

**Richmond Public Schools**  
Curriculum Framework  
*Grade 7 Honors (7/8)*

Strand: Measurement and Geometry	
<b>8.10 The student will solve area and perimeter problems, including practical problems, involving composite plane figures.</b>	
Suggested Pacing	
Related Standards	
Spiral Down:	Spiral Up:
Essential Questions	Common Misconceptions
<ul style="list-style-type: none"> <li>How can area and perimeter of complex shapes be applied to real-world situations?</li> <li>What real-world shapes could be used in this lesson?</li> </ul>	<ul style="list-style-type: none"> <li>Subdividing: students have difficulty dividing complex figures into plane figures, that we have area and perimeter formulas for, specifically figures with semi-circle and triangular pieces</li> <li>Sharing attributes: once the figure has been subdivided, students have difficulty knowing how to find missing side lengths from given measurements</li> </ul>
Understanding the Standard	Essential Knowledge and Skills
<ul style="list-style-type: none"> <li>A plane figure is any two-dimensional shape that can be drawn in a plane.</li> <li>A polygon is a closed plane figure composed of at least three line segments that do not cross.</li> <li>The perimeter is the path or distance around any plane figure. The perimeter of a circle is called the circumference.</li> <li>The area of a composite figure can be found by subdividing the figure into triangles, rectangles, squares, trapezoids, parallelograms, circles, and semicircles, calculating their areas, and combining the areas together by addition and/or subtraction based upon the given composite figure.</li> </ul>	<ul style="list-style-type: none"> <li>Subdivide a plane figure into triangles, rectangles, squares, trapezoids, parallelograms, and semicircles. Determine the area of subdivisions and combine to determine the area of the composite plane figure.</li> <li>Subdivide a plane figure into triangles, rectangles, squares, trapezoids, parallelograms, and semicircles. Use the attributes of the subdivisions to determine the perimeter of the composite plane figure.</li> <li>Apply perimeter, circumference, and area formulas to solve practical problems involving composite plane figures.</li> </ul>

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- The area of a rectangle is computed by multiplying the lengths of two adjacent sides ( $A = lw$ ).
- The area of a triangle is computed by multiplying the measure of its base by the measure of its height and dividing the product by 2 or multiplying by  $\frac{1}{2}$  ( $A = \frac{bh}{2}$  or  $A = \frac{1}{2}bh$ ).
- The area of a parallelogram is computed by multiplying the measure of its base by the measure of its height ( $A = bh$ ).
- The area of a trapezoid is computed by taking the average of the measures of the two bases and multiplying this average by the height ( $A = \frac{1}{2}h(b_1 + b_2)$ ).
- The area of a circle is computed by multiplying pi times the radius squared ( $A = \pi r^2$ ).
- The circumference of a circle is found by multiplying pi by the diameter or multiplying pi by 2 times the radius ( $C = \pi d$  or  $C = 2\pi r$ ).
- The area of a semicircle is half the area of a circle with the same diameter or radius.

**Vocabulary**

Perimeter	Area	Plane figure
Polygon	Circumference	Diameter
Radius	Semicircle	Pi ( $\pi$ )
Trapezoid	Parallelogram	Rectangle
Triangle	Composite Figure	Subdivide

**Assessment**

**Instructional Activities Organized by Learning Objective**

Textbook

Notes

Resources

- Print
- Technology-based

Station Activities

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<b>Cross-Curricular Connections</b>	<b>Tiered Differentiations</b>