



Topic D:

Problems Involving Area and Surface Area

7.G.B.6

Focus Standard:	7.G.B.6	Solve real-world and mathematical problems involving area, volume, and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
Instructional Days:	5	
Lesson 20:	Real-World Area Problems (P) ¹	
Lesson 21:	Mathematical Area Problems (P)	
Lesson 22:	Area Problems with Circular Regions (P)	
Lessons 23–24:	Surface Area (P)	

Students enter Grade 7 having studied area for several grade levels. Most recently, they found the areas of both basic geometric shapes and of more complex shapes by decomposition, and they applied these skills in a real-world context (6.G.1). Lesson 20 reintroduces students to these concepts with area problems embedded in real-world context, for example, finding the cost of carpeting a home based on a floor plan, calculating the cost of seeding a lawn, and determining how many stop signs can be painted with a given amount of paint. In Lesson 21, students use the area properties to justify the repeated use of the distributive property. Students apply their knowledge of finding the area of both polygons and circles to find the area of composite figures made of both categories of shapes in Lesson 22. The figures in this lesson are similar to those in Module 3 in that they are composite figures, some of which have “holes” or missing sections in the form of geometric shapes. However, the figures in Lesson 22 are more complex; therefore, their areas are more challenging to determine. In Lessons 23 and 24, the content transitions from area to surface area, asking students to find the surface area of basic and composite three-dimensional figures. As with the topic of area, the figures are missing sections. These missing sections are, of course, now three-dimensional, so students must take this into account when calculating surface area.

¹ Lesson Structure Key: **P**-Problem Set Lesson, **M**-Modeling Cycle Lesson, **E**-Exploration Lesson, **S**-Socratic Lesson