# EUREKA MATH<sup>2</sup>.

#### Grade 7 | Hawaii Common Core State 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* and 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 highquality 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 Eureka Math <sup>2</sup>
<b>MP.1</b>	Lessons in every module engage students in mathematical practices.
Make sense of problems and persevere in solving them.	These are indicated in margin notes included with every lesson.
<b>MP.2</b>	Lessons in every module engage students in mathematical practices.
Reason abstractly and quantitatively.	These are indicated in margin notes included with every lesson.
<b>MP.3</b>	Lessons in every module engage students in mathematical practices.
Construct viable arguments and critique the reasoning of others.	These are indicated in margin notes included with every lesson.
<b>MP.4</b>	Lessons in every module engage students in mathematical practices.
Model with mathematics.	These are indicated in margin notes included with every lesson.
<b>MP.5</b>	Lessons in every module engage students in mathematical practices.
Use appropriate tools strategically.	These are indicated in margin notes included with every lesson.
<b>MP.6</b>	Lessons in every module engage students in mathematical practices.
Attend to precision.	These are indicated in margin notes included with every lesson.
<b>MP.7</b>	Lessons in every module engage students in mathematical practices.
Look for and make use of structure.	These are indicated in margin notes included with every lesson.
<b>MP.8</b>	Lessons in every module engage students in mathematical practices.
Look for and express regularity in repeated reasoning.	These are indicated in margin notes included with every lesson.

#### **Ratios and Proportional Relationships**

7.RP.A Analyze proportional relationships and use them to solve real-world and mathematical problems.

Hawaii Common Core State Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
7.RP.A.1	7 M1 Lesson 1: An Experiment with Ratios and Rates
Compute unit rates associated with ratios	7 M1 Lesson 2: Exploring Tables of Proportional Relationships
of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	7 M1 Lesson 3: Identifying Proportional Relationships in Tables
7.RP.A.2	This standard is fully addressed by the lessons aligned to its subsections.
Recognize and represent proportional relationships between quantities.	
7.RP.A.2.a	7 M1 Topic A: Understanding Proportional Relationships
Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.	7 M1 Lesson 14: Extreme Bicycles
7.RP.A.2.b	7 M1 Lesson 4: Exploring Graphs of Proportional Relationships
Identify the constant of proportionality	7 M1 Lesson 5: Analyzing Graphs of Proportional Relationships
(unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	7 M1 Lesson 6: Identifying Proportional Relationships in Written Descriptions
	7 M1 Lesson 8: Relating Representations of Proportional Relationships
	7 M1 Lesson 9: Comparing Proportional Relationships
	7 M1 Lesson 11: Constant Rates
	7 M1 Lesson 12: Multi-Step Ratio Problems, Part 1

Hawaii Common Core State Standards	Aligned Components of Eureka Math <sup>2</sup>
7.RP.A.2.b continued	7 M1 Lesson 13: Multi-Step Ratio Problems, Part 2 7 M1 Lesson 16: Using a Scale Factor 7 M1 Lesson 18: Relating Areas of Scale Drawings
<b>7.RP.A.2.c</b> Represent proportional relationships by equations.	<ul> <li>7 M1 Lesson 2: Exploring Tables of Proportional Relationships</li> <li>7 M1 Lesson 3: Identifying Proportional Relationships in Tables</li> <li>7 M1 Lesson 8: Relating Representations of Proportional Relationships</li> <li>7 M1 Lesson 10: Applying Proportional Reasoning</li> <li>7 M1 Lesson 10: Applying Proportional Reasoning</li> <li>7 M1 Lesson 11: Constant Rates</li> <li>7 M1 Lesson 12: Multi-Step Ratio Problems, Part 1</li> <li>7 M1 Lesson 13: Multi-Step Ratio Problems, Part 2</li> <li>7 M5 Lesson 1: Proportionality and Scale Factor</li> <li>7 M5 Lesson 4: Proportion and Percent</li> </ul>
<b>7.RP.A.2.d</b> Explain what a point $(x, y)$ on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where <i>r</i> is the unit rate.	<ul> <li>7 M5 Lesson 5: Common Denominators or Common Numerators</li> <li>7 M1 Lesson 4: Exploring Graphs of Proportional Relationships</li> <li>7 M1 Lesson 5: Analyzing Graphs of Proportional Relationships</li> <li>7 M1 Lesson 9: Comparing Proportional Relationships</li> </ul>

State Standards	Aligned Components of Eureka Math <sup>2</sup>	
7.RP.A.3	7 M1 Lesson 7: Handstand Sprint	
Use proportional relationships to solve	7 M1 Lesson 10: Applying Proportional Reasoning	
multistep ratio and percent problems.	7 M1 Lesson 11: Constant Rates	
	7 M1 Lesson 12: Multi-Step Ratio Problems, Part 1	
	7 M1 Lesson 13: Multi-Step Ratio Problems, Part 2	
	7 M5 Lesson 2: Racing for Percents	
	7 M5 Lesson 3: Percent as a Rate per 100	
	7 M5 Lesson 4: Proportion and Percent	
	7 M5 Lesson 5: Common Denominators or Common Numerators	
	7 M5 Topic B: Part of 100	
	7 M5 Lesson 10: Percent Increase	
	7 M5 Lesson 11: Percent Decrease	
	7 M5 Lesson 12: More Discounts	
	7 M5 Lesson 13: What Is the Best Deal?	
	7 M5 Topic D: Applications of Percent	
	7 M5 Lesson 20: Making Money, Day 1	
	7 M5 Lesson 21: Making Money, Day 2	
	7 M5 Lesson 22: Making Mixtures	
	7 M5 Lesson 23: Percents of Percents	

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#### The Number System

7.NS.A Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

Hawaii Common Core State Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
7.NS.A.1	This standard is fully addressed by the lessons aligned to its subsections.
Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.	
7.NS.A.1.a	7 M2 Lesson 1: Combining Opposites
Describe situations in which opposite quantities combine to make 0.	7 M2 Lesson 12: The Integer Game
7.NS.A.1.b	7 M2 Lesson 1: Combining Opposites
Understand $p + q$ as the number located	7 M2 Lesson 2: Adding Integers
a distance $ q $ from $p$ , in the positive or	7 M2 Lesson 3: Adding Integers Efficiently
negative direction depending on whether <i>q</i> is positive or negative. Show that a	7 M2 Lesson 5: Decomposing Rational Numbers to Make Addition More Efficient
number and its opposite have a sum of $0$	7 M2 Lesson 6: Adding Rational Numbers
(are additive inverses). Interpret sums of rational numbers by describing real-world contexts.	7 M2 Lesson 8: Subtracting Integers, Part 1

Aligned Components of <i>Eureka Math</i> <sup>2</sup>
7 M2 Lesson 7: What Subtraction Means
7 M2 Lesson 8: Subtracting Integers, Part 1
7 M2 Lesson 9: Subtracting Integers, Part 2
7 M2 Lesson 10: Subtracting Rational Numbers, Part 1
7 M2 Lesson 11: Subtracting Rational Numbers, Part 2
7 M2 Lesson 4: KAKOOMA®
7 M2 Lesson 5: Decomposing Rational Numbers to Make Addition More Efficient
7 M2 Lesson 6: Adding Rational Numbers
7 M2 Lesson 9: Subtracting Integers, Part 2
7 M2 Lesson 10: Subtracting Rational Numbers, Part 1
7 M2 Lesson 11: Subtracting Rational Numbers, Part 2
7 M2 Lesson 12: The Integer Game
This standard is fully addressed by the lessons aligned to its subsections.

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#### Hawaii Common Core State Standards

#### Aligned Components of Eureka Math<sup>2</sup>

7.NS.A.2.a	7 M2 Topic C: Multiplying Rational Numbers
Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers. Interpret products of rational numbers by describing real-world contexts.	
7.NS.A.2.b	7 M2 Lesson 18: Understanding Negative Divisors
Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. If $p$ and $q$ are integers, then $-\left(\frac{p}{q}\right) = \frac{-p}{q} = \frac{p}{-q}$ . Interpret quotients of rational numbers by describing real-world contexts.	7 M2 Lesson 21: Comparing and Ordering Rational Numbers
7.NS.A.2.c	7 M2 Topic C: Multiplying Rational Numbers
Apply properties of operations as strategies to multiply and divide rational numbers.	7 M2 Lesson 17: Understanding Negative Dividends
	7 M2 Lesson 18: Understanding Negative Divisors
	7 M2 Lesson 22: Multiplication and Division Expressions
	7 M2 Lesson 24: Order of Operations with Rational Numbers

Hawaii Common Core State Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
7.NS.A.2.d	7 M2 Lesson 19: Rational Numbers as Decimals, Part 1
Convert a rational number to a decimal	7 M2 Lesson 20: Rational Numbers as Decimals, Part 2
using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	7 M2 Lesson 21: Comparing and Ordering Rational Numbers
7.NS.A.3	7 M2 Lesson 25: Writing and Evaluating Expressions with Rational Numbers, Part 1
Solve real-world and mathematical problems involving the four operations with rational numbers.	7 M2 Lesson 26: Writing and Evaluating Expressions with Rational Numbers, Part 2

#### **Expressions and Equations**

7.EE.A Use properties of operations to generate equivalent expressions.

Aligned Components of Eureka Math <sup>2</sup>
7 M3 Lesson 1: Equivalent Expressions
7 M3 Lesson 2: The Distributive Property and the Tabular Model
7 M3 Lesson 3: The Distributive Property and Combining Like Terms
7 M3 Lesson 4: Adding and Subtracting Expressions
7 M3 Lesson 5: Factoring Expressions
7 M3 Lesson 6: Comparing Expressions

Hawaii Common Core State Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
7.EE.A.2	7 M3 Lesson 2: The Distributive Property and the Tabular Model
Understand that rewriting an expression	7 M3 Lesson 4: Adding and Subtracting Expressions
in different forms in a problem context can shed light on the problem and how	7 M3 Lesson 5: Factoring Expressions
the quantities in it are related.	7 M3 Lesson 6: Comparing Expressions
	7 M3 Lesson 9: Solving Equations to Determine Unknown Angle Measures
	7 M5 Lesson 10: Percent Increase
	7 M5 Lesson 11: Percent Decrease
	7 M5 Lesson 12: More Discounts
	7 M5 Lesson 14: Scale Factor–Percent Increase and Decrease
	7 M5 Lesson 15: Tips and Taxes
	7 M5 Lesson 16: Markups and Discounts
	7 M5 Lesson 23: Percents of Percents

#### **Expressions and Equations**

7.EE.B Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

#### Hawaii Common Core State Standards

#### Aligned Components of Eureka Math<sup>2</sup>

7.EE.B.3	7 M2 Lesson 25: Writing and Evaluating Expressions with Rational Numbers, Part 1
Solve multi-step real-life and	7 M2 Lesson 26: Writing and Evaluating Expressions with Rational Numbers, Part 2
mathematical problems posed with positive and negative rational numbers	7 M3 Lesson 9: Solving Equations to Determine Unknown Angle Measures
in any form (whole numbers, fractions,	7 M3 Lesson 10: Problem Solving with Unknown Angle Measures
and decimals), using tools strategically.	7 M3 Lesson 11: Dominoes and Dominoes
Apply properties of operations to calculate with numbers in any form; convert	7 M3 Lesson 16: Using Equations to Solve Rate Problems
between forms as appropriate; and	7 M3 Lesson 17: Using Equations to Solve Problems
assess the reasonableness of answers	
using mental computation and estimation strategies.	
estimation strategies.	
7.EE.B.4	7 M3 Lesson 11: Dominoes and Dominoes
Use variables to represent quantities in	7 M3 Lesson 12: Solving Equations Algebraically and Arithmetically
a real-world or mathematical problem, and construct simple equations and	7 M3 Lesson 13: Solving Equations–Puzzles
inequalities to solve problems by	7 M3 Lesson 16: Using Equations to Solve Rate Problems
reasoning about the quantities.	7 M3 Lesson 17: Using Equations to Solve Problems
	7 M3 Lesson 18: Understanding Inequalities and their Solutions
	7 M3 Lesson 19: Using Equations to Solve Inequalities
	7 M3 Lesson 21: Solving Two-Step Inequalities
	7 M3 Lesson 22: Solving Problems Involving Inequalities
	7 M3 Lesson 23: Inequalities vs. Equations

Hawaii Common Core State Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
7.EE.B.4.a	7 M3 Lesson 7: Angle Relationships and Unknown Angle Measures
Solve word problems leading to equations of the form $px + q = r$ and $p(x + q) = r$ , where $p$ , $q$ , and $r$ are specific rational numbers. Solve equations of these forms fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.	<ul> <li>7 M3 Lesson 8: Strategies to Determine Unknown Angle Measures</li> <li>7 M3 Lesson 12: Solving Equations Algebraically and Arithmetically</li> <li>7 M3 Lesson 13: Solving Equations—Puzzles</li> <li>7 M3 Lesson 14: Solving Equations—Scavenger Hunt</li> <li>7 M3 Lesson 15: Solving Equations Fluently</li> <li>7 M3 Lesson 16: Using Equations to Solve Rate Problems</li> </ul>
<b>7.EE.B.4.b</b> Solve word problems leading to inequalities of the form $px + q > r$ or px + q < r, where $p$ , $q$ , and $r$ are specific rational numbers. Graph the solution set of the inequality and interpret it in the context of the problem.	7 M3 Topic D: Inequalities

#### Geometry

7.G.A Draw, construct, and describe geometrical figures and describe the relationships between them.

#### Hawaii Common Core Aligned Components of Eureka Math<sup>2</sup> State Standards 7.G.A.1 7 M1 Lesson 15: Scale Drawings Solve problems involving scale drawings 7 M1 Lesson 16: Using a Scale Factor of geometric figures, including computing 7 M1 Lesson 17: Finding Actual Distances from a Scale Drawing actual lengths and areas from a scale 7 M1 Lesson 18: Relating Areas of Scale Drawings drawing and reproducing a scale drawing at a different scale. 7 M1 Lesson 19: Scale and Scale Factor 7 M1 Lesson 20: Creating Multiple Scale Drawings 7 M5 Lesson 1: Proportionality and Scale Factor 7 M5 Lesson 14: Scale Factor–Percent Increase and Decrease 7.G.A.2 7 M4 Topic A: Constructing Geometric Figures Draw (freehand, with ruler and protractor, 7 M4 Topic B: Constructing Triangles and with technology) geometric 7 M4 Lesson 9: Constructing a Circle shapes with given conditions. Focus on constructing triangles from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle. 7 M4 Lesson 22: Understanding Planes and Cross Sections 7.G.A.3 Describe the two-dimensional figures 7 M4 Lesson 23: Cross Section Scavenger Hunt that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

#### Geometry

7.G.B Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

Hawaii Common Core State Standards	Aligned Components of Eureka Math <sup>2</sup>
7.G.B.4	7 M4 Lesson 10: The Outside of a Circle
Know the formulas for the area and circumference of a circle and use them to solve problems; give an informal	7 M4 Lesson 11: The Inside of a Circle
	7 M4 Lesson 12: Exploring the Area and Circumference of a Circle
derivation of the relationship between	7 M4 Lesson 13: Finding Areas of Circular Regions
the circumference and area of a circle.	7 M4 Lesson 14: Composite Figures with Circular Regions
	7 M4 Lesson 15: Watering a Lawn
7.G.B.5	7 M3 Lesson 7: Angle Relationships and Unknown Angle Measures
Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure.	7 M3 Lesson 8: Strategies to Determine Unknown Angle Measures
	7 M3 Lesson 10: Problem Solving with Unknown Angle Measures
7.G.B.6	7 M4 Lesson 14: Composite Figures with Circular Regions
Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.	7 M4 Lesson 16: Solving Area Problems by Composition and Decomposition
	7 M4 Lesson 17: Surface Area of Right Rectangular and Right Triangular Prisms
	7 M4 Lesson 18: Surface Area of Right Prisms
	7 M4 Lesson 20: Surface Areas of Right Pyramids
	7 M4 Lesson 21: Surface Area of Other Solids
	7 M4 Lesson 24: Volume of Prisms
	7 M4 Lesson 25: Volume of Composite Solids
	7 M4 Lesson 26: Designing a Fish Tank

#### **Statistics and Probability**

7.SP.A Use random sampling to draw inferences about a population.

# Hawaii Common Core Aligned Components of Eureka Math<sup>2</sup> State Standards Aligned Components of Eureka Math<sup>2</sup>

#### 7.SP.A.1

Understand that statistics can be used		
to gain information about a population	7 M6	
by examining a sample of the population;		
generalizations about a population from	7 M6	
a sample are valid only if the sample		
is representative of that population.		
Understand that random sampling tends		
to produce representative samples and		
support valid inferences.		

### e used 7 M6 Lesson 12: Selecting a Sample ulation 7 M6 Lesson 13: Variability Between Samples

7 M6 Lesson 11: Populations and Samples

7 M6 Lesson 14: Sampling Variability When Estimating a Population Mean

# 7.SP.A.27 M6 Lesson 13: Variability Between SamplesUse data from a random sample to draw<br/>inferences about a population with an<br/>unknown characteristic of interest.<br/>Generate multiple samples (or simulated<br/>samples) of the same size to gauge the<br/>variation in estimates or predictions.7 M6 Lesson 14: Sampling Variability When Estimating a Population Mean<br/>7 M6 Lesson 15: Sampling Variability and the Effect of Sample Size<br/>7 M6 Lesson 16: Sampling Variability When Estimating a Population Proportion

#### **Statistics and Probability**

7.SP.B Draw informal comparative inferences about two populations.

Hawaii Common Core State Standards	Aligned Components of Eureka Math <sup>2</sup>
7.SP.B.3	7 M6 Topic D: Comparing Populations
Informally assess the degree of visual overlap of two numerical data distributions with similar variabilities, measuring the difference between the centers by expressing it as a multiple of a measure of variability.	
7.SP.B.4	7 M6 Topic D: Comparing Populations
Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	

#### **Statistics and Probability**

7.SP.C Investigate chance processes and develop, use, and evaluate probability models.

Hawaii Common Core State Standards	Aligned Components of <i>Eureka Math</i> <sup>2</sup>
7.SP.C.5	7 M6 Lesson 1: What is Probability?
Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. A probability near 0 indicates an unlikely event, a probability around $\frac{1}{2}$ indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event.	
7.SP.C.6	7 M6 Lesson 2: Empirical Probability
Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.	7 M6 Lesson 3: Outcomes of Chance Experiments
	7 M6 Lesson 6: Outcomes That Are Not Equally Likely
	7 M6 Lesson 8: Picking Blue
7.SP.C.7	This standard is fully addressed by the lessons aligned to its subsections.
Develop a probability model and use it to find probabilities of events. Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy.	

State Standards	Alighed Components of Eureka Math-
7.SP.C.7.a	7 M6 Lesson 4: Theoretical Probability
Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.	7 M6 Lesson 7: The Law of Large Numbers
7.SP.C.7.b	7 M6 Lesson 7: The Law of Large Numbers
Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.	7 M6 Lesson 8: Picking Blue
7.SP.C.8	This standard is fully addressed by the lessons aligned to its subsections.
Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	
7.SP.C.8.a	7 M6 Lesson 5: Multistage Experiments
Understand that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.	

#### Hawaii Common Core State Standards

State Standards	Aligned Components of Eureka Math-
7.SP.C.8.b	7 M6 Lesson 5: Multistage Experiments
Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g., "rolling double sixes"), identify the outcomes in the sample space which compose the event.	
7.SP.C.8.c	7 M6 Lesson 9: Probability Simulations
Design and use a simulation to generate frequencies for compound events.	7 M6 Lesson 10: Simulations with Random Number Tables

#### Hawaii Common Core State Standards Aligned Components of *Eureka Math*<sup>2</sup>