

## ABOUT *EUREKA MATH*

Created by the nonprofit Great Minds, *Eureka Math* helps teachers deliver unparalleled math instruction that provides students with a deep understanding and fluency in math. Crafted by teachers and math scholars, the curriculum carefully sequences the mathematical progressions to maximize coherence from Prekindergarten through Precalculus—a principle tested and proven to be essential in students’ mastery of math.

Teachers and students using *Eureka Math* find the trademark “Aha!” moments in *Eureka Math* to be a source of joy and inspiration, lesson after lesson, year after year.

## ALIGNED

*Eureka Math* is the only curriculum found by EdReports.org to align fully with the Common Core State Standards for Mathematics for all grades, Kindergarten through Grade 8. Great Minds offers detailed analyses which demonstrate how each grade of *Eureka Math* aligns with specific state standards. Access these free alignment studies at [greatminds.org/state-studies](http://greatminds.org/state-studies).

## DATA

Schools and districts nationwide are experiencing student growth and impressive test scores after using *Eureka Math*. See their stories and data at [greatminds.org/data](http://greatminds.org/data).

## FULL SUITE OF RESOURCES

As a nonprofit, Great Minds offers the *Eureka Math* curriculum as PDF downloads for free, noncommercial use. Access the free PDFs at [greatminds.org/math/curriculum](http://greatminds.org/math/curriculum).

The teacher–writers who created the curriculum have also developed essential resources, available only from Great Minds, including the following:

- Printed material in English and Spanish
- Digital resources
- Professional development
- Classroom tools and manipulatives
- Teacher support materials
- Parent resources





# Utah Core Standards for Mathematics Correlation to *Eureka Math*<sup>™</sup>

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## GRADE 6 MATHEMATICS

The Grade 6 Utah Core Standards for Mathematics are fully covered by the Grade 6 *Eureka Math* curriculum. A detailed analysis of alignment is provided in the table below.

## INDICATORS

-  Green indicates that the Utah standard is fully addressed in *Eureka Math*.
-  Yellow indicates that the Utah standard may not be completely addressed in *Eureka Math*.
-  Red indicates that the Utah standard is not addressed in *Eureka Math*.
-  Blue indicates there is a discrepancy between the grade level at which this standard is addressed in the Utah standards and in *Eureka Math*.

## Standards for Mathematical Practice

## Aligned Components of *Eureka Math*

<p><b>1: Make sense of problems and persevere in solving them.</b></p> <p>Explain the meaning of a problem and look for entry points to its solution. Analyze givens, constraints, relationships, and goals. Make conjectures about the form and meaning of the solution, plan a solution pathway, and continually monitor progress asking, “Does this make sense?” Consider analogous problems, make connections between multiple representations, identify the correspondence between different approaches, look for trends, and transform algebraic expressions to highlight meaningful mathematics. Check answers to problems using a different method.</p>	<p>Lessons in every module engage students in making sense of problems and persevering in solving them as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 1, which is specifically addressed in the following modules:</p> <p>G6 M1: Ratios and Unit Rates</p> <p>G6 M2: Arithmetic Operations Including Division of Fractions</p> <p>G6 M5: Area, Surface Area, and Volume Problems</p> <p>G6 M6: Statistics</p>
<p><b>2: Reason abstractly and quantitatively.</b></p> <p>Make sense of the quantities and their relationships in problem situations. Translate between context and algebraic representations by contextualizing and decontextualizing quantitative relationships. This includes the ability to decontextualize a given situation, representing it algebraically and manipulating symbols fluently as well as the ability to contextualize algebraic representations to make sense of the problem.</p>	<p>Lessons in every module engage students in reasoning abstractly and quantitatively as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 2, which is specifically addressed in the following modules:</p> <p>G6 M1: Ratios and Unit Rates</p> <p>G6 M2: Arithmetic Operations Including Division of Fractions</p> <p>G6 M3: Rational Numbers</p> <p>G6 M4: Expressions and Equations</p> <p>G6 M6: Statistics</p>

## Standards for Mathematical Practice

## Aligned Components of *Eureka Math*

<p><b>3: Construct viable arguments and critique the reasoning of others.</b></p> <p>Understand and use stated assumptions, definitions, and previously established results in constructing arguments. Make conjectures and build a logical progression of statements to explore the truth of their conjectures. Justify conclusions and communicate them to others. Respond to the arguments of others by listening, asking clarifying questions, and critiquing the reasoning of others.</p>	<p>Lessons in every module engage students in constructing viable arguments and critiquing the reasoning of others as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 3, which is specifically addressed in the following modules:</p> <p>G6 M5: Area, Surface Area, and Volume Problems</p> <p>G6 M6: Statistics</p>
<p><b>4: Model with mathematics.</b></p> <p>Apply mathematics to solve problems arising in everyday life, society, and the workplace. Make assumptions and approximations, identifying important quantities to construct a mathematical model. Routinely interpret mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.</p>	<p>Lessons in every module engage students in modeling with mathematics as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 4, which is specifically addressed in the following modules:</p> <p>G6 M3: Rational Numbers</p> <p>G6 M5: Area, Surface Area, and Volume Problems</p> <p>G6 M6: Statistics</p>
<p><b>5: Use appropriate tools strategically.</b></p> <p>Consider the available tools and be sufficiently familiar with them to make sound decisions about when each tool might be helpful, recognizing both the insight to be gained as well as the limitations. Identify relevant external mathematical resources and use them to pose or solve problems. Use tools to explore and deepen their understanding of concepts.</p>	<p>Lessons in every module engage students in using appropriate tools strategically as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 5, which is specifically addressed in the following modules:</p> <p>G6 M1: Ratios and Unit Rates</p>

## Standards for Mathematical Practice

## Aligned Components of *Eureka Math*

### **6: Attend to precision.**

Communicate precisely to others. Use explicit definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose. Specify units of measure and label axes to clarify the correspondence with quantities in a problem. Calculate accurately and efficiently, and express numerical answers with a degree of precision appropriate for the problem context.

Lessons in every module engage students in attending to precision as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 6, which is specifically addressed in the following modules:

G6 M1: Ratios and Unit Rates

G6 M2: Arithmetic Operations Including Division of Fractions

G6 M3: Rational Numbers

G6 M4: Expressions and Equations

G6 M5: Area, Surface Area, and Volume Problems

G6 M6: Statistics

### **7: Look for and make use of structure.**

Look closely at mathematical relationships to identify the underlying structure by recognizing a simple structure within a more complicated structure. See complicated things, such as some algebraic expressions, as single objects or as being composed of several objects.

Lessons in every module engage students in looking for and making use of structure as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 7, which is specifically addressed in the following modules:

G6 M1: Ratios and Unit Rates

G6 M2: Arithmetic Operations Including Division of Fractions

G6 M3: Rational Numbers

G6 M4: Expressions and Equations

## Standards for Mathematical Practice

## Aligned Components of *Eureka Math*

### **8: Look for and express regularity in repeated reasoning.**

Notice if reasoning is repeated, and look for both generalizations and shortcuts. Evaluate the reasonableness of intermediate results by maintaining oversight of the process while attending to the details.

Lessons in every module engage students in looking for and expressing regularity in repeated reasoning as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 8, which is specifically addressed in the following modules:

G6 M2: Arithmetic Operations Including Division of Fractions

G6 M4: Expressions and Equations

Strand	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
<b>Ratios and Proportional Relationships</b>	<b>Cluster: Understand ratio concepts and use ratio reasoning to solve problems.</b>	
	<b>6.RP.1</b> Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.	G6 M1: Ratios and Unit Rates
	<b>6.RP.2</b> Understand the concept of a unit rate $a/b$ associated with a ratio $a : b$ with $b \neq 0$ , and use rate language in the context of a ratio relationship.	G6 M1 Topic C: Unit Rates
	<b>6.RP.3</b> Use ratio and rate reasoning to solve real-world (with a context) and mathematical (void of context) problems, using strategies such as reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations involving unit rate problems.	
	a. Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios.	G6 M1 Topic B: Collections of Equivalent Ratios

Strand	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
	b. Solve unit rate problems including those involving unit pricing and constant speed.	G6 M1 Lessons 21–22: Getting the Job Done—Speed, Work, and Measurement Units G6 M1 Lesson 23: Problem-Solving Using Rates, Units Rates, and Conversions
	c. Find a percent of a quantity as a rate per 100. Solve problems involving finding the whole, given a part and the percent.	G6 M1 Topic D: Percent
	d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.	G6 M1 Lessons 21–22: Getting the Job Done—Speed, Work, and Measurement Units G6 M1 Lesson 23: Problem-Solving Using Rates, Units Rates, and Conversions
<b>The Number System</b>	<b>Cluster: Apply and extend previous understandings of multiplication and division of whole numbers to divide fractions by fractions.</b>	
	<b>6.NS.1</b> Interpret and compute quotients of fractions.	
	a. Compute quotients of fractions by fractions.	G6 M2 Topic A: Dividing Fractions by Fractions
	b. Solve real-world problems involving division of fractions by fractions.	G6 M2 Topic A: Dividing Fractions by Fractions
	c. Explain the meaning of quotients in fraction division problems.	G6 M2 Topic A: Dividing Fractions by Fractions



Strand	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
	<p><b>Cluster: Compute (add, subtract, multiply and divide) fluently with multi-digit numbers and decimals and find common factors and multiples.</b></p>	
	<p><b>6.NS.2</b> Fluently divide multi-digit numbers using the standard algorithm.</p>	<p>G6 M2 Topic C: Dividing Whole Numbers and Decimals</p>
	<p><b>6.NS.3</b> Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation.</p>	
	<p>a. Fluently divide multi-digit decimals using the standard algorithm, limited to a whole number dividend with a decimal divisor or a decimal dividend with a whole number divisor.</p>	<p>G6 M2 Lesson 12: Estimating Digits in a Quotient G6 M2 Lesson 13: Dividing Multi-Digit Numbers Using the Algorithm</p>
	<p>b. Solve division problems in which both the dividend and the divisor are multi-digit decimals; develop the standard algorithm by using models, the meaning of division, and place value understanding.</p>	<p>G6 M2 Lesson 14: The Division Algorithm—Converting Decimals into Whole Number Division Using Fractions G6 M2 Lesson 15: The Division Algorithm—Converting Decimal Division to Whole Number Division Using Mental Math</p>

Strand	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
	<p><b>6.NS.4</b> Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor.</p>	<p>G6 M2 Topic D: Number Theory—Thinking Logically About Multiplicative Arithmetic</p>
	<p><b>Cluster: Apply and extend previous understandings of numbers to the system of rational numbers.</b></p>	
	<p><b>6.NS.5</b> Understand that positive and negative numbers are used together to describe quantities having opposite directions or values; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of zero in each situation.</p>	<p>G6 M3 Topic A: Understanding Positive and Negative Numbers on the Number Line</p> <p>G6 M3 Lesson 13: Statements of Order in the Real World</p>

Strand	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
	<p><b>6.NS.6</b> Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.</p>	
	<p>a. Recognize opposite signs of numbers as indicating locations on opposite sides of zero on the number line; recognize that the opposite of the opposite of a number is the number itself.</p>	<p>G6 M3 Lesson 4: The Opposite of a Number G6 M3 Lesson 5: The Opposite of a Number's Opposite</p>
	<p>b. Understand that the signs of numbers in ordered pairs indicate their location in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes.</p>	<p>G6 M3 Topic C: Rational Numbers and the Coordinate Plane</p>
	<p>c. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.</p>	<p>G6 M3: Rational Numbers</p>

Strand	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
	<p><b>6.NS.7</b> Understand ordering and absolute value of rational numbers.</p>	
	<p>a. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram.</p>	G6 M3 Topic B: Order and Absolute Value
	<p>b. Write, interpret, and explain statements of order for rational numbers in real-world contexts.</p>	G6 M3 Topic B: Order and Absolute Value
	<p>c. Understand the absolute value of a rational number as its distance from zero on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world context.</p>	<p>G6 M3 Lesson 11: Absolute Value—Magnitude and Distance G6 M3 Lesson 13: Statements of Order in the Real World</p>
	<p>d. Distinguish comparisons of absolute value from statements about order.</p>	<p>G6 M3 Lesson 11: Absolute Value—Magnitude and Distance G6 M3 Lesson 12: The Relationship Between Absolute Value and Order G6 M3 Lesson 13: Statements of Order in the Real World</p>
	<p><b>6.NS.8</b> Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same <math>x</math>-coordinate or the same <math>y</math>-coordinate.</p>	G6 M3 Topic C: Rational Numbers and the Coordinate Plane

Strand	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
<b>Expressions and Equations</b>	<b>Cluster: Apply and extend previous understandings of arithmetic to algebraic expressions involving exponents and variables.</b>	
	<b>6.EE.1</b> Write and evaluate numerical expressions involving whole-number exponents.	G6 M4 Topic B: Special Notations of Operations  G6 M4 Lesson 16: Write Expressions in Which Letters Stand for Numbers
	<b>6.EE.2</b> Write, read, and evaluate expressions in which letters represent numbers.	
	a. Write expressions that record operations with numbers and with letters representing numbers.	G6 M4 Topic D: Expanding, Factoring, and Distributing Expressions  G6 M4 Topic E: Expressing Operations in Algebraic Form  G6 M4 Topic F: Writing and Evaluating Expressions and Formulas
	b. Identify parts of an expression using mathematical terms (for example, sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity and a sum of two terms.	G6 M4 Topic D: Expanding, Factoring, and Distributing Expressions  G6 M4 Topic E: Expressing Operations in Algebraic Form

Strand	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
	<p>c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, applying the Order of Operations when there are no parentheses to specify a particular order.</p>	<p>G6 M4 Topic B: Special Notations of Operations</p> <p>G6 M4 Topic C: Replacing Letters and Numbers</p>
	<p><b>6.EE.3</b> Apply the properties of operations to generate equivalent expressions.</p>	<p>G6 M4 Topic A: Relationships of the Operations</p> <p>G6 M4 Topic D: Expanding, Factoring, and Distributing Expressions</p>
	<p><b>6.EE.4</b> Identify when two expressions are equivalent.</p>	<p>G6 M4 Topic C: Replacing Letters and Numbers</p> <p>G6 M4 Topic D: Expanding, Factoring, and Distributing Expressions</p>
<p><b>Cluster: They reason about and solve one-variable equations and inequalities.</b></p>		
	<p><b>6.EE.5</b> Understand solving an equation or inequality as a process of answering the question: Which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.</p>	<p>G6 M4 Topic G: Solving Equations</p> <p>G6 M4 Topic H: Applications of Equations</p>

Strand	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
	<p><b>6.EE.6</b> Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.</p>	<p>G6 M4 Topic F: Writing and Evaluating Expressions and Formulas</p> <p>G6 M4 Topic G: Solving Equations</p> <p>G6 M4 Topic H: Applications of Equations</p>
	<p><b>6.EE.7</b> Solve real-world and mathematical problems by writing and solving equations of the form <math>x + a = b</math> and <math>ax = b</math> for cases in which <math>a</math>, <math>b</math>, and <math>x</math> are all non-negative rational numbers.</p>	<p>G6 M4 Topic G: Solving Equations</p> <p>G6 M4 Topic H: Applications of Equations</p>
	<p><b>6.EE.8</b> Write an inequality of the form <math>x &gt; c</math> or <math>x &lt; c</math> to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form <math>x &gt; c</math> or <math>x &lt; c</math> have infinitely many solutions; represent solutions of such inequalities on number line diagrams.</p>	<p>G6 M4 Lesson 33: From Equations to Inequalities</p> <p>G6 M4 Lesson 34: Writing and Graphing Inequalities in Real-World Problems</p>

Strand	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
	<p><b>Cluster: Represent and analyze quantitative relationships between dependent and independent variables in a real-world context.</b></p> <p><b>6.EE.9</b> Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.</p>	<p>G6 M4 Lesson 31: Problems in Mathematical Terms</p> <p>G6 M4 Lesson 32: Multi-Step Problems in the Real World</p>
<p><b>Geometry</b></p>	<p><b>Cluster: Solve real-world and mathematical problems involving area, surface area, and volume.</b></p> <p><b>6.G.1</b> Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing and decomposing into rectangles, triangles and/or other shapes; apply these techniques in the context of solving real-world and mathematical problems.</p>	<p>G6 M5: Area, Surface Area, and Volume Problems</p>



Strand	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
	<p><b>6.G.2</b></p> <p>Find the volume of a right rectangular prism with appropriate unit fraction edge lengths by packing it with cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas <math>V = lwh</math> and <math>V = bh</math> to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems. (Note: Model the packing using drawings and diagrams.)</p>	<p>G6 M5 Topic C: Volume of Right Rectangular Prisms</p> <p>G6 M5 Lesson 19: Surface Area and Volume in the Real World</p> <p>G6 M5 Lesson 19a: Addendum Lesson for Modeling—Applying Surface Area and Volume to Aquariums</p>
	<p><b>6.G.3</b></p> <p>Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same <math>x</math> coordinate or the same <math>y</math> coordinate. Apply these techniques in the context of solving real-world and mathematical problems.</p>	<p>G6 M5 Topic B: Polygons on the Coordinate Plane</p>
	<p><b>6.G.4</b></p> <p>Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.</p>	<p>G6 M5 Topic D: Nets and Surface Area</p>

Strand	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
<b>Statistics and Probability</b>	<b>Cluster: Develop understanding of statistical variability of data.</b>	
	<b>6.SP.1</b> Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.	G6 M6 Lesson 1: Posing Statistical Questions
	<b>6.SP.2</b> Understand that a set of data collected to answer a statistical question has a distribution that can be described by its center, spread/ range and overall shape.	G6 M6: Statistics
	<b>6.SP.3</b> Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.	G6 M6: Statistics
	<b>Cluster: Summarize and describe distributions.</b>	
	<b>6.SP.4</b> Display numerical data in plots on a number line, including dot plots, histograms and box plots. Choose the most appropriate graph/plot for the data collected.	G6 M6: Statistics

Strand	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
	<p><b>6.SP.5</b> Summarize numerical data sets in relation to their context, such as by:</p>	
	<p>a. Reporting the number of observations.</p>	G6 M6: Statistics
	<p>b. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement.</p>	G6 M6: Statistics
	<p>c. Giving quantitative measures of center (median and/or mean) and variability (interquartile range and/or mean absolute deviation), as well as describing any overall pattern and any striking deviations (for example, outliers) from the overall pattern with reference to the context in which the data were gathered.</p>	G6 M6: Statistics
	<p>d. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.</p>	G6 M6: Statistics