New York State Common Core



## **Mathematics Curriculum**



## **Topic B Composing and Decomposing Shapes**

K.G.6, K.G.1, K.G.4

Focus Standard:		K.G.6	Compose simple shapes to form larger shapes. For example, "Can you join these two triangles with full sides touching to make a rectangle?"
Instructional Days:		4	
Coherence	-Links from:	GPK–M2	Shapes
	-Links to:	G1-M5	Identifying, Composing, and Partitioning Shapes

Thus far, students have considered shapes independently, rather than in conjunction with other shapes. Topic B expands students' thinking about shapes by introducing the notion that simple shapes can be combined to compose larger shapes (K.G.6). This supports A Story of Units' overarching theme that smaller units can be used to make a larger unit. "These two triangles make a square! These two squares make a rectangle!"

In Lesson 5, students use pattern blocks as templates to compose other shapes and pictures. For example, they make a rectangle from two squares and use a square and a triangle to make a pentagon or *house* shape.

Lesson 6 has students explore how to decompose a flat shape into two or more flat shapes. For example, students find that their rectangle can be decomposed into two triangles, two squares, or even a square and two smaller rectangles. Students record their explorations by drawing the hidden shapes within a larger shape. The Problem Set extends puzzle work as students combine shapes to complete pattern block templates of increasing complexity (see Geometry progressions document, p. 7).

Lesson 6's work leads into Lesson 7, where students cut a square to form simple three-piece puzzles and to intuitively use geometric motions such as flips, turns, and slides as they work to solve one another's puzzles. Lesson 8 hosts the Math Olympics, a culminating task that celebrates student learning from the whole year. Students complete tasks related to measurement, operations, and geometry.





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A Teaching Sequence Toward Mastery of Composing and Decomposing Shapes				
Objective 1:	Compose flat shapes using pattern blocks and drawings. (Lesson 5)			
Objective 2:	Decompose flat shapes into two or more shapes. (Lesson 6)			
Objective 3:	Compose simple shapes to form a larger shape described by an outline. (Lesson 7)			
Objective 4:	Culminating task—review selected topics to create a cumulative year-end project. (Lesson 8)			



Composing and Decomposing Shapes



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