data |
| **M.1HS.35.a**<br><br>Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear and exponential models. | Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data<br><br>Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data<br><br>Math 1 M6 Lesson 3: Analyzing Paint Splatters<br><br>Math 1 M6 Lesson 11: A Vanishing Sea |
| **M.1HS.35.b**<br><br>Informally assess the fit of a function by plotting and analyzing residuals. | Math 1 M2 Lesson 25: Calculating and Analyzing Residuals<br><br>Math 1 M2 Lesson 26: Analyzing Residuals<br><br>Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data<br><br>Math 1 M6 Lesson 3: Analyzing Paint Splatters |
| **M.1HS.35.c**<br><br>Fit a linear function for scatter plots that suggest a linear association. | Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data<br><br>Math 1 M2 Lesson 24: Modeling Relationships with a Line<br><br>Math 1 M2 Lesson 25: Calculating and Analyzing Residuals<br><br>Math 1 M2 Lesson 27: Interpreting Correlation<br><br>Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data<br><br>Math 1 M6 Lesson 11: A Vanishing Sea |

## Descriptive Statistics

**Interpret linear models.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.36** <br><br> Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. | Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data <br><br> Math 1 M2 Lesson 24: Modeling Relationships with a Line <br><br> Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data |
| **M.1HS.37** <br><br> Compute (using technology) and interpret the correlation coefficient of a linear fit. | Math 1 M2 Lesson 27: Interpreting Correlation <br><br> Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data |
| **M.1HS.38** <br><br> Distinguish between correlation and causation. | Math 1 M2 Lesson 27: Interpreting Correlation <br><br> Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data |

## Congruence, Proof, and Constructions

**Experiment with transformations in the plane.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
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| **M.1HS.39** <br><br> Know precise definitions of angle, circle, perpendicular line, parallel line and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc. | Math 1 M4 Lesson 2: Translations of the Coordinate Plane <br><br> Math 1 M4 Lesson 3: Rotations of the Coordinate Plane <br><br> Math 1 M4 Lesson 5: Proving the Perpendicular Criterion |

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.40**<br><br>Represent transformations in the plane using, for example, transparencies and geometry software; describe transformations as functions that take points in the plane as inputs and give other points as outputs. Compare transformations that preserve distance and angle to those that do not (e.g., translation versus horizontal stretch). | Math 1 M4 Lesson 1: Geometric Transformations |
| **M.1HS.41**<br><br>Given a rectangle, parallelogram, trapezoid or regular polygon, describe the rotations and reflections that carry it onto itself. | Math 1 M4 Lesson 12: Reflective Symmetry and Rotational Symmetry |
| **M.1HS.42**<br><br>Develop definitions of rotations, reflections and translations in terms of angles, circles, perpendicular lines, parallel lines and line segments. | Math 1 M4 Lesson 2: Translations of the Coordinate Plane<br><br>Math 1 M4 Lesson 3: Rotations of the Coordinate Plane<br><br>Math 1 M4 Lesson 4: Reflections of the Coordinate Plane<br><br>Math 1 M4 Lesson 5: Proving the Perpendicular Criterion<br><br>Math 1 M4 Lesson 8: Reflections of the Plane<br><br>Math 1 M4 Lesson 9: Rotations of the Plane<br><br>Math 1 M4 Lesson 10: Rotations of the Plane with Bisected and Copied Angles<br><br>Math 1 M4 Lesson 11: Translations of the Plane |

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.43**<br><br>Given a geometric figure and a rotation, reflection or translation, draw the transformed figure using, e.g., graph paper, tracing paper or geometry software. Specify a sequence of transformations that will carry a given figure onto another. | Math 1 M4 Lesson 2: Translations of the Coordinate Plane<br><br>Math 1 M4 Lesson 3: Rotations of the Coordinate Plane<br><br>Math 1 M4 Lesson 4: Reflections of the Coordinate Plane<br><br>Math 1 M4 Lesson 5: Proving the Perpendicular Criterion<br><br>Math 1 M4 Lesson 13: Sequences of Basic Rigid Motions<br><br>Math 1 M4 Lesson 14: Transformations of the Coordinate Plane<br><br>Math 1 M4 Lesson 15: Designs with Rigid Motions<br><br>Math 1 M4 Lesson 16: Congruent Figures |

## Congruence, Proof, and Constructions

**Understand congruence in terms of rigid motions.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.44**<br><br>Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure; given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent. | Math 1 M4 Lesson 14: Transformations of the Coordinate Plane<br><br>Math 1 M4 Lesson 16: Congruent Figures |

| **West Virginia College- and Career-Readiness Standards for Mathematics** | **Aligned Components of *Eureka Math²*** |
|---|---|
| **M.1HS.45**<br><br>Use the definition of congruence in terms of rigid motions to show that 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 |
| **M.1HS.46**<br><br>Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions. | Math 1 M4 Lesson 18: Side–Angle–Side<br><br>Math 1 M4 Lesson 19: Angle–Angle–Angle and Side–Side–Side<br><br>Math 1 M4 Lesson 20: Angle–Side–Angle<br><br>Math 1 M4 Lesson 21: Side–Side–Angle and Hypotenuse–Leg |

# Congruence, Proof, and Constructions

**Make geometric constructions.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.47**<br><br>Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line. | Math 1 M4 Lesson 6: Compass and Straightedge Constructions<br><br>Math 1 M4 Lesson 7: Constructing Perpendicular Lines<br><br>Math 1 M4 Lesson 8: Reflections of the Plane<br><br>Math 1 M4 Lesson 10: Rotations of the Plane with Bisected and Copied Angles<br><br>Math 1 M4 Lesson 11: Translations of the Plane<br><br>Math 1 M4 Lesson 22: Validating Triangle and Angle Constructions<br><br>Math 1 M4 Lesson 23: Validating Perpendicular Line Constructions<br><br>Math 1 M4 Lesson 26: Sierpinski Triangle |
| **M.1HS.48**<br><br>Construct an equilateral triangle, a square and a regular hexagon inscribed in a circle. | Math 1 M4 Lesson 9: Rotations of the Plane<br><br>Math 1 M4 Lesson 24: Squares Inscribed in Circles<br><br>Math 1 M4 Lesson 25: Regular Hexagons and Equilateral Triangles Inscribed in Circles |

## Connecting Algebra and Geometry Through Coordinates

**Use coordinates to prove simple geometric theorems algebraically.**

| West Virginia College- and Career-Readiness Standards for Mathematics | Aligned Components of *Eureka Math²* |
|---|---|
| **M.1HS.49**<br><br>Use coordinates to prove simple geometric theorems algebraically. | Math 1 M2 Lesson 4: Proving Conditional Statements<br><br>Math 1 M2 Lesson 5: Proving Biconditional Statements<br><br>Math 1 M2 Lesson 6: Proving the Parallel Criterion<br><br>Math 1 M2 Lesson 19: The Distance Formula<br><br>Math 1 M2 Lesson 20: Proving Geometric Theorems Algebraically |
| **M.1HS.50**<br><br>Prove the slope criteria for parallel and perpendicular lines; use them to solve geometric problems. | Math 1 M2 Lesson 6: Proving the Parallel Criterion<br><br>Math 1 M2 Lesson 7: Equations of Parallel and Perpendicular Lines<br><br>Math 1 M2 Lesson 20: Proving Geometric Theorems Algebraically<br><br>Math 1 M4 Lesson 5: Proving the Perpendicular Criterion |
| **M.1HS.51**<br><br>Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, (e.g., using the distance formula). | Math 1 M2 Lesson 21: Using Coordinates to Determine Perimeters and Areas of Figures<br><br>Math 1 M6 Lesson 11: A Vanishing Sea |