Anoka-Hennepin Secondary Curriculum Unit Plan

Department:	Mathematics	Course:	Geometry	Unit 6 Title:	Circles	Grade Level(s):	10
Assessed Trimester:	Trimester B	Pacing:	11 - 13 days	Date Created:	05/22/2014	Last Revision Date:	08/20/2014

Course Understandings: *Students will understand that:*

E. Properties of polygons can be used to solve real-world and mathematical problems and to logically justify results in geometry.
F. Properties of circles can be used to solve real-world and mathematical problems and to logically justify results in geometry
G. Real-world and mathematical geometric problems can be solved using algebraic.

DESIRED RESULTS (Stage 1) - WHAT WE WANT STUDENT TO KNOW AND BE ABLE TO DO?

Established Goals

Minnesota State/Local/Technology Standard(s) addressed (2007):

- **Standard (9.3.3.#):** Know and apply properties of geometric figures to solve real-world and mathematical problems and to logically justify results in geometry.
  Benchmark:
  9.3.3.8 Know and apply properties of a circle to solve problems and logically justify results.

- **Standard (9.3.4.#):** Solve real-world and mathematical geometric problems using algebraic methods.
  Benchmark:
  9.3.4.5 Know the equation for the graph of a circle with radius *r* and center $(h,\ k)$, $(x - h)^2 + (y - k)^2 = r^2$, and justify this equation using the Pythagorean Theorem and properties of translations.

Transfer

Students will be able to independently use their learning to: (product, high order reasoning)

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Meaning

Unit Understanding(s):	Essential Question(s):
Students will understand that: ● given a circles radius, circumference and area of a circle can be calculated. ● given measure of a central angle, the arc measures of a circle can be calculated. ● given measure of an angle with vertex inside the circle, the arc measures of a circle can be calculated. ● given measure of an angle with vertex outside the circle, the arc measures of a circle can be calculated.	**Students will keep considering:** ●

Acquisition

Knowledge - Students will:	Reasoning - Students will:
● Know the segments and lines related to circles: ○ Secant ○ Tangent	● Interpret given information to classify various situations ● Distinguish the center and radius within a circle ● Given the graph of a circle use the center and radius to write an equation

○ Chord ● Know arcs and angles related to circles: ○ Central angle ○ Major Arc ○ Minor Arc ○ Inscribed angle ○ Intercepted arc ○ Semicircle ● Distance formulas ● Standard form for the equation of a circle ● Recognize the difference between inscribed and circumscribed polygons ● Identify the center and radius of a circle from a diagram and/or an equation	● Justify the equation of a circle using the Pythagorean Theorem and the distance formula ● Justify when to use p and when an approximation is sufficient in a specific problem ● Analyze a circle and classify special segments and lines related to the circle **Skills - Students will:** ● Calculate missing length, angles, secants, tangents, chords, interior angles, exterior angles, central angles, arc length, and areas ● Demonstrate the ability to use circle theorems and properties to solve problems

Common Misunderstandings	**Essential new vocabulary**
● Students will sometimes mix up the formulas for angle measure when the vertex is inside the circle vs. when the vertex is outside the circle. ● Students sometimes confuse clockwise rotations with counterclockwise rotations. ● Students sometimes confuse a rotation of positive degree measure, which rotates a figure counterclockwise, with a rotation of negative degree measure, which rotates a figure clockwise. ● Students often mistake the formula for slope with the formula for midpoint and/or the Distance Formula.	● arc length ● central angle ● chord ● circumscribed ● inscribed ● inscribed angle ● intercepted arc ● major Arc ● minor Arc ● secant ● semicircle ● tangent