**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

# New York State Next Generation Mathematics Learning Standards Correlation to *Eureka Math*™

## GEOMETRY

The majority of the Geometry New York State Next Generation Mathematics Learning Standards are fully covered by the Geometry *Eureka Math* curriculum. The areas where the Geometry New York State Next Generation Mathematics Learning Standards and Geometry *Eureka Math* do not align will require the use of *Eureka Math* content from another course or supplemental materials. A detailed analysis of alignment is provided in the table below. With strategic placement of supplemental materials, *Eureka Math* can ensure students are successful in achieving the proficiencies of the Geometry New York State Next Generation Mathematics Learning Standards while still benefiting from the coherence and rigor of *Eureka Math*.

## INDICATORS

Green indicates that the New York standard is fully addressed in *Eureka Math*.

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

Red indicates that the New York 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 New York standards and in *Eureka Math*.

| Standards for Mathematical Practice | Aligned Components of *Eureka Math* |
|---|---|
| **1: Make sense of problems and persevere in solving them.**<br>Mathematically proficient 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. They 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 calculator to get the information they need. Mathematically proficient students can explain correspondences between 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 solving 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:<br><br>Geometry M4: Connecting Algebra and Geometry Through Coordinates<br><br>Geometry M5: Circles With and Without Coordinates |

| Standards for Mathematical Practice | Aligned Components of *Eureka Math* |
|---|---|
| **2: Reason abstractly and quantitatively.**<br>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: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and 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:<br><br>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.**<br>Mathematically proficient 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. They 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 later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen 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:<br><br>Geometry M1: Congruence, Proof, and Constructions<br><br>Geometry M2: Similarity, Proof, and Trigonometry<br><br>Geometry M5: Circles With and Without Coordinates |

| Standards for Mathematical Practice | Aligned Components of *Eureka Math* |
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| **4: Model with mathematics.**<br>Mathematically proficient 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, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student 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. They 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:<br><br>Geometry M1: Congruence, Proof, and Constructions<br><br>Geometry M4: Connecting Algebra and Geometry Through Coordinates |

| Standards for Mathematical Practice | Aligned Components of *Eureka Math* |
|---|---|
| **5: Use appropriate tools strategically.**<br>Mathematically proficient students consider the 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 their 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 website, and use them 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 modules:<br><br>Geometry M1: Congruence, Proof, and Constructions |

| Standards for Mathematical Practice | Aligned Components of *Eureka Math* |
|---|---|
| **6: Attend to precision.**<br>Mathematically proficient students try to communicate precisely to others. 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. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, 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:<br><br>Geometry M1: Congruence, Proof, and Constructions<br><br>Geometry M3: Extending to Three Dimensions |

| Standards for Mathematical Practice | Aligned Components of *Eureka Math* |
|---|---|
| **7: Look for and make use of structure.**<br>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 $7 \times 8$ equals the well-remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as $2 \times 7$ 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. They also can step back for an overview and shift perspective. They can see complicated things, such as 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 to realize that its value 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:<br><br>Geometry M2: Similarity, Proof, and Trigonometry<br><br>Geometry M3: Extending to Three Dimensions<br><br>Geometry M4: Connecting Algebra and Geometry Through Coordinates<br><br>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.**<br>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 they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They 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:<br><br>Geometry M1: Congruence, Proof, and Constructions<br><br>Geometry M4: Connecting Algebra and Geometry Through Coordinates |

| Conceptual Category | Domain | Standards for Mathematical Content | Aligned Components of *Eureka Math* |
|---|---|---|---|
| **Geometry** | **Congruence** | **Cluster: Experiment with transformations in the plane.** | |
| | | **GEO-G.CO.1**<br>Know precise definitions of 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 as these exist within a plane. | Geometry M1 Topic A: Basic Constructions<br><br>Geometry M1 Topic G: Axiomatic Systems |
| | | **GEO-G.CO.2**<br>Represent transformations as geometric functions that take points in the plane as inputs and give points as outputs. Compare transformations that preserve distance and angle measure to those that do not. | Geometry M1 Topic C: Transformations/Rigid Motions<br><br>Geometry M2 Lesson 6: Dilations as Transformations of the Plane |
| | | **GEO-G.CO.3**<br>Given a regular or irregular polygon, describe the rotations and reflections (symmetries) that map the polygon onto itself. | Geometry M1 Lesson 15: Rotations, Reflections, and Symmetry<br><br>Geometry M1 Lesson 21: Correspondence and Transformations |

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|---|---|---|---|
| | | **GEO-G.CO.4**<br>Develop definitions of rotations, reflections, and translations in terms of points, angles, circles, perpendicular lines, parallel lines, and line segments. | Geometry M1 Lesson 12: Transformations—The Next Level<br>Geometry M1 Lesson 13: Rotations<br>Geometry M1 Lesson 14: Reflections<br>Geometry M1 Lesson 16: Translations |
| | | **GEO-G.CO.5**<br>Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure. Specify a sequence of transformations that will carry a given figure onto another. | Geometry M1 Topic C: Transformations/Rigid Motions |
| | | **Cluster: Understand congruence in terms of rigid motions.** | |
| | | **GEO-G.CO.6**<br>Use geometric descriptions of rigid motions to transform figures and to predict the effect of a given rigid motion on a given figure. Given two figures, use the definition of congruence in terms of rigid motions to decide if they are congruent. | Geometry M1 Lesson 15: Rotations, Reflections, and Symmetry<br>Geometry M1 Lesson 16: Translations<br>Geometry M1 Lesson 19: Construct and Apply a Sequence of Rigid Motions<br>Geometry M1 Lesson 21: Correspondence and Transformations |

| Conceptual Category | Domain | Standards for Mathematical Content | Aligned Components of *Eureka Math* |
|---|---|---|---|
| | | **GEO-G.CO.7**<br>Use the definition of congruence in terms of rigid motions to show that two triangles are congruent if and only if corresponding pairs of sides and corresponding pairs of angles are congruent. | Geometry M1 Lesson 19: Construct and Apply a Sequence of Rigid Motions<br>Geometry M1 Lesson 20: Applications of Congruence in Terms of Rigid Motions<br>Geometry M1 Lesson 21: Correspondence and Transformations<br>Geometry M1 Topic D: Congruence<br>Geometry M1 Topic G: Axiomatic Systems |
| | | **GEO-G.CO.8**<br>Explain how the criteria for triangle congruence (ASA, SAS, SSS, AAS and HL (Hypotenuse Leg)) follow from the definition of congruence in terms of rigid motions. | Geometry M1 Topic D: Congruence<br>Geometry M1 Topic G: Axiomatic Systems |
| | | **Cluster: Prove geometric theorems.** | |
| | | **GEO-G.CO.9**<br>Prove and apply theorems about lines and angles. | Geometry M1 Topic B: Unknown Angles<br>Geometry M1 Lesson 18: Looking More Carefully at Parallel Lines<br>Geometry M1 Topic G: Axiomatic Systems |

| Conceptual Category | Domain | Standards for Mathematical Content | | Aligned Components of *Eureka Math* |
|---|---|---|---|---|
| | | **GEO-G.CO.10**<br>Prove and apply theorems about triangles. | | Geometry M1 Lesson 23: Base Angles of Isosceles Triangles<br><br>Geometry M1 Topic E: Proving Properties of Geometric Figures<br><br>Geometry M1 Topic G: Axiomatic Systems |
| | | **GEO-G.CO.11**<br>Prove and apply theorems about parallelograms. | | Geometry M1 Lesson 28: Properties of Parallelograms<br><br>Geometry M1 Topic G: Axiomatic Systems |
| | | **Cluster: Make geometric constructions.** | | |
| | | **GEO-G.CO.12**<br>Make, justify, and apply formal geometric constructions. | | Geometry M1 Topic A: Basic Constructions<br><br>Geometry M1 Topic C: Transformations/Rigid Motions |
| | | **GEO-G.CO.13**<br>Make and justify the constructions for inscribing an equilateral triangle, a square and a regular hexagon in a circle. | | Geometry M1 Lessons 1–2: Construct an Equilateral Triangle<br><br>Geometry M1 Topic F: Advanced Constructions<br><br>Note: Supplemental material is necessary to completely address inscribing an equilateral triangle. |

| Conceptual Category | Domain | Standards for Mathematical Content | | Aligned Components of *Eureka Math* |
|---|---|---|---|---|
| | **Similarity, Right Triangles, and Trigonometry** | **Cluster: Understand similarity in terms of similarity transformations.** | | |
| | | **GEO-G.SRT.1**<br>Verify experimentally the properties of dilations given by a center and a scale factor. | | |
| | | a. Verify experimentally that 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. | | Geometry M2 Lesson 3: Making Scale Drawings Using the Parallel Method<br>Geometry M2 Lesson 5: Scale Factors<br>Geometry M2 Topic B: Dilations |
| | | b. Verify experimentally that the dilation of a line segment is longer or shorter in the ratio given by the scale factor. | | Geometry M2 Topic A: Scale Drawings<br>Geometry M2 Topic B: Dilations |
| | | **GEO-G.SRT.2**<br>Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar. Explain using similarity transformations that similar triangles have equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides. | | Geometry M2 Lesson 12: What Are Similarity Transformations, and Why Do We Need Them?<br>Geometry M2 Lesson 13: Properties of Similarity Transformations<br>Geometry M2 Lesson 14: Similarity |

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| | | **GEO-G.SRT.3**<br>Use the properties of similarity transformations to establish the AA~, SSS~, and SAS~ criterion for two triangles to be similar. | Geometry M2 Lesson 15: The Angle-Angle (AA) Criterion for Two Triangles to Be Similar<br><br>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.** | |
| | | **GEO-G.SRT.4**<br>Prove and apply similarity theorems about triangles. | Geometry M2 Lesson 4: Comparing the Ratio Method with the Parallel Method<br><br>Geometry M2 Lesson 5: Scale Factors<br><br>Geometry M2 Topic B: Dilations<br><br>Geometry M2 Lesson 17: The Side-Angle-Side (SAS) and Side-Side-Side (SSS) Criteria for Two Triangles to Be Similar<br><br>Geometry M2 Lesson 18: Similarity and the Angle Bisector Theorem<br><br>Geometry M2 Lesson 19: Families of Parallel Lines and the Circumference of the Earth<br><br>Geometry M2 Topic D: Applying Similarity to Right Angles |

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|---|---|---|---|
| | | **GEO-G.SRT.5**<br>Use congruence and similarity criteria for triangles to:<br>a. Solve problems algebraically and geometrically.<br>b. Prove relationships in geometric figures. | Geometry M2 Lesson 16: Between-Figure and Within-Figure Ratios<br>Geometry M2 Lesson 17: The Side-Angle-Side (SAS) and Side-Side-Side (SSS) Criteria for Two Triangles to Be Similar<br>Geometry M2 Lesson 18: Similarity and the Angle Bisector Theorem<br>Geometry M2 Topic D: Applying Similarity to Right Triangles |
| | | **Cluster: Define trigonometric ratios and solve problems involving right triangles.** | |
| | | **GEO-G.SRT.6**<br>Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of sine, cosine, and tangent ratios for acute angles. | Geometry M2 Lesson 25: Incredibly Useful Ratios<br>Geometry M2 Lesson 26: The Definition of Sine, Cosine, and Tangent |
| | | **GEO-G.SRT.7**<br>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<br>Geometry M2 Lesson 28: Solving Problems Using Sine and Cosine<br>Geometry M2 Lesson 29: Applying Tangents |

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|---|---|---|---|
| | | **GEO-G.SRT.8**<br>Use sine, cosine, tangent, the Pythagorean Theorem and properties of special right triangles to solve right triangles in applied problems. | Geometry M2 Topic E: Trigonometry |
| | | **Cluster: Apply Trigonometry to general triangles.** | |
| | | **GEO-G.SRT.9**<br>Justify and apply the formula $A = 1/2ab \sin(C)$ to find the area of any triangle by drawing an auxiliary line from a vertex perpendicular to the opposite side. | Geometry M2 Lesson 31: Using Trigonometry to Determine Area<br><br>Precalculus and Advanced Topics M4 Lesson 7: An Area Formula for Triangles |

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|---|---|---|---|
| | **Circles** | **Cluster: Understand and apply theorems about circles.** | |
| | | **GEO-G.C.1**<br>Prove that all circles are similar. | Geometry M5 Lesson 7: The Angle Measure of an Arc |
| | | **GEO-G.C.2a**<br>Identify, describe and apply relationships between the angles and their intercepted arcs of a circle. | Geometry M5: Circles With and Without Coordinates |
| | | **GEO-G.C.2b**<br>Identify, describe and apply relationships among radii, chords, tangents, and secants of a circle. | Geometry M5: Circles With and Without Coordinates |
| | | **Cluster: Find arc lengths and areas of sectors of circles.** | |
| | | **GEO-G.C.5**<br>Using proportionality, find one of the following given two others; the central angle, arc length, radius or area of sector. | Geometry M5 Topic B: Arcs and Sectors |

| Conceptual Category | Domain | Standards for Mathematical Content | Aligned Components of *Eureka Math* |
|---|---|---|---|
| | **Expressing Geometric Properties with Equations** | **Cluster: Translate between the geometric description and the equation for a conic section.** | |
| | | **GEO-G.GPE.1a**<br>Derive the equation of a circle of given center and radius using the Pythagorean Theorem. Find the center and radius of a circle, given the equation of the circle. | Geometry M5 Topic D: Equations for Circles and Their Tangents |
| | | **GEO-G.GPE.1b**<br>Graph circles given their equation. | Geometry M5 Topic D: Equations for Circles and Their Tangents |
| | | **Cluster: Use coordinates to prove simple geometric theorems algebraically.** | |
| | | **GEO-G.GPE.4**<br>On the coordinate plane, algebraically prove geometric theorems and properties. | Geometry M4: Connecting Algebra and Geometry Through Coordinates<br><br>Geometry M5 Lesson 19: Equations for Tangent Lines to Circles |

| Conceptual Category | Domain | Standards for Mathematical Content | | Aligned Components of *Eureka Math* |
|---|---|---|---|---|
| | | **GEO-G.GPE.5**<br>On the coordinate plane:<br>a. Explore the proof for the relationship between slopes of parallel and perpendicular lines;<br>b. Determine if lines are parallel, perpendicular, or neither, based on their slopes; and<br>c. Apply properties of parallel and perpendicular lines to solve geometric problems. | | Geometry M4 Lesson 4: Designing a Search Robot to Find a Beacon<br><br>Geometry M4 Topic B: Perpendicular and Parallel Lines in the Cartesian Plane<br><br>Geometry M5 Lesson 19: Equations for Tangent Lines to Circles |
| | | **GEO-G.GPE.6**<br>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 |
| | | **GEO-G.GPE.7**<br>Use coordinates to compute perimeters of polygons and areas of triangles and rectangles. | | Geometry M4: Connecting Algebra and Geometry Through Coordinates |

| Conceptual Category | Domain | Standards for Mathematical Content | | Aligned Components of *Eureka Math* |
|---|---|---|---|---|
| | **Geometric Measurement and Dimension** | **Cluster: Explain volume formulas and use them to solve problems.** | | |
| | | **GEO-G.GMD.1**<br>Provide informal arguments 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 |
| | | **GEO-G.GMD.3**<br>Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. | | Geometry M3: Extending to Three Dimensions |
| | | **Cluster: Visualize relationships between two-dimensional and three-dimensional objects.** | | |
| | | **GEO-G.GMD.4**<br>Identify the shapes of plane sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects. | | Geometry M3: Extending to Three Dimensions |

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|---|---|---|---|
| | **Modeling with Geometry** | **Cluster: Apply geometric concepts in modeling situations.** | |
| | | **GEO-G.MG.1**<br>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<br>Geometry M2 Lesson 20: How Far Away Is the Moon?<br>Geometry M3 Lesson 5: Three-Dimensional Space<br>Geometry M3 Lesson 6: General Prisms and Cylinders and Their Cross-Sections<br>Geometry M3 Lesson 11: The Volume Formula of a Pyramid and Cone<br>Geometry M3 Lesson 12: The Volume Formula of a Sphere |
| | | **GEO-G.MG.2**<br>Apply concepts of density based on area and volume of geometric figures in modeling situations. | Geometry M3 Lesson 8: Definition and Properties of Volume<br>Geometry M3 Lesson 11: The Volume Formula of a Pyramid and Cone |

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|---|---|---|---|---|
| | | **GEO-G.MG.3**<br>Apply geometric methods to solve design problems. | | Geometry M2 Lesson 2: Making Scale Drawings Using the Ratio Method<br><br>Geometry M3 Lesson 11: The Volume Formula of a Pyramid and Cone<br><br>Geometry M3 Lesson 12: The Volume Formula of a Sphere<br><br>Geometry M3 Lesson 13: How Do 3D Printers Work? |