EUREKA MATH™

GREAT MINDS

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

GRADE 7 MATHEMATICS

Many of the Grade 7 Minnesota Academic Standards in Mathematics will require the use of *Eureka Math* content from other grade levels or courses, or supplemental materials. A detailed analysis of alignment is provided in the table below. With strategic placement of supplemental materials, *Eureka Math* can ensure students are successful in achieving the proficiencies of the Minnesota Academic Standards in Mathematics while still benefiting from the coherence and rigor of *Eureka Math*.

INDICATORS

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

Strand	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Number & Operation	**Standard: Read, write, represent, and compare positive and negative rational numbers, expressed as integers, fractions, and decimals.**	
	7.1.1.1 Know that every rational number can be written as the ratio of two integers or as a terminating or repeating decimal. Recognize that π is not rational, but that it can be approximated by rational numbers such as 22/7 and 3.14.	G7 M2 Topic B: Multiplication and Division of Integers and Rational Numbers G7 M3 Lesson 16: The Most Famous Ratio of All
	7.1.1.2 Understand that division of two integers will always result in a rational number. Use this information to interpret the decimal result of a division problem when using a calculator.	G7 M2 Topic B: Multiplication and Division of Integers and Rational Numbers
	7.1.1.3 Locate positive and negative rational numbers on a number line, understand the concept of opposites, and plot pairs of positive and negative rational numbers on a coordinate grid.	G6 M3: Rational Numbers G7 M2 Lesson 1: Opposite Quantities Combine to Make Zero
	7.1.1.4 Compare positive and negative rational numbers expressed in various forms using the symbols <, >, =, ≤, ≥.	G6 M3 Topic B: Order and Absolute Value

Strand	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	7.1.1.5 Recognize and generate equivalent representations of positive and negative rational numbers, including equivalent fractions.	G7 M2: Rational Numbers G7 M4 Topic A: Finding the Whole
	Standard: Calculate with positive and negative rational numbers, and rational numbers with whole number exponents, to solve real-world and mathematical problems.	
	7.1.2.1 Add, subtract, multiply, and divide positive and negative rational numbers that are integers, fractions, and terminating decimals; use efficient and generalizable procedures, including standard algorithms; raise positive rational numbers to whole-number exponents.	G7 M2: Rational Numbers
	7.1.2.2 Use real-world contexts and the inverse relationship between addition and subtraction to explain why the procedures of arithmetic with negative rational numbers make sense.	G7 M2 Topic A: Addition and Subtraction of Integers and Rational Numbers
	7.1.2.3 Understand that calculators and other computing technologies often truncate or round numbers.	G7 M2 Lesson 14: Converting Rational Numbers to Decimals Using Long Division Note: Supplemental material is necessary to completely address this standard.

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	7.1.2.4 Solve problems in various contexts involving calculations with positive and negative rational numbers and positive integer exponents, including computing simple and compound interest.	G7 M2: Rational Numbers G8 M1: Integer Exponents and Scientific Notation Algebra I M3 Lesson 4: Why Do Banks Pay YOU to Provide Their Services?
	7.1.2.5 Use proportional reasoning to solve problems involving ratios in various contexts.	G7 M1: Ratios and Proportional Reasoning
	7.1.2.6 Demonstrate an understanding of the relationship between the absolute value of a rational number and distance on a number line. Use the symbol for absolute value.	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
Algebra	**Standard: Understand the concept of proportionality in real-world and mathematical situations, and distinguish between proportional and other relationships.**	
	7.2.1.1 Understand that a relationship between two variables, x and y, is proportional if it can be expressed in the form $y/x = k$ or $y = kx$. Distinguish proportional relationships from other relationships, including inversely proportional relationships ($xy=k$ or $y= k/x$).	G7 M1: Ratios and Proportional Relationships Note: Supplemental material is necessary to address inverse relationships.

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	7.2.1.2 Understand that the graph of a proportional relationship is a line through the origin whose slope is the unit rate (constant of proportionality). Know how to use graphing technology to examine what happens to a line when the unit rate is changed.	G7 M1: Ratios and Proportional Relationships Note: Supplemental material is necessary to incorporate graphing technology.
	Standard: Recognize proportional relationships in real-world and mathematical situations; represent these and other relationships with tables, verbal descriptions, symbols, and graphs; solve problems involving proportional relationships and explain results in the original context.	
	7.2.2.1 Represent proportional relationships with tables, verbal descriptions, symbols, equations, and graphs; translate from one representation to another. Determine the unit rate (constant of proportionality or slope) given any of these representations.	G7 M1: Ratios and Proportional Relationships
	7.2.2.2 Solve multi-step problems involving proportional relationships in numerous contexts.	G7 M1: Ratios and Proportional Relationships G7 M4: Percent and Proportional Relationships

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	7.2.2.3 Use knowledge of proportions to assess the reasonableness of solutions.	G7 M1: Ratios and Proportional Relationships G7 M4: Percent and Proportional Relationships
	7.2.2.4 Represent real-world or mathematical situations using equations and inequalities involving variables and positive and negative rational numbers.	G7 M2 Lesson 17: Comparing Tape Diagram Solutions to Algebraic Solutions G7 M2 Lessons 22–23: Solving Equations Using Algebra G7 M3 Topic B: Solve Problems Using Expressions, Equations, and Inequalities
	Standard: Apply understanding of order of operations and algebraic properties to generate equivalent numerical and algebraic expressions containing positive and negative rational numbers and grouping symbols; evaluate such expressions.	
	7.2.3.1 Use properties of algebra to generate equivalent numerical and algebraic expressions containing rational numbers, grouping symbols, and whole number exponents. Properties of algebra include associative, commutative, and distributive laws.	G7 M3 Topic A: Use Properties of Operations to Generate Equivalent Expressions
	7.2.3.2 Evaluate algebraic expressions containing rational numbers and whole number exponents at specified values of their variables.	G7 M3 Topic A: Use Properties of Operations to Generate Equivalent Expressions

Strand	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	7.2.3.3 Apply understanding of order of operations and grouping symbols when using calculators and other technologies.	G6 M4 Topic B: Special Notations of Operations Note: Supplemental material is necessary to incorporate the use of calculators.
	Standard: Represent real-world and mathematical situations using equations with variables. Solve equations symbolically, using the properties of equality. Also solve equations graphically and numerically. Interpret solutions in the original context.	
	7.2.4.1 Represent relationships in various contexts with equations involving variables and positive and negative rational numbers. Use the properties of equality to solve for the value of a variable. Interpret the solution in the original context.	G7 M2 Lesson 17: Comparing Tape Diagram Solutions to Algebraic Solutions G7 M2 Lessons 22–23: Solving Equations Using Algebra G7 M3 Topic B: Solve Problems Using Expressions, Equations, and Inequalities G7 M4 Lesson 10: Simple Interest G7 M4 Lesson 11: Tax, Commissions, Fees, and Other Real-World Percent Applications G7 M4 Lesson 17: Mixture Problems
	7.2.4.2 Solve equations resulting from proportional relationships in various contexts.	G7 M1: Ratios and Proportional Relationships

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Geometry & Measurement	**Standard: Use reasoning with proportions and ratios to determine measurements, justify formulas, and solve real-world and mathematical problems involving circles and related geometric figures.**	
	7.3.1.1 Demonstrate an understanding of the proportional relationship between the diameter and circumference of a circle and that the unit rate (constant of proportionality) is π. Calculate the circumference and area of circles and sectors of circles to solve problems in various contexts.	G7 M3 Lesson 16: The Most Famous Ratio of All G7 M3 Lesson 17: The Area of a Circle G7 M3 Lesson 18: More Problems on Area and Circumference G7 M3 Lesson 20: Composite Area Problems
	7.3.1.2 Calculate the volume and surface area of cylinders and justify the formulas used.	G8 M5: Examples of Functions from Geometry G8 M7 Topic D: Applications of Radicals and Roots Note: Supplemental material is necessary to calculate the surface area of cylinders.
	Standard: Analyze the effect of change of scale, translations, and reflections on the attributes of two-dimensional figures.	
	7.3.2.1 Describe the properties of similarity, compare geometric figures for similarity, and determine scale factors.	G7 M1 Topic D: Ratios of Scale Drawings G7 M4 Topic C: Scale Drawings G8 M3: Similarity
	7.3.2.2 Apply scale factors, length ratios, and area ratios to determine side lengths and areas of similar geometric figures.	G7 M1 Topic D: Ratios of Scale Drawings G7 M4 Topic C: Scale Drawings

Strand	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	7.3.2.3 Use proportions and ratios to solve problems involving scale drawings and conversions of measurement units.	G7 M1 Topic D: Ratios of Scale Drawings G7 M4 Topic C: Scale Drawings
	7.3.2.4 Graph and describe translations and reflections of figures on a coordinate grid and determine the coordinates of the vertices of the figure after the transformation.	G8 M2: The Concept of Congruence
Data Analysis & Probability	**Standard: Use mean, median, and range to draw conclusions about data and make predictions.**	
	7.4.1.1 Design simple experiments and collect data. Determine mean, median, and range for quantitative data and from data represented in a display. Use these quantities to draw conclusions about the data, compare different data sets, and make predictions.	G6 M6: Statistics Note: Supplemental material is necessary to address range.
	7.4.1.2 Describe the impact that inserting or deleting a data point has on the mean and the median of a data set. Know how to create data displays using a spreadsheet to examine this impact.	G6 M6: Statistics Note: Supplemental material is necessary to address spreadsheets.

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	Standard: Display and interpret data in a variety of ways, including circle graphs and histograms.	
	7.4.2.1 Use reasoning with proportions to display and interpret data in circle graphs (pie charts) and histograms. Choose the appropriate data display and know how to create the display using a spreadsheet or other graphing technology.	G6 M6 Topic A: Understanding Distributions Note: Supplemental material is necessary to address circle graphs.
	Standard: Calculate probabilities and reason about probabilities using proportions to solve real-world and mathematical problems.	
	7.4.3.1 Use random numbers generated by a calculator or a spreadsheet or taken from a table to simulate situations involving randomness, make a histogram to display the results, and compare the results to known probabilities.	G6 M6 Topic A: Understanding Distributions G7 M5: Statistics and Probability
	7.4.3.2 Calculate probability as a fraction of sample space or as a fraction of area. Express probabilities as percents, decimals, and fractions.	G7 M5 Topic A: Calculating and Interpreting Probabilities
	7.4.3.3 Use proportional reasoning to draw conclusions about and predict relative frequencies of outcomes based on probabilities.	G7 M5: Statistics and Probability