

Georgetown County School District



2017-2018 Geometry Pacing Guide

Description and Purpose of the Pacing Guide: A pacing guide is an interval centered description of what teachers teach in various grade levels or courses; the order in which it should be taught, and the allotted time designated to teach the content area. Its purpose is to guarantee that all of the standards are addressed during the academic year. Pacing is flexible based on student need. Bold lines indicate approximate breaks for each quarter.

<p>South Carolina College- and Career- Ready Mathematical Process Standards</p>	<p>1. Make sense of problems and persevere in solving them.</p> <ul style="list-style-type: none"> a. Relate a problem to prior knowledge. b. Recognize there may be multiple entry points to a problem and more than one path to a solution. c. Analyze what is given, what is not given, what is being asked, and what strategies are needed, and make an initial attempt to solve a problem. d. Evaluate the success of an approach to solve a problem and refine it if necessary. 	<p>2. Reason both contextually and abstractly.</p> <ul style="list-style-type: none"> a. Make sense of quantities and their relationships in mathematical and real-world situations. b. Describe a given situation using multiple mathematical representations. c. Translate among multiple mathematical representations and compare the meanings each representation conveys about the situation. d. Connect the meaning of mathematical operations to the context of a given situation. 	<p>3. Use critical thinking skills to justify mathematical reasoning and critique the reasoning of others.</p> <ul style="list-style-type: none"> a. Construct and justify a solution to a problem. b. Compare and discuss the validity of various reasoning strategies. c. Make conjectures and explore their validity. d. Reflect on and provide thoughtful responses to the reasoning of others.
<p>4. Connect mathematical ideas and real-world situations through modeling.</p> <ul style="list-style-type: none"> a. Identify relevant quantities and develop a model to describe their relationships. b. Interpret mathematical models in the context of the situation. c. Make assumptions and estimates to simplify complicated situations. d. Evaluate the reasonableness of a model and refine if necessary. 	<p>5. Use a variety of mathematical tools effectively and strategically.</p> <ul style="list-style-type: none"> a. Select and use appropriate tools when solving a mathematical problem. b. Use technological tools and other external mathematical resources to explore and deepen understanding of concepts. 	<p>6. Communicate mathematically and approach mathematical situations with precision.</p> <ul style="list-style-type: none"> a. Express numerical answers with the degree of precision appropriate for the context of a situation. b. Represent numbers in an appropriate form according to the context of the situation. c. Use appropriate and precise mathematical language. d. Use appropriate units, scales, and labels. 	<p>7. Identify and utilize structure and patterns.</p> <ul style="list-style-type: none"> a. Recognize complex mathematical objects as being composed of more than one simple object. b. Recognize mathematical repetition in order to make generalizations. c. Look for structures to interpret meaning and develop solution strategies.

Unit Title	Yearlong Pacing	Block Pacing	South Carolina College and Career Ready (SCCCR) Standards	Textbook Lessons	FALS	Other
Essentials of Geometry	11 days	5.5 days	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>G.GM.1* Use geometric shapes, their measures, and their properties to describe real-world objects.</p> <p>G.GM.2 Use geometry concepts and methods to model real-world situations and solve problems using a model.</p>	1.1 - 1.6		Best circle
Reasoning and Proof	11 days	5 days	<p>G.GCO.8* Prove, and apply in mathematical and real-world contexts, theorems about lines and angles, including the following:</p> <p>a. vertical angles are congruent;</p>	2.1 & 2.4-2.7 2.2 & 2.3 optional		
Parallel and Perpendicular Lines	13 days	7 days	<p>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.</p> <p>G.GCO.8* Prove, and apply in mathematical and real-world contexts, theorems about lines and angles, including the following:</p> <p>b. when a transversal crosses parallel lines, alternate interior angles are congruent, alternate exterior angles are congruent, and consecutive interior angles are supplementary;</p> <p>c. any point on a perpendicular bisector of a line segment is equidistant from the endpoints of the segment;</p> <p>d. perpendicular lines form four right angles.</p> <p>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.</p>	3.1-3.6	Parallel and Perpendicular Equations (H&CP)	

Congruent Triangles	17 days	8.5 days	<p>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.</p> <p>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.</p> <p>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.</p> <p>G.GM.1* Use geometric shapes, their measures, and their properties to describe real-world objects.</p> <p>G.GM.2 Use geometry concepts and methods to model real-world situations and solve problems using a model.</p> <p>G.GCO.9* Prove, and apply in mathematical and real-world contexts, theorems about the relationships within and among triangles, including the following: a. measures of interior angles of a triangle sum to 180°; b. base angles of isosceles triangles are congruent;</p>	4.1-4.9	Congruency Conditions	
Relationships within Triangles	13 days	6.5 days	<p>G.GCO.8* Prove, and apply in mathematical and real-world contexts, theorems about lines and angles, including the following: d. any point on a perpendicular bisector of a line segment is equidistant from the endpoints of the segment;</p> <p>G.GCO.9* Prove, and apply in mathematical and real-world contexts, theorems about the relationships within and among triangles, including the following: d. the medians of a triangle meet at a point.</p>	5.1-5.5 altitudes optional		

Similarity	11 days	5.5 days	<p>G.GCO.9* Prove, and apply in mathematical and real-world contexts, theorems about the relationships within and among triangles, including the following: c. the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length;</p> <p>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.</p> <p>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.</p> <p>G.GSRT.4* Prove, and apply in mathematical and real-world contexts, theorems involving similarity about triangles, including the following: a. A line drawn parallel to one side of a triangle divides the other two sides into parts of equal proportion. b. If a line divides two sides of a triangle proportionally, then it is parallel to the third side.</p> <p>G.GSRT.5* Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.</p>	6.1-6.6	Identifying Similar Triangles Deducting Relationships: Floodlight Shadows: Modeling Motion: Rolling Cups(if have time)	
Right Triangles and Trigonometry	20 days	10 days	<p>G.GM.1* Use geometric shapes, their measures, and their properties to describe real-world objects.</p> <p>G.GM.2 Use geometry concepts and methods to model real-world situations and solve problems using a model.</p> <p>G.GSRT.4* Prove, and apply in mathematical and real-world contexts, theorems involving similarity about triangles, including the following: c. The square of the hypotenuse of a right triangle is equal to the sum of squares of the other two sides.</p> <p>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.</p> <p>G.GSRT.7 Explain and use the relationship between the sine and cosine of complementary angles.</p> <p>G.GSRT.8* Solve right triangles in applied problems using trigonometric ratios and the Pythagorean Theorem.</p>	7.1-7.2 & 7.4-7.7 7.3 optional	Discovering Pythagorean Theorem (CP) ; Proving Pythagorean Theorem (H) ; Solving Problems with Circles and Triangles (H)	

<p style="text-align: center;">Quadrilaterals</p>	<p style="text-align: center;">12 days</p>	<p style="text-align: center;">6 days</p>	<p>G.GCO.10* Prove, and apply in mathematical and real-world contexts, theorems about parallelograms, including the following:</p> <ul style="list-style-type: none"> a. opposite sides of a parallelogram are congruent; b. opposite angles of a parallelogram are congruent; c. diagonals of a parallelogram bisect each other; d. rectangles are parallelograms with congruent diagonals; e. a parallelogram is a rhombus if and only if the diagonals are perpendicular. <p>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.</p> <p>G.GSRT.5* Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.</p> <p>G.GGPE.4* Use coordinates to prove simple geometric theorems algebraically.</p> <p>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.</p> <p>G.GM.1* Use geometric shapes, their measures, and their properties to describe real-world objects.</p> <p>G.GM.2 Use geometry concepts and methods to model real-world situations and solve problems using a model.</p>	<p style="text-align: center;">8.1-8.4 8.6 optional</p>	<p style="text-align: center;">Describing and Defining Quadrilaterals</p>	
<p style="text-align: center;">Properties of Transformations</p>	<p style="text-align: center;">15 days</p>	<p style="text-align: center;">7.5 days</p>	<p>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.</p> <p>G.GCO.4* Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.</p> <p>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.</p> <p>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.</p>	<p style="text-align: center;">9.1 & 9.3-9.7 9.2 with matrices optional</p>	<p style="text-align: center;">Representing and Combining Transformations(CP); Transforming 2d figures(H)</p>	

Properties of Circles	14 days	7 days	<p>G.GCI.1 Prove that all circles are similar.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>G.GGPE.1* Understand that the standard equation of a circle is derived from the definition of a circle and the distance formula.</p> <p>G.GM.1* Use geometric shapes, their measures, and their properties to describe real-world objects.</p> <p>G.GM.2 Use geometry concepts and methods to model real-world situations and solve problems using a model.</p>	10.1-10.7	Circle Equations 1 (CP&H); Circle Equations 2 (CP&H); Inscribing and Circumscribing Right Triangles	Car Caravan
	Measurements of Figures and Solids	17 days	8.5 days	<p>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.</p> <p>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.</p> <p>G.GGMD.2 Explain the derivation of the formulas for the volume of a sphere and other solid figures using Cavalieri's principle.</p> <p>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.</p> <p>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.</p> <p>G.GM.2 Use geometry concepts and methods to model real-world situations and solve problems using a model.</p>	10.2 & 11.1-11.2 & 11.4-11.9	Volume of Compound Objects; Calculating Arcs and Sectors; Evaluating Statements About Enlargements Representing 3D Objects in 2D

Statistics	10 days	5 days	<p>G.SPID.1* Select and create an appropriate display, including dot plots, histograms, and box plots, for data that includes only real numbers.</p> <p>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.</p> <p>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).</p>	Not Applicable – Use Algebra 1 textbook Chapter 10;		
			<p>Good exam review task: http://map.mathshell.org/download.php?fileid=848</p>			