# UNIT OF STUDY

<table>
<thead>
<tr>
<th><strong>Title:</strong></th>
<th>Unit 9</th>
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<tbody>
<tr>
<td><strong>Subject/Course:</strong></td>
<td>Geometry</td>
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<tr>
<td><strong>Length:</strong></td>
<td>10 days</td>
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## 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

#### 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, 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
### 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:
- Chord, Secant, Tangent Quiz
- Equation of Circles Quiz
- Elements of a Circle Quiz
- Unit 9 Test
- TLI module test
- Vocabulary Quiz

#### Other Evidence of Learning:
- Homework
- Class work

### ACTIVITIES AND LEARNING EXPERIENCES

- Introduce vocabulary using 4-step strategy
- Model properties of Circles
- Investigating Inscribed Angles Activity
- Use Mastery Math to practice concepts

### Resources

- Mastery Math Notebook
- Textbook pg. 612

### Career Connections

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