Curriculum Sample: HS Math: Geometry
Max. 8 Pages

Grade Level	High School (10th)	**Content Area**	Math
Course Title (grades 9-12 Only)	Algebra 2/Geometry 2		
Length of Unit	Five 55-minute periods	**Time of Year**	First Quarter
Expected Prior Knowledge *The knowledge/skills mastered earlier in the year foundational to the mastery of the required Standard in the current sample.*	Students will have a basic understanding of the parts of a circle such as diameter and radius. Students will also know the meaning of words such as perpendicular, right angle, and intersects.		
Alignment to Program of Instruction *Briefly outline methods of instruction found in this sequence of lessons that align to the Program of Instruction described in A.3.*	The school's program of instruction stresses alignment with research-supported instructional techniques of Hunter's Essential Elements of Instruction. Instruction during this unit will include direct instruction of key points and examples, guided practice including worksheets and partner activities, independent practice, and daily formative assessments conducted at the end of each class period.		
Standard Number and Description *List the Number* and full description for the required Standard.*	G-C.2 Conceptual Category: Geometry Domain: Circles (G – C) Standard: #2 – Identify and describe relationships among inscribed angles, radii, and chords. *Include the relationship between the 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.*		
Summative Assessment *Describe a cumulative and comprehensive activity, clearly separate from instruction and guided or independent practice, which allows each student to individually demonstrate mastery of the required Standard. A copy of the summative assessment must be attached to the curriculum sample.*	Students will complete a 10 question open-response summative to assess their ability at determining the relationship between different parts of a circle. Students will also be tested on their knowledge of terms and definitions.		
Scoring Scale and Mastery Level *Explain how the assessment is scored, to include points per question, how points are awarded, total points possible, criteria necessary to demonstrate mastery, and grading*	The 10 open-response questions will be scored on an absolute scale with an answer key provided for both correct answers and appropriate justification. Credit will only be awarded for answers that completely match the answer key, and no partial credit will be awarded. Students must get at least 8 of the 10 questions completely correct to master the standard.		

scale. A copy of the answer key and scoring rubric (whichever applicable) must be attached to the curriculum sample.	
Materials/Resources Needed	Markers, posters, construction paper

* ***Standard Number****: For English Language Arts (Reading and Writing), use Grade, Strand, Standard (e.g., 3.RI.2). For K-8 Math, use Grade, Domain, Standard (e.g., 6.EE.7). For HS Math, use Conceptual Category-Domain, Standard (e.g., A-REI.6). For Science, use Grade, Strand, Concept, PO (e.g., 4.1.3.1).*

Lesson (add as needed	**Instruction**	**Student Activities**
1	SWBAT to identify and define parts of a circle Key Points: • Central Angle: an angle whose vertex is on the center of the circle and whose sides pass through two points on the circle (inside the circle) • Inscribed Angle: an angle whose vertex is a point on the circle and whose sides each pass through one point on the circle (inside the circle) • Circumscribed Angle: an angle that is outside of the circle but has sides touching the circle • Tangent: a line that intersects the circle in exactly one point • Secant: a line that passes through two points on a circle Chord: a line segment whose endpoints are on the circle	Do Now: Students will review basic concepts of circles such as radii and diameters. Guided Practice: Students will be given note cards. On one side they will write the name of the term and on the other side they will draw an example. Students will then work in pairs to quiz each other on the terms. Independent Practice: Students will create a poster that explains the different parts of a circle. They will write the term, definition, and provide an example. Exit Ticket: Students will participate in a gallery walk and comment on other students' posters.
2	SWBAT understand the relationship between central, inscribed, and circumscribed angles. Key Points: • Central, inscribed, and circumscribed angles are used specifically with circles • A diameter is a central angle with a measure of 180° • Two radii at the center of a circle form a central angle • When the endpoints of an inscribed angle are on a diameter, then that angle is a right angle	Do Now: Students will review yesterday's lesson by looking over their note cards and example problems. Guided Practice: Students will participate in a discover exercise to determine the relationship between the different types of angles and write conclusions based on their observations. Teacher will focus specifically on having students determine that inscribed angles on a diameter are right angles. Independent Practice: Students will create their own practice problems by drawing circles. They will then find a partner and complete their problems, checking their answers for correctness. Exit Ticket: Students will write a journal entry about circles and the different types of angles, lines, and segments.
3	SWBAT determine the degrees of an arc for central and inscribed angles Key Points: • An arc of a circle is the curved segment on the circle from two	Do Now: Students will review concepts learned from the previous lessons by having a discussion with a partner. Guided Practice: Students will be given a worksheet with multiple

	endpoints • The arc formed from a central angle has a measure that is equal to the measure of the angle The arc formed from an inscribed angle has a measure that is twice the measure of the angle	problems. They will find the measures of the central and inscribed angles and then determine the measure of the arc. Independent Practice: Students will create a 10-question quiz by drawing circles and angles. They will then move around the classroom and find a partner to work with in order to complete one problem. Once that problem is finished, students will find another partner. This will continue until all questions are complete. Exit Ticket: Students will answer the following questions: *How do you find the measure of an arc from a central angle?* *How do you find the measure of an arc from an inscribed angle?*
4	SWBAT understand the relationship between radii and tangents Key Points: • Tangent: a line that intersects a circle in exactly one point • The radius is perpendicular to a tangent at the point where they intersect	Do Now: Students will review basic concepts of circles by answering questions. Guided Practice: Students will participate in a discovery activity. They will receive cutouts of circles and lines and be asked to place the line so that it intersects the circle in exactly one place (tangent). Then students will be given a radius cutout and be asked to place it so that it intersects the tangent. Students will then measure the angle to discover that it is a right angle. Independent Practice: Students will combine everything they have learned so far about circles and create a flipbook. This will help them review for the summative assessment tomorrow. Exit Ticket: None today.
5	SWBAT identify and describe relationships among inscribed angles, radii, and chords. Key Points: • This is a continuation of yesterday's lesson and combines everything the students have learned from the previous four lessons • The focus is on having students understand the relationship between all the parts of a circle	Do Now: Students will complete a brief review worksheet that summarizes everything learned thus far. Guided Practice: Students will share their answers from the homework and ask any remaining questions. Independent Practice: Student assessment. Exit Ticket: Summative assessment.

Paste Summative Assessment Here:

1. Name the parts of a circle:

Name a secant:

Name a chord:

2. Name the parts of a circle:

Name a radius:

Name a diameter:

3. Name the parts of a circle:

Name a tangent:

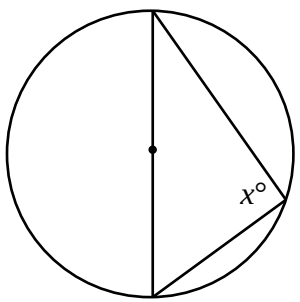
Name the point of tangency:

4. Name the parts of a circle:

Name a central angle:

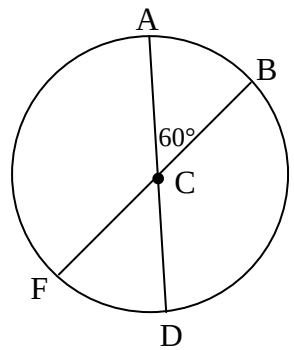
Name an inscribed angle:

5. What is the measure of x?



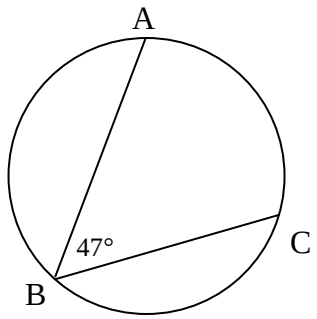
6. What type of angle is shown above?

7. What is the measure of arc AB?

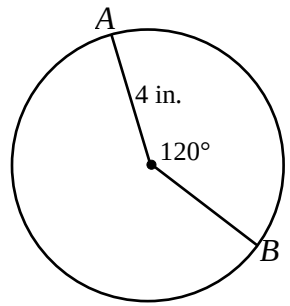


8. What type of angle is shown above?

9. Find the measure of the arc AC.



10. Find the measure of arc AB.



Paste Answer Key/Scoring Rubric Here:

1. Example: Line GH
   Example: Segment AF
2. Example: Segment AO
   Example: Segment AB
3. Example: Line CE
   Point D
4. Angle AOB
   Angle BAF
5. 90°
6. Inscribed angle
7. 60°
8. Central angle
9. 94°
10. 120°