EUREKA MATH²®

GREAT MINDS™

Grade 7 | The New Illinois Learning Standards for Mathematics Correlation to *Eureka Math²*®

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 Math²*®, 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 Math²* 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 Math²* 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

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

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
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.	7 M1 Lesson 1: An Experiment with Ratios and Rates 7 M1 Lesson 2: Exploring Tables of Proportional Relationships 7 M1 Lesson 3: Identifying Proportional Relationships in Tables
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.	7 M1 Topic A: Understanding Proportional Relationships 7 M1 Lesson 14: Extreme Bicycles
7.RP.A.2.b Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.	7 M1 Lesson 4: Exploring Graphs of Proportional Relationships 7 M1 Lesson 5: Analyzing Graphs of Proportional Relationships 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

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7.RP.A.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.A.2.c Represent proportional relationships by equations.	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.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.	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

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
7.RP.A.3 Use proportional relationships to solve multistep 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 M5 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

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

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
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.	7 M2 Lesson 1: Combining Opposites 7 M2 Lesson 12: The Integer Game
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.	7 M2 Lesson 1: Combining Opposites 7 M2 Lesson 2: Adding Integers 7 M2 Lesson 3: Adding Integers Efficiently 7 M2 Lesson 5: Decomposing Rational Numbers to Make Addition More Efficient 7 M2 Lesson 6: Adding Rational Numbers 7 M2 Lesson 8: Subtracting Integers, Part 1

The New Illinois Learning Standards for Mathematics	**Aligned Components of *Eureka Math²***
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.	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.A.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.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.*

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
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.	7 M2 Topic C: Multiplying 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.	7 M2 Lesson 18: Understanding Negative Divisors 7 M2 Lesson 21: Comparing and Ordering Rational Numbers
7.NS.A.2.c Apply properties of operations 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 24: Order of Operations with Rational Numbers

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
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.	7 M2 Lesson 19: Rational Numbers as Decimals, Part 1 7 M2 Lesson 20: Rational Numbers as Decimals, Part 2 7 M2 Lesson 21: Comparing and Ordering Rational Numbers
7.NS.A.3 Solve real-world and mathematical problems involving the four 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

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

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
7.EE.A.1 Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.	7 M3 Topic A: Equivalent Expressions

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
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.	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

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

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
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.	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.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.	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

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
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 fluently. Compare an algebraic solution to an arithmetic solution, identifying the sequence of the operations used in each approach.	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.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.	7 M3 Topic D: Inequalities

Geometry

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

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
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.	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

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
7.G.A.1 *continued*	7 M1 Lesson 20: Creating Multiple Scale Drawings
	7 M5 Lesson 1: Proportionality and Scale Factor
	7 M5 Lesson 14: Scale Factor—Percent Increase and Decrease
7.G.A.2 Draw (freehand, with ruler and protractor, and with technology) 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.	7 M4 Topic A: Constructing Geometric Figures
	7 M4 Topic B: Constructing Triangles
	7 M4 Lesson 9: Constructing a Circle
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.	7 M4 Lesson 22: Understanding Planes and Cross Sections
	7 M4 Lesson 23: Cross Section Scavenger Hunt

Geometry

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

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
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.	7 M4 Lesson 10: The Outside of a Circle 7 M4 Lesson 11: The Inside of a Circle 7 M4 Lesson 12: Exploring the Area and Circumference of a Circle 7 M4 Lesson 13: Finding Areas of Circular Regions 7 M4 Lesson 14: Composite Figures with Circular Regions 7 M4 Lesson 15: Watering a Lawn
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.	7 M3 Lesson 7: Angle Relationships and Unknown Angle Measures 7 M3 Lesson 8: Strategies to Determine Unknown Angle Measures 7 M3 Lesson 10: Problem Solving with Unknown Angle Measures
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.	7 M4 Lesson 14: Composite Figures with Circular Regions 7 M4 Lesson 16: Solving Area Problems by Composition and Decomposition 7 M4 Lesson 17: Surface Area of Right Rectangular and Right Triangular Prisms 7 M4 Lesson 18: Surface Area of 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
7.SP.A Use random sampling to draw inferences about a population.

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
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.	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.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.	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

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

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
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.	7 M6 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.	7 M6 Topic D: Comparing Populations

Statistics and Probability

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

The New Illinois Learning Standards for Mathematics	Aligned Components of *Eureka Math²*
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.	7 M6 Lesson 1: What is Probability?
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.	7 M6 Lesson 2: Empirical Probability 7 M6 Lesson 3: Outcomes of Chance Experiments 7 M6 Lesson 6: Outcomes That Are Not Equally Likely 7 M6 Lesson 8: Picking Blue
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.	7 M6 Lesson 7: The Law of Large Numbers

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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.	7 M6 Lesson 4: Theoretical Probability 7 M6 Lesson 7: The Law of Large Numbers
7.SP.C.7.b Develop a probability model (which may not be uniform) by observing frequencies in data generated from a chance process.	7 M6 Lesson 7: The Law of Large Numbers 7 M6 Lesson 8: Picking Blue
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.	7 M6 Lesson 5: Multistage Experiments

The New Illinois Learning Standards for Mathematics	**Aligned Components of *Eureka Math²***
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.	7 M6 Lesson 5: Multistage Experiments
7.SP.C.8.c Design and use a simulation to generate frequencies for compound events.	7 M6 Lesson 9: Probability Simulations 7 M6 Lesson 10: Simulations with Random Number Tables