NJSLA EOC Tutorials for New Jersey are designed specifically for the New Jersey Student Learning Standards to prepare students for the New Jersey Student Learning Assessment (NJSLA). EOC Categories are at the heart of NJSLA EOC Tutorial structure – bringing category-based learning to the student experience, and category-based performance and progress tracking to the teacher experience.

Math Tutorials offer targeted instruction, practice and review designed to develop computational fluency, deepen conceptual understanding, and apply mathematical practices. They automatically identify and address learning gaps down to elementary-level content, using adaptive remediation to bring students to grade-level no matter where they start. Students engage with the content in an interactive, feedback-rich environment as they progress through standards-aligned modules. By constantly honing the ability to apply their knowledge in abstract and real world scenarios, students build the depth of knowledge and higher order skills required to demonstrate their mastery when put to the test.

In each module, the Learn It and Try It make complex ideas accessible to students through focused content, modeled logic and process, multi-modal representations, and personalized feedback as students reason through increasingly challenging problems. The Review It offers a high impact summary of key concepts and relates those concepts to students' lives. The Test It assesses students' mastery of the module's concepts, providing granular performance data to students and teachers after each attempt. To help students focus on the content most relevant to them, unit-level pretests and posttests can quickly identify where students are strong and where they're still learning.

Test-Taking Strategies for EOC Tutorials allow students to practice and apply learning approaches that will hone their test-taking skills and focus them for success on the day of their EOC test.

Unit 1: Points and Lines

- **POINTS, RAYS, LINE SEGMENTS, LINES, AND FIGURES**
  - G-CO.1: Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
  - HS-C.14.2: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.A, G-CO.B
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
- **PARALLEL AND PERPENDICULAR LINES**

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- HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
- HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
- HS-C.14.2: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.A, G-CO.B
- G-CO.1: Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
- HS-C.13.3: Apply geometric reasoning in a coordinate setting, and/or use coordinates to draw geometric conclusions. Content scope: G-GPE.5

Unit 2: Parallel Lines and Angles

- **PARALLEL LINES AND ANGLE RELATIONSHIPS**
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
  - G-CO.1: Know precise definitions of angle, circle, perpendicular line, parallel line, and line segment, based on the undefined notions of point, line, distance along a line, and distance around a circular arc.
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
  - G-CO.C: Prove geometric theorems as detailed in G-CO.C.
  - HS-C.14.1: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.9, G-CO.10
  - HS-C.14.2: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.A, G-CO.B

Unit 3: Bisector and Angle Theorems

- **PERPENDICULAR BISECTOR AND ANGLE BISECTOR THEOREMS**
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
  - G-CO.C: Prove geometric theorems as detailed in G-CO.C.
  - HS-C.14.1: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.9, G-CO.10
  - HS-C.14.3: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.D

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- G-CO.D: Make and understand geometric constructions as detailed in G-CO.D.

- **TRIANGLE ANGLE THEOREMS**
  - G-CO.D: Make and understand geometric constructions as detailed in G-CO.D.
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
  - G-CO.C: Prove geometric theorems as detailed in G-CO.C.
  - HS-C.14.1: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.9, G-CO.10
  - HS-C.14.6: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-SRT.B

Unit 4: Coordinate Geometry 1

- **LENGTH AND THE DISTANCE FORMULA**
  - HS-D.2-1: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require solving a quadratic equation.
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
  - HS-D.2-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require finding an approximate solution to a polynomial equation using numerical/graphical means.
  - HS-C.13.1: Apply geometric reasoning in a coordinate setting, and/or use coordinates to draw geometric conclusions. Content scope: G-GPE.6, G-GPE.7
  - G-GPE.6: Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
  - G-Int.1: Solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring application of course-level knowledge and skills articulated in G-MG and G-GPE.7.

Unit 5: Coordinate Geometry 2

- **MIDPOINT FORMULA ON THE COORDINATE PLANE**
  - G-GPE.6: Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
  - G-CO.C: Prove geometric theorems as detailed in G-CO.C.
  - HS-C.14.1: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.9, G-CO.10
- **CONJECTURES IN COORDINATE GEOMETRY**

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- HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
- G-CO.C: Prove geometric theorems as detailed in G-CO.C.
- HS-C.14.1: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.9, G-CO.10
- HS-C.13.1: Apply geometric reasoning in a coordinate setting, and/or use coordinates to draw geometric conclusions. Content scope: G-GPE.6, G-GPE.7
- HS-C.13.2: Apply geometric reasoning in a coordinate setting, and/or use coordinates to draw geometric conclusions. Content scope: G-GPE.4

Unit 6: Perimeter and Area

- **PERIMETER ON THE COORDINATE PLANE**
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
  - HS-D.2-1: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require solving a quadratic equation.
  - HS-D.2-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require finding an approximate solution to a polynomial equation using numerical/graphical means.
  - G-Int.1: Solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring application of course-level knowledge and skills articulated in G-MG and G-GPE.7.
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
  - G-CO.C: Prove geometric theorems as detailed in G-CO.C.
  - HS-C.13.1: Apply geometric reasoning in a coordinate setting, and/or use coordinates to draw geometric conclusions. Content scope: G-GPE.6, G-GPE.7
  - HS-C.13.2: Apply geometric reasoning in a coordinate setting, and/or use coordinates to draw geometric conclusions. Content scope: G-GPE.4
- **AREA ON THE COORDINATE PLANE**
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.

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- G-Int.1: Solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring application of course-level knowledge and skills articulated in G-MG and G-GPE.7.
- HS-C.13.1: Apply geometric reasoning in a coordinate setting, and/or use coordinates to draw geometric conclusions. Content scope: G-GPE.6, G-GPE.7
- HS-D.2-1: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require solving a quadratic equation.
- HS-D.2-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require finding an approximate solution to a polynomial equation using numerical/graphical means.

Unit 7: Transformations

- **TRANSFORMATIONS ON THE COORDINATE PLANE**
  - G-CO.3: Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
  - G-CO.6: 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.
  - G-CO.5: Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.
  - HS-C.14.2: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.A, G-CO.B
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
  - G-SRT.2: Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar.
  - G-SRT.1b: Verify experimentally the properties of dilations given by a center and a scale factor. b) The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
  - G-SRT.1a: Verify experimentally the properties of dilations given by a center and a scale factor. a) 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.

Unit 8: Transformations and Triangles

- **DILATIONS, TRANSLATIONS, ROTATIONS, AND REFLECTIONS**
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
  - G-CO.6: 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.

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- HS-C.14.2: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.A, G-CO.B
- G-SRT.1b: Verify experimentally the properties of dilations given by a center and a scale factor. b) The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
- G-SRT.1a: Verify experimentally the properties of dilations given by a center and a scale factor. a) 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.
- G-SRT.2: Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar.

- **TRIANGLES AND SIMILARITY TRANSFORMATIONS**
  - G-SRT.2: Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar.
  - HS-D.2-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require finding an approximate solution to a polynomial equation using numerical/graphical means.
  - G-SRT.5: Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
  - HS-C.14.5: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-SRT.A
- **TRIANGLES AND CONGRUENCE TRANSFORMATIONS**
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
  - G-CO.6: 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.
  - HS-C.14.2: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.A, G-CO.B
  - HS-C.14.6: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-SRT.B
  - G-SRT.5: Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Unit 9: Triangles 1

- **MEDIANS AND ALTITUDES OF TRIANGLES**

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- HS-D.2-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require finding an approximate solution to a polynomial equation using numerical/graphical means.
- HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
- G-CO.C: Prove geometric theorems as detailed in G-CO.C.
- HS-C.14.1: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.9, G-CO.10

Unit 10: Triangles 2

- **TRIANGLE BISECTORS**
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
  - G-CO.C: Prove geometric theorems as detailed in G-CO.C.
  - HS-C.14.1: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.9, G-CO.10
  - HS-C.14.3: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.D

Unit 11: Quadrilaterals

- **PARALLELOGRAMS AND RECTANGLES**
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
  - G-CO.C: Prove geometric theorems as detailed in G-CO.C.
- **SQUARES AND RHOMBI**
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
  - G-CO.C: Prove geometric theorems as detailed in G-CO.C.

Unit 12: Congruence of Other Polygons

- **CONGRUENCE OF OTHER POLYGONS**
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
  - G-CO.6: 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

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rigid motions to decide.

- HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
- G-CO.C: Prove geometric theorems as detailed in G-CO.C.
- HS-C.14.2: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.A, G-CO.B
- G-CO.3: Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry it onto itself.
- G-CO.5: Given a geometric figure and a rotation, reflection, or translation, draw the transformed figure using, e.g., graph paper, tracing paper, or geometry software. Specify a sequence of transformations that will carry a given figure onto another.

Unit 13: Similarity of Other Polygons

- **SIMILARITY OF OTHER POLYGONS**
  - HS-D.2-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require finding an approximate solution to a polynomial equation using numerical/graphical means.
  - G-SRT.1b: Verify experimentally the properties of dilations given by a center and a scale factor. b) The dilation of a line segment is longer or shorter in the ratio given by the scale factor.
  - G-SRT.1a: Verify experimentally the properties of dilations given by a center and a scale factor. a) 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.
  - G-SRT.2: Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar.

Unit 14: Right Triangles and Trigonometric Ratios

- **PYTHAGOREAN THEOREM**
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
  - G-SRT.8 (1.2, 1.4): Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
  - G-SRT.8 (1.1): Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
  - HS-D.3-4a: Reasoned estimates: Use reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity. Content Scope: Knowledge and skills articulated in the Geometry Type I, SubClaim A Evidence Statements.
  - HS-D.2-11: Solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring application of course-level knowledge and skills articulated in GSRT.8, involving right

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triangles in an applied setting.

- HS-C.15.14: Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to multistep problems and present corrected solutions. Content scope: G-SRT.C
- HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
- HS-C.14.6: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-SRT.B

- **TRIGONOMETRIC RATIOS**
  - A G-SRT.7-2: Use the relationship between the sine and cosine of complementary angles.
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
  - G-SRT.8 (1.2, 1.4): Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
  - G-SRT.8 (1.1): Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
  - G-SRT.5: Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.
  - HS-D.3-4a: Reasoned estimates: Use reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity. Content Scope: Knowledge and skills articulated in the Geometry Type I, SubClaim A Evidence Statements.
  - HS-D.2-11: Solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring application of course-level knowledge and skills articulated in GSRT.8, involving right triangles in an applied setting.
  - HS-C.15.14: Present solutions to multi-step problems in the form of valid chains of reasoning, using symbols such as equals signs appropriately (for example, rubrics award less than full credit for the presence of nonsense statements such as 1 + 4 = 5 + 7 = 12, even if the final answer is correct), or identify or describe errors in solutions to multistep problems and present corrected solutions. Content scope: G-SRT.C
  - G-SRT.6: Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles.

Unit 15: Trigonometry

- **LAWS OF SINE AND COSINE**

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- HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
- HS-D.2-1: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require solving a quadratic equation.
- HS-D.3-4a: Reasoned estimates: Use reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity. Content Scope: Knowledge and skills articulated in the Geometry Type I, SubClaim A Evidence Statements.
- G-SRT.8 (1.2, 1.4): Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.
- G-SRT.8 (1.1): Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

Unit 16: Circles 1

- **CIRCLE BASICS**
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
  - G-C.2: Identify and describe relationships among inscribed angles, radii, and chords and apply these concepts in problem solving situations.
- **CENTRAL ANGLES, INSCRIBED ANGLES, AND CHORDS**
  - G-C.2: Identify and describe relationships among inscribed angles, radii, and chords and apply these concepts in problem solving situations.
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.

Unit 17: Circles 2

- **SECANTS, ANGLES, AND INTERCEPTED ARCS**
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
  - G-C.2: Identify and describe relationships among inscribed angles, radii, and chords and apply these concepts in problem solving situations.
- **TANGENTS, ANGLES, AND INTERCEPTED ARCS**
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.

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- G-C.2: Identify and describe relationships among inscribed angles, radii, and chords and apply these concepts in problem solving situations.

- **CIRCLES**
  - G-GMD.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. Use dissection arguments, Cavalieris principle, and informal limit arguments.
  - G-GPE.1-1: Complete the square to find the center and radius of a circle given by an equation.
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
  - G-GPE.1-2: Understand or complete a derivation of the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation.

Unit 18: Properties of Circles 1

- **CIRCUMFERENCE AND ARC LENGTH**
  - G-C.B: Find arc lengths and areas of sectors of circles.
  - HS-D.3-4a: Reasoned estimates: Use reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity. Content Scope: Knowledge and skills articulated in the Geometry Type I, SubClaim A Evidence Statements.
- **AREA OF CIRCLES AND SECTORS**
  - G-C.B: Find arc lengths and areas of sectors of circles.
  - HS-D.2-1: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require solving a quadratic equation.
  - HS-D.3-4a: Reasoned estimates: Use reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity. Content Scope: Knowledge and skills articulated in the Geometry Type I, SubClaim A Evidence Statements.

Unit 19: Properties of Circles 2

- **CONGRUENT AND SIMILAR CIRCLES**
  - G-CO.6: 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.
  - HS-C.14.2: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.A, G-CO.B

Unit 20: Constructions and Spheres

- **CONSTRUCTIONS**

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- HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
- G-CO.D: Make and understand geometric constructions as detailed in G-CO.D.
- HS-C.14.3: Construct, autonomously, chains of reasoning that will justify or refute geometric propositions or conjectures. Content scope: G-CO.D

- **SURFACE AREA AND VOLUME OF SPHERES**
  - HS-C.18.2: Use a combination of algebraic and geometric reasoning to construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures about geometric figures. Content scope: Algebra content from Algebra I course; geometry content from the Geometry course.
  - G-GMD.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. Use dissection arguments, Cavalieris principle, and informal limit arguments.
  - G-GMD.3: Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
  - HS-D.3-4a: Reasoned estimates: Use reasonable estimates of known quantities in a chain of reasoning that yields an estimate of an unknown quantity. Content Scope: Knowledge and skills articulated in the Geometry Type I, SubClaim A Evidence Statements.

Unit 21: Surface Area

- **SURFACE AREA OF COMPOSITE SOLIDS**
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
- **SURFACE AREA OF SIMILAR SOLIDS**
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.

Unit 22: Volume

- **RELATING TWO-DIMENSIONAL FIGURES TO THREE-DIMENSIONAL SOLIDS**
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
  - G-GMD.4: Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.
- **VOLUME OF PRISMS AND PYRAMIDS**
  - G-GMD.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. Use dissection arguments, Cavalieris principle, and informal limit arguments.

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- HS-D.2-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require finding an approximate solution to a polynomial equation using numerical/graphical means.
- G-GMD.3: Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
- HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.
- HS-D.2-1: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require solving a quadratic equation.

- **VOLUME OF CYLINDERS AND CONES**
  - G-GMD.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. Use dissection arguments, Cavalieris principle, and informal limit arguments.
  - HS-D.2-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require finding an approximate solution to a polynomial equation using numerical/graphical means.
  - HS-D.2-1: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require solving a quadratic equation.
  - G-GMD.3: Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
  - HS-D.1-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course, requiring application of knowledge and skills articulated in 6.G, 7.G, and/or 8.G.

Unit 23: Applications of Volume

- **VOLUME OF COMPOSITE SOLIDS**
  - HS-D.2-1: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require solving a quadratic equation.
  - HS-D.2-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require finding an approximate solution to a polynomial equation using numerical/graphical means.
- **VOLUME OF SIMILAR SOLIDS**
  - HS-D.2-1: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require solving a quadratic equation.
  - HS-D.2-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require finding an approximate solution to a polynomial equation using numerical/graphical means.

Unit 24: Modeling Situations

- **MODELING SITUATIONS WITH GEOMETRY**

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- HS-D.2-1: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require solving a quadratic equation.
- HS-D.2-2: Solve multi-step contextual problems with degree of difficulty appropriate to the course involving perimeter, area, or volume that require finding an approximate solution to a polynomial equation using numerical/graphical means.
- G-Int.1: Solve multi-step contextual word problems with degree of difficulty appropriate to the course, requiring application of course-level knowledge and skills articulated in G-MG and G-GPE.7.

Unit 25: Test-Taking Strategies

- **STUDY HABITS**
- **BEING PREPARED AND GETTING STARTED**
- **WORDING IN TEST QUESTIONS**
- **WORDING IN ANSWER CHOICES**
- **QUESTIONS WITH PASSAGES AND VISUAL DATA**
- **ESSAY AND SHORT ANSWER QUESTIONS**
- **WORD PROBLEMS**

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