Grade 8 | Kansas College & Career Ready Standards 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.

The Number System

Know that there are numbers that are not rational, and approximate them by rational numbers.

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.NS.1 Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.	8 M4 Lesson 5: An Interesting Application of Linear Equations, Part 1 8 M4 Lesson 6: An Interesting Application of Linear Equations, Part 2
8.NS.2 Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g., π^2).	8 M1 Lesson 21: Approximating Values of Roots and π^2 8 M1 Lesson 23: Ordering Irrational Numbers

Expressions and Equations

Work with radicals and integer exponents.

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.EE.1 Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of whole number perfect squares with solutions between 0 and 15 and cube roots of whole number perfect cubes with solutions between 0 and 5. Know that $\sqrt{2}$ is irrational.	8 M1 Lesson 16: Perfect Squares and Perfect Cubes 8 M1 Lesson 17: Solving Equations with Squares and Cubes 8 M1 Lesson 20: Square Roots 8 M1 Lesson 22: Familiar and Not So Familiar Numbers 8 M1 Lesson 24: Revisiting Equations with Squares and Cubes
8.EE.2 Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other.	8 M1 Lesson 1: Large and Small Positive Numbers 8 M1 Lesson 2: Comparing Large Numbers 8 M1 Lesson 3: Time to Be More Precise—Scientific Notation 8 M1 Lesson 7: Making Sense of the Exponent of 0 8 M1 Lesson 11: Small Positive Numbers in Scientific Notation

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.EE.3 Read and write numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (e.g., use millimeters per year for seafloor spreading). Interpret scientific notation that has been generated by technology.	8 M1 Lesson 2: Comparing Large Numbers 8 M1 Lesson 4: Adding and Subtracting Numbers Written in Scientific Notation 8 M1 Lesson 12: Operations with Numbers in Scientific Notation 8 M1 Lesson 13: Applications with Numbers in Scientific Notation 8 M1 Lesson 14: Choosing Units of Measurement 8 M1 Lesson 15: Get to the Point

Expressions and Equations

Understand the connections between proportional relationships, lines, and linear equations.

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.EE.4 Graph proportional relationships, interpreting its unit rate as the slope (m) of the graph. Compare two different proportional relationships represented in different ways.	8 M4 Lesson 15: Comparing Proportional Relationships 8 M4 Lesson 16: Proportional Relationships and Slope

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.EE.5 Use similar triangles to explain why the slope (m) is the same between any two distinct points on a non-vertical line in the coordinate plane and extend to include the use of the slope formula ($m = \frac{y_2 - y_1}{x_2 - x_1}$ when given two coordinate points (x_1, y_1) and (x_2, y_2)). Generate the equation $y = mx$ for a line through the origin (proportional) and the equation $y = mx + b$ for a line with slope m intercepting the vertical axis at y-intercept b (not proportional when $b \neq 0$).	8 M3 Lesson 17: Similar Triangles on a Line 8 M4 Lesson 16: Proportional Relationships and Slope 8 M4 Lesson 17: Slopes of Rising Lines 8 M4 Lesson 18: Slopes of Falling Lines 8 M4 Lesson 19: Using Coordinates to Find Slope 8 M4 Lesson 20: Slope-Intercept Form of the Equation of a Line
8.EE.6 Describe the relationship between the proportional relationship expressed in $y = mx$ and the non-proportional linear relationship $y = mx + b$ as a result of a vertical translation.	8 M3 Lesson 17: Similar Triangles on a Line 8 M4 Topic C: Linear Equations in Two Variables 8 M4 Lesson 16: Proportional Relationships and Slope 8 M4 Lesson 17: Slopes of Rising Lines 8 M4 Lesson 18: Slopes of Falling Lines 8 M4 Lesson 19: Using Coordinates to Find Slope 8 M4 Topic E: Different Forms of Linear Equations 8 M4 Topic F: Graphing and Writing Linear Equations *Supplemental material is necessary to address relationships as a result of a vertical translation.*

Expressions and Equations

Analyze and solve linear equations and inequalities.

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.EE.7 Fluently (efficiently, accurately, and flexibly) solve one-step, two-step, and multi-step linear equations and inequalities in one variable, including situations with the same variable appearing on both sides of the equal sign.	8 M4 Lesson 2: Solving Linear Equations 8 M4 Lesson 3: Solving Linear Equations with Rational Coefficients 8 M4 Lesson 4: Using Linear Equations to Solve Problems 8 M4 Lesson 10: Using Linear Equations to Solve Real-World Problems 8 M4 Lesson 11: Planning a Trip A1 M1 Lesson 13: Solving Linear Inequalities in One Variable
8.EE.7a Give examples of linear equations in one variable with one solution ($x = a$), infinitely many solutions ($a = a$), or no solutions ($a = b$). Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form $x = a$, $a = a$, or $a = b$ results (where a and b are different numbers).	8 M4 Lesson 7: Linear Equations with More Than One Solution 8 M4 Lesson 8: Another Possible Number of Solutions 8 M4 Lesson 9: Writing Linear Equations 8 M4 Lesson 10: Using Linear Equations to Solve Real-World Problems

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.EE.7b Solve linear equations and inequalities with rational number coefficients, including equations/inequalities whose solutions require expanding and/or factoring expressions using the distributive property and collecting like terms.	8 M4 Lesson 1: Equations 8 M4 Lesson 2: Solving Linear Equations 8 M4 Lesson 3: Solving Linear Equations with Rational Coefficients 8 M4 Lesson 5: An Interesting Application of Linear Equations, Part 1 8 M4 Lesson 6: An Interesting Application of Linear Equations, Part 2 8 M4 Lesson 7: Linear Equations with More Than One Solution 8 M4 Lesson 8: Another Possible Number of Solutions 8 M4 Lesson 10: Using Linear Equations to Solve Real-World Problems 8 M4 Lesson 11: Planning a Trip A1 M1 Lesson 13: Solving Linear Inequalities in One Variable

Functions

Define, evaluate, and compare functions.

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.F.1 Explain that a function is a rule that assigns to each input exactly one output. The graph of a function is the set of ordered pairs consisting of an input and the corresponding output.	8 M6 Lesson 1: Motion and Speed 8 M6 Lesson 2: Definition of a Function 8 M6 Lesson 4: More Examples of Functions 8 M6 Lesson 5: Graphs of Functions and Equations

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.F.2 Compare properties of two linear functions represented in a variety of ways (algebraically, graphically, numerically in tables, or by verbal descriptions).	8 M6 Lesson 7: Interpreting Rate of Change and Initial Value 8 M6 Lesson 8: Comparing Functions
8.F.3 Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear.	8 M6 Lesson 3: Linear Functions and Proportionality 8 M6 Lesson 6: Linear Functions and Rate of Change 8 M6 Lesson 10: Graphs of Nonlinear Functions

Functions

Use functions to model relationships between quantities.

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.F.4 Construct a function to model a linear relationship between two quantities. Determine the rate of change and initial value of the function from a description of a relationship or from two (x, y) values, including reading these from a table or from a graph. Interpret the rate of change and initial value of a linear function in terms of the situation it models, and in terms of its graph or a table of values.	8 M6 Lesson 6: Linear Functions and Rate of Change 8 M6 Lesson 7: Interpreting Rate of Change and Initial Value 8 M6 Lesson 25: Applications of Volume

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.F.5 Describe qualitatively the functional relationship between two quantities by analyzing a graph (e.g., where the function is increasing or decreasing, linear or nonlinear). Sketch a graph that exhibits the qualitative features of a function that has been described verbally.	8 M6 Lesson 9: Increasing and Decreasing Functions 8 M6 Lesson 10: Graphs of Nonlinear Functions

Geometry

Geometric measurement: understand concepts of angle and measure angles.

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.G.1 Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement:	*Supplemental material is necessary to address this standard.*
8.G.1a An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a "one-degree angle," and can be used to measure angles.	*Supplemental material is necessary to address this standard.*

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.G.1b An angle that turns through n one-degree angles is said to have an angle measure of n degrees.	*Supplemental material is necessary to address this standard.*
8.G.2 Measure angles in whole-number degrees using a protractor. Draw angles of specified measure using a protractor and straight edge.	*Supplemental material is necessary to address this standard.*
8.G.3 Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.	*Supplemental material is necessary to address this standard.*
8.G.4 Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and use them to 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 8 M3 Lesson 12: Exploring Angles in Similar Triangles

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.G.5 Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles.	8 M2 Topic C: Angle Relationships 8 M3 Lesson 12: Exploring Angles in Similar Triangles 8 M3 Lesson 13: Similar Triangles 8 M3 Lesson 14: Using Similar Figures to Find Unknown Side Lengths 8 M3 Lesson 15: Applications of Similar Figures 8 M3 Lesson 16: Similar Right Triangles
8.G.6 Draw (freehand, with ruler and protractor, and with technology) geometric shapes with given conditions. Focus on drawing 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

Geometry

Understand and apply the Pythagorean Theorem.

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.G.7 Explain a proof of the Pythagorean Theorem and its converse.	8 M2 Lesson 17: Proving the Pythagorean Theorem 8 M2 Lesson 18: Proving the Converse of the Pythagorean Theorem 8 M2 Lesson 19: Using the Pythagorean Theorem and Its Converse

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.G.8 Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions.	8 M1 Lesson 18: The Pythagorean Theorem 8 M1 Lesson 19: Using the Pythagorean Theorem 8 M1 Lesson 20: Square Roots 8 M2 Lesson 19: Using the Pythagorean Theorem and Its Converse 8 M2 Lesson 21: Applying the Pythagorean Theorem 8 M2 Lesson 22: On the Right Path 8 M3 Lesson 16: Similar Right Triangles
8.G.9 Apply the Pythagorean Theorem to find the distance between two points in a coordinate system.	8 M2 Lesson 20: Distance in the Coordinate Plane 8 M2 Lesson 22: On the Right Path

Geometry

Solve real-world and mathematical problems involving measurement.

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.G.10 Use the formulas or informal reasoning to find the arc length, areas of sectors, surface areas and volumes of pyramids, cones, and spheres.	7 M4 Lesson 20: Surface Area of Right Pyramids 8 M6 Lesson 21: Volume of Prisms and Pyramids 8 M6 Lesson 23: Volume of Cones 8 M6 Lesson 24: Volume of Spheres 8 M6 Lesson 25: Applications of Volume *Supplemental material is necessary to address arc length, areas of sectors, and surface area of cones and spheres.*

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.G.11 Investigate the relationship between the formulas of three dimensional geometric shapes;	8 M6 Lesson 21: Volume of Prisms and Pyramids 8 M6 Lesson 23: Volume of Cones *Supplemental material is necessary to address surface area of pyramids and cones.*
8.G.11a Generalize the volume formula for pyramids and cones ($V = \frac{1}{3}Bh$).	8 M6 Lesson 21: Volume of Prisms and Pyramids 8 M6 Lesson 23: Volume of Cones
8.G.11b Generalize surface area formula of pyramids and cones ($SA = B + \frac{1}{2}Pl$).	*Supplemental material is necessary to address this standard.*
8.G.12 Solve real-world and mathematical problems involving arc length, area of two-dimensional shapes including sectors, volume and surface area of three-dimensional objects including pyramids, cones and spheres.	8 M6 Lesson 21: Volume of Prisms and Pyramids 8 M6 Lesson 23: Volume of Cones 8 M6 Lesson 24: Volume of Spheres 8 M6 Lesson 25: Applications of Volume *Supplemental material is necessary to address arc length, areas of sectors, and surface area of pyramids, cones, and spheres.*

Statistics and Probability

Investigate patterns of association in bivariate data.

Kansas College & Career Ready Standards	Aligned Components of *Eureka Math²*
8.SP.1 Construct and interpret scatter plots for bivariate measurement data to investigate patterns of association between two quantities. Describe patterns such as clustering, outliers, positive or negative association, linear association, and nonlinear association.	8 M6 Lesson 11: Scatter Plots 8 M6 Lesson 12: Patterns in Scatter Plots
8.SP.2 Know that straight lines are widely used to model relationships between two quantitative variables. For scatter plots that suggest a linear association, informally fit a straight line, and informally assess the model fit by judging the closeness of the data points to the line.	8 M6 Lesson 13: Informally Fitting a Line to Data 8 M6 Lesson 15: Linear Models 8 M6 Lesson 16: Using the Investigative Process 8 M6 Lesson 17: Analyzing the Model
8.SP.3 Use the equation of a linear model to solve problems in the context of bivariate measurement data, interpreting the slope and intercept.	8 M6 Lesson 6: Linear Functions and Rate of Change 8 M6 Lesson 7: Interpreting Rate of Change and Initial Value 8 M6 Lesson 14: Determining an Equation of a Line Fit to Data 8 M6 Lesson 15: Linear Models 8 M6 Lesson 16: Using the Investigative Process 8 M6 Lesson 17: Analyzing the Model