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## Mathematics I | Alaska Mathematics Standards Correlation to *Eureka Math*<sup>2</sup>®

When the original *Eureka Math*<sup>®</sup> curriculum was released, it quickly became the most widely used K–5 mathematics curriculum in the country. Now, the Great Minds<sup>®</sup> teacher–writers have created *Eureka Math*<sup>2</sup>®, 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 Math*<sup>2</sup> 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 Math*<sup>2</sup> 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 Math*<sup>2</sup> 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 Math*<sup>2</sup> 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 Math*<sup>2</sup> 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 <i>Eureka Math</i> <sup>2</sup>
<p><b>MP.1</b> Make sense of problems and persevere in solving them.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.2</b> Reason abstractly and quantitatively.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.3</b> Construct viable arguments and critique the reasoning of others.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.4</b> Model with mathematics.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.5</b> Use appropriate tools strategically.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.6</b> Attend to precision.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.7</b> Look for and make use of structure.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>
<p><b>MP.8</b> Look for and express regularity in repeated reasoning.</p>	<p>Lessons in every module engage students in mathematical practices. These are indicated in margin notes included with every lesson.</p>

## Quantities

Reason quantitatively and use units to solve problems.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>N-Q.1</b></p> <p>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.</p>	<p>Math 1 M1 Lesson 1: A Powerful Trio</p> <p>Math 1 M3 Lesson 14: Comparing Models for Situations</p> <p>Math 1 M6 Lesson 9: Solar System Models</p> <p>Math 1 M6 Lesson 10: Designing a Fundraiser</p> <p>Math 1 M6 Lesson 11: A Vanishing Sea</p>
<p><b>N-Q.2</b></p> <p>Define appropriate quantities for the purpose of descriptive modeling.</p>	<p>Math 1 M1 Lesson 1: A Powerful Trio</p> <p>Math 1 M3 Lesson 14: Comparing Models for Situations</p> <p>Math 1 M6 Lesson 3: Analyzing Paint Splatters</p> <p>Math 1 M6 Lesson 9: Solar System Models</p> <p>Math 1 M6 Lesson 10: Designing a Fundraiser</p>
<p><b>N-Q.3</b></p> <p>Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</p>	<p>Math 1 M6 Lesson 9: Solar System Models</p> <p>Math 1 M6 Lesson 11: A Vanishing Sea</p>

## Seeing Structure in Expressions

Interpret the structure of expressions.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>A-SSE.1</b> Interpret expressions that represent a quantity in terms of its context.</p>	<p><i>This standard is fully addressed by the lessons aligned to its subsections.</i></p>
<p><b>A-SSE.1.a</b> Interpret parts of an expression, such as terms, factors, and coefficients.</p>	<p>Math 1 M1 Lesson 4: Interpreting Linear Expressions</p>
<p><b>A-SSE.1.b</b> Interpret complicated expressions by viewing one or more of their parts as a single entity.</p>	<p>Math 1 M5 Lesson 7: Exponential Functions                      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 22: Modeling the Temperature of Objects Cooling Over Time</p>

## Creating Equations and Inequalities

Create equations and inequalities that describe numbers or relationships.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>A-CED.1</b> Create equations and inequalities in one variable and use them to solve problems.</p>	<p>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</p>

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>A-CED.2</b></p> <p>Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.</p>	<p>Math 1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables</p> <p>Math 1 M2 Lesson 2: Graphing Linear Equations in Two Variables</p> <p>Math 1 M2 Lesson 3: Creating Linear Equations in Two Variables</p> <p>Math 1 M2 Lesson 4: Proving Conditional Statements</p> <p>Math 1 M2 Lesson 5: Proving Biconditional Statements</p> <p>Math 1 M2 Lesson 8: Low-Flow Showerhead</p> <p>Math 1 M2 Lesson 12: Applications of Systems of Equations</p> <p>Math 1 M4 Lesson 5: Proving the Perpendicular Criterion</p>
<p><b>A-CED.3</b></p> <p>Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or nonviable options in a modeling context.</p>	<p>Math 1 M1 Lesson 9: Writing and Solving Equations in One Variable</p> <p>Math 1 M1 Lesson 12: Solution Sets of Compound Statements</p> <p>Math 1 M1 Lesson 13: Solving and Graphing Compound Inequalities</p> <p>Math 1 M1 Lesson 16: Applying Absolute Value</p> <p>Math 1 M2 Lesson 1: Solution Sets of Linear Equations in Two Variables</p> <p>Math 1 M2 Lesson 15: Applications of Linear Inequalities</p> <p>Math 1 M2 Lesson 18: Applications of Systems of Linear Inequalities</p> <p>Math 1 M6 Lesson 10: Designing a Fundraiser</p>
<p><b>A-CED.4</b></p> <p>Rearrange formulas (literal equations) to highlight a quantity of interest, using the same reasoning as in solving equations.</p>	<p>Math 1 M1 Lesson 10: Rearranging Formulas</p>

## Reasoning with Equations and Inequalities

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

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>A-REI.1</b> Apply properties of mathematics to justify steps in solving equations in one variable.	Math 1 M1 Lesson 3: The Commutative, Associative, and Distributive Properties 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

## Reasoning with Equations and Inequalities

Solve equations and inequalities in one variable.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>A-REI.3</b> Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.	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

## Reasoning with Equations and Inequalities

Solve systems of equations.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>A-REI.5</b> Show 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
<b>A-REI.6</b> Solve systems of linear equations exactly and approximately, e.g., with graphs or algebraically, focusing on pairs of linear equations in two variables.	Math 1 M2 Topic B: Systems of Linear Equations in Two Variables

## Reasoning with Equations and Inequalities

Represent and solve equations and inequalities graphically.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>A-REI.10</b> 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 Math 1 M2 Lesson 2: Graphing Linear Equations in Two Variables

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>A-REI.11</b></p> <p>Explain why the <math>x</math>-coordinates of the points where the graphs of the equations <math>y = f(x)</math> and <math>y = g(x)</math> intersect are the solutions of the equation <math>f(x) = g(x)</math>; find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where <math>f(x)</math> and/or <math>g(x)</math> are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.</p>	<p>Math 1 M3 Lesson 10: Using Graphs to Solve Equations</p> <p>Math 1 M5 Lesson 11: Solving Equations Containing Exponential Expressions</p> <p>Math 1 M5 Lesson 19: Comparing Growth of Functions</p> <p><i>Supplemental material is necessary to address polynomial, rational, and logarithmic functions for this standard.</i></p>
<p><b>A-REI.12</b></p> <p>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.</p>	<p>Math 1 M2 Lesson 13: Solution Sets of Linear Inequalities in Two Variables</p> <p>Math 1 M2 Lesson 14: Graphing Linear Inequalities in Two Variables</p> <p>Math 1 M2 Lesson 16: Solution Sets of Systems of Linear Inequalities</p> <p>Math 1 M2 Lesson 17: Graphing Solution Sets of Systems of Linear Inequalities</p> <p>Math 1 M2 Lesson 18: Applications of Systems of Linear Inequalities</p> <p>Math 1 M6 Lesson 10: Designing a Fundraiser</p>



## Interpreting Functions

Understand the concept of a function and use function notation.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>F-IF.1</b></p> <p>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 <math>f</math> is a function and <math>x</math> is an element of its domain, then <math>f(x)</math> denotes the output of <math>f</math> corresponding to the input <math>x</math>. The graph of <math>f</math> is the graph of the equation <math>y = f(x)</math>.</p>	<p>Math 1 M3 Topic A: Functions and Their Graphs</p>
<p><b>F-IF.2</b></p> <p>Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.</p>	<p>Math 1 M3 Lesson 2: Interpreting and Using Function Notation</p> <p>Math 1 M3 Lesson 3: Representing, Naming, and Evaluating Functions</p> <p>Math 1 M3 Lesson 7: Representations of Functions</p> <p>Math 1 M5 Lesson 1: Exploring Patterns</p> <p>Math 1 M5 Lesson 2: The Recursive Challenge</p> <p>Math 1 M5 Lesson 3: Recursive Formulas for Sequences</p> <p>Math 1 M5 Lesson 4: Explicit Formulas for Sequences</p>
<p><b>F-IF.3</b></p> <p>Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.</p>	<p>Math 1 M5 Topic A: Arithmetic and Geometric Sequences</p>

## Interpreting Functions

Interpret functions that arise in applications in terms of the context.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>F-IF.4</b></p> <p>For a function that models a relationship between two quantities,</p> <ul style="list-style-type: none"> <li>• interpret key features of graphs and tables in terms of the quantities, and</li> <li>• sketch graphs showing key features given a verbal description of the relationship.</li> </ul>	<p>Math 1 M3 Lesson 8: Exploring Key Features of a Function and Its Graph</p> <p>Math 1 M3 Lesson 9: Identifying Key Features of a Function and Its Graph</p> <p>Math 1 M3 Lesson 11: Comparing Functions</p> <p>Math 1 M3 Lesson 12: Sketching Graphs of Functions from Verbal Descriptions</p> <p>Math 1 M3 Lesson 13: Modeling Elevation as a Function of Time</p> <p>Math 1 M3 Lesson 15: Mars Curiosity Rover</p>
<p><b>F-IF.5</b></p> <p>Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.</p>	<p>Math 1 M3 Lesson 4: The Graph of a Function</p> <p>Math 1 M3 Lesson 13: Modeling Elevation as a Function of Time</p>
<p><b>F-IF.6</b></p> <p>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.</p>	<p>Math 1 M5 Lesson 17: Average Rate of Change</p> <p>Math 1 M5 Lesson 18: Analyzing Exponential Growth</p> <p>Math 1 M5 Lesson 19: Comparing Growth of Functions</p> <p>Math 1 M5 Lesson 23: Modeling an Invasive Species Population</p>

## Interpreting Functions

Analyze functions using different representations.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>F-IF.7</b></p> <p>Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.</p>	<p><i>This standard is addressed by the lessons aligned to its subsections.</i></p>
<p><b>F-IF.7.a</b></p> <p>Graph linear and quadratic functions and show intercepts, maxima, and minima.</p>	<p>Math 1 M3 Lesson 5: The Graph of the Equation <math>y = f(x)</math></p> <p>Math 1 M3 Lesson 6: Using Pseudocode to Compare Graphs of Functions and Graphs of Equations</p> <p>Math 1 M3 Lesson 7: Representations of Functions</p> <p><i>Supplemental material is necessary to address quadratic functions for this standard.</i></p>
<p><b>F-IF.7.e</b></p> <p>Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude.</p>	<p>Math 1 M5 Lesson 8: Graphing Exponential Functions</p> <p>Math 1 M5 Lesson 9: Using Transformations to Graph Exponential Functions (Bases Greater Than 1)</p> <p>Math 1 M5 Lesson 10: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1)</p> <p><i>Supplemental material is necessary to address logarithmic and trigonometric functions for this standard.</i></p>
<p><b>F-IF.9</b></p> <p>Compare properties of two functions each represented in a different way (algebraically, graphically, numerically, in tables, or by verbal descriptions).</p>	<p>Math 1 M3 Lesson 11: Comparing Functions</p>

## Building Functions

Build a function that models a relationship between two quantities.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>F-BF.1</b></p> <p>Write a function that describes a relationship between two quantities.</p>	<p>Math 1 M6 Lesson 3: Analyzing Paint Splatters</p> <p>Math 1 M6 Lesson 9: Solar System Models</p>
<p><b>F-BF.1.a</b></p> <p>Determine an explicit expression, a recursive process, or steps for calculation from a context.</p>	<p>Math 1 M1 Lesson 2: Looking for Patterns</p> <p>Math 1 M5 Topic A: Arithmetic and Geometric Sequences</p> <p>Math 1 M5 Lesson 7: Exponential Functions</p> <p>Math 1 M5 Lesson 13: Calculating Interest</p> <p>Math 1 M6 Lesson 3: Analyzing Paint Splatters</p> <p>Math 1 M6 Lesson 8: The Deal</p> <p>Math 1 M6 Lesson 9: Solar System Models</p>
<p><b>F-BF.1.b</b></p> <p>Combine standard function types using arithmetic operations.</p>	<p>Math 1 M6 Lesson 8: The Deal</p>
<p><b>F-BF.2</b></p> <p>Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.</p>	<p>Math 1 M5 Lesson 5: Arithmetic and Geometric Sequences</p> <p>Math 1 M5 Lesson 6: Representations of Arithmetic and Geometric Sequences</p> <p>Math 1 M6 Lesson 8: The Deal</p>

## Building Functions

Build new functions from existing functions.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>F-BF.3</b></p> <p>Identify the effect on the graph of replacing <math>f(x)</math> by <math>f(x) + k</math>, <math>kf(x)</math>, <math>f(kx)</math>, and <math>f(x + k)</math> for specific values of <math>k</math> (both positive and negative); find the value of <math>k</math> given the graphs.</p>	<p>Math 1 M3 Topic D: Transformations of Functions</p> <p>Math 1 M5 Lesson 9: Using Transformations to Graph Exponential Functions (Bases Greater Than 1)</p> <p>Math 1 M5 Lesson 10: Using Transformations to Graph Exponential Functions (Bases Between 0 and 1)</p> <p>Math 1 M5 Lesson 12: Writing Equations for Exponential Functions from Tables or Graphs</p>

## Linear, Quadratic, and Exponential Models

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

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>F-LE.1</b></p> <p>Distinguish between situations that can be modeled with linear functions and with exponential functions.</p>	<p>Math 1 M5 Lesson 13: Calculating Interest</p> <p>Math 1 M5 Lesson 16: Modeling Populations</p> <p>Math 1 M5 Lesson 20: World Population Prediction</p> <p>Math 1 M5 Lesson 21: A Closer Look at Populations</p> <p>Math 1 M5 Lesson 23: Modeling an Invasive Species Population</p> <p>Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data</p> <p>Math 1 M6 Lesson 3: Analyzing Paint Splatters</p> <p>Math 1 M6 Lesson 11: A Vanishing Sea</p>
<p><b>F-LE.1.a</b></p> <p>Show that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals.</p>	<p>Math 1 M5 Lesson 18: Analyzing Exponential Growth</p>

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>F-LE.1.b</b></p> <p>Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.</p>	<p>Math 1 M5 Lesson 20: World Population Prediction</p> <p>Math 1 M5 Lesson 21: A Closer Look at Populations</p>
<p><b>F-LE.1.c</b></p> <p>Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another.</p>	<p>Math 1 M5 Lesson 20: World Population Prediction</p> <p>Math 1 M5 Lesson 21: A Closer Look at Populations</p>
<p><b>F-LE.2</b></p> <p>Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or input-output table of values.</p>	<p>Math 1 M5 Lesson 7: Exponential Functions</p> <p>Math 1 M5 Lesson 12: Writing Equations for Exponential Functions from Tables or Graphs</p> <p>Math 1 M5 Lesson 14: Exponential Growth</p> <p>Math 1 M5 Lesson 15: Exponential Decay</p> <p>Math 1 M5 Topic D: Comparing Linear and Exponential Models</p> <p>Math 1 M6 Lesson 3: Analyzing Paint Splatters</p> <p>Math 1 M6 Lesson 8: The Deal</p> <p>Math 1 M6 Lesson 9: Solar System Models</p>
<p><b>F-LE.3</b></p> <p>Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.</p>	<p>Math 1 M5 Lesson 19: Comparing Growth of Functions</p> <p><i>Supplemental material is necessary to address quadratic functions (and more generally, polynomial functions) for this standard.</i></p>

## Linear, Quadratic, and Exponential Models

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

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>F-LE.5</b> Interpret the parameters in a linear or exponential function in terms of a context.	Math 1 M5 Lesson 16: Modeling Populations Math 1 M5 Lesson 18: Analyzing Exponential Growth Math 1 M5 Lesson 22: Modeling the Temperature of Objects Cooling Over Time Math 1 M5 Lesson 23: Modeling an Invasive Species Population

## Congruence

Experiment with transformations in the plane.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<b>G-CO.1</b> Demonstrate understanding of key geometrical definitions, including angle, circle, perpendicular line, parallel line, line segment, and transformations in Euclidian geometry. Understand 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 Math 1 M4 Lesson 3: Rotations of the Coordinate Plane Math 1 M4 Lesson 5: Proving the Perpendicular Criterion

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>G-CO.2</b></p> <p>Represent transformations in the plane using, e.g., 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).</p>	<p>Math 1 M4 Lesson 1: Geometric Transformations</p>
<p><b>G-CO.3</b></p> <p>Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.</p>	<p>Math 1 M4 Lesson 12: Reflective Symmetry and Rotational Symmetry</p>
<p><b>G-CO.4</b></p> <p>Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.</p>	<p>Math 1 M4 Lesson 2: Translations of the Coordinate Plane</p> <p>Math 1 M4 Lesson 3: Rotations of the Coordinate Plane</p> <p>Math 1 M4 Lesson 4: Reflections of the Coordinate Plane</p> <p>Math 1 M4 Lesson 5: Proving the Perpendicular Criterion</p> <p>Math 1 M4 Lesson 8: Reflections of the Plane</p> <p>Math 1 M4 Lesson 9: Rotations of the Plane</p> <p>Math 1 M4 Lesson 10: Rotations of the Plane with Bisected and Copied Angles</p> <p>Math 1 M4 Lesson 11: Translations of the Plane</p>



Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>G-CO.5</b></p> <p>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.</p>	<p>Math 1 M4 Lesson 2: Translations of the Coordinate Plane</p> <p>Math 1 M4 Lesson 3: Rotations of the Coordinate Plane</p> <p>Math 1 M4 Lesson 4: Reflections of the Coordinate Plane</p> <p>Math 1 M4 Lesson 5: Proving the Perpendicular Criterion</p> <p>Math 1 M4 Lesson 13: Sequences of Basic Rigid Motions</p> <p>Math 1 M4 Lesson 14: Transformations of the Coordinate Plane</p> <p>Math 1 M4 Lesson 15: Designs with Rigid Motions</p> <p>Math 1 M4 Lesson 16: Congruent Figures</p>

## Congruence

Understand congruence in terms of rigid motions.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>G-CO.6</b></p> <p>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.</p>	<p>Math 1 M4 Lesson 14: Transformations of the Coordinate Plane</p> <p>Math 1 M4 Lesson 16: Congruent Figures</p>

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>G-CO.7</b></p> <p>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.</p>	<p>Math 1 M4 Lesson 17: Congruent Triangles</p>
<p><b>G-CO.8</b></p> <p>Explain how the criteria for triangle congruence (ASA, SAS, SSS, AAS, and HL) follow from the definition of congruence in terms of rigid motions.</p>	<p>Math 1 M4 Lesson 18: Side–Angle–Side</p> <p>Math 1 M4 Lesson 19: Angle–Angle–Angle and Side–Side–Side</p> <p>Math 1 M4 Lesson 20: Angle–Side–Angle</p> <p>Math 1 M4 Lesson 21: Side–Side–Angle and Hypotenuse–Leg</p> <p><i>Supplemental material is necessary to address AAS.</i></p>

## Congruence

### Make geometric constructions.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>G-CO.12</b></p> <p>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.</p>	<p>Math 1 M4 Lesson 6: Compass and Straightedge Constructions</p> <p>Math 1 M4 Lesson 7: Constructing Perpendicular Lines</p> <p>Math 1 M4 Lesson 8: Reflections of the Plane</p> <p>Math 1 M4 Lesson 10: Rotations of the Plane with Bisected and Copied Angles</p> <p>Math 1 M4 Lesson 11: Translations of the Plane</p> <p>Math 1 M4 Lesson 22: Validating Triangle and Angle Constructions</p> <p>Math 1 M4 Lesson 23: Validating Perpendicular Line Constructions</p> <p>Math 1 M4 Lesson 26: Sierpinski Triangle</p>

<b>Alaska Mathematics Standards</b>	<b>Aligned Components of <i>Eureka Math</i><sup>2</sup></b>
<p><b>G-CO.13</b></p> <p>Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.</p>	<p>Math 1 M4 Lesson 9: Rotations of the Plane</p> <p>Math 1 M4 Lesson 24: Squares Inscribed in Circles</p> <p>Math 1 M4 Lesson 25: Regular Hexagons and Equilateral Triangles Inscribed in Circles</p>

### Expressing Geometric Properties with Equations

Use coordinates to prove simple geometric theorems algebraically.

<b>Alaska Mathematics Standards</b>	<b>Aligned Components of <i>Eureka Math</i><sup>2</sup></b>
<p><b>G-GPE.4</b></p> <p>Perform simple coordinate proofs.</p>	<p>Math 1 M2 Lesson 4: Proving Conditional Statements</p> <p>Math 1 M2 Lesson 5: Proving Biconditional Statements</p> <p>Math 1 M2 Lesson 6: Proving the Parallel Criterion</p> <p>Math 1 M2 Lesson 19: The Distance Formula</p> <p>Math 1 M2 Lesson 20: Proving Geometric Theorems Algebraically</p>
<p><b>G-GPE.5</b></p> <p>Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).</p>	<p>Math 1 M2 Lesson 6: Proving the Parallel Criterion</p> <p>Math 1 M2 Lesson 7: Equations of Parallel and Perpendicular Lines</p> <p>Math 1 M2 Lesson 20: Proving Geometric Theorems Algebraically</p> <p>Math 1 M4 Lesson 5: Proving the Perpendicular Criterion</p>
<p><b>G-GPE.7</b></p> <p>Use coordinates to compute perimeters of polygons and areas of triangles and rectangles, e.g., using the distance formula.</p>	<p>Math 1 M2 Lesson 21: Using Coordinates to Determine Perimeters and Areas of Figures</p> <p>Math 1 M6 Lesson 11: A Vanishing Sea</p>

## Interpreting Categorical and Quantitative Data

Summarize, represent, and interpret data on a single count or measurement variable.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>S-ID.1</b></p> <p>Represent data with plots on the real number line (dot plots, histograms, and box plots).</p>	<p>Math 1 M1 Lesson 17: Distributions and Their Shapes</p> <p>Math 1 M1 Lesson 18: Describing the Center of a Distribution</p> <p>Math 1 M1 Lesson 19: Using Center to Compare Data Distributions</p> <p>Math 1 M6 Lesson 1: Using Data to Edit Digital Photography</p>
<p><b>S-ID.2</b></p> <p>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.</p>	<p>Math 1 M1 Topic D: Univariate Data</p> <p>Math 1 M6 Lesson 1: Using Data to Edit Digital Photography</p>
<p><b>S-ID.3</b></p> <p>Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).</p>	<p>Math 1 M1 Topic D: Univariate Data</p>

## Interpreting Categorical and Quantitative Data

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

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>S-ID.5</b></p> <p>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.</p>	<p>Math 1 M6 Topic B: Modeling with Categorical Data</p>
<p><b>S-ID.6</b></p> <p>Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.</p>	<p>Math 1 M2 Lesson 22: Relationships Between Quantitative Variables</p> <p>Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data</p>
<p><b>S-ID.6.a</b></p> <p>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, quadratic, and exponential models.</p>	<p>Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data</p> <p>Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data</p> <p>Math 1 M6 Lesson 3: Analyzing Paint Splatters</p> <p>Math 1 M6 Lesson 11: A Vanishing Sea</p> <p><i>Supplemental material is necessary to address quadratic models for this standard.</i></p>
<p><b>S-ID.6.b</b></p> <p>Informally assess the fit of a function by plotting and analyzing residuals.</p>	<p>Math 1 M2 Lesson 25: Calculating and Analyzing Residuals</p> <p>Math 1 M2 Lesson 26: Analyzing Residuals</p> <p>Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data</p> <p>Math 1 M6 Lesson 3: Analyzing Paint Splatters</p>

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>S-ID.6.c</b></p> <p>Fit a linear function for a scatter plot that suggests a linear association.</p>	<p>Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data</p> <p>Math 1 M2 Lesson 24: Modeling Relationships with a Line</p> <p>Math 1 M2 Lesson 25: Calculating and Analyzing Residuals</p> <p>Math 1 M2 Lesson 27: Interpreting Correlation</p> <p>Math 1 M6 Lesson 2: Using Residual Plots to Select Models for Data</p> <p>Math 1 M6 Lesson 3: Analyzing Paint Splatters</p> <p>Math 1 M6 Lesson 11: A Vanishing Sea</p>

### Interpreting Categorical and Quantitative Data

Interpret linear models.

Alaska Mathematics Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
<p><b>S-ID.7</b></p> <p>Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.</p>	<p>Math 1 M2 Lesson 23: Using Lines to Model Bivariate Quantitative Data</p> <p>Math 1 M2 Lesson 24: Modeling Relationships with a Line</p> <p>Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data</p>
<p><b>S-ID.8</b></p> <p>Compute (using technology) and interpret the correlation coefficient of a linear fit.</p>	<p>Math 1 M2 Lesson 27: Interpreting Correlation</p> <p>Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data</p>
<p><b>S-ID.9</b></p> <p>Distinguish between correlation and causation.</p>	<p>Math 1 M2 Lesson 27: Interpreting Correlation</p> <p>Math 1 M2 Lesson 28: Analyzing Bivariate Quantitative Data</p>