Grade 7 | New Jersey Student Learning Standards for Mathematics Correlation to *Eureka Math*®

About *Eureka Math*

Created by Great Minds®, a mission-driven Public Benefit Corporation, *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

Great Minds offers detailed analyses that demonstrate how each grade of *Eureka Math* aligns with specific state standards. Access these free alignment studies at greatminds.org/state-studies.

Data

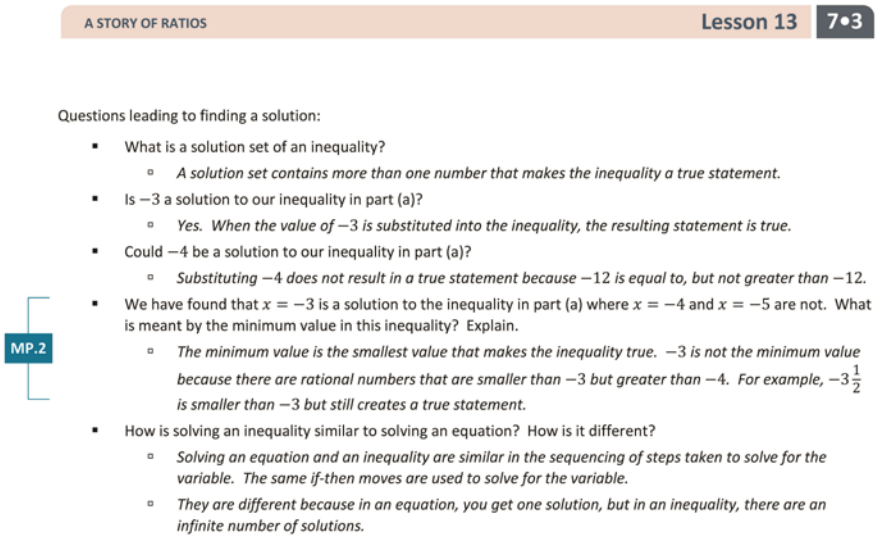
Schools and districts nationwide are experiencing student growth and impressive test scores after using *Eureka Math*. See their stories and data at greatminds.org/data.

Full Suite of Resources

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

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
MP.1 Make sense of problems and persevere in solving them.	Lessons in every module engage students in mathematical practices. These are designated in the Module Overview and labeled in lessons. For example: 
MP.2 Reason abstractly and quantitatively.	
MP.3 Construct viable arguments and critique the reasoning of others.	
MP.4 Model with mathematics.	
MP.5 Use appropriate tools strategically.	
MP.6 Attend to precision.	
MP.7 Look for and make use of structure.	
MP.8 Look for and express regularity in repeated reasoning.	

Ratios and Proportional Relationships

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

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.RP.A.1 Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.	G7 M1 Lesson 11: Ratios of Fractions and Their Unit Rates G7 M1 Lesson 12: Ratios of Fractions and Their Unit Rates G7 M1 Lesson 13: Finding Equivalent Ratios Given the Total Quantity G7 M1 Lesson 15: Equations of Graphs of Proportional Relationships Involving Fractions
7.RP.A.2 Recognize and represent proportional relationships between quantities.	*This standard is fully addressed by the lessons aligned to its subsections.*
7.RP.A.2.a 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.	G7 M1 Topic A: Proportional Relationships
7.RP.A.2.b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	G7 M1 Topic B: Unit Rate and Constant of Proportionality G7 M1 Lesson 15: Equations of Graphs of Proportional Relationships Involving Fractions G7 M1 Lesson 16: Relating Scale Drawings to Ratios and Rates G7 M1 Lesson 17: The Unit Rate as the Scale Factor G7 M4 Lesson 12: The Scale Factor as a Percent for a Scale Drawing

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.RP.A.2.c Represent proportional relationships by equations.	G7 M1 Lesson 2: Proportional Relationships G7 M1 Lesson 8: Representing Proportional Relationships with Equations G7 M1 Lesson 9: Representing Proportional Relationships with Equations G7 M1 Lesson 10: Interpreting Graphs of Proportional Relationships G7 M4 Lesson 1: Percent G7 M4 Lesson 2: Part of a Whole as Percent G7 M4 Lesson 3: Comparing Quantities with Percent G7 M4 Lesson 4: Percent Increase and Decrease G7 M4 Lesson 6: Fluency with Percents G7 M4 Lesson 7: Markup and Markdown Problems G7 M4 Lesson 9: Problem Solving When the Percent Changes G7 M4 Lesson 10: Simple Interest G7 M4 Lesson 11: Tax, Commissions, Fees, and Other Real-World Percent Applications
7.RP.A.2.d 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.	G7 M1 Lesson 10: Interpreting Graphs of Proportional Relationships

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.RP.A.3 Use proportional relationships to solve multistep ratio and percent problems.	G7 M1 Lesson 14: Multi-Step Ratio Problems G7 M4 Lesson 1: Percent G7 M4 Lesson 3: Comparing Quantities with Percent G7 M4 Lesson 4: Percent Increase and Decrease G7 M4 Lesson 5: Find One Hundred Percent Given Another Percent G7 M4 Lesson 6: Fluency with Percents G7 M4 Topic B: Percent Problems Including More than One Whole G7 M4 Topic D: Population, Mixture, and Counting Problems Involving Percents

The Number System

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

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.NS.A.1 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.	*This standard is fully addressed by the lessons aligned to its subsections.*
7.NS.A.1.a Describe situations in which opposite quantities combine to make 0.	G7 M2 Lesson 1: Opposite Quantities Combine to Make Zero

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.NS.A.1.b Understand $p + q$ as the number located a distance $\|q\|$ from p, in the positive or negative direction depending on whether q is positive or negative. Show that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.	G7 M2 Lesson 1: Opposite Quantities Combine to Make Zero G7 M2 Lesson 2: Using the Number Line to Model the Addition of Integers G7 M2 Lesson 3: Understanding Addition of Integers G7 M2 Lesson 4: Efficiently Adding Integers and Other Rational Numbers G7 M2 Lesson 7: Addition and Subtraction of Rational Numbers G7 M2 Lesson 8: Applying the Properties of Operations to Add and Subtract Rational Numbers G7 M2 Lesson 9: Applying the Properties of Operations to Add and Subtract Rational Numbers
7.NS.A.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.	G7 M2 Lesson 5: Understanding Subtraction of Integers and Other Rational Numbers G7 M2 Lesson 6: The Distance Between Two Rational Numbers G7 M2 Lesson 7: Addition and Subtraction of Rational Numbers G7 M2 Lesson 8: Applying the Properties of Operations to Add and Subtract Rational Numbers G7 M2 Lesson 9: Applying the Properties of Operations to Add and Subtract Rational Numbers
7.NS.A.1.d Apply properties of operations as strategies to add and subtract rational numbers.	G7 M2 Lesson 8: Applying the Properties of Operations to Add and Subtract Rational Numbers G7 M2 Lesson 9: Applying the Properties of Operations to Add and Subtract Rational Numbers
7.NS.A.2 Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers.	*This standard is fully addressed by the lessons aligned to its subsections.*

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.NS.A.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.	G7 M2 Lesson 10: Understanding Multiplication of Integers G7 M2 Lesson 11: Develop Rules for Multiplying Signed Numbers G7 M2 Lesson 15: Multiplication and Division of Rational Numbers
7.NS.A.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 $-\left(\frac{p}{q}\right) = \frac{-p}{q} = \frac{p}{-q}$. Interpret quotients of rational numbers by describing real-world contexts.	G7 M2 Lesson 12: Division of Integers G7 M2 Lesson 15: Multiplication and Division of Rational Numbers
7.NS.A.2.c Apply properties of operations as strategies to multiply and divide rational numbers.	G7 M2 Lesson 13: Converting Between Fractions and Decimals Using Equivalent Fractions G7 M2 Lesson 16: Applying the Properties of Operations to Multiply and Divide Rational Numbers

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.NS.A.2.d 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.	G7 M2 Lesson 14: Converting Rational Numbers to Decimals Using Long Division
7.NS.A.3 Solve real-world and mathematical problems involving the four operations with rational numbers.	G7 M2 Lesson 18: Writing, Evaluating, and Finding Equivalent Expressions with Rational Numbers G7 M2 Lesson 19: Writing, Evaluating, and Finding Equivalent Expressions with Rational Numbers G7 M2 Lesson 20: Investments—Performing Operations with Rational Numbers G7 M2 Lesson 21: If-Then Moves with Integer Number Cards

Expressions and Equations

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

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	G7 M3 Topic A: Use Properties of Operations to Generate Equivalent Expressions
7.EE.A.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.	G7 M2 Lesson 18: Writing, Evaluating, and Finding Equivalent Expressions with Rational Numbers G7 M2 Lesson 19: Writing, Evaluating, and Finding Equivalent Expressions with Rational Numbers G7 M3 Lesson 3: Writing Products as Sums and Sums as Products G7 M3 Lesson 4: Writing Products as Sums and Sums as Products

Expressions and Equations

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

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.EE.B.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.	G7 M3 Lesson 7: Understanding Equations G7 M3 Lesson 8: Using If-Then Moves in Solving Equations G7 M3 Lesson 9: Using If-Then Moves in Solving Equations G7 M3 Lesson 10: Angle Problems and Solving Equations G7 M3 Lesson 11: Angle Problems and Solving Equations G7 M3 Lesson 13: Inequalities G7 M3 Lesson 14: Solving Inequalities G7 M3 Lesson 15: Graphing Solutions to Inequalities G7 M4 Lesson 7: Markup and Markdown Problems G7 M4 Lesson 8: Percent Error Problems G7 M4 Lesson 9: Problem Solving When the Percent Changes G7 M4 Topic D: Population, Mixture, and Counting Problems Involving Percents
7.EE.B.4 Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.	*This standard is fully addressed by the lessons aligned to its subsections.*

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.EE.B.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. Solve equations of these forms with accuracy and efficiency. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.	G7 M2 Lesson 17: Comparing Tape Diagram Solutions to Algebraic Solutions G7 M2 Lesson 21: If-Then Moves with Integer Number Cards G7 M2 Lesson 22: Solving Equations Using Algebra G7 M2 Lesson 23: Solving Equations Using Algebra G7 M3 Lesson 7: Understanding Equations G7 M3 Lesson 8: Using If-Then Moves in Solving Equations G7 M3 Lesson 9: Using If-Then Moves in Solving Equations G7 M3 Lesson 10: Angle Problems and Solving Equations G7 M3 Lesson 11: Angle Problems and Solving Equations 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.EE.B.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.	G7 M3 Lesson 12: Properties of Inequalities G7 M3 Lesson 13: Inequalities G7 M3 Lesson 14: Solving Inequalities G7 M3 Lesson 15: Graphing Solutions to Inequalities

Geometry

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

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
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 Lesson 17: The Unit Rate as the Scale Factor G7 M1 Lesson 18: Computing Actual Lengths from a Scale Drawing G7 M1 Lesson 19: Computing Actual Areas from a Scale Drawing G7 M1 Lesson 20: An Exercise in Creating a Scale Drawing G7 M1 Lesson 21: An Exercise in Changing Scales G7 M1 Lesson 22: An Exercise in Changing Scales G7 M4 Topic C: Scale Drawings
7.G.A.2 Draw (with technology, with ruler and protractor, as well as freehand) geometric 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.	G7 M6 Topic B: Constructing Triangles
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

Geometry

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

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.G.B.4 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.	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.G.B.5 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.	G7 M3 Lesson 10: Angle Problems and Solving Equations G7 M3 Lesson 11: Angle Problems and Solving Equations G7 M6 Topic A: Unknown Angles
7.G.B.6 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.	G7 M3 Lesson 19: Unknown Area Problems on the Coordinate Plane G7 M3 Lesson 20: Composite Area Problems G7 M3 Lesson 21: Surface Area G7 M3 Lesson 22: Surface Area G7 M3 Lesson 23: The Volume of a Right Prism G7 M3 Lesson 24: The Volume of a Right Prism G7 M3 Lesson 25: Volume and Surface Area G7 M3 Lesson 26: Volume and Surface Area G7 M6 Topic D: Problems Involving Area and Surface Area G7 M6 Topic E: Problems Involving Volume

Statistics and Probability

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

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.SP.A.1 Understand that 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. Understand that random sampling tends to produce representative samples and support valid inferences.	G7 M5 Lesson 13: Populations, Samples, and Generalizing from a Sample to a Population G7 M5 Lesson 14: Selecting a Sample G7 M5 Lesson 15: Random Sampling G7 M5 Lesson 18: Sampling Variability and the Effect of Sample Size G7 M5 Lesson 19: Understanding Variability When Estimating a Population Proportion
7.SP.A.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.	G7 M5 Lesson 14: Selecting a Sample G7 M5 Lesson 15: Random Sampling G7 M5 Lesson 16: Methods for Selecting a Random Sample G7 M5 Lesson 17: Sampling Variability G7 M5 Lesson 18: Sampling Variability and the Effect of Sample Size G7 M5 Lesson 19: Understanding Variability When Estimating a Population Proportion G7 M5 Lesson 20: Estimating a Population Proportion

Statistics and Probability

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

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.SP.B.3 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.	G7 M5 Topic D: Comparing Populations
7.SP.B.4 Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.	G7 M5 Topic D: Comparing Populations

Statistics and Probability

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

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.SP.C.5 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.	G7 M5 Lesson 1: Chance Experiments
7.SP.C.6 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.	G7 M5 Lesson 2: Estimating Probabilities by Collecting Data G7 M5 Lesson 3: Chance Experiments with Equally Likely Outcomes G7 M5 Lesson 4: Calculating Probabilities for Chance Experiments with Equally Likely Outcomes G7 M5 Lesson 5: Chance Experiments with Outcomes That Are Not Equally Likely G7 M5 Lesson 8: The Difference Between Theoretical Probabilities and Estimated Probabilities G7 M5 Lesson 12: Applying Probability to Make Informed Decisions
7.SP.C.7 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.	G7 M5 Lesson 8: The Difference Between Theoretical Probabilities and Estimated Probabilities G7 M5 Lesson 9: Comparing Estimated Probabilities to Probabilities Predicted by a Model

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.SP.C.7.a Develop a uniform probability model by assigning equal probability to all outcomes, and use the model to determine probabilities of events.	G7 M5 Lesson 4: Calculating Probabilities for Chance Experiments with Equally Likely Outcomes
7.SP.C.7.b Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.	G7 M5 Lesson 5: Chance Experiments with Outcomes That Are Not Equally Likely G7 M5 Lesson 12: Applying Probability to Make Informed Decisions
7.SP.C.8 Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation.	*This standard is fully addressed by the lessons aligned to its subsections.*
7.SP.C.8.a 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.	G7 M5 Lesson 6: Using Tree Diagrams to Represent a Sample Space and to Calculate Probabilities G7 M5 Lesson 7: Calculating Probabilities of Compound Events G7 M5 Lesson 10: Conducting a Simulation to Estimate the Probability of an Event G7 M5 Lesson 11: Conducting a Simulation to Estimate the Probability of an Event

New Jersey Student Learning Standards for Mathematics	Aligned Components of *Eureka Math*
7.SP.C.8.b 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.	G7 M5 Lesson 6: Using Tree Diagrams to Represent a Sample Space and to Calculate Probabilities G7 M5 Lesson 7: Calculating Probabilities of Compound Events
7.SP.C.8.c Design and use a simulation to generate frequencies for compound events.	G7 M5 Lesson 10: Conducting a Simulation to Estimate the Probability of an Event G7 M5 Lesson 11: Conducting a Simulation to Estimate the Probability of an Event