

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.

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.

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.

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

Arkansas Mathematics Standards Correlation to *Eureka Math*[™]

GRADE 7 MATHEMATICS

The Grade 7 Arkansas Mathematics Standards are fully covered by the Grade 7 *Eureka Math* curriculum. A detailed analysis of alignment is provided in the table below.

INDICATORS

-  Green indicates that the Arkansas standard is fully addressed in *Eureka Math*.
-  Yellow indicates that the Arkansas standard may not be completely addressed in *Eureka Math*.
-  Red indicates that the Arkansas 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 Arkansas standards and in *Eureka Math*.

Domain	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
Ratios and Proportional Relationships	Cluster: Analyze proportional relationships and use them to solve real-world and mathematical problems	
	<p>AR.Math.Content.7.RP.A.1</p> <p>Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units</p>	G7 M1 Topic C: Ratios and Rates Involving Fractions
	<p>AR.Math.Content.7.RP.A.2</p> <p>Recognize and represent proportional relationships between quantities:</p> <ul style="list-style-type: none"> ▪ Decide whether two quantities are in a proportional relationship (e.g., by testing for equivalent ratios in a table or graphing on a <i>coordinate plane</i> and observing whether the graph is a straight line through the origin) ▪ Identify unit rate (also known as the constant of proportionality) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships ▪ Represent proportional relationships by equations (e.g., if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as $t = pn$) 	G7 M1: Ratios and Proportional Relationships

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	<p>AR.Math.Content.7.RP.A.2 (cont.)</p> <ul style="list-style-type: none"> ▪ 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 	
	<p>AR.Math.Content.7.RP.A.3</p> <p>Use proportional relationships to solve multi-step ratio and percent problems</p>	<p>G7 M1 Lesson 13: Finding Equivalent Ratios Given the Total Quantity</p> <p>G7 M4: Percent and Proportional Relationships</p>

The Number System	Cluster: Apply and extend previous understandings of operations with fractions	
	<p>AR.Math.Content.7.NS.A.1</p> <p>Apply and extend previous understandings of addition and subtraction to add and subtract <i>rational numbers</i></p> <p>Represent addition and subtraction on a horizontal or vertical number line diagram:</p> <ul style="list-style-type: none"> ▪ Describe situations in which opposite quantities combine to make 0 and show that a number and its opposite have a sum of 0 (<i>additive inverses</i>) (e.g., A hydrogen atom has 0 charge because its two constituents are oppositely charged.) ▪ Understand $p + q$ as a number where p is the starting point and q represents a distance from p in the positive or negative direction depending on whether q is positive or negative ▪ Interpret sums of rational numbers by describing real-world contexts (e.g., $3 + 2$ means beginning at 3, move 2 units to the right and end at the sum of 5; $3 + (-2)$ means beginning at 3, move 2 units to the left and end at the sum of 1; $70 + (-30) = 40$ could mean after earning \$70, \$30 was spent on a new video game, leaving a balance of \$40) 	<p>G7 M2 Topic A: Addition and Subtraction of Integers and Rational Numbers</p>

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	<p>AR.Math.Content.7.NS.A.1 (cont.)</p> <ul style="list-style-type: none"> ▪ Understand subtraction of <i>rational numbers</i> as adding the <i>additive inverse</i>, $p - q = p + (-q)$ ▪ Show that the distance between two <i>rational numbers</i> on the number line is the <i>absolute value</i> of their difference and apply this principle in real-world contexts (e.g., the distance between -5 and 6 is 11. -5 and 6 are 11 units apart on the number line) 	
	<p>AR.Math.Content.7.NS.A.2</p> <p>Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide <i>rational numbers</i>:</p> <ul style="list-style-type: none"> ▪ Understand that multiplication is extended from fractions to all <i>rational numbers</i> by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, and the rules for multiplying signed numbers ▪ Interpret products of <i>rational numbers</i> by describing real-world contexts 	<p>G7 M2 Topic B: Multiplication and Division of Integers and Rational Numbers</p>

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	<p>AR.Math.Content.7.NS.A.2 (cont.)</p> <ul style="list-style-type: none"> ▪ Understand that integers can be divided, provided that the divisor is not zero, and every quotient of <i>integers</i> (with non-zero divisor) is a rational number (e.g., If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$) ▪ Interpret sums of <i>rational numbers</i> by describing real-world contexts Interpret quotients of <i>rational numbers</i> by describing real-world contexts ▪ Fluently multiply and divide <i>rational numbers</i> by applying properties of operations as strategies ▪ Convert a fraction to a decimal using long division ▪ Know that the decimal form of a fraction terminates in 0s or eventually repeats 	
	<p>AR.Math.Content.7.NS.A.3</p> <p>Solve real-world and mathematical problems involving the four operations with <i>rational numbers</i>, including but not limited to <i>complex fractions</i></p>	<p>G7 M2 Lesson 15: Multiplication and Division of Rational Numbers</p> <p>G7 M2 Lessons 18–19: Writing, Evaluating, and Finding Equivalent Expressions with Rational Numbers</p> <p>G7 M2 Lesson 20: Investments—Performing Operations with Rational Numbers</p>

Domain	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
Expressions and Equations	Cluster: Use properties of operations to generate equivalent expressions	
	AR.Math.Content.7.EE.A.1 Apply properties of operations as strategies to add, subtract, expand, and factor linear expressions with rational coefficients	G7 M3 Topic A: Use Properties of Operations to Generate Equivalent Expressions
	AR.Math.Content.7.EE.A.2 Understand how the quantities in a problem are related by rewriting an expression in different forms	G7 M2 Lessons 18–19: Writing, Evaluating, and Finding Equivalent Expressions with Rational Numbers G7 M3 Lessons 3–4: Writing Products as Sums and Sums as Products

Domain	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
	<p>Cluster: Solve real-life and mathematical problems using numerical and algebraic expressions and equations</p> <p>AR.Math.Content.7.EE.B.3 Solve multi-step, real-life, and mathematical problems posed with positive and negative <i>rational numbers</i> in any form using tools strategically:</p> <ul style="list-style-type: none"> ▪ Apply properties of operations to calculate with numbers in any form (e.g., $-(1/4)(n - 4)$) ▪ Convert between forms as appropriate (e.g., If a woman making \$25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or \$2.50, for a new salary of \$27.50) ▪ Assess the reasonableness of answers using mental computation and estimation strategies (e.g., If you want to place a towel bar $9\frac{3}{4}$ inches long in the center of a door that is $27\frac{1}{2}$ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation) 	<p>G7 M3 Topic B: Solve Problems Using Expressions, Equations, and Inequalities</p> <p>G7 M4: Percent and Proportional Relationships</p>

Domain	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
	<p>AR.Math.Content.7.EE.B.4</p> <ul style="list-style-type: none"> ▪ Use variables to represent quantities in a real-world or mathematical problem ▪ Construct simple equations and inequalities to solve problems by reasoning about the quantities ▪ Solve word problems leading to equations of these forms $px + q = r$ and $p(x + q) = r$, where p, q, and r are specific <i>rational numbers</i>. Solve equations of these forms fluently ▪ Write an algebraic solution identifying the sequence of the operations used to mirror the arithmetic solution (e.g., The perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width? Subtract $2 \cdot 6$ from 54 and divide by 2; $(2 \cdot 6) + 2w = 54$) ▪ Solve word problems leading to inequalities of the form $px + q > r$ or $px + q < r$, where p, q, and r are specific <i>rational numbers</i> ▪ Graph the solution set of the inequality and interpret it in the context of the problem (e.g., As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.) 	<p>G7 M2 Lesson 17: Comparing Tape Diagram Solutions to Algebraic Solutions</p> <p>G7 M2 Lessons 22–23: Solving Equations Using Algebra</p> <p>G7 M3 Topic B: Solve Problems Using Expressions, Equations, and Inequalities</p> <p>G7 M4 Lesson 10: Simple Interest</p> <p>G7 M4 Lesson 11: Tax, Commissions, Fees, and Other Real-World Percent Applications</p> <p>G7 M4 Lesson 17: Mixture Problems</p>

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Geometry	Cluster: Draw, construct, and describe geometrical figures and describe the relationships between them	
	AR.Math.Content.7.G.A.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	G7 M1 Topic D: Ratios of Scale Drawings G7 M4 Topic C: Scale Drawings
	AR.Math.Content.7.G.A.2 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions: <ul style="list-style-type: none"> ▪ Given three measures of angles or sides of a triangle, notice when the conditions determine a unique triangle, more than one triangle, or no triangle ▪ Differentiate between regular and irregular polygons 	G7 M6 Topic B: Constructing Triangles
	AR.Math.Content.7.G.A.3 Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids	G7 M6 Topic C: Slicing Solids

Domain	Standards for Mathematical Content	Aligned Components of <i>Eureka Math</i>
	<p>Cluster: Solve real-life and mathematical problems involving angle measure, area, surface area, and volume</p>	
	<p>AR.Math.Content.7.G.B.4</p> <ul style="list-style-type: none"> ▪ Know the formulas for the area and circumference of a circle and use them to solve problems. ▪ Give an informal derivation of the relationship between the circumference and area of a circle 	<p>G7 M3 Lesson 16: The Most Famous Ratio of All</p> <p>G7 M3 Lesson 17: The Area of a Circle</p> <p>G7 M3 Lesson 18: More Problems on Area and Circumference</p> <p>G7 M3 Lesson 20: Composite Area Problems</p>
	<p>AR.Math.Content.7.G.B.5</p> <p>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</p>	<p>G7 M3 Lessons 10–11: Angle Problems and Solving Equations</p> <p>G7 M6 Topic A: Unknown Angles</p>
	<p>AR.Math.Content.7.G.B.6</p> <p>Solve real-world and mathematical problems involving area of two-dimensional objects and volume and surface area of three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms</p>	<p>G7 M3 Topic C: Use Equations and Inequalities to Solve Geometry Problems</p> <p>G7 M6 Topic D: Problems Involving Area and Surface Area</p> <p>G7 M6 Topic E: Problems Involving Volume</p>

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Statistics and Probability	Cluster: Use random sampling to draw inferences about a population	
	AR.Math.Content.7.SP.A.1 Understand that: <ul style="list-style-type: none"> ▪ Statistics can be used to gain information about a population by examining a sample of the population ▪ Generalizations about a population from a sample are valid only if the sample is representative of that population ▪ Random sampling tends to produce representative samples and support valid inferences 	G7 M5 Topic C: Random Sampling and Estimating Population Characteristics
	AR.Math.Content.7.SP.A.2 <ul style="list-style-type: none"> ▪ Use data from a random sample to draw inferences about a population with a specific characteristic ▪ Generate multiple samples (or simulated samples) of the same size to gauge the variation in estimates or predictions 	G7 M5 Topic C: Random Sampling and Estimating Population Characteristics

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	Cluster: Draw informal comparative inferences about two populations	
	<p>AR.Math.Content.7.SP.B.3</p> <p>Draw conclusions about the degree of visual overlap of two numerical data distributions with similar variability such as <i>interquartile range</i> or <i>mean absolute deviation</i>, expressing the difference between the centers as a multiple of a measure of variability such as <i>mean</i>, <i>median</i>, or <i>mode</i></p>	G7 M5 Topic D: Comparing Populations
	<p>AR.Math.Content.7.SP.B.4</p> <p>Draw informal comparative inferences about two populations using measures of center and measures of variability for numerical data from random samples</p>	G7 M5 Topic D: Comparing Populations
	Cluster: Investigate chance processes and develop, use, and evaluate probability models	
	<p>AR.Math.Content.7.SP.C.5</p> <ul style="list-style-type: none"> ▪ Understand that the <i>probability</i> of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring ▪ A <i>probability</i> near 0 indicates an unlikely event, a <i>probability</i> around 1/2 indicates an event that is neither unlikely nor likely, and a <i>probability</i> near 1 indicates a likely event 	G7 M5 Lesson 1: Chance Experiments

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	<p>AR.Math.Content.7.SP.C.6</p> <ul style="list-style-type: none"> ▪ Collect data to approximate the <i>probability</i> of a chance event ▪ Observe its long-run relative frequency ▪ Predict the approximate relative frequency given the <i>probability</i> 	<p>G7 M5 Topic A: Calculating and Interpreting Probabilities</p> <p>G7 M5 Lesson 8: The Difference Between Theoretical Probabilities and Estimated Probabilities</p> <p>G7 M5 Lesson 12: Applying Probability to Make Informed Decisions</p>

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	<p>AR.Math.Content.7.SP.C.7</p> <p>Develop a probability model and use it to find probabilities of events</p> <p>Compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancy:</p> <ul style="list-style-type: none"> ▪ Develop a uniform probability model, assigning equal <i>probability</i> to all outcomes, and use the model to determine probabilities of events (e.g., If a student is selected at random from a class of 6 girls and 4 boys, the <i>probability</i> that Jane will be selected is .10 and the <i>probability</i> that a girl will be selected is .60.) ▪ Develop a probability model, which may not be uniform, by observing frequencies in data generated from a chance process (e.g., Find the approximate <i>probability</i> that a spinning penny will land heads up or that a tossed paper cup will land open-end down. Do the outcomes for the spinning penny appear to be equally likely based on the observed frequencies?) 	<p>G7 M5 Lesson 4: Calculating Probabilities for Chance Experiments with Equally Likely Outcomes</p> <p>G7 M5 Lesson 5: Chance Experiments with Outcomes That Are Not Equally Likely</p> <p>G7 M5 Lesson 8: The Difference Between Theoretical Probabilities and Estimated Probabilities</p> <p>G7 M5 Lesson 9: Comparing Estimated Probabilities to Probabilities Predicted by a Model</p> <p>G7 M5 Lesson 12: Applying Probability to Make Informed Decisions</p>

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	<p>AR.Math.Content.7.SP.C.8</p> <p>Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation:</p> <ul style="list-style-type: none"> ▪ 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 ▪ Represent sample spaces for compound events using methods such as organized lists, tables, and tree diagrams ▪ Identify the outcomes in the sample space which compose the event. Generate frequencies for compound events using a simulation. (e.g., What is the frequency of pulling a red card from a deck of cards and rolling a 5 on a die?) 	<p>G7 M5 Lesson 6: Using Tree Diagrams to Represent a Sample Space and to Calculate Probabilities</p> <p>G7 M5 Lesson 7: Calculating Probabilities of Compound Events</p> <p>G7 M5 Lessons 10–11: Conducting a Simulation to Estimate the Probability of an Event</p>