

# Geometry – Unit 7: Circles

## Phoenixville Area School District

Stage 1 Desired Results		
<b>PA Core Standards:</b> CC.2.3.HS.A.8 Apply geometric theorems to verify properties of circles  CC.2.3.HS.A.9 Extend the concept of similarity to determine arc lengths and areas of sectors of circles  CC.2.3.HS.A.14 Apply geometric concepts to model and solve real-world problems	<b>Transfer</b>	
	<b>TRANSFER GOALS</b> <i>Students will be able to independently use their learning to...</i> <ul style="list-style-type: none"> <li>• <b>Problem-Solving:</b> Persistently apply various problem-solving strategies and organized approaches to accurately understand and solve problems and provide evidence to support response.</li> <li>• <b>Mathematical Vocabulary:</b> Interpret mathematical vocabulary and apply proper terminology to engage in meaningful oral and written expression that communicates mathematical thinking, problem-solving methods, and rationale.</li> <li>• <b>Reasoning:</b> Demonstrate mathematical resilience and conceptual understanding through the use of vocabulary, written expression, graphical representation, and alternate strategies.</li> </ul>	
	<b>Meaning</b>	
	<b>UNDERSTANDINGS</b> <i>Students will understand that...</i> <ul style="list-style-type: none"> <li>• One-, two-, and three-dimensional objects are described, classified, and analyzed by their critical attributes.</li> <li>• The accurate measurement of space is determined by the ability to visualize the object/problem situation and apply an appropriate algorithm.</li> </ul>	<b>ESSENTIAL QUESTIONS</b> <i>Students will keep considering...</i> <ul style="list-style-type: none"> <li>• What are the mathematical attributes of objects or processes and how are they measured or calculated?</li> <li>• How are spatial relationships, including shape and dimension, used to draw, construct, model and represent real situations or solve problems?</li> <li>• How do the tools of geometry such as definitions, theorems, and properties foster an increasing ability to spatially visualize and logically deduce conclusions?</li> </ul>

Knowledge and Skills Acquisition			
		<p><b>KNOWLEDGE</b>  <i>Students will know...</i></p> <ul style="list-style-type: none"> <li>The relationships between central angles, arcs, and inscribed angles in a circle</li> <li>How to define and use secants and tangents</li> <li>How to use an equation to identify and describe a circle</li> </ul> <p><b>VOCABULARY</b></p> <ul style="list-style-type: none"> <li>Arc</li> <li>Tangent</li> <li>Chord</li> <li>Secant</li> <li>Radius/Diameter</li> </ul>	<p><b>SKILLS</b>  <i>Students will be skilled at...</i></p> <ul style="list-style-type: none"> <li>Identifying, determining, and using the radius, diameter, segment, and tangent of a circle in constructed response questions (with explanations where appropriate).</li> <li>Identifying, determining, and using the arcs, semicircles, sectors, and angles of a circle in open-ended response questions.</li> <li>Using chords, tangents, and secants to find missing arc or segment measures through constructed response questions (with explanations where appropriate).</li> </ul>
Stage 2 – Evidence			
Code A/M/T	Evaluative Criteria	Assessment Evidence	
Acquisition  Meaning Making  Transfer	Valid conclusions are made based on given/ implied/ found information. Uses mathematics vocabulary and notation concisely and correctly. Chooses effective strategy/strategies for solving the problem. All necessary work is shown with no missing information/skipped steps.	<p><b>PERFORMANCE TASK(S)</b>  <i>Students will demonstrate understanding (meaning making and transfer) through complex performance by...</i></p> <p><b>Big/Bigger/Biggest Circle Puzzle</b>  Using the three different puzzles, students will demonstrate their understanding of the different properties of circles. In order to solve each puzzle, students will use given information to find missing pieces within a circle.</p> <ul style="list-style-type: none"> <li><i>Goal:</i> Your task is to find all missing pieces within each circle puzzle.</li> <li><i>Role/Audience:</i> You are a detective on a mission to open one of the world's biggest treasures. There are three rooms you must break into before reaching the treasure. The only thing standing in your way are three puzzles. You must complete each puzzle to get into the next room. Once you have completed the final puzzle you will reach the treasure. Good luck!</li> </ul>	Differentiation Considerations:

		<ul style="list-style-type: none"> <li>• <i>Situation/Product:</i> You will complete the Big Circle Puzzle, Bigger Circle Puzzle, and Biggest Circle Puzzle.</li> <li>• <i>Success Criteria:</i> Your [product] must include all missing components of each of the three circle puzzles.</li> </ul>	
<p>Acquisition</p> <p>Meaning Making</p> <p>Transfer</p>	<p>Uses mathematics vocabulary and notation concisely and correctly.</p> <p>Chooses effective strategy/strategies for solving the problem.</p> <p>Explains one's reasoning efficiently using mathematics, words, or both.</p> <p>All representations are clear and labeled accurately.</p> <p>Solution is clearly identified; appropriate units are provided (<i>if applicable</i>).</p>	<p>OTHER EVIDENCE</p> <p>Unit Test</p> <ul style="list-style-type: none"> <li>• Multiple Choice</li> <li>• Open-Ended Response</li> <li>• Extended Response</li> </ul>	<p>Differentiation Considerations:</p>