Topic A:

Area of Triangles, Quadrilaterals, and Polygons

6.G.A.1

Focus Standard:	6.G.A.1	Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
Instructional Days:	6	
Lesson 1:	The Area of Parallelograms Through Rectangle Facts (S)[1]	
Lesson 2:	The Area of Right Triangles (E)	
Lesson 3:	The Area of Acute All Triangles Using Height and Base (M)	
Lesson 4:	The Area of All Triangles Using Height and Base (E)	
Lesson 5:	The Area of Polygons Through Composition and Decomposition (S)	
Lesson 6:	Area in the Real World (E)	

In Topic A, students discover the area of triangles, quadrilaterals, and other polygons through composition and decomposition. In Lesson 1, students discover through composition that the area of a parallelogram is the same as the area of a rectangle with the same base and height measurements. Students show the area formula for the region bound by a parallelogram by composing it into rectangles and determining that the area formula for rectangles and parallelograms is $A = bh$. In Lesson 2, students justify the area formula for a right triangle by viewing the right triangle as part of a rectangle composed of two right triangles. They discover that a right triangle is exactly half of a rectangle, thus proving that the area of a triangle is $\frac{1}{2}bh$.

Students further explore the area formula for all triangles in Lessons 3 and 4. They decompose triangles into right triangles and deconstruct triangles to discover that the area of a triangle is exactly one half the area of a parallelogram. Using known area formulas for rectangles, triangles, and parallelograms, students find area formulas for polygons by decomposing the regions into triangles, rectangles, and parallelograms. Specifically,

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

students use right triangles to develop an understanding of the area of all triangles. They decompose the region of a trapezoid into two triangles and determine the area. The topic closes with Lesson 6, where students determine the area of composite figures in real-life contextual situations using composition and decomposition of polygons. They determine the area of a missing region using composition and decomposition of polygons.