EUREKA MATH™

GREAT MINDS

ABOUT *EUREKA MATH*

Created by the nonprofit Great Minds, *Eureka Math* helps teachers deliver unparalleled math instruction that provides students with a deep understanding and fluency in math. Crafted by teachers and math scholars, the curriculum carefully sequences the mathematical progressions to maximize coherence from Prekindergarten through Precalculus—a principle tested and proven to be essential in students' mastery of math.

Teachers and students using *Eureka Math* find the trademark "Aha!" moments in *Eureka Math* to be a source of joy and inspiration, lesson after lesson, year after year.

ALIGNED

Eureka Math is the only curriculum found by EdReports.org to align fully with the Common Core State Standards for Mathematics for all grades, Kindergarten through Grade 8. Great Minds offers detailed analyses which demonstrate how each grade of *Eureka Math* aligns with specific state standards. Access these free alignment studies at greatminds.org/state-studies.

DATA

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

FULL SUITE OF RESOURCES

As a nonprofit, Great Minds offers the *Eureka Math* curriculum as PDF downloads for free, noncommercial use. Access the free PDFs at greatminds.org/math/curriculum.

The teacher–writers who created the curriculum have also developed essential resources, available only from Great Minds, including the following:

- Printed material in English and Spanish
- Digital resources
- Professional development
- Classroom tools and manipulatives
- Teacher support materials
- Parent resources

GEOMETRY

The majority of the Geometry Missouri Learning Standards: Mathematics are fully covered by the Geometry *Eureka Math* curriculum. The areas where the Geometry Missouri Learning Standards: Mathematics and Geometry *Eureka Math* 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 that the Missouri standard is fully addressed in *Eureka Math*.

Yellow indicates that the Missouri standard may not be completely addressed in *Eureka Math*.

Red indicates that the Missouri standard is not addressed in *Eureka Math*.

Blue indicates there is a discrepancy between the grade level at which this standard is addressed in the Missouri standards and in *Eureka Math*.

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
Congruence	**Cluster: Experiment with transformations in the plane.**	
	G.CO.A.1 Define angle, circle, perpendicular line, parallel line, line segment, and ray based on the undefined notions of point, line, distance along a line, and distance around a circular arc.	Geometry M1 Topic A: Basic Constructions Geometry M1 Topic G: Axiomatic Systems
	G.CO.A.2 Represent transformations in the plane, and describe them as functions that take points in the plane as inputs and give other points as outputs.	Geometry M1 Topic C: Transformations/Rigid Motions Geometry M2 Lesson 6: Dilations as Transformations of the Plane
	G.CO.A.3 Describe the rotational symmetry and lines of symmetry of two-dimensional figures.	Geometry M1 Lesson 15: Rotations, Reflections, and Symmetry Geometry M1 Lesson 21: Correspondence and Transformations
	G.CO.A.4 Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.	Geometry M1 Lesson 12: Transformations—The Next Level Geometry M1 Lesson 13: Rotations Geometry M1 Lesson 14: Reflections Geometry M1 Lesson 16: Translations

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	G.CO.A.5 Demonstrate the ability to rotate, reflect, or translate a figure and determine a possible sequence of transformations between two congruent figures.	Geometry M1 Topic C: Transformations/Rigid Motions
	Cluster: Understand congruence in terms of rigid motions.	
	G.CO.B.6 Develop the definition of congruence in terms of rigid motions.	Geometry M1 Lesson 15: Rotations, Reflections, and Symmetry Geometry M1 Lesson 16: Translations Geometry M1 Lesson 19: Construct and Apply a Sequence of Rigid Motions Geometry M1 Lesson 21: Correspondence and Transformations
	G.CO.B.7 Develop the criteria for triangle congruence from the definition of congruence in terms of rigid motions.	Geometry M1 Lesson 19: Construct and Apply a Sequence of Rigid Motions Geometry M1 Lesson 20: Applications of Congruence in Terms of Rigid Motions Geometry M1 Lesson 21: Correspondence and Transformations Geometry M1 Topic D: Congruence Geometry M1 Topic G: Axiomatic Systems

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	Cluster: Prove geometric theorems.	
	G.CO.C.8 Prove theorems about lines and angles.	Geometry M1 Topic B: Unknown Angles Geometry M1 Lesson 18: Looking More Carefully at Parallel Lines Geometry M1 Topic G: Axiomatic Systems
	G.CO.C.9 Prove theorems about triangles.	Geometry M1 Lesson 23: Base Angles of Isosceles Triangles Geometry M1 Topic E: Proving Properties of Geometric Figures Geometry M1 Topic G: Axiomatic Systems
	G.CO.C.10 Prove theorems about polygons.	Geometry M1 Lesson 28: Properties of Parallelograms Geometry M1 Topic G: Axiomatic Systems
	Cluster: Make geometric constructions.	
	G.CO.D.11 Construct geometric figures using various tools and methods.	Geometry M1 Topic A: Basic Constructions Geometry M1 Topic C: Transformations/Rigid Motions

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Similarity, Right Triangles, and Trigonometry	**Cluster: Understand similarity in terms of similarity transformations.**	
	G.SRT.A.1 Construct and analyze scale changes of geometric figures.	Geometry M2 Topic A: Scale Drawings Geometry M2 Topic B: Dilations
	G.SRT.A.2 Use the definition of similarity to decide if figures are similar and to solve problems involving similar figures.	Geometry M2 Lesson 12: What Are Similarity Transformations, and Why Do We Need Them? Geometry M2 Lesson 13: Properties of Similarity Transformations Geometry M2 Lesson 14: Similarity
	G.SRT.A.3 Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.	Geometry M2 Lesson 15: The Angle-Angle (AA) Criterion for Two Triangles to Be Similar Geometry M2 Lesson 17: The Side-Angle-Side (SAS) and Side-Side-Side (SSS) Criteria for Two Triangles to Be Similar
	Cluster: Prove theorems involving similarity.	
	G.SRT.B.4 Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.	Geometry M2 Lesson 16: Between-Figure and Within-Figure Ratios Geometry M2 Lesson 17: The Side-Angle-Side (SAS) and Side-Side-Side (SSS) Criteria for Two Triangles to Be Similar Geometry M2 Lesson 18: Similarity and the Angle Bisector Theorem Geometry M2 Topic D: Applying Similarity to Right Triangles

Domain	Standards for Mathematical Content	Aligned Components of *Eureka Math*
	Cluster: Define trigonometric ratios, and solve problems involving right triangles.	
	G.SRT.C.5 Understand that side ratios in right triangles define the trigonometric ratios for acute angles.	Geometry M2 Lesson 25: Incredibly Useful Ratios Geometry M2 Lesson 26: The Definition of Sine, Cosine, and Tangent
	G.SRT.C.6 Explain and use the relationship between the sine and cosine of complementary angles.	Geometry M2 Lesson 27: Sine and Cosine of Complementary Angles and Special Angles Geometry M2 Lesson 28: Solving Problems Using Sine and Cosine Geometry M2 Lesson 29: Applying Tangents
	G.SRT.C.7 Use trigonometric ratios and the Pythagorean Theorem to solve right triangles.	Geometry M2 Topic E: Trigonometry
	G.SRT.C.8 Derive the formula $A = 1/2\ ab \sin(C)$ for the area of a triangle.	Geometry M2 Lesson 31: Using Trigonometry to Determine Area Precalculus and Advanced Topics M4 Lesson 7: An Area Formula for Triangles
Circles	**Cluster: Understand and apply theorems about circles.**	
	G.C.A.1 Prove that all circles are similar using similarity transformations.	Geometry M2 Lesson 14: Similarity Geometry M5 Lesson 7: The Angle Measure of an Arc

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	G.C.A.2 Identify and describe relationships among inscribed angles, radii, and chords of circles.	Geometry M5: Circles With and Without Coordinates
	G.C.A.3 Construct the inscribed and circumscribed circles of a triangle and prove properties of angles for a quadrilateral inscribed in a circle.	Geometry M5 Lesson 1: Thales' Theorem Geometry M5 Lesson 3: Rectangles Inscribed in Circles Geometry M5 Lesson 12: Tangent Segments Geometry M5 Topic E: Cyclic Quadrilaterals and Ptolemy's Theorem
	Cluster: Find arc lengths and areas of sectors of circles.	
	G.C.B.4 Derive the formula for the length of an arc of a circle.	Geometry M5 L9: Arc Length and Areas of Sectors
	G.C.B.5 Derive the formula for the area of a sector of a circle.	Geometry M5 L9: Arc Length and Areas of Sectors
Exploring Geometric Properties with Equations	**Cluster: Translate between the geometric description and the equation for a conic section.**	
	G.GPE.A.1 Derive the equation of a circle.	Geometry M5 Topic D: Equations for Circles and Their Tangents
	G.GPE.A.2 Derive the equation of a parabola given a focus and directrix.	Algebra II M1 Lesson 33: The Definition of a Parabola Algebra II M1 Lesson 34: Are All Parabolas Congruent? Algebra II M1 Lesson 35: Are All Parabolas Similar?

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	Cluster: Use coordinates to prove geometric theorems algebraically.	
	G.GPE.B.3 Use coordinates to prove geometric theorems algebraically.	Geometry M4: Connecting Algebra and Geometry Through Coordinates Geometry M5 Lesson 19: Equations for Tangent Lines to Circles
	G.GPE.B.4 Prove the slope criteria for parallel and perpendicular lines and use them to solve problems.	Geometry M4 Lesson 4: Designing a Search Robot to Find a Beacon Geometry M4 Topic B: Perpendicular and Parallel Lines in the Cartesian Plane Geometry M5 Lesson 19: Equations for Tangent Lines to Circles
	G.GPE.B.5 Find the point on a directed line segment between two given points that partitions the segment in a given ratio.	Geometry M4 Topic D: Partitioning and Extending Segments and Parameterization of Lines
	G.GPE.B.6 Use coordinates to compute perimeters of polygons and areas of triangles and rectangles.	Geometry M4: Connecting Algebra and Geometry Through Coordinates
Geometric Measurement and Dimension	**Cluster: Explain volume formulas and use them to solve problems.**	
	G.GMD.A.1 Give an informal argument for the formulas for the circumference of a circle, area of a circle, volume of a cylinder, pyramid, and cone.	Geometry M3: Extending to Three Dimensions

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	G.GMD.A.2 Use volume formulas for cylinders, pyramids, cones, spheres, and composite figures to solve problems.		Geometry M3: Extending to Three Dimensions
	Cluster: Visualize relationships between two-dimensional and three-dimensional objects.		
	G.GMD.B.3 Identify the shapes of two-dimensional cross-sections of three-dimensional objects.		Geometry M3: Extending to Three Dimensions
	G.GMD.B.4 Identify three-dimensional objects generated by transformations of two-dimensional objects.		Geometry M3: Extending to Three Dimensions

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Modeling with Geometry	**Cluster: Apply geometric concepts in modeling situations.**	
	G.MG.A.1 Use geometric shapes, their measures, and their properties to describe objects.	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 5: Three-Dimensional Space Geometry M3 Lesson 6: General Prisms and Cylinders and Their Cross-Sections Geometry M3 Lesson 11: The Volume Formula of a Pyramid and Cone Geometry M3 Lesson 12: The Volume Formula of a Sphere
	G.MG.A.2 Apply concepts of density based on area and volume in modeling situations.	Geometry M3 Lesson 8: Definition and Properties of Volume Geometry M3 Lesson 11: The Volume Formula of a Pyramid and Cone
	G.MG.A.3 Apply geometric methods to solve design mathematical modeling problems.	Geometry M2 Lesson 2: Making Scale Drawings Using the Ratio Method Geometry M3 Lesson 11: The Volume Formula of a Pyramid and Cone Geometry M3 Lesson 12: The Volume Formula of a Sphere Geometry M3 Lesson 13: How Do 3D Printers Work?

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Conditional Probability and Rules of Probability	**Cluster: Understand independence and conditional probability and use them to interpret data.**	
	G.CP.A.1 Describe events as subsets of a sample space using characteristics of the outcomes, or as unions, intersections, or complements of other events.	Algebra II M4 Topic A: Probability
	G.CP.A.2 Understand the definition of independent events and use it to solve problems.	Algebra II M4 Lesson 6: Probability Rules
	G.CP.A.3 Calculate conditional probabilities of events.	Algebra II M4 Lesson 4: Calculating Conditional Probabilities and Evaluating Independence Using Two-Way Tables Algebra II M4 Lesson 6: Probability Rules
	G.CP.A.4 Construct and interpret two-way frequency tables of data when two categories are associated with each object being classified. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities.	Algebra II M4 Lesson 2: Calculating Probabilities of Events Using Two-Way Tables Algebra II M4 Lessons 3–4: Calculating Conditional Probabilities and Evaluating Independence Using Two-Way Tables
	G.CP.A.5 Recognize and explain the concepts of conditional probability and independence in a context.	Algebra II M4 Topic A: Probability

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	G.CP.A.6 Apply and interpret the Addition Rule for calculating probabilities.		Algebra II M4 Lesson 7: Probability Rules
	G.CP.A.7 Apply and interpret the general Multiplication Rule in a uniform probability model.		Precalculus and Advanced Topics M5 Lesson 1: The General Multiplication Rule Precalculus and Advanced Topics M5 Topic C: Using Probability to Make Decisions
	G.CP.A.8 Use permutations and combinations to solve problems.		Precalculus and Advanced Topics M5: Probability and Statistics