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 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 academic 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

Alabama Course of Study: Mathematics Correlation to *Eureka Math*®

GEOMETRY WITH DATA ANALYSIS

The majority of the Geometry with Data Analysis Alabama Course of Study: Mathematics Learning Standards are fully covered by the Geometry *Eureka Math* curriculum. The areas where Alabama's Geometry with Data Analysis standards and *Eureka Math* Geometry do not align will require the use of *Eureka Math* content from other courses. A detailed analysis of alignment is provided in the table below.

INDICATORS

GREEN	indicates the Alabama standard is addressed in *Eureka Math*.
YELLOW	indicates the Alabama standard may not be completely addressed in *Eureka Math*.
RED	indicates the Alabama standard is not addressed in *Eureka Math*.
BLUE	indicates there is a discrepancy between the grade level at which this standard is addressed in Alabama and in *Eureka Math*.

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
1. Make sense of problems and persevere in solving them. These students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. These students consider analogous problems and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculators to obtain the information they need. Mathematically proficient students can explain correspondences among equations, verbal descriptions, tables, and graphs, or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solve complex problems and identify correspondences between different approaches.	Lessons in every module engage students in making sense of problems and persevering in solving them as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 1, which is specifically addressed in the following modules: Geometry M4: Connecting Algebra and Geometry Through Coordinates Geometry M5: Circles With and Without Coordinates

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
2. Reason abstractly and quantitatively. Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships. One is the ability to *decontextualize*, to abstract a given situation, represent it symbolically, and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents. The second is the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.	Lessons in every module engage students in reasoning abstractly and quantitatively as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 2, which is specifically addressed in the following modules: Geometry M4: Connecting Algebra and Geometry Through Coordinates

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
3. Construct viable arguments and critique the reasoning of others. These students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. These students justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments; distinguish correct logic or reasoning from that which is flawed; and, if there is a flaw in an argument, explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until the middle or upper grades. Later, students learn to determine domains to which an argument applies. Students in all grades can listen to or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.	Lessons in every module engage students in constructing viable arguments and critiquing the reasoning of others as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 3, which is specifically addressed in the following modules: Geometry M1: Congruence, Proof, and Constructions Geometry M2: Similarity, Proof, and Trigonometry Geometry M5: Circles With and Without Coordinates

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
4. Model with mathematics. These students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, students might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, students might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts, and formulas and can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.	Lessons in every module engage students in modeling with mathematics as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 4, which is specifically addressed in the following modules: Geometry M1: Congruence, Proof, and Constructions Geometry M4: Connecting Algebra and Geometry Through Coordinates

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
5. Use appropriate tools strategically. Mathematically proficient students consider available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and the tools' limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a Web site, and use these to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.	Lessons in every module engage students in using appropriate tools strategically as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 5, which is specifically addressed in the following module: Geometry M1: Congruence, Proof, and Constructions

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
6. Attend to precision. These students try to communicate mathematical ideas and concepts precisely. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. Mathematically proficient students are careful about specifying units of measure and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, and express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.	Lessons in every module engage students in attending to precision as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 6, which is specifically addressed in the following modules: Geometry M1: Congruence, Proof, and Constructions Geometry M3: Extending to Three Dimensions

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
7. Look for and make use of structure. Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7 × 8 equals 7 × 5 + 7 × 3, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2 × 7 and the 9 as 2 + 7. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. These students also can pause and reflect for an overview or a shift in perspective. They can observe the complexities of mathematics, such as seeing some algebraic expressions as single objects or as being composed of several objects. For example, they can see $5 – 3(x – y)^2$ as 5 minus a positive number times a square and use that mental picture to realize that the value of the expression cannot be more than 5 for any real numbers x and y.	Lessons in every module engage students in looking for and making use of structure as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 7, which is specifically addressed in the following modules: Geometry M2: Similarity, Proof, and Trigonometry Geometry M3: Extending to Three Dimensions Geometry M4: Connecting Algebra and Geometry Through Coordinates Geometry M5: Circles With and Without Coordinates

Standards for Mathematical Practice	Aligned Components of *Eureka Math*
8. Look for and express regularity in repeated reasoning. Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation $(y - 2)/(x - 1) = 3$. Noticing the regularity in the way terms cancel when expanding $(x - 1)(x + 1)$, $(x - 1)(x^2 + x + 1)$, and $(x - 1)(x^3 + x^2 + x + 1)$ might lead them to the general formula for the sum of a geometric series. As students work to solve a problem, mathematically proficient students maintain oversight of the process while attending to the details and continually evaluate the reasonableness of their intermediate results.	Lessons in every module engage students in looking for and expressing regularity in repeated reasoning as required by this standard. This practice standard is analogous to the CCSSM Standards for Mathematical Practice 8, which is specifically addressed in the following modules: Geometry M1: Congruence, Proof, and Constructions Geometry M4: Connecting Algebra and Geometry Through Coordinates

Content Area	Focus	Standards for Mathematical Content		Aligned Components of *Eureka Math*
Number and Quantity		**Essential Concept: Together, irrational numbers and rational numbers complete the real number system, representing all points on the number line, while there exist numbers beyond the real numbers called complex numbers.**		
		1. Extend understanding of irrational and rational numbers by rewriting expressions involving radicals, including addition, subtraction, multiplication, and division, in order to recognize geometric patterns.		Geometry M2 Lesson 22: Multiplying and Dividing Expressions with Radicals Geometry M2 Lesson 23: Adding and Subtracting Expressions with Radicals
		Essential Concept: Quantitative reasoning includes and mathematical modeling requires attention to units of measurement.		
		2. Use units as a way to understand problems and to guide the solution of multi-step problems. a. Choose and interpret units consistently in formulas. b. Choose and interpret the scale and the origin in graphs and data displays. c. Define appropriate quantities for the purpose of descriptive modeling. d. Choose a level of accuracy appropriate to limitations of measurements when reporting quantities.		Geometry M2 Lesson 19: Families of Parallel Lines and the Circumference of the Earth Geometry M2 Lesson 20: How Far Away Is the Moon? Geometry M3 Lesson 1: What Is Area? Geometry M3 Lesson 2: Properties of Area Geometry M3 Lesson 3: The Scaling Principle for Area Geometry M3 Lesson 6: General Prisms and Cylinders and Their Cross-Sections

Content Area	Focus	Standards for Mathematical Content	Aligned Components of *Eureka Math*
			Geometry M3 Lesson 11: The Volume Formula of a Pyramid and Cone Geometry M3 Lesson 12: The Volume Formula of a Sphere
Algebra and Functions	**Focus 1: Algebra**	**Essential Concept: The structure of an equation or inequality (including, but not limited to, one-variable linear and quadratic equations, inequalities, and systems of linear equations in two variables) can be purposefully analyzed (with and without technology) to determine an efficient strategy to find a solution, if one exists, and then to justify the solution.**	
		3. Find the coordinates of the vertices of a polygon determined by a set of lines, given their equations, by setting their function rules equal and solving, or by using their graphs.	Geometry M4 Topic C: Perimeters and Areas of Polygonal Regions in the Cartesian Plane
		Essential Concept: Expressions, equations, and inequalities can be used to analyze and make predictions, both within mathematics and as mathematics is applied in different contexts—in particular, contexts that arise in relation to linear, quadratic, and exponential situations.	
		4. Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	Algebra I M1 Lesson 19: Rearranging Formulas

Content Area	Focus	Standards for Mathematical Content		Aligned Components of *Eureka Math*
	Focus 2: Connecting Algebra to Functions	**Essential Concept: Graphs can be used to obtain exact or approximate solutions of equations, inequalities, and systems of equations and inequalities—including systems of linear equations in two variables and systems of linear and quadratic equations (given or obtained by using technology).**		
		5. Verify that the graph of a linear equation in two variables is the set of all its solutions plotted in the coordinate plane, which forms a line.		G8 M4 Lesson 19: The Graph of a Linear Equation in Two Variables is a Line Algebra1 M1 Lesson 20: Solution Sets to Equations with Two Variables
		6. Derive the equation of a circle of given center and radius using the Pythagorean Theorem. a. Given the endpoints of the diameter of a circle, use the midpoint formula to find its center and then use the Pythagorean Theorem to find its equation. b. Derive the distance formula from the Pythagorean Theorem.		Geometry M5 Lesson 17: Writing the Equation for a Circle Geometry M5 Lesson 18: Recognizing Equations of Circles Geometry M4 Lesson 3: Lines That Pass Through Regions
Data Analysis, Statistics, and Probability	**Focus 1: Quantitative Literacy**	**Essential Concept: Mathematical and statistical reasoning about data can be used to evaluate conclusions and assess risks.**		
		7. Use mathematical and statistical reasoning with quantitative data, both univariate data (set of values) and bivariate data (set of pairs of values) that suggest a linear association, in order to draw conclusions and assess risk.		Algebra I M2 Topic C: Categorical Data on Two Variables

Content Area	Focus	Standards for Mathematical Content		Aligned Components of *Eureka Math*
		Essential Concept: Data arise from a context and come in two types: quantitative (continuous or discrete) and categorical. Technology can be used to “clean” and organize data, including very large data sets, into a useful and manageable structure—a first step in any analysis of data.		
		8. Use technology to organize data, including very large data sets, into a useful and manageable structure.		Algebra I M2 Topic A: Shapes and Centers of Distributions
		Essential Concept: Distributions of quantitative data (continuous or discrete) in one variable should be described in the context of the data with respect to what is typical (the shape, with appropriate measures of center and variability, including standard deviation) and what is not (outliers), and these characteristics can be used to compare two or more subgroups with respect to a variable.		
		9. Represent the distribution of univariate quantitative data with plots on the real number line, choosing a format (dot plot, histogram, or box plot) most appropriate to the data set, and represent the distribution of bivariate quantitative data with a scatter plot. Extend from simple cases by hand to more complex cases involving large data sets using technology.		Algebra I M2 Topic D: Numerical Data on Two Variables
		10. Use statistics appropriate to the shape of the data distribution to compare and contrast two or more data sets, utilizing the mean and median for center and the interquartile range and standard deviation for variability.		Algebra I M2 Topic A: Shapes and Centers of Distributions Algebra I M2 Lesson 4: Summarizing Deviations from the Mean Algebra I M2 Lesson 5: Measuring Variability for Symmetrical Distributions

Content Area	Focus	Standards for Mathematical Content	Aligned Components of *Eureka Math*
		a. Explain how standard deviation develops from mean absolute deviation. b. Calculate the standard deviation for a data set, using technology where appropriate.	Algebra I M2 Lesson 6: Interpreting the Standard Deviation Algebra I M3 Topic B: Describing Variability and Comparing Distributions
		11. Interpret differences in shape, center, and spread in the context of data sets, accounting for possible effects of extreme data points (outliers) on mean and standard deviation.	Algebra I M2 Lesson 1: Distributions and Their Shapes Algebra1 M2 Lesson 6: Interpreting the Standard Deviation
		Essential Concept: Scatter plots, including plots over time, can reveal patterns, trends, clusters, and gaps that are useful in analyzing the association between two contextual variables.	
		12. Represent data of two quantitative variables on a scatter plot, and describe how the variables are related. a. Find a linear function for a scatter plot that suggests a linear association and informally assess its fit by plotting and analyzing residuals, including the squares of the residuals, in order to improve its fit. b. Use technology to find the least-squares line of best fit for two quantitative variables.	Algebra I M2 Topic D: Topic D: Numerical Data on Two Variables

Content Area	Focus	Standards for Mathematical Content		Aligned Components of Eureka Math
		Essential Concept: Analyzing the association between two quantitative variables should involve statistical procedures, such as examining (with technology) the sum of squared deviations in fitting a linear model, analyzing residuals for patterns, generating a least-squares regression line and finding a correlation coefficient, and differentiating between correlation and causation.		
		13. Compute (using technology) and interpret the correlation coefficient of a linear relationship.		Algebra I M2 Lesson 19: Interpreting Correlation
		14. Distinguish between correlation and causation.		Algebra I M2 Lesson 19: Interpreting Correlation
		Essential Concept: Data analysis techniques can be used to develop models of contextual situations and to generate and evaluate possible solutions to real problems involving those contexts.		
		15. Evaluate possible solutions to real-life problems by developing linear models of contextual situations and using them to predict unknown values. a. Use the linear model to solve problems in the context of the given data. b. Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the given data.		G8 M4 Topic C: Slope and Equations of Lines Algebra I M2 Lesson 12: Relationships Between Two Numerical Variables Algebra I M2 Lesson 13: Relationships Between Two Numerical Variables Algebra I M2 Lesson 20: Analyzing Data Collected on Two Variables

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Geometry and Measurement	**Focus 1: Measurement**	**Essential Concept: Areas and volumes of figures can be computed by determining how the figure might be obtained from simpler figures by dissection and recombination.**	
		16. Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.	Geometry M3 Topic B: Volume
		17. Model and solve problems using surface area and volume of solids, including composite solids and solids with portions removed. a. Give an informal argument for the formulas for the surface area and volume of a sphere, cylinder, pyramid, and cone using dissection arguments, Cavalieri's Principle, and informal limit arguments. b. Apply geometric concepts to find missing dimensions to solve surface area or volume problems.	Geometry M3 Topic B: Volume
		Essential Concept: Constructing approximations of measurements with different tools, including technology, can support an understanding of measurement.	

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		18. Given the coordinates of the vertices of a polygon, compute its perimeter and area using a variety of methods, including the distance formula and dynamic geometry software, and evaluate the accuracy of the results.	Geometry M4 Topic C: Perimeters and Areas of Polygonal Regions in the Cartesian Plane
		Essential Concept: When an object is the image of a known object under a similarity transformation, a length, area, or volume on the image can be computed by using proportional relationships.	
		19. Derive and apply the relationships between the lengths, perimeters, areas, and volumes of similar figures in relation to their scale factor.	Geometry M2 Topic A: Scale Drawings
		20. Derive and apply the formula for the length of an arc and the formula for the area of a sector.	Geometry M5 Lesson 8: Arcs and Chords Geometry M5 Lesson 9: Arc Length and Areas of Sectors Geometry M5 Lesson 10: Unknown Length and Area Problems
		Essential Concept: Applying geometric transformations to figures provides opportunities for describing the attributes of the figures preserved by the transformation and for describing symmetries by examining when a figure can be mapped onto itself.	
		21. Represent transformations and compositions of transformations in the plane (coordinate and otherwise) using	Geometry M1 Topic C: Transformations/ Rigid Motions

Content Area	Focus	Standards for Mathematical Content		Aligned Components of *Eureka Math*
		tools such as tracing paper and geometry software. a. Describe transformations and compositions of transformations as functions that take points in the plane as inputs and give other points as outputs, using informal and formal notation. b. Compare transformations which preserve distance and angle measure to those that do not.		
		22. Explore rotations, reflections, and translations using graph paper, tracing paper, and geometry software. a. Given a geometric figure and a rotation, reflection, or translation, draw the image of the transformed figure using graph paper, tracing paper, or geometry software. b. Specify a sequence of rotations, reflections, or translations that will carry a given figure onto another. c. Draw figures with different types of symmetries and describe their attributes.		Geometry M1 Lesson 13: Rotations Geometry M1 Lesson 14: Reflections Geometry M1 Lesson 15: Rotations, Reflections, and Symmetry Geometry M1 Lesson 19: Construct and Apply a Sequence of Rigid Motions
		23. Develop definitions of rotation, reflection, and translation in terms of angles, circles, perpendicular lines, parallel lines, and line segments.		Geometry M1 Topic C: Transformations/ Rigid Motions

Content Area	Focus	Standards for Mathematical Content		Aligned Components of *Eureka Math*
		Essential Concept: Showing that two figures are congruent involves showing that there is a rigid motion (translation, rotation, reflection, or glide reflection) or, equivalently, a sequence of rigid motions that maps one figure to the other.		
		24. Define congruence of two figures in terms of rigid motions (a sequence of translations, rotations, and reflections); show that two figures are congruent by finding a sequence of rigid motions that maps one figure to the other.		Geometry M1 Topic D: Congruence
		25. Verify criteria for showing triangles are congruent using a sequence of rigid motions that map one triangle to another. a. Verify that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. b. Verify that two triangles are congruent if (but not only if) the following groups of corresponding parts are congruent: angle-side-angle (ASA), side-angle-side (SAS), side-side-side (SSS), and angle-angle-side (AAS).		Geometry M1 Lesson 22: Congruence Criteria for Triangles—SAS Geometry M1 Lesson 24: Congruence Criteria for Triangles—ASA and SSS Geometry M1 Lesson 25: Congruence Criteria for Triangles—AAS and HL

Content Area	Focus	Standards for Mathematical Content		Aligned Components of *Eureka Math*
		Essential Concept: Showing that two figures are similar involves finding a similarity transformation (dilation or composite of a dilation with a rigid motion) or, equivalently, a sequence of similarity transformations that maps one figure onto the other.		
		26. Verify experimentally the properties of dilations given by a center and a scale factor. a. Verify that a dilation takes a line not passing through the center of the dilation to a parallel line, and leaves a line passing through the center unchanged. b. Verify that the dilation of a line segment is longer or shorter in the ratio given by the scale factor.		Geometry M2 Topic B: Dilations
		27. Given two figures, determine whether they are similar by identifying a similarity transformation (sequence of rigid motions and dilations) that maps one figure to the other.		Geometry M2 Topic C: Similarity and Dilations
		28. Verify criteria for showing triangles are similar using a similarity transformation (sequence of rigid motions and dilations) that maps one triangle to another. a. Verify that two triangles are similar if and only if corresponding pairs of sides are proportional and corresponding pairs of angles are congruent.		Geometry M2 Topic C: Similarity and Dilations

Content Area	Focus	Standards for Mathematical Content		Aligned Components of *Eureka Math*
		b. Verify that two triangles are similar if (but not only if) two pairs of corresponding angles are congruent (AA), the corresponding sides are proportional (SSS), or two pairs of corresponding sides are proportional and the pair of included angles is congruent (SAS).		
	Focus 3: Geometric Arguments, Reasoning, and Proof	**Essential Concept: Using technology to construct and explore figures with constraints provides an opportunity to explore the independence and dependence of assumptions and conjectures.**		
		29. Find patterns and relationships in figures including lines, triangles, quadrilaterals, and circles, using technology and other tools. a. Construct figures, using technology and other tools, in order to make and test conjectures about their properties. b. Identify different sets of properties necessary to define and construct figures.		Geometry M1 Topic A: Basic Construction

Content Area	Focus	Standards for Mathematical Content		Aligned Components of *Eureka Math*
		Essential Concept: Proof is the means by which we demonstrate whether a statement is true or false mathematically, and proofs can be communicated in a variety of ways (e.g., two-column, paragraph).		
		30. Develop and use precise definitions of figures such as angle, circle, perpendicular lines, parallel lines, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.		Geometry M1 Topic G: Axiomatic Systems
		31. Justify whether conjectures are true or false in order to prove theorems and then apply those theorems in solving problems, communicating proofs in a variety of ways, including flow chart, two-column, and paragraph formats. a. Investigate, prove, and apply theorems about lines and angles, including but not limited to: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; the points on the perpendicular bisector of a line segment are those equidistant from the segment's endpoints.		Geometry M2 Topic C: Similarity and Dilations Geometry M2 Topic D: Applying Similarity to Right Triangles Geometry M4 Topic C: Perimeters and Areas of Polygonal Regions in the Cartesian Plane Geometry M4 Topic D: Partitioning and Extending Segments and Parameterization of Lines

Content Area	Focus	Standards for Mathematical Content	Aligned Components of *Eureka Math*
		b. Investigate, prove, and apply theorems about triangles, including but not limited to: the sum of the measures of the interior angles of a triangle is 180˚; the base angles of isosceles triangles are congruent; the segment joining the midpoints of two sides of a triangle is parallel to the third side and half the length; a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem using triangle similarity. c. Investigate, prove, and apply theorems about parallelograms and other quadrilaterals, including but not limited to both necessary and sufficient conditions for parallelograms and other quadrilaterals, as well as relationships among kinds of quadrilaterals.	
		Essential Concept: Proofs of theorems can sometimes be made with transformations, coordinates, or algebra; all approaches can be useful, and in some cases one may provide a more accessible or understandable argument than another.	
		32. Use coordinates to prove simple geometric theorems algebraically.	Geometry M4 Lesson 13: Analytic Proofs of Theorems Previously Proved by Synthetic Means Geometry M4 Lesson 15: The Distance from a Point to a Line

Content Area	Focus	Standards for Mathematical Content	Aligned Components of *Eureka Math*
		33. Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems.	Geometry M4 Topic B: Perpendicular and Parallel Lines in the Cartesian Plane
	Focus 4: Solving Applied Problems and Modeling in Geometry	**Essential Concept: Recognizing congruence, similarity, symmetry, measurement opportunities, and other geometric ideas, including right triangle trigonometry, in real-world contexts provides a means of building understanding of these concepts and is a powerful tool for solving problems related to the physical world in which we live.**	
		34. Use congruence and similarity criteria for triangles to solve problems in real-world contexts.	Geometry M2 Topic D: Applying Similarity to Right Triangles Geometry M2 Topic E: Trigonometry
		35. Discover and apply relationships in similar right triangles. a. Derive and apply the constant ratios of the sides in special right triangles (45˚-45˚-90˚ and 30˚-60˚-90˚). b. Use similarity to explore and define basic trigonometric ratios, including sine ratio, cosine ratio, and tangent ratio. c. Explain and use the relationship between the sine and cosine of complementary angles.	Geometry M2 Topic E: Trigonometry

Content Area	Focus	Standards for Mathematical Content		Aligned Components of *Eureka Math*
		d. Demonstrate the converse of the Pythagorean Theorem. e. Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems, including finding areas of regular polygons.		