

## Grade K • Module 6

# Analyzing, Comparing, and Composing Shapes

## OVERVIEW

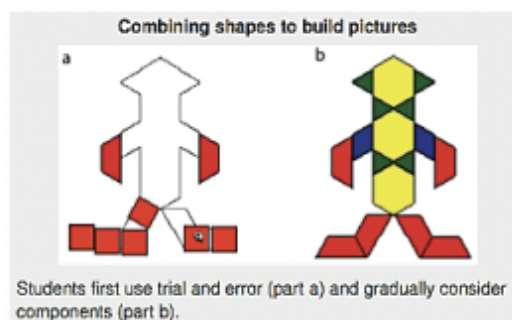
The kindergarten chapter of *A Story of Units* comes to a close with another opportunity for students to explore geometry. Throughout the year, students have built an intuitive understanding of two- and three-dimensional figures by examining exemplars, variants, and non-examples. They have used geometry as a context for exploring numerals as well as comparing attributes and quantities. To wrap up the year, students further develop their spatial reasoning skills and begin laying the groundwork for an understanding of area through composition of geometric figures.

Topic A begins with students applying their knowledge of attributes to analyze two- and three-dimensional shapes from the real world and to construct models using straws and clay (K.G.5). “Let’s use the straws to make the sides of the rectangle, and we’ll stick the straws together at each corner using clay!” Students use their understanding of ordination to thirds to share and communicate the systematic construction of flats and solids. “First, I cut four straws to be the same length. Second, I made a square by placing the four straws so they look like a frame. Third, I connected the sides at the corners with four little clay balls” (K.CC.4d).

As in Module 2, students explore the relationship between flats and solids, this time using flats to build solids. “I made my square into a cube. First, I made another square the same size. Second, I attached the two squares with four straws the same length.” They also apply their knowledge of ordinal numbers to describe the relative position of shapes within a set (K.CC.4d). “The yellow circle is first, and the red square is tenth.”

The lessons of Topic B focus on composition and decomposition of flat shapes (K.G.6). Students begin by using flats to compose geometric shapes. “I put two triangles together to make a square.” They then decompose shapes by covering part of a larger shape with a smaller shape and analyzing the remaining space. “When I cover part of my square with this triangle, I can see another triangle in the empty space.”<sup>1</sup>

As they build competence in combining and composing shapes, students build toward more complex pictures and designs. Students progress through stages as they build competence in combining shapes to form pictures, beginning with trial and error and gradually considering the systematic combination of components. “This square fits here because the corners match the puzzle.” The culminating task of this module is set up as a Math Olympics, a celebration of student learning from the whole year. Students complete tasks related to number, measurement, operations, and geometry.



<sup>1</sup>This descriptive image plus further clarification is found in the Geometry progressions document, p. 7.

Composition and decomposition of geometric figures reinforce the idea that smaller units can combine to form larger units. This concept, central to *A Story of Units*, underlies not only area concepts but also the base ten number system. Students leave this module and the kindergarten year prepared to tackle the mathematical concepts of Grade 1 and beyond.