SS8.2

Activity 14.16 FIXED VOLUME: COMPARING PRISMS

Give each pair of students a supply of centimeter cubes or wooden cubes. If you have ELLs, provide a visual of a rectangular solid, labeling all the key words they will need for the lesson (*length, width, height, surface area, cube, volume, side).* Ask students to use 64 cubes (or 36, if you prefer) to build different rectangular prisms and record in a table the surface area for each prism formed. Then ask students to describe any patterns that they notice. In particular, what happens to the surface area as the prism becomes less like a tall, skinny box and more like a cube? (See Expanded Lesson for details.)

The goal of these activities is for students to realize that volume does not dictate surface area, but that there is a relationship between surface area and volume, just as there is between perimeter and area—namely, that cubelike prisms have less surface area than long, narrow prisms with the same volume.

Once students have developed formulas for computing area and volume, they can continue to explore the relationships between surface area and volume without actually building the prisms.

From Van de Walle et. al. (2014). *Teaching Student-Centered Mathematics: Developmentally Appropriate Instruction for Grades 6 – 8 (2nd Ed.)*. Toronto: Pearson Education, Inc. (p. 319).