Geometry Pacing Guide First Nine Weeks		
	Tennessee State Math Standards	
Unit 1: Tools of Geometry	G.CO.A.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.
	G.CO.D.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Constructions include but are not limited to: copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment, constructing a line parallel to a given line through a point not on the line, and constructing the following objects inscribed in a circle: an equilateral triangle, square, and a regular hexagon.
	G.GPE.B.2	Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point $(0, 2)$.
	G.CO.A.2	Represent transformations in the plane in multiple ways, including technology. Describe transformations as functions that take points in the plane (pre-image) as inputs and give other points (image) as outputs. Compare transformations that preserve distance and angle measure to those that do not (e.g., translation versus horizontal stretch).
	G.CO.A.5	Given a geometric figure and a rigid motion, draw the image of the figure in multiple ways, including technology. Specify a sequence of rigid motions that will carry a given figure onto another. Rigid motions include rotations, reflections, and translations.

Unit 1: Tools of Geometry (con.)	G.CO.C.9	Prove theorems about lines and angles. Proving includes, but is not limited to completing partial proofs; constructing two-column or paragraph proofs; using transformations to prove theorems; analyzing proofs; and critiquing completed proofs. Theorems include, but are not limited to: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.
Module 2: Transformations and Symmetry	G.CO.A.4	Develop definitions of rotations, reflections, and translations in terms of angles, circles, perpendicular lines, parallel lines, and line segments.
	G.CO.A.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.
	G.CO.A.2	Represent transformations in the plane in multiple ways, including technology. Describe transformations as functions that take points in the plane (pre-image) as inputs and give other points (image) as outputs. Compare transformations that preserve distance and angle measure to those that do not (e.g., translation versus horizontal stretch).
	G.CO.A.5	Given a geometric figure and a rigid motion, draw the image of the figure in multiple ways, including technology. Specify a sequence of rigid motions that will carry a given figure onto another. Rigid motions include rotations, reflections, and translations.
	G.CO.B.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 determine informally if they are congruent.

Module 2: Transformations and Symmetry (con.)	G.CO.D.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Constructions include but are not limited to: copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment, constructing a line parallel to a given line through a point not on the line, and constructing the following objects inscribed in a circle: an equilateral triangle, square, and a regular hexagon.
	G.MG.A.2	Apply geometric methods to solve real-world problems. Geometric methods may include but are not limited to using geometric shapes, the probability of a shaded region, density, and design problems.★
	G.CO.A.3	Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and reflections that carry the shape onto itself.
Module 3: Congruent Figures	G.CO.A.5	Given a geometric figure and a rigid motion, draw the image of the figure in multiple ways, including technology. Specify a sequence of rigid motions that will carry a given figure onto another. Rigid motions include rotations, reflections, and translations.
	G.CO.A.2	Represent transformations in the plane in multiple ways, including technology. Describe transformations as functions that take points in the plane (pre-image) as inputs and give other points (image) as outputs. Compare transformations that preserve distance and angle measure to those that do not (e.g., translation versus horizontal stretch).
	G.CO.B.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 determine informally if they are congruent.
	G.CO.B.7	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.

Module 4: Lines and Angles	G.CO.C.9	Prove theorems about lines and angles. Proving includes, but is not limited to completing partial proofs; constructing two-column or paragraph proofs; using transformations to prove theorems; analyzing proofs; and critiquing completed proofs. Theorems include, but are not limited to: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.
	G.CO.D.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Constructions include but are not limited to: copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment, constructing a line parallel to a given line through a point not on the line, and constructing the following objects inscribed in a circle: an equilateral triangle, square, and a regular hexagon.
	G.GPE.B.3	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems. For example, find the equation of a line parallel or perpendicular to a given line that passes through a given point.
Module 5: Triangle Congruence Criteria	G.CO.B.7	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.
	G.CO.B.8	Explain how the criteria for triangle congruence (ASA, SAS, AAS, and SSS) follow from the definition of congruence in terms of rigid motions.

Module 5: Triangle Congruence Criteria (con.)	G.CO.C.10	Prove theorems about triangles. Proving includes, but is not limited to, completing partial proofs; constructing two-column or paragraph proofs; using transformations to prove theorems; analyzing proofs; and critiquing completed proofs. Theorems include, but are not limited to, measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.
	G.SRT.B.5	Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures.
Module 6: Applications of Triangle Congruence	G.CO.D.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Constructions include but are not limited to: copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment, constructing a line parallel to a given line through a point not on the line, and constructing the following objects inscribed in a circle: an equilateral triangle, square, and a regular hexagon.
	G.SRT.B.5	Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures.
Module 7: Properties of Triangles	G.CO.C.10	Prove theorems about triangles. Proving includes, but is not limited to, completing partial proofs; constructing two-column or paragraph proofs; using transformations to prove theorems; analyzing proofs; and critiquing completed proofs. Theorems include, but are not limited to, measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.
	G.SRT.B.5	Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures.

Module 7: Properties of Triangles (con.)	G.CO.D.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Constructions include but are not limited to: copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment, constructing a line parallel to a given line through a point not on the line, and constructing the following objects inscribed in a circle: an equilateral triangle, square, and a regular hexagon.

Geometry Pacing Guide Second Nine Weeks		
	Tennessee State Math Standards	
Module 8: Special Segments in Triangles	G.CO.C.10	Prove theorems about triangles. Proving includes, but is not limited to, completing partial proofs; constructing two-column or paragraph proofs; using transformations to prove theorems; analyzing proofs; and critiquing completed proofs. Theorems include, but are not limited to, measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.
	G.CO.D.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Constructions include but are not limited to: copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment, constructing a line parallel to a given line through a point not on the line, and constructing the following objects inscribed in a circle: an equilateral triangle, square, and a regular hexagon.
	G.GPE.B.4	Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
	G.GPE.B.5	Know and use coordinates to compute perimeters of polygons and areas of triangles and rectangles. For example, use the distance formula. ★
	G.C.A.3	Construct the incenter and circumcenter of a triangle and use their properties to solve problems in context.

Module 8: Special Segments in Triangles (con.)	G.CO.C.9	Prove theorems about lines and angles. Proving includes, but is not limited to completing partial proofs; constructing two-column or paragraph proofs; using transformations to prove theorems; analyzing proofs; and critiquing completed proofs. Theorems include, but are not limited to: vertical angles are congruent; when a transversal crosses parallel lines, alternate interior angles are congruent and corresponding angles are congruent; points on a perpendicular bisector of a line segment are exactly those equidistant from the segment's endpoints.
Module 9: Properties of Quadrilaterals	G.CO.C.11	Prove theorems about parallelograms. Proving includes, but is not limited to, completing partial proofs; constructing two-column or paragraph proofs; using transformations to prove theorems; analyzing proofs; and critiquing completed proofs. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.
	G.SRT.B.5	Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures.
	G.CO.C.10	Prove theorems about triangles. Proving includes, but is not limited to, completing partial proofs; constructing two-column or paragraph proofs; using transformations to prove theorems; analyzing proofs; and critiquing completed proofs. Theorems include, but are not limited to, measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.

Module 10: Coordinate Proof Using Slope and Distance	G.GPE.B.3	Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems. For example, find the equation of a line parallel or perpendicular to a given line that passes through a given point.
	G.GPE.B.4	Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
	G.CO.C.10	Prove theorems about triangles. Proving includes, but is not limited to, completing partial proofs; constructing two-column or paragraph proofs; using transformations to prove theorems; analyzing proofs; and critiquing completed proofs. Theorems include, but are not limited to, measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.
	G.GPE.B.5	Know and use coordinates to compute perimeters of polygons and areas of triangles and rectangles. For example, use the distance formula. ★
	G.CO.C.11	Prove theorems about parallelograms. Proving includes, but is not limited to, completing partial proofs; constructing two-column or paragraph proofs; using transformations to prove theorems; analyzing proofs; and critiquing completed proofs. Theorems include: opposite sides are congruent, opposite angles are congruent, the diagonals of a parallelogram bisect each other, and conversely, rectangles are parallelograms with congruent diagonals.

Module 11: Similarity and Transformations	G.SRT.A.1	Verify informally the properties of dilations given by a center and a scale factor. Properties include, but are not limited to: 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; the dilation of a line segment is longer or shorter in the ratio given by a scale factor.
	G.CO.A.2	Represent transformations in the plane in multiple ways, including technology. Describe transformations as functions that take points in the plane (pre-image) as inputs and give other points (image) as outputs. Compare transformations that preserve distance and angle measure to those that do not (e.g., translation versus horizontal stretch).
	G.C.A.1	Recognize that all circles are similar.
	G.SRT.A.2	Given two figures, use the definition of similarity in terms of similarity transformations to decide if they are similar; explain using similarity transformations the meaning of similarity for triangles as the equality of all corresponding pairs of angles and the proportionality of all corresponding pairs of sides.
	G.CO.A.5	Given a geometric figure and a rigid motion, draw the image of the figure in multiple ways, including technology. Specify a sequence of rigid motions that will carry a given figure onto another. Rigid motions include rotations, reflections, and translations.
	G.SRT.A.3	Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar.

Module 12: Using Similar Triangles	G.SRT.B.4	Prove theorems about similar triangles. Proving includes, but is not limited to, completing partial proofs; constructing two-column or paragraph proofs; using transformations to prove theorems; analyzing proofs; and critiquing completed proofs. Theorems include but are not limited to: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity.
	G.CO.C.10	Prove theorems about triangles. Proving includes, but is not limited to, completing partial proofs; constructing two-column or paragraph proofs; using transformations to prove theorems; analyzing proofs; and critiquing completed proofs. Theorems include, but are not limited to, measures of interior angles of a triangle sum to 180°; base angles of isosceles triangles are congruent; the segment joining midpoints of two sides of a triangle is parallel to the third side and half the length; the medians of a triangle meet at a point.
	G.CO.D.12	Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Constructions include but are not limited to: copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment, constructing a line parallel to a given line through a point not on the line, and constructing the following objects inscribed in a circle: an equilateral triangle, square, and a regular hexagon.
	G.SRT.B.5	Use congruence and similarity criteria for triangles to solve problems and to justify relationships in geometric figures.

Module 13: Trigonometry with Right Triangles	G.SRT.C.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.
	G-SRT.C.8a	Know and use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems. ★
	G.SRT.C.7	Explain and use the relationship between the sine and cosine of complementary angles.

Geometry Pacing Guide Third Nine Weeks		
	Tennessee State Math Standards	
Module 14: Trigonometry with All Triangles	G.SRT.C.8b	Know and use the Law of Sines and Law of Cosines to solve problems in real life situations. Recognize when it is appropriate to use each. Ambiguous cases will not be included in assessment. ★
Module 15: Volume Formulas	G.GMD.A.1	Give an informal argument for the formulas for the circumference of a circle, and the volume and surface area of a cylinder, cone, prism, and pyramid. Informal arguments may include but are not limited to using the dissection argument, applying Cavalieri's principle, and constructing informal limit arguments.
	G.GMD.A.2	Know and use volume and surface area formulas for cylinders, cones, prisms, pyramids, and spheres to solve problems.★
	G.MG.A.1	Use geometric shapes, their measures, and their properties to describe objects. For example, model a tree trunk or a human torso as a cylinder.★
	G.MG.A.2	Apply geometric methods to solve real-world problems. Geometric methods may include but are not limited to using geometric shapes, the probability of a shaded region, density, and design problems. ★
Module 16: Visualizing Solids	G.MG.A.1	Use geometric shapes, their measures, and their properties to describe objects. For example, model a tree trunk or a human torso as a cylinder.★
Module 17: Angles and Segments in Circles	G.C.A.2	Identify and describe relationships among inscribed angles, radii, and chords. Include the relationship between central, inscribed, and circumscribed angles; inscribed angles on a diameter are right angles; the radius of a circle is perpendicular to the tangent where the radius intersects the circle, and properties of angles for a quadrilateral inscribed in a circle.
Module 18: Arc Length and Sector Area	G.GMD.A.1	Give an informal argument for the formulas for the circumference of a circle, and the volume and surface area of a cylinder, cone, prism, and pyramid. Informal arguments may include but are not limited to using the dissection argument, applying Cavalieri's principle, and constructing informal limit arguments.
	G.C.A.1	Recognize that all circles are similar.

Module 18: Arc Length and Sector Area (con.)	G.C.B.4	Know the formula and find the area of a sector of a circle in a real-world context. For example, use proportional relationships and angles measured in degrees or radians.
	G.MG.A.1	Use geometric shapes, their measures, and their properties to describe objects. For example, model a tree trunk or a human torso as a cylinder.★
Module 19: Equations of Circles and Paraboas	G.GPE.A.1	Know and write the equation of a circle of given center and radius using the Pythagorean Theorem.
	G.GPE.B.4	Find the point on a directed line segment between two given points that partitions the segment in a given ratio.
	G.GPE.B.2	Use coordinates to prove simple geometric theorems algebraically. For example, prove or disprove that a figure defined by four given points in the coordinate plane is a rectangle; prove or disprove that the point $(1, \sqrt{3})$ lies on the circle centered at the origin and containing the point (0,2).

Geometry Pacing Guide 4th Nine Weeks		
	Tennessee State Math Standards	
Module 20: Modeling and Problem Solving	G.GMD.A.2	Know and use volume and surface area formulas for cylinders, cones, prisms, pyramids, and spheres to solve problems.★
	G.GPE.B.5	Know and use coordinates to compute perimeters of polygons and areas of triangles and rectangles. For example, use the distance formula. ★
	G.MG.A.1	Use geometric shapes, their measures, and their properties to describe objects. For example, model a tree trunk or a human torso as a cylinder.★
	G.MG.A.2	Apply geometric methods to solve real-world problems. Geometric methods may include but are not limited to using geometric shapes, the probability of a shaded region, density, and design problems. ★

Major Content	Standards for Major Content in Geometry are highlighted in the light green color.

Supporting Content	Standards for Supporting Content in Geometry are not highlighted.

★	Mathematical Modeling and tasks have a real-world context.