



Grade 7 | Alaska Mathematics Standards Correlation to Eureka Math^{2®}

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 Math*^{2®}, 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*² 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 Math*² add to students' engagement with the math. The curriculum provides teachers with digital slides for each lesson. In addition, each grade level includes wordless videos that spark students' interest and curiosity. Students at all levels work through mathematical explorations that help lead to their own mathematical discoveries. Digital lessons and videos provide opportunities for students to wonder, explore, and make sense of mathematics, which contributes to the development of a strong, positive mathematical identity.

Standards for Mathematical Practice

Aligned Components of Eureka Math²

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

Ratios and Proportional Relationships

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

Alaska Mathematics Standards

Aligned Components of Eureka Math²

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7.RP.1	7 M1 Lesson 1: An Experiment with Ratios and Rates
Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	7 M1 Lesson 2: Exploring Tables of Proportional Relationships 7 M1 Lesson 3: Identifying Proportional Relationships in Tables
7.RP.2	This standard is fully addressed by the lessons aligned to its subsections.
Recognize and represent proportional relationships between quantities. Make basic inferences or logical predictions from proportional relationships.	
7.RP.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.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 in real-world situations.	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
	1

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7.RP.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
7.RP.2.c Represent proportional relationships by equations and multiple representations such as tables, graphs, diagrams, sequences, and contextual situations.	7 M1 Lesson 2: Exploring Tables of Proportional Relationships 7 M1 Lesson 3: Identifying Proportional Relationships in Tables 7 M1 Lesson 8: Relating Representations of Proportional Relationships 7 M1 Lesson 10: Applying Proportional Reasoning 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 1: Proportionality and Scale Factor 7 M5 Lesson 4: Proportion and Percent 7 M5 Lesson 5: Common Denominators or Common Numerators
7.RP.2.d Understand the concept of unit rate and show it on a coordinate plane. 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 r is the unit rate.	7 M1 Lesson 4: Exploring Graphs of Proportional Relationships 7 M1 Lesson 5: Analyzing Graphs of Proportional Relationships 7 M1 Lesson 9: Comparing Proportional Relationships

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7.RP.3

Use proportional relationships to solve multi-step ratio and percent problems.

7 M1 Lesson 7: Handstand Sprint

7 M1 Lesson 10: Applying Proportional Reasoning

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

 $7\,\mathrm{M}5$ 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

The Number System

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

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Aligned Components of Eureka Math²

7.NS.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.1.a	7 M2 Lesson 1: Combining Opposites
Show that a number and its opposite have a sum of 0 (additive inverses). Describe situations in which opposite quantities combine to make 0.	7 M2 Lesson 12: The Integer Game
7.NS.1.b	7 M2 Lesson 1: Combining Opposites
Understand addition of rational numbers	7 M2 Lesson 2: Adding Integers
(p + q as the number located a distance) q from p , in the positive or negative	7 M2 Lesson 3: Adding Integers Efficiently
direction depending on whether q is	7 M2 Lesson 5: Decomposing Rational Numbers to Make Addition More Efficient
positive or negative). Interpret sums	7 M2 Lesson 6: Adding Rational Numbers
of rational numbers by describing real-world contexts.	7 M2 Lesson 8: Subtracting Integers, Part 1

Aligned Components of Eureka Math²

7.NS.1.c

Understand subtraction of rational numbers as adding the additive inverse, p-q=p+(-q). Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.

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.NS.1.d

Apply properties of operations as strategies to add and subtract rational numbers.

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

7 M2 Lesson 23: Properties of Operations with Rational Numbers

7.NS.2

Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers and use equivalent representations.

This standard is fully addressed by the lessons aligned to its subsections.

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7

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7.NS.2.a

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 M2 Topic C: Multiplying Rational Numbers

7.NS.2.b

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 $-\binom{p}{q} = \frac{-p}{q} = \frac{p}{-q}$. Interpret quotients of rational numbers by describing real-world contexts.

7 M2 Lesson 18: Understanding Negative Divisors

7 M2 Lesson 21: Comparing and Ordering Rational Numbers

7.NS.2.c

Apply and name properties of operations used as strategies to multiply and divide rational numbers.

7 M2 Topic C: Multiplying 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 23: Properties of Operations with Rational Numbers

7 M2 Lesson 24: Order of Operations with Rational Numbers

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7.NS.2.d	7 M2 Lesson 19: Rational Numbers as Decimals, Part 1
Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.	7 M2 Lesson 20: Rational Numbers as Decimals, Part 2 7 M2 Lesson 21: Comparing and Ordering Rational Numbers
7.NS.2.e Convert between equivalent fractions, decimals, or percents.	Supplemental material is necessary to address this standard.
7.NS.3 Solve real-world and mathematical problems involving the four operations with rational numbers. (Computations with rational numbers extend the rules for manipulating fractions to complex fractions.)	7 M2 Lesson 23: Properties of Operations with Rational Numbers 7 M2 Lesson 25: Writing and Evaluating Expressions with Rational Numbers, Part 1 7 M2 Lesson 26: Writing and Evaluating Expressions with Rational Numbers, Part 2

Expressions and Equations

Use properties of operations to generate equivalent expressions.

Alaska Mathematics Standards

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7.EE.1	7 M3 Topic A: Equivalent Expressions
Apply properties of operations as strategies to add, subtract, factor, expand and simplify linear expressions with rational coefficients.	

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7.EE.2

Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related.

7 M3 Lesson 2: The Distributive Property and the Tabular Model

7 M3 Lesson 4: Adding and Subtracting Expressions

7 M3 Lesson 5: Factoring Expressions

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

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

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7.EE.3

Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form and assess the reasonableness of answers using mental computation and estimation strategies.

7 M2 Lesson 25: Writing and Evaluating Expressions with Rational Numbers, Part 1

7 M2 Lesson 26: Writing and Evaluating Expressions with Rational Numbers, Part 2

7 M3 Lesson 9: Solving Equations to Determine Unknown Angle Measures

7 M3 Lesson 10: Problem Solving with Unknown Angle Measures

7 M3 Lesson 11: Dominoes and Dominoes

7 M3 Lesson 16: Using Equations to Solve Rate Problems

7 M3 Lesson 17: Using Equations to Solve Problems

7 M5 Lesson 24: Counting Problems

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Use variables to represent quantities in a real-world or mathematical problem, and construct multi-step equations and inequalities to solve problems by reasoning about the quantities. 7 M3 Lesson 11: Dominoes and Dominoes

7 M3 Lesson 12: Solving Equations Algebraically and Arithmetically

7 M3 Lesson 13: Solving Equations—Puzzles

7 M3 Lesson 16: Using Equations to Solve Rate Problems

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

7.EE.4.a

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.

7 M3 Lesson 7: Angle Relationships and Unknown Angle Measures

7 M3 Lesson 8: Strategies to Determine Unknown Angle Measures

7 M3 Lesson 12: Solving Equations Algebraically and Arithmetically

7 M3 Lesson 13: Solving Equations—Puzzles

7 M3 Lesson 14: Solving Equations—Scavenger Hunt

7 M3 Lesson 15: Solving Equations Fluently

7 M3 Lesson 16: Using Equations to Solve Rate Problems

7.EE.4.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

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

Alaska Mathematics Standards

Aligned Components of Eureka Math²

7.G.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.	7 M1 Lesson 15: Scale Drawings 7 M1 Lesson 16: Using a Scale Factor 7 M1 Lesson 17: Finding Actual Distances from a Scale Drawing 7 M1 Lesson 18: Relating Areas of Scale Drawings 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.G.2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes including polygons and circles 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 M5 Lesson 14: Scale Factor—Percent Increase and Decrease 7 M4 Topic A: Constructing Geometric Figures 7 M4 Topic B: Constructing Triangles 7 M4 Lesson 9: Constructing a Circle
7.G.3 Describe the two-dimensional figures, i.e., cross-section, that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.	7 M4 Lesson 22: Understanding Planes and Cross Sections 7 M4 Lesson 23: Cross Section Scavenger Hunt

Geometry

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

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Aligned Components of Eureka Math²

7.G.4	7 M4 Lesson 10: The Outside of a Circle
Know the formulas for the area and	7 M4 Lesson 11: The Inside of a Circle
circumference of a circle and use them to solve problems; give an informal	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.5	7 M3 Lesson 7: Angle Relationships and Unknown Angle Measures
Use facts about supplementary,	7 M3 Lesson 8: Strategies to Determine Unknown Angle Measures
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 10: Problem Solving with Unknown Angle Measures
7.G.6	7 M4 Lesson 14: Composite Figures with Circular Regions
Solve real-world and mathematical	7 M4 Lesson 16: Solving Area Problems by Composition and Decomposition
problems involving area, volume and surface area of two- and	7 M4 Lesson 17: Surface Area of Right Rectangular and Right Triangular Prisms
three-dimensional objects composed	7 M4 Lesson 18: Surface Area of Right Prisms
of triangles, quadrilaterals, polygons, cubes, and 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

Use random sampling to draw inferences about a population.

Alaska Mathematics Standards

Aligned Components of Eureka Math²

7.SP.1

Understand that statistics can be used to gain information about a population by examining a reasonably sized sample of the population; generalizations about a population from 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.

7 M6 Lesson 11: Populations and Samples

7 M6 Lesson 12: Selecting a Sample

7 M6 Lesson 13: Variability Between Samples

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

7.SP.2

Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions.

7 M6 Lesson 13: Variability Between Samples

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

7 M6 Lesson 15: Sampling Variability and the Effect of Sample Size

7 M6 Lesson 16: Sampling Variability When Estimating a Population Proportion

Statistics and Probability

Draw informal comparative inferences about two populations.

Alaska Mathematics Standards

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7.SP.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.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

Investigate chance processes and develop, use, and evaluate probability models.

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7.SP.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.6	7 M6 Lesson 2: Empirical Probability
Approximate the probability of a chance event by collecting data on the chance	7 M6 Lesson 3: Outcomes of Chance Experiments
process that produces it and observing its long-run relative frequency, and predict the approximate relative frequency given the probability.	7 M6 Lesson 6: Outcomes That Are Not Equally Likely
	7 M6 Lesson 8: Picking Blue
7.SP.7	7 M6 Lesson 7: The Law of Large Numbers
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.	

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7.SP.7.a	7 M6 Lesson 4: Theoretical Probability
Design 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.7.b	7 M6 Lesson 7: The Law of Large Numbers
Design 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.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.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.	
7.SP.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.	

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7.SP.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