Duration of Unit:
3 weeks

Topic Sequence:
3 weeks

Student Friendly Learning Targets:
I can identify tangents, secants, and chords and use their properties to solve problems.
I can apply theorems and properties of arcs and chords.
I can calculate areas of sectors and calculate arc lengths.
I can identify the measure of an inscribed angle and apply properties of inscribed angles to solve problems.
I can calculate the measures of angles formed by lines intersecting circles.
I can calculate the lengths of segments formed by lines intersecting circles.
I can write equations of circles and graph them in the coordinate plane.

Common Core State Standards Addressed:
G.C.1: Prove that all circles are similar.
G.C.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.*
G.C.3: Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
G.C.4: Construct a tangent line from a point outside a given circle to the circle.
G.C.5: 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.
G.GPE.4:
 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, √3) lies on the circle centered at the origin and containing the point (0, 2).*

Vocabulary:
Circle, similar figures, central angle, chord, tangent, secant, inscribed angle, circumscribed angle, diameter, radius, segment, endpoints, angle bisector, arc, Arc Addition Postulate, opposite angles, incenter, perpendicular, midpoint, radian, sector, intercepted arc

Materials and/or Technology Needed:
Smartboard, Holt-McDougal Geometry Textbook, Whiteboards, Protractors, Compasses, Straight Edges

Instructional Notes:
Instruction should integrate with the standards that comprise the Circles, Arcs, and Angles Unit.

Instructional and Assessment Resources:
Formative Assessment Lessons: http://map.mathshell.org/materials/lessons.php
Formative Assessment Tasks: http://map.mathshell.org/materials/tasks.php
Illustrative Mathematics: http://www.illustrativemathematics.org/standards/k8
NCTM Illuminations: http://illuminations.nctm.org/
PARCC: http://www.parcconline.org/mcf/mathematics/parcc - model - content - frameworks – browser
Inside Mathematics: http://insidemathematics.org/index.php/mathematical - content - standards
New York State: http://www.engageny.org/mathematics
http://mathforum.org/, http://www.nctm.org/, http://plus.maths.org/content/, http://www.pbslearningmedia.org/, http://www.mathwords.com/, http://www.math.com/homeworkhelp/Geometry.html, http://mathworld.wolfram.com/, http://nlvm.usu.edu/en/nav/vlibrary.html, http://www.purplemath.com/, Holt-McDougal Geometry Textbook

Assessment Notes:
The Focus Topic will have five multiple choice questions and two extended response on the proficiency assessment.