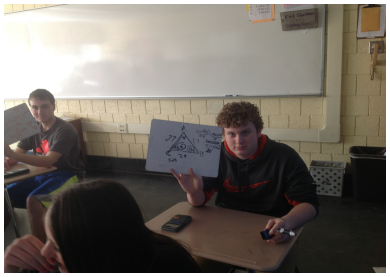
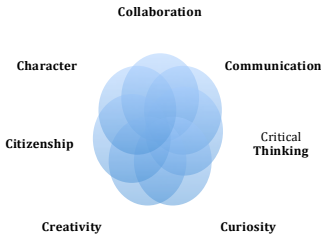
Content Area	Course: Geometry	Grade Level: 10-12
	**R14 The Seven Cs of Learning** 	

Unit Titles	Length of Unit
• Tools of Geometry	2-3 weeks
• Reasoning and Parallel Lines	3-4 weeks
• Triangles	3-4 weeks
• Right Triangles	4-5 weeks
• Area & Perimeter	3-4 weeks
• Volume and Surface Area	4-5 weeks
• Similarity & Proportion	3-4 weeks
• Proofs	2-3 weeks
• Quadrilaterals & Polygons	3-4 weeks
• Circles	4-5 weeks

Strands	Course Level Expectations
Creating Equations	• Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. • Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.
Reasoning with Equations and Inequalities	• Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method. • Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise. • Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.
Congruence	• 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. • 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. • Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions. • Prove geometric theorems • Prove theorems about lines and angles. Theorems include: 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. • Prove theorems about triangles. Theorems include: 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. • Prove theorems about parallelograms. 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. • Make geometric constructions • Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line. • Construct an equilateral triangle, a square, and a regular hexagon inscribed in a circle.
Similarity, Right Triangles, & Trigonometry	• Verify experimentally the properties of dilations given by a center and a scale factor: • 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 the scale factor. • 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. • Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar. • Prove theorems involving similarity • Prove theorems about triangles. Theorems include: a line parallel to one side of a triangle divides the other two proportionally, and conversely; the Pythagorean Theorem proved using triangle similarity. • Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures. • Define trigonometric ratios and solve problems involving right triangles • 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. • Explain and use the relationship between the sine and cosine of complementary angles. • Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.*

Circles	• Prove that all circles are similar. • 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. • Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle. • (+) Construct a tangent line from a point outside a given circle to the circle. • Find arc lengths and areas of sectors of circles • Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius, and define the radian measure of the angle as the constant of proportionality; derive the formula for the area of a sector.
Expressing Geometric Properties with Equations	• 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). • Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point).
Geometric Measurement & Dimension	• 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, Cavalieri's principle, and informal limit arguments. • Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.* • Visualize relationships between two-dimensional and three-dimensional objects • Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.
Modeling with Geometry	• Use geometric shapes, their measures, and their properties to describe objects (e.g., modeling a tree trunk or a human torso as a cylinder).* • Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios).*

Unit Title	Tools of Geometry	Length of Unit	2-3 weeks

Inquiry Questions (Engaging & Debatable)	• What is the purpose of geometry? • What role do lines and angles play in geometry? • How do we represent geometric figures? • Why is it crucial to be precise in geometry? • Why is it important to use both inductive and deductive reasoning?
Standards	**Congruence:** G-CO 1, G-CO 9, **Creating Expressions:** A-CED 1, **Reasoning with Equations & Inequalities** A-REI 3
Unit Strands & Concepts	• Undefined Terms: Point, Line and Plane • Sketching and Labeling Geometric objects • Segment Addition Postulate • Measuring Angles • Angle Addition Postulate • Angle Pairs • Inductive versus Deductive Reasoning
Key Vocabulary	Point, Line, Plane, Segment, Ray, Angle, Acute Angle, Obtuse Angle, Straight Angle, Right Angle, Linear Pair, Vertical Angles, Complementary Angles, Supplementary Angles, Inductive Reasoning, Deductive Reasoning

Unit Title	Tools of Geometry	Length of Unit	2-3 weeks

Critical Content: My students will Know…	**Key Skills: My students will be able to (Do)…**
• Geometry is about visualizing points, lines and planes in three dimensional space in order to solve problems about our physical world. We utilize geometry in many real-world applications including engineering, architectural design and building construction. • Unique, constant relationships exist between lines and angles and knowing these relationships helps us draw conclusions and solve problems in measurement and design. • Geometric figures can be represented numerically, graphically, symbolically and verbally and can be displayed on a coordinate plane. • Measurements, definitions and labels must be precise in order to draw conclusions that are accurate. • Inductive reasoning is used when we make conjectures based on observed patterns. Deductive reasoning is used when we solve problems using known facts.	• State 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. • Prove theorems about lines and angles. *Theorems include: 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.* • Create equations and inequalities in one variable and use them to solve problems. • Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters as related to Geometric measurements.

Assessments:	• Formative and Interim Assessments: (i.e. points, rays, segments and angles measuring angles, etc.) • Performance Assessment - Geometry Dictionary Project • Summative Assessment– Students provide a consistent, meaningful interpretation of the key concepts
Teacher Resources:	Discovering Geometry – sections 1.1-1.3, 2.1-2.5 Supplemental resources for segment and angle addition with algebra

Unit Title	Reasoning and Parallel Lines	Length of Unit	3-4 weeks

Inquiry Questions (Engaging & Debatable)	• What are the relationships between the angle pairs formed by two parallel lines and a transversal? • How can we use algebra in geometry? • What are proofs and why do we use them? • How do we prove two lines are parallel?
Standards	**Congruence:** G-CO 9, **Expressing Geometric Properties with Equations:** G-GPE 4, G-GPE 5, **Creating Expressions:** A-CED 2, **Reasoning with Equations & Inequalities** A-REI 1
Unit Strands & Concepts	• Proving lines are parallel • Angle pairs formed by two parallel lines and a transversal • Proofs for these angle pairs
Key Vocabulary	Parallel Lines, Skew Lines, Intersecting Lines, Vertical Angles, Adjacent Angles, Corresponding Angles, Alternate Interior Angles, Alternate Exterior Angles, Same-side Interior Angles, Same-side Exterior Angles

Unit Title	Reasoning and Parallel Lines	Length of Unit	3-4 weeks

Critical Content: My students will Know…	**Key Skills: My students will be able to (Do)…**
• Geometry is about visualizing points, lines and planes in three dimensional space in order to solve problems about our physical world. We utilize geometry in many real-world applications including engineering, architectural design and building construction. • Unique, constant relationships exist between lines and angles and knowing these relationships helps us draw conclusions and solve problems in measurement and design. • Geometric figures can be represented numerically, graphically, symbolically and verbally and can be displayed on a coordinate plane. • Measurements, definitions and labels must be precise in order to draw conclusions that are accurate. Inductive reasoning is used when we make conjectures based on observed patterns. Deductive reasoning is used when we solve problems using known facts.	• Use coordinates to prove simple geometric theorems algebraically. • Determine the values of angle measurements given two parallel lines and a transversal. • Prove the slope criteria for parallel and perpendicular lines and use them to solve geometric problems (e.g., find the equation of a line parallel or perpendicular to a given line that passes through a given point). • Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. • Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

Assessments:	• Formative and Interim Assessments (angles, proofs, etc.) • Summative Assessment
Teacher Resources:	Discovering Geometry Supplemental resources for algebra problems with angle relationships

Unit Title	Triangles	Length of Unit	3-4 weeks

Inquiry Questions (Engaging & Debatable)	• Why is it important to classify triangles? • Why is it necessary to understand the difference between an altitude, median, or a perpendicular bisector of a triangle? • Why is it important to know the sum of the interior angles of any triangle? • Why are the possible lengths of the third side of a triangle limited by the lengths of the other two sides? • Why can we sometimes use shortcuts to prove that triangles are congruent?
Standards	**Congruence:** G-CO 10, G-CO 12, G-CO 13
Unit Strands & Concepts	• Classifying Triangles • Classifying Segments within Triangles • Triangle Sum Theorem • Exterior Angle Theorem • Triangle Inequality Theorem
Key Vocabulary	Acute Triangle, Obtuse Triangle, Right Triangle, Equiangular Triangle, Equilateral Triangle, Scalene Triangle, Isosceles Triangle, Altitude, Perpendicular Bisector, Exterior Angle

Unit Title	Triangles	Length of Unit	3-4 weeks

Critical Content: My students will **Know**…	Key Skills: My students will be able to **(Do)**…
• Classifying triangles correctly based on angle measure and side length allows us to draw conclusions that are accurate. • Understanding the differences between an altitude, median, or a perpendicular bisector of a triangle allows us to solve measurement and design problems. • The sum of the interior angles of any triangle always measures 180°. Based on this knowledge, we can draw conclusions about the measurement of the triangle and solve measurement problems. • Applying the triangle inequality theorem determines whether a triangle can be formed from three given side lengths. • When a verified combination of corresponding sides and angles in one triangle are congruent to those in a second triangle, the triangles must be congruent.	• Prove theorems about triangles. Theorems include: 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 • Calculate the measures of interior and exterior angles of a triangle. • Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.

Assessments:	• Formative and Interim Assessments: • Summative Assessment
Teacher Resources:	Discovering Geometry – sections 1.5, 4.1-4.3 Supplemental materials for altitudes, medians, and bisectors

Unit Title	Right Triangles	Length of Unit	4-5 weeks

Inquiry Questions (Engaging & Debatable)	• Why is it important to simplify radical expressions? • What is the value of the Pythagorean Theorem? • Why is it helpful to know special right triangle properties? • Why do we use right triangle trigonometry? • How can properties of right triangles be used to solve real world problems?
Standards	**Similarity, Right Triangles, & Trigonometry** G-SRT 6, G-SRT 7, G-SRT 8
Unit Strands & Concepts	• Right Triangle Terminology • Simplifying Radicals • Pythagorean Theorem • Special Right Triangles • Trigonometry • Solving real-world applications with right triangles
Key Vocabulary	Leg, Hypotenuse, Radical, Rationalizing the Denominator, Pythagorean Theorem, 45-45-90 Triangle, 30-60-90 Triangle, Sine, Cosine, Tangent, Reference Angle, Opposite Side, Adjacent Side

Unit Title	Right Triangles	Length of Unit	4-5 weeks

Critical Content: My students will **Know**…	Key Skills: My students will be able to **(Do)**…
• By viewing radical expressions in their simplest form we are better able to see the relationship between side lengths in right triangles. • The Pythagorean Theorem established an essential relationship between the sides of a right triangle. This theorem allows us to solve measurement problems that involve right angles. • The consistent relationship of side lengths in special right triangles can be used to efficiently determine missing side lengths. • Right triangle trigonometry allows us to determine missing side lengths and angle measures in any right triangle. • Right triangle properties can be used to calculate distances indirectly in abundant real world situations.	• Simplify Radical Values. • Calculate the missing side of a Right Triangle using the Pythagorean Theorem. • Calculate the missing side of a Right Triangle using knowledge of Special Right Triangles. • 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. • Explain and use the relationship between the sine and cosine of complementary angles. • Use trigonometric ratios and the Pythagorean Theorem to solve right triangles in applied problems.

Assessments:	• Formative and Interim Assessments: • Performance Assessment – Indirect Measurement • Summative Assessment
Teacher Resources:	Discovering Geometry – p. 472, 9.1-9.5, 12.1-12.2 Supplemental materials for simplifying radical expressions

Unit Title	Area & Perimeter	Length of Unit	3-4 weeks

Inquiry Questions (Engaging & Debatable)	• Why must we be able to classify polygons? • What is the difference between the perimeter and area of a polygon, and why is it important to distinguish between them? • What is the significance of pi? • Why is it important to be able to measure the area of any shape or a composite shape?
Standards	**Geometric Measurement & Dimension** G-GMD 1, G-MG 1, G-MG 3
Unit Strands & Concepts	• Classifying Polygons • Perimeter formulas of various polygons • Area formulas of various polygons • Measuring Circles • Perimeter and Area of composite shapes
Key Vocabulary	Polygon, Triangle, Quadrilateral, Pentagon, Hexagon, Heptagon, Octagon, Nonagon, Decagon, Perimeter, Area, Pi, Circumference, Radius, Diameter

Unit Title	Area & Perimeter	Length of Unit	3-4 weeks

Critical Content: **My students will Know…**	**Key Skills:** **My students will be able to (Do)…**
• It is important to classify polygons in order to determine their area measures accurately. • The perimeter of a polygon is a one-dimensional measure while its area is a two-dimensional space. In real world applications it is crucial to determine which must be calculated. • Pi is the ratio of the circumference of any circle divided by its diameter. Using pi, we can find the area of a circle. • There are many real world situations that require calculating the area of various composite figures. We must divide the shape into basic measurable parts.	• 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 geometric shapes, their measures, and their properties to describe objects. • Calculate the Perimeter of various shapes. • Calculate the Area of various shapes. • Apply geometric methods to solve real-world problems

Assessments:	• Formative and Interim Assessments: (Classifying, polygons, composite figures etc.) • Performance Assessment – Area Project • Summative Assessment
Teacher Resources:	Discovering Geometry – sections 1.4-1.5, 8.1-8.5, 6.5-6.6 Supplemental materials for composite figures

Unit Title	Volume & Surface Area	Length of Unit	4-5 weeks

Inquiry Questions (Engaging & Debatable)	• How are three-dimensional solids related to two-dimensional figures? • What is the difference between the surface area and volume of a solid, and why is it important to distinguish between them? • How is the surface area of a three-dimensional solid related to the area of a two-dimensional figure? • Why is volume a three-dimensional measure? • How is calculating surface area and volume of a composite solid similar to its two-dimensional counterpart? • How are surface area and volume used in the real world?
Standards	**Geometric Measurement & Dimension:** G-GMD 1, G-GMD 3, G-GMD 4
Unit Strands & Concepts	• Classifying 3-dimensional solids • Calculating Volume • Calculating Surface Area • Volume and Surface Area of Composite 3-dimensional solids to solve real-world problems
Key Vocabulary	Volume, Surface Area, Prism, Pyramid, Sphere, Cylinder, Cone, Triangular Prism, Rectangular Prism, Triangular Pyramid, or Rectangular Pyramid

Unit Title	Volume & Surface Area	Length of Unit	4-5 weeks

Critical Content: My students will Know…	Key Skills: My students will be able to (Do)…
• Three-dimensional figures, such as cones, pyramids, prisms and cylinders are built from two-dimensional figures, such as triangles, rectangles, and circles. • The surface area of a solid is a two-dimensional measure while its volume is a three-dimensional measure. In real world applications it is crucial to determine which must be calculated. • The surface area of a three dimensional object is the sum of the areas of all its faces. • Volume is the measurement of the space inside the solid (the number of unit cubes that would fill the object). • To measure the surface area and volume of composite shapes we must divide the shape into measurable solids • Many problems that involve working with three-dimensional objects, such as covering, constructing and filling solids require surface area and volume measurements.	• Give an informal argument for the formulas for the volume of a cylinder, prism, pyramid, and cone. • Use specific Volume formulas for a sphere, cylinder, cone, triangular prism, rectangular prism, triangular pyramid, or rectangular pyramid. • Use specific Surface Area formulas for a sphere, cylinder, cone, triangular prism, rectangular prism, triangular pyramid, or rectangular pyramid. • Identify the shapes of two-dimensional cross-sections of three-dimensional objects, and identify three-dimensional objects generated by rotations of two-dimensional objects.

Assessments:	• Formative and Interim Assessments: (area, volume, applications) • Performance Assessment – Surface Area & Volume Project • Summative Assessment
Teacher Resources:	Discovering Geometry – sections 1.8, 10.1-10.7, 8.7 Supplemental resources for surface area

Unit Title	Similarity & Proportion	Length of Unit	3-4 weeks

Inquiry Questions (Engaging & Debatable)	• What are proportional comparisons and why do we use them? • Why is it important to develop an intuitive concept of similarity and define similar polygons? • Why is it helpful to utilize shortcut methods for determining similar triangles? • How are the values of area and volume of similar figures related to each of their linear measures? • How do we apply properties of similarity to the real world?
Standards	**Similarity, Right Triangles, & Trigonometry** G-SRT 1, G-SRT 2, G-SRT 3, G-SRT 5
Unit Strands & Concepts	• Similarity of polygons • Proportionality and Scale Factors • Determining if two triangles are similar • Proportionality of Similar 2-dimensional and 3-dimensional measures
Key Vocabulary	Similar Polygons, Scale Factor, Proportions, Corresponding Parts

Unit Title	Similarity & Proportion	Length of Unit	3-4 weeks

Critical Content: My students will **Know**…	Key Skills: My students will be able to **(Do)**…
• Proportional relationships express how quantities change in relation to each other. Geometric figures can change in size while maintaining the same proportion. • Similar polygons have a similarity ratio, meaning they can have the same shape but not the same size. When this occurs, the corresponding angles have the same measure and the corresponding sides are in proportion. These can be used to solve for unknown measures. • When a verified combination of corresponding parts in one triangle is similar to those in a second triangle, the triangles must be similar. • The ratio of corresponding dimensions of 2 similar solids is the similarity ratio (a:b). The ratio of their corresponding areas is a^2:b^2 and corresponding volumes is a^3:b^3. • We can use similarity to apply indirect measurement in order to find lengths that would be inconvenient or impossible to measure directly.	• Use the definition of similarity in terms of similarity transformations to decide if two polygons 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. • Use the properties of similarity transformations to establish the AA criterion for two triangles to be similar. • Use congruence and similarity criteria for triangles to solve problems and to prove relationships in geometric figures.

Assessments:	• Formative and Interim Assessments: (Proportions, indirect measurement, etc.) • Summative Assessment
Teacher Resources:	Discovering Geometry – p. 560, sections 11.1-11.6, 13.7

Unit Title	Proofs	Length of Unit	2-3 weeks

Inquiry Questions **(Engaging & Debatable)**	• Why can we sometimes use shortcuts to prove that triangles are congruent? • What are proofs and why do we use them?
Standards	**Congruence:** G-CO 7, G-CO 8, G-CO 9, **Similarity, Right Triangles, & Trigonometry** G-SRT 5, **Reasoning with Equations & Inequalities** A-REI 1
Unit Strands & Concepts	• Triangle Congruence Theorems • Corresponding Parts of Congruent Triangles are Congruent (CPCTC)
Key Vocabulary	Corresponding Sides, Corresponding Angles, SSS Congruence Theorem, ASA Congruence Theorem, SAS Congruence Theorem, AAS Congruence Theorem, HL Congruence Theorem

Unit Title	Proofs	Length of Unit	2-3 weeks

Critical Content: My students will **Know**…	Key Skills: My students will be able to **(Do)**…
• When a verified combination of corresponding sides and angles in one triangle are congruent to those in a second triangle, the triangles must be congruent. • The study of geometry begins with a small number of accepted truths called axioms and postulates. From these accepted truths, we can build logical, step-by-step arguments to "prove" mathematical conclusions. In geometry, any provable statement is called a theorem.	• 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. • Explain how the criteria for triangle congruence (ASA, SAS, and SSS) follow from the definition of congruence in terms of rigid motions. • Use congruence criteria for triangles to solve problems and to prove relationships in geometric figures. • Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

Assessments:	• Formative and Interim Assessments: (Sums, Angles & Quadrilaterals, etc.) • Summative Assessment
Teacher Resources:	Discovering Geometry – sections 4.4-4.6, 13.1-13.2 Supplemental resources for proofs

Unit Title	Quadrilaterals and Polygons	Length of Unit	3-4 weeks

Inquiry Questions **(Engaging & Debatable)**	• How is the sum of the interior angles of a polygon related to the triangle sum theorem? • Why is sum of the exterior angles of any polygon constant at 360º? • Why is it important to know the properties of quadrilaterals?
Standards	**Congruence:** G-CO 11
Unit Strands & Concepts	• Interior and Exterior Angles of Polygons • Theorems about Parallelograms • Theorems about Rhombi • Theorems about Rectangles • Theorems about Squares • Theorems about Kites • Theorems about Trapezoids
Key Vocabulary	Interior Angle, Exterior Angle, Quadrilateral, Parallelogram, Rhombus, Rectangle, Square, Kite, Trapezoid, Isosceles Trapezoid

Unit Title	Quadrilaterals and Polygons	Length of Unit	3-4 weeks

Critical Content: My students will **Know**…	Key Skills: My students will be able to **(Do)**…
• The sum of the angles of a triangle always measures 180°. Based on this knowledge, we can draw conclusions about the sum of the interior angle measures of any polygon. • As the number of sides of a polygon increases, the shape of the polygon approaches that of a circle where the degree measure is 360º. • Different quadrilaterals have specific properties which enable us to efficiently calculate unknown measures.	• Calculate the number of sides of a polygon from the sum of the measures of its interior angles and vice versa. • Prove theorems about various quadrilaterals. • Calculate side lengths and angle measures based on theorems of various quadrilaterals.

Assessments:	• Formative and Interim Assessments • Summative Assessments
Teacher Resources:	Discovering Geometry – sections 5.1-5.6

Unit Title	Circles	Length of Unit	4-5 weeks

Inquiry Questions (Engaging & Debatable)	• Why is it important to know properties of chords and tangents of circles? • How are the measures of central and inscribed angles related to their intercepted arc, and where is this used in geometry? • How are the measures of interior and exterior floating angles related to their intercepted arcs, and where is this used in geometry? • What is the distinction between arc measure and arc length and how is arc length related to circumference? • How is the area of a sector, segment or annulus related to the area of the circle?
Unit Strands & Standards	**Circles:** G-C 1, G-C 2, G-C 3, G-C 4, G-C 5
Concepts	• Terminology of Circles • Arc measurements within a circle • Angle measurements within a circle • Sector areas
Key Vocabulary	Circle, Center, Radius, Diameter, Circumference, Arc, Arc Length, Arc Measure, Sector, Chord, Secant, Tangent, Inscribed Angle, Central Angle, Exterior Floating Angles

Unit Title	Circles	Length of Unit	4-5 weeks

Critical Content: My students will **Know**…	**Key Skills:** My students will be able to **(Do)**…
• Properties of chords and tangents can assist in solving for unknown quantities in circles. • A central angle is equal to its intercepted arc, while an inscribed angle is half the measure of its intercepted arc. By using the measures of intercepted arcs we can find unknown angle measurements. • The measure of an interior floating angle is the average of the measures of the arcs intercepted by the angle and its vertical angle. The measure of an exterior floating angle is ½ the difference of its intercepted arcs. By using the measures of intercepted arcs we can find unknown angle measurements. • The arc measure is a degree measure while arc length is a linear measure. Arc length is a fraction of the circumference of the circle containing the arc. • The area of a sector, segment or annulus is a fraction of the area of a circle that contains the aforementioned circle part.	• Prove that all circles are similar. • Identify and describe relationships among inscribed angles, radii, and chords.(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.) • Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle. • Derive using similarity the fact that the length of the arc intercepted by an angle is proportional to the radius • Derive the formula for the area of a sector. • Calculate measures of arcs, angles, and segments within a circle.

Assessments:	• Formative and Interim Assessments: (Arcs, Chords, Tangents, etc) • Performance Assessment – rebuttal to magazine ad claiming that geometry is not useful (interim) • Summative Assessment
Teacher Resources:	Discovering Geometry – sections 1.6, 6.1-6.4, 8.6, p. 335 #16, p. 339 #9 Supplemental for interior and exterior floating angles