Topic B

Composing and Decomposing Shapes

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

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| 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 | Two-Dimensional and Three-Dimensional 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 shape by introducing the notion that simple shapes can be combined to compose larger shapes (**K.G.6**). This supports *A Story of Units’* overarchingtheme, 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 a 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).

This leads into Lesson 7 wherein students cut a square to form simple three-piece puzzles and 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.

Complex

Simple

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| A Teaching Sequence Towards 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) |