

Richmond Public Schools
Curriculum Framework
Grade 6 Honors (6/7)

Strand: Measurement and Geometry	
<p>6.7 The student will</p> <p>a) derive π (pi);</p> <p>b) solve problems, including practical problems, involving circumference and area of a circle; and</p> <p>c) solve problems, including practical problems, involving area and perimeter of triangles and rectangles.</p>	
Suggested Pacing	
Related Standards	
<p>Spiral Down:</p> <p>4th Grade:</p> <ul style="list-style-type: none"> • SOL 4.7 <p>5th Grade:</p> <ul style="list-style-type: none"> • SOL 5.8 • SOL 5.10 	<p>Spiral Up:</p>
Essential Questions	Common Misconceptions
<ul style="list-style-type: none"> • What is the connection between the parts of the circle and pi (π) • How can one part of a circle help determine the measure of another part? • How are area and circumference connected? • How can we determine area, given circumference? • Can we determine diameter or radius, given area or circumference? • How is diameter related to radius? • How is circumference related to diameter? 	<ul style="list-style-type: none"> • Circumference Vs. Area: students do not understand the difference and where they are located on the circle; evaluating the formula to solve for circumference/area
Understanding the Standard	Essential Knowledge and Skills
<ul style="list-style-type: none"> • The value of pi (π) is the ratio of the circumference of a circle to its diameter. Thus, the circumference of a circle is proportional to its diameter. 	<ul style="list-style-type: none"> • Derive an approximation for pi (3.14 or $\frac{22}{7}$) by gathering data and comparing the circumference to the diameter of various circles, using concrete materials or computer models. (a)

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<ul style="list-style-type: none"> • The calculation of determining area and circumference may vary depending upon the approximation for pi. Common approximations for π include 3.14, $\frac{22}{7}$, or the pi (π) button on a calculator. • Experiences in deriving the formulas for area, perimeter, and volume using manipulatives such as tiles, one-inch cubes, graph paper, geoboards, or tracing paper, promote an understanding of the formulas and their use. • Perimeter is the path or distance around any plane figure. The perimeter of a circle is called the circumference. • The circumference of a circle is about three times the measure of its diameter. • The circumference of a circle is computed using $C = \pi d$ or $C = 2\pi r$, where d is the diameter and r is the radius of the circle. • The area of a closed curve is the number of nonoverlapping square units required to fill the region enclosed by the curve. • The area of a circle is computed using the formula $A = \pi r^2$, where r is the radius of the circle. • The perimeter of a square whose side measures s can be determined by multiplying 4 by s ($P = 4s$), and its area can be determined by squaring the length of one side ($A = s^2$). • The perimeter of a rectangle can be determined by computing the sum of twice the length and twice the width ($P = 2l + 2w$, or $P = 2(l + w)$), and its area can be determined by computing the product of the length and the width ($A = lw$). • The perimeter of a triangle can be determined by computing the sum of the side lengths ($P = a + b + c$), and its area can be determined by computing $\frac{1}{2}$ the product of base and the height ($A = \frac{1}{2}bh$). 	<ul style="list-style-type: none"> • Solve problems, including practical problems, involving circumference and area of a circle when given the length of the diameter or radius. (b) • Solve problems, including practical problems, involving area and perimeter of triangles and rectangles.(c) 			
Vocabulary	Instructional Activities Organized by Learning Objective			
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center; padding: 5px;">Circle</td> <td style="width: 33%; text-align: center; padding: 5px;">Pi (π)</td> <td style="width: 33%; text-align: center; padding: 5px;">Circumference</td> </tr> </table>	Circle	Pi (π)	Circumference	Textbook
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Area	Perimeter	Radius	Notes
Diameter	Triangle	Rectangle	
Assessment			Resources <ul style="list-style-type: none"> • Print • Technology-based
			Station Activities
Cross-Curricular Connections			Tiered Differentiants