Core Content

Cluster Title: Understand and apply theorems about circles.
Standard G.C.1: Prove that all circles are similar.
Concepts and Skills to Master
• Define a circle as the set of points equidistant to a given center point. • Prove that all circles are similar.

Supports for Teachers

Critical Background Knowledge	
• The length of a dilated line segment is equal to the length of the original segment multiplied by the scale factor (II.5.G.SRT.1).	
Academic Vocabulary	
circle, radius, dilation.	
Suggested Instructional Strategies	**Resources**
• Employ multiple strategies to prove all circles are similar; dilating the radius, construct similar triangles in two different circles in which one vertex is at the center of the circle and the other two vertices are on the circle.	
Sample Formative Assessment Tasks	
Skill-Based Task: Given a circle of a radius of 3 and another circle with a radius of 5, compare the ratios of the two radii, the two diameters, and the two circumferences.	**Problem Task:** Prove the two circles are similar:

Core Content

Cluster Title: Understand and apply theorems about circles.
Standard 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.)
Concepts and Skills to Master
• Use circle relationships to find the measures of central, inscribed, and circumscribed angles of a circle. • Use circle relationships to show that the measure of the inscribed angle on a diameter is a right angle. • Use circle relationships to show that the radius of a circle is perpendicular to a tangent line where the radius intersects the circle.

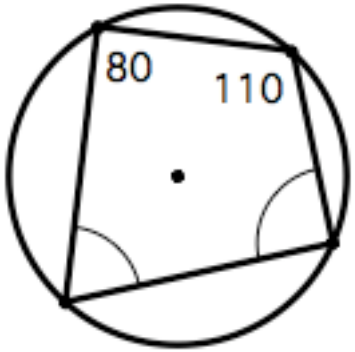
Supports for Teachers

Critical Background Knowledge	
• Understand that all circles are similar (II.6.G.C.1). • Define circle, radius, and diameter (7.G.4).	
Academic Vocabulary	
inscribed angle, central angle, circumscribed angle, radius, chord, diameter, perpendicular, tangent line	
Suggested Instructional Strategies	**Resources**
• Use geometry software to explore relationships.	
Sample Formative Assessment Tasks	
Skill-Based Task: Given the measure of a central angle of a circle is 100 degrees, find the measures of an inscribed angle that intersects the circle at the same points as the central angle.	**Problem Task:** Why are all inscribed angles that intersect the same points equal regardless of where the vertex is on the circle?

Core Content

Cluster Title: Understand and apply theorems about circles.
Standard G.C.3: Construct the inscribed and circumscribed circles of a triangle, and prove properties of angles for a quadrilateral inscribed in a circle.
Concepts and Skills to Master
• Inscribe a circle in a triangle. • Circumscribe a circle about a triangle. • Prove that opposite angles in a quadrilateral inscribed in a circle are supplementary.

Supports for Teachers

Critical Background Knowledge	
• Use a variety of construction methods. • Know the relationship between and inscribed angle and its intercepted arc (II.6.G.C.2).	
Academic Vocabulary	
inscribed, circumscribed, angle quadrilateral	
Suggested Instructional Strategies	**Resources**
• Use geometry software to measure the angles of a several quadrilaterals inscribed in circles in order to find any relationships between the angles.	
Sample Formative Assessment Tasks	
Skill-Based Task: Find the other two angles.  	**Problem Task:** Find the unique relationships between the angles of a quadrilateral inscribed within a circle if the quadrilateral is: • A square. • A rectangle. • An Isosceles trapezoid.