UNIT OF STUDY

Title: Unit 9	**Subject/Course**: Geometry	**Length:** 10 days
Topic: Equations of Circles/ special segments in circles **Grade:** 10th		**Designer:** Boyd

UNIT GOALS AND EXPECTATIONS

IMPORTANT CONCEPTS/UNDERSTANDINGS: • Write and identify the equation of a circle • Identify and use properties of segments and lines of a circle • Find the area of polygons • Use the properties of interior and exterior to find missing measures	**ESSENTIAL QUESTIONS:** • What is the equation of a circle? • What are the special lines and segments of a circle? • What are the different types of angles found in or out of a circle? •

STUDENT LEARNING EXPECTATIONS:
• R.4.G.5 Investigate and use the properties of angles (central and inscribed), arcs, chords, tangents, and secants to solve problems involving circles
• R.4.G.6 Solve problems using inscribed and circumscribed figures
• CGT.5.G.6 Write in standard form the equation of a circle given a graph in a coordinate plane or the center and radius of a circle
• T.2.G.2 Investigate and use the properties of angles(central and inscribed),arcs, chords, tangents, and secants to solve problems involving circles
	• M.3.G.2 Apply, using appropriate units, appropriate formulas to solve problems
	• R.4.G.2 Solve problems using properties of polygons:
	   o Sum of the measures of the interior angles of a polygon
	   o Interior and exterior angle measure of a regular polygon
	   o Number of sides or angles of a polygon

SPECIFIC DECLARATIVE KNOWLEDGE – What I know • Vocabulary: circle, radius, diameter, chord, secant, tangent line, central angle, inscribed angle, interior angle, exterior angle, perpendicular, arc length, segment, sector, polygon, minor arc, major arc • Recognize the standard form of the equation of a circle • Identify the center of a circle and determine the length of its radius given a graph • Identify inscribed and circumscribed figures • Classify polygons based on the number of sides • Recognize that the sum of the exterior angles of any polygon is 360 degrees	**SPECIFIC PROCEDURAL KNOWLEDGE – What I need to do** • Write the standard form of the equation of a circle given the center and radius • Write the standard form of the equation of a circle • Solve problems involving the measure of central angles, inscribed angles, interior angles, interior angles, and exterior angles • Solve problems involving the relationship between a radius that is perpendicular to chords and/or tangents • Solve problems related to segment lengths of chords, tangents, and secants • Solve problems related to arcs, segments, and sectors • Solve problems involving the measure of central angles, inscribed angles, interior angles, and exterior angles • Solve problems involving the relationship between a radius that is perpendicular to chords and/or tangents • Solve problems related to segment lengths of chords, tangents, and secants • Solve problems related to arcs, segments, and

	sectors
	• Find areas of polygons and circles to solve problems
	• Determine the sum of the interior angles of several polygons to derive the formula
	• Calculate an interior and exterior angle of an polygon
	• Calculate a missing interior or exterior angle of a polygon given the other angles
	• Given the total degrees of the interior angles, or the degree of each exterior angle, determine the number of sides or angles of a polygon

UNIT ASSESSMENTS
(Include tasks related to Dimensions 3 and 4 and Bloom's Taxonomy)

- Open Response Unit 9 question 1 theater lighting (equation of circle)
- Open Response Unit 9 question 2 circular garden (area of circles and sectors)
- Open Response Unit 9 question 3 Aquarium tank (tangent and secant lines)
- Open Response Unit 9 question 4 cell phone (equation of circle)

Traditional Assessments:	Other Evidence of Learning:
• Chord, Secant, Tangent Quiz • Equation of Circles Quiz • Elements of a Circle Quiz • Unit 9 Test • TLI module test • Vocabulary Quiz	• Homework • Class work

ACTIVITIES AND LEARNING EXPERIENCES	Resources
• Introduce vocabulary using 4-step strategy • Model properties of Circles • Investigating Inscribed Angles Activity • Use Mastery Math to practice concepts	• Mastery Math Notebook • Textbook pg. 612

Career Connections
EMT, Golfer, Clock Manufacturer, GPS programmer, Weather Anchor