Apex Learning®

South Carolina Tutorials are designed specifically for the South Carolina College and Career Readiness Standards and the South Carolina Academic Standards to prepare students for the South Carolina End-of-Course Examination Program (EOCEP), ACT Aspire, and the South Carolina Palmetto Assessment of State Standards (SCPASS).

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.

1. POINTS, LINES, AND ANGLES

- **POINTS, RAYS, LINE SEGMENTS, LINES, AND FIGURES**
  - **G.GCO.1** *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*
  - **G.GGPE.5** *Analyze slopes of lines to determine whether lines are parallel, perpendicular, or neither. Write the equation of a line passing through a given point that is parallel or perpendicular to a given line. Solve geometric and real-world problems involving lines and slope.*
  - **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*

- **PARALLEL AND PERPENDICULAR LINES**
  - **G.GCO.1** *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*
  - **G.GGPE.5** *Analyze slopes of lines to determine whether lines are parallel, perpendicular, or neither. Write the equation of a line passing through a given point that is parallel or perpendicular to a given line. Solve geometric and real-world problems involving lines and slope.*

- **PARALLEL LINES AND ANGLE RELATIONSHIPS**
  - **G.GCO.1** *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*
  - **G.GCO.8.a** *vertical angles are congruent;*
  - **G.GCO.8.b** *when a transversal crosses parallel lines, alternate interior angles are congruent, alternate exterior angles are congruent, and consecutive interior angles are supplementary;*

- **PERPENDICULAR BISECTOR AND ANGLE BISECTOR THEOREMS**
  - **G.GCO.1** *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*
  - **G.GCO.8.d** *perpendicular lines form four right angles.*
  - **G.GCO.8.c** *any point on a perpendicular bisector of a line segment is equidistant from the endpoints of the segment;*

2. COORDINATE GEOMETRY

- **LENGTH AND THE DISTANCE FORMULA**
  - **G.GGPE.6** *Given two points, find the point on the line segment between the two points that divides the segment into a given ratio.*
  - **G.GGPE.7** *Use the distance and midpoint formulas to determine distance and midpoint in a coordinate plane, as well as areas of triangles and rectangles, when given coordinates.*
  - **G.GCO.1** *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*
  - **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*

- **MIDPOINT FORMULA ON THE COORDINATE PLANE**
  - **G.GGPE.6** *Given two points, find the point on the line segment between the two points that divides the segment into a given ratio.*
  - **G.GGPE.7** *Use the distance and midpoint formulas to determine distance and midpoint in a coordinate plane, as well as areas of triangles and rectangles, when given coordinates.*
  - **G.GCO.1** *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*
  - **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*

- **CONJECTURES IN COORDINATE GEOMETRY**
  - **G.GGPE.4** *Use coordinates to prove simple geometric theorems algebraically.*
  - **G.GCI.3** *Construct the inscribed and circumscribed circles of a triangle using a variety of tools, including a compass, a straightedge, and dynamic geometry software, and prove properties of angles for a quadrilateral inscribed in a circle.*

- **CIRCLES**
  - **G.GCO.1** *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*
  - **G.GGPE.1** *Understand that the standard equation of a circle is derived from the definition of a circle and the distance formula.*

3. PERIMETER, AREA, AND TRANSFORMATIONS ON THE COORDINATE PLANE

- **PERIMETER ON THE COORDINATE PLANE**
  - **G.GGPE.7** *Use the distance and midpoint formulas to determine distance and midpoint in a coordinate plane, as well as areas of triangles and rectangles, when given coordinates.*
  - **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*
  - **G.GGPE.4** *Use coordinates to prove simple geometric theorems algebraically.*

- **AREA ON THE COORDINATE PLANE**
  - **G.GGPE.7** *Use the distance and midpoint formulas to determine distance and midpoint in a coordinate plane, as well as areas of triangles and rectangles, when given coordinates.*
  - **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*

- **TRANSFORMATIONS ON THE COORDINATE PLANE**
  - **G.GCO.2** *Represent translations, reflections, rotations, and dilations of objects in the plane by using paper folding, sketches, coordinates, function notation, and dynamic geometry software, and use various representations to help understand the effects of simple transformations and their compositions.*
  - **G.GCO.5** *Predict and describe the results of transformations on a given figure using geometric terminology from the definitions of the transformations, and describe a sequence of transformations that maps a figure onto its image.*
  - **G.GSRT.1** *Understand 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. Verify experimentally the properties of dilations given by a center and a scale factor. Understand the dilation of a line segment is longer or shorter in the ratio given by the scale factor.*
  - **G.GSRT.2** *Use the definition of similarity to decide if figures are similar and justify decision. Demonstrate that two figures are*

similar by identifying a combination of translations, rotations, reflections, and dilations in various representations that move one figure onto the other.

- *○ **G.GCO.3** Describe rotations and reflections that carry a regular polygon onto itself and identify types of symmetry of polygons, including line, point, rotational, and self-congruence, and use symmetry to analyze mathematical situations.*
- *○ **G.GCO.4** Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.*

- **DILATIONS, TRANSLATIONS, ROTATIONS, AND REFLECTIONS**
  - *○ **G.GCO.2** Represent translations, reflections, rotations, and dilations of objects in the plane by using paper folding, sketches, coordinates, function notation, and dynamic geometry software, and use various representations to help understand the effects of simple transformations and their compositions.*
  - *○ **G.GCO.5** Predict and describe the results of transformations on a given figure using geometric terminology from the definitions of the transformations, and describe a sequence of transformations that maps a figure onto its image.*
  - *○ **G.GSRT.1** Understand 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. Verify experimentally the properties of dilations given by a center and a scale factor. Understand the dilation of a line segment is longer or shorter in the ratio given by the scale factor.*
  - *○ **G.GSRT.2** Use the definition of similarity to decide if figures are similar and justify decision. Demonstrate that two figures are similar by identifying a combination of translations, rotations, reflections, and dilations in various representations that move one figure onto the other.*
  - *○ **G.GCO.3** Describe rotations and reflections that carry a regular polygon onto itself and identify types of symmetry of polygons, including line, point, rotational, and self-congruence, and use symmetry to analyze mathematical situations.*
  - *○ **G.GCO.4** Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.*

4. CONGRUENCE AND SIMILARITY

- **TRIANGLES AND CONGRUENCE TRANSFORMATIONS**
  - *○ **G.GCO.7** Prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side-Angle, Angle-Angle-Side, and Hypotenuse-Leg congruence conditions.*
  - *○ **G.GSRT.5** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.*
  - *○ **G.GCO.5** Predict and describe the results of transformations on a given figure using geometric terminology from the definitions of the transformations, and describe a sequence of transformations that maps a figure onto its image.*
  - *○ **G.GCO.6** Demonstrate that triangles and quadrilaterals are congruent by identifying a combination of translations, rotations, and reflections in various representations that move one figure onto the other.*

- **TRIANGLES AND SIMILARITY TRANSFORMATIONS**
  - *○ **G.GSRT.2** Use the definition of similarity to decide if figures are similar and justify decision. Demonstrate that two figures are similar by identifying a combination of translations, rotations, reflections, and dilations in various representations that move one figure onto the other.*
  - *○ **G.GSRT.4.a** A line drawn parallel to one side of a triangle divides the other two sides into parts of equal proportion.*
  - *○ **G.GSRT.4.b** If a line divides two sides of a triangle proportionally, then it is parallel to the third side.*
  - *○ **G.GSRT.5** Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.*
  - *○ **G.GSRT.3** Prove that two triangles are similar using the Angle-Angle criterion and apply the proportionality of corresponding sides to solve problems and justify results.*

- **CONGRUENCE OF OTHER POLYGONS**
  - *○ **G.GCO.3** Describe rotations and reflections that carry a regular polygon onto itself and identify types of symmetry of polygons, including line, point, rotational, and self-congruence, and use symmetry to analyze mathematical situations.*
  - *○ **G.GM.1** Use geometric shapes, their measures, and their properties to describe real-world objects.*
  - *○ **G.GCO.2** Represent translations, reflections, rotations, and dilations of objects in the plane by using paper folding, sketches, coordinates, function notation, and dynamic geometry software, and use various representations to help understand the effects of simple transformations and their compositions.*
  - *○ **G.GCO.6** Demonstrate that triangles and quadrilaterals are congruent by identifying a combination of translations, rotations,*

and reflections in various representations that move one figure onto the other.
- G.GCO.5 *Predict and describe the results of transformations on a given figure using geometric terminology from the definitions of the transformations, and describe a sequence of transformations that maps a figure onto its image.*

- **SIMILARITY OF OTHER POLYGONS**
  - **G.GSRT.2** *Use the definition of similarity to decide if figures are similar and justify decision. Demonstrate that two figures are similar by identifying a combination of translations, rotations, reflections, and dilations in various representations that move one figure onto the other.*

5. TRIANGLES

- **TRIANGLE ANGLE THEOREMS**
  - **G.GCO.9.a** *measures of interior angles of a triangle sum to 180°;*
  - **G.GCO.9.b** *base angles of isosceles triangles are congruent;*

- **TRIANGLE BISECTORS**
  - **G.GCO.8.c** *any point on a perpendicular bisector of a line segment is equidistant from the endpoints of the segment;*
  - **G.GCO.9.c** *the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length;*
  - **G.GSRT.5** *Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.*
  - **G.GCI.3** *Construct the inscribed and circumscribed circles of a triangle using a variety of tools, including a compass, a straightedge, and dynamic geometry software, and prove properties of angles for a quadrilateral inscribed in a circle.*
  - **G.GCO.11** *Construct geometric figures using a variety of tools, including a compass, a straightedge, dynamic geometry software, and paper folding, and use these constructions to make conjectures about geometric relationships.*

- **MEDIANS AND ALTITUDES OF TRIANGLES**
  - **G.GCO.9.d** *the medians of a triangle meet at a point.*

6. QUADRILATERALS AND CONSTRUCTIONS

- **PARALLELOGRAMS AND RECTANGLES**
  - **G.GCO.10.a** *opposite sides of a parallelogram are congruent;*
  - **G.GCO.10.b** *opposite angles of a parallelogram are congruent;*
  - **G.GCO.10.c** *diagonals of a parallelogram bisect each other;*
  - **G.GCO.10.d** *rectangles are parallelograms with congruent diagonals;*
  - **G.GCO.10.e** *a parallelograms is a rhombus if and only if the diagonals are perpendicular*
  - **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*

- **SQUARES AND RHOMBI**
  - **G.GCO.10.a** *opposite sides of a parallelogram are congruent;*
  - **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*
  - **G.GCO.10.e** *a parallelograms is a rhombus if and only if the diagonals are perpendicular*

- **CONSTRUCTIONS**
  - **G.GCI.4** *Construct a tangent line to a circle through a point on the circle, and construct a tangent line from a point outside a given circle to the circle; justify the process used for each construction.*
  - **G.GCO.11** *Construct geometric figures using a variety of tools, including a compass, a straightedge, dynamic geometry software, and paper folding, and use these constructions to make conjectures about geometric relationships.*

7. TRIANGLES AND TRIGONOMETRY

- **THE PYTHAGOREAN THEOREM**

- G.GSRT.4.c *The square of the hypotenuse of a right triangle is equal to the sum of squares of the other two sides.*
- G.GSRT.8 *Solve right triangles in applied problems using trigonometric ratios and the Pythagorean Theorem.*
- G.GM.1 *Use geometric shapes, their measures, and their properties to describe real-world objects.*
- G.GSRT.4.a *A line drawn parallel to one side of a triangle divides the other two sides into parts of equal proportion.*
- G.GSRT.4.b *If a line divides two sides of a triangle proportionally, then it is parallel to the third side.*
- G.GSRT.5 *Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.*

- **TRIGONOMETRIC RATIOS**
  - G.GSRT.6 *Understand how the properties of similar right triangles allow the trigonometric ratios to be defined and determine the sine, cosine, and tangent of an acute angle in a right triangle.*
  - G.GSRT.7 *Explain and use the relationship between the sine and cosine of complementary angles.*
  - G.GSRT.8 *Solve right triangles in applied problems using trigonometric ratios and the Pythagorean Theorem.*
  - G.GSRT.5 *Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.*
  - G.GCO.1 *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*
  - G.GM.1 *Use geometric shapes, their measures, and their properties to describe real-world objects.*

- **RADIANS AND THE UNIT CIRCLE**
  - G.GCI.5 *Derive the formulas for the length of an arc and the area of a sector in a circle and apply these formulas to solve mathematical and real-world problems.*
  - G.GSRT.8 *Solve right triangles in applied problems using trigonometric ratios and the Pythagorean Theorem.*

8. CIRCLES AND CIRCLE PARTS

- **CIRCLE BASICS**
  - G.GCI.2 *Identify and describe relationships among inscribed angles, radii, and chords; among inscribed angles, central angles, and circumscribed angles; and between radii and tangents to circles. Use those relationships to solve mathematical and real-world problems.*
  - G.GCO.1 *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*
  - G.GCO.8.c *any point on a perpendicular bisector of a line segment is equidistant from the endpoints of the segment;*

- **CENTRAL ANGLES, INSCRIBED ANGLES, AND CHORDS**
  - G.GCI.2 *Identify and describe relationships among inscribed angles, radii, and chords; among inscribed angles, central angles, and circumscribed angles; and between radii and tangents to circles. Use those relationships to solve mathematical and real-world problems.*
  - G.GCI.3 *Construct the inscribed and circumscribed circles of a triangle using a variety of tools, including a compass, a straightedge, and dynamic geometry software, and prove properties of angles for a quadrilateral inscribed in a circle.*
  - G.GCO.1 *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*

- **SECANTS, ANGLES, AND INTERCEPTED ARCS**
  - G.GCO.1 *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*
  - G.GCI.2 *Identify and describe relationships among inscribed angles, radii, and chords; among inscribed angles, central angles, and circumscribed angles; and between radii and tangents to circles. Use those relationships to solve mathematical and real-world problems.*

- **TANGENTS, ANGLES, AND INTERCEPTED ARCS**
  - G.GCO.1 *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*

- ○ **G.GCI.2** *Identify and describe relationships among inscribed angles, radii, and chords; among inscribed angles, central angles, and circumscribed angles; and between radii and tangents to circles. Use those relationships to solve mathematical and real-world problems.*

9. PROPERTIES OF CIRCLES

- **CONGRUENT AND SIMILAR CIRCLES**
  - ○ **G.GCO.1** *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*
  - ○ **G.GCI.1** *Prove that all circles are similar.*
  - ○ **G.GSRT.2** *Use the definition of similarity to decide if figures are similar and justify decision. Demonstrate that two figures are similar by identifying a combination of translations, rotations, reflections, and dilations in various representations that move one figure onto the other.*
  - ○ **G.GCO.4** *Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.*

- **CIRCUMFERENCE AND ARC LENGTH**
  - ○ **G.GCO.1** *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*
  - ○ **G.GGMD.1** *Explain the derivations of the formulas for the circumference of a circle, area of a circle, and volume of a cylinder, pyramid, and cone. Apply these formulas to solve mathematical and real-world problems.*
  - ○ **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*

- **AREA OF CIRCLES AND SECTORS**
  - ○ **G.GCO.1** *Define angle, perpendicular line, parallel line, line segment, ray, circle, and skew in terms of the undefined notions of point, line, and plane. Use geometric figures to represent and describe real-world objects.*
  - ○ **G.GGMD.1** *Explain the derivations of the formulas for the circumference of a circle, area of a circle, and volume of a cylinder, pyramid, and cone. Apply these formulas to solve mathematical and real-world problems.*
  - ○ **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*
  - ○ **G.GCI.5** *Derive the formulas for the length of an arc and the area of a sector in a circle and apply these formulas to solve mathematical and real-world problems.*

10. SURFACE AREA

- **SURFACE AREA AND VOLUME OF SPHERES**
  - ○ **G.GGMD.2** *Explain the derivation of the formulas for the volume of a sphere and other solid figures using Cavalieri's principle.*
  - ○ **G.GGMD.3** *Apply surface area and volume formulas for prisms, cylinders, pyramids, cones, and spheres to solve problems and justify results. Include problems that involve algebraic expressions, composite figures, geometric probability, and real-world applications.*
  - ○ **G.GGMD.4** *Describe the shapes of two-dimensional cross-sections of three-dimensional objects and use those cross-sections to solve mathematical and real-world problems.*
  - ○ **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*

- **SURFACE AREA OF COMPOSITE SOLIDS**
  - ○ **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*
  - ○ **G.GGMD.3** *Apply surface area and volume formulas for prisms, cylinders, pyramids, cones, and spheres to solve problems and justify results. Include problems that involve algebraic expressions, composite figures, geometric probability, and real-world applications.*

- **SURFACE AREA OF SIMILAR SOLIDS**
  - ○ **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*
  - ○ **G.GGMD.3** *Apply surface area and volume formulas for prisms, cylinders, pyramids, cones, and spheres to solve problems and justify results. Include problems that involve algebraic expressions, composite figures, geometric probability, and real-*

world applications.

11. VOLUME

- **RELATING TWO-DIMENSIONAL FIGURES TO THREE-DIMENSIONAL SOLIDS**
    - **G.GGMD.4** *Describe the shapes of two-dimensional cross-sections of three-dimensional objects and use those cross-sections to solve mathematical and real-world problems.*

- **VOLUME OF PRISMS AND PYRAMIDS**
    - **G.GGMD.1** *Explain the derivations of the formulas for the circumference of a circle, area of a circle, and volume of a cylinder, pyramid, and cone. Apply these formulas to solve mathematical and real-world problems.*
    - **G.GGMD.3** *Apply surface area and volume formulas for prisms, cylinders, pyramids, cones, and spheres to solve problems and justify results. Include problems that involve algebraic expressions, composite figures, geometric probability, and real-world applications.*
    - **G.GGMD.4** *Describe the shapes of two-dimensional cross-sections of three-dimensional objects and use those cross-sections to solve mathematical and real-world problems.*
    - **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*
    - **G.GGMD.2** *Explain the derivation of the formulas for the volume of a sphere and other solid figures using Cavalieri's principle.*

- **VOLUME OF CYLINDERS AND CONES**
    - **G.GGMD.1** *Explain the derivations of the formulas for the circumference of a circle, area of a circle, and volume of a cylinder, pyramid, and cone. Apply these formulas to solve mathematical and real-world problems.*
    - **G.GGMD.3** *Apply surface area and volume formulas for prisms, cylinders, pyramids, cones, and spheres to solve problems and justify results. Include problems that involve algebraic expressions, composite figures, geometric probability, and real-world applications.*
    - **G.GGMD.4** *Describe the shapes of two-dimensional cross-sections of three-dimensional objects and use those cross-sections to solve mathematical and real-world problems.*
    - **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*

- **MODELING SITUATIONS WITH GEOMETRY**
    - **G.GM.2** *Use geometry concepts and methods to model real-world situations and solve problems using a model.*
    - **G.GGMD.3** *Apply surface area and volume formulas for prisms, cylinders, pyramids, cones, and spheres to solve problems and justify results. Include problems that involve algebraic expressions, composite figures, geometric probability, and real-world applications.*

12. VOLUME OF SIMILAR AND COMPOSITE SHAPES

- **VOLUME OF COMPOSITE SOLIDS**
    - **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*
    - **G.GGMD.3** *Apply surface area and volume formulas for prisms, cylinders, pyramids, cones, and spheres to solve problems and justify results. Include problems that involve algebraic expressions, composite figures, geometric probability, and real-world applications.*

- **VOLUME OF SIMILAR SOLIDS**
    - **G.GGMD.1** *Explain the derivations of the formulas for the circumference of a circle, area of a circle, and volume of a cylinder, pyramid, and cone. Apply these formulas to solve mathematical and real-world problems.*
    - **G.GGMD.3** *Apply surface area and volume formulas for prisms, cylinders, pyramids, cones, and spheres to solve problems and justify results. Include problems that involve algebraic expressions, composite figures, geometric probability, and real-world applications.*
    - **G.GM.1** *Use geometric shapes, their measures, and their properties to describe real-world objects.*

13. STATISTICS

- **DATA ANALYSIS**
  - **G.SPID.1** *Select and create an appropriate display, including dot plots, histograms, and box plots, for data that includes only real numbers.*
  - **G.SPID.3** *Summarize and represent data from a single data set. Interpret differences in shape, center, and spread in the context of the data set, accounting for possible effects of extreme data points (outliers).*
  - **G.SPID.2** *Use statistics appropriate to the shape of the data distribution to compare center and spread of two or more different data sets that include all real numbers.*