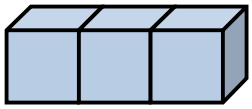
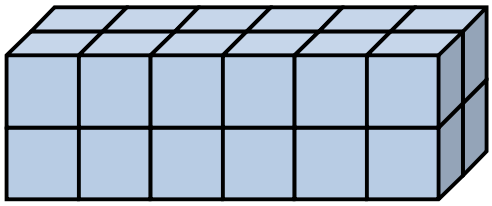
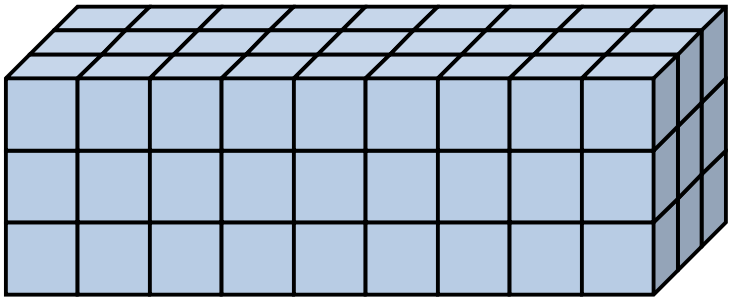
Changing Dimensions: Volume

Extend Your Learning

1. Determine the surface area and volume of the following rectangular prisms.







2. Study your results for problem 1. What happens to the surface area and volume of a rectangular prism when you double the dimensions? Triple the dimensions?

3. How will the surface area and volume of a rectangular prism change when you make each dimension n times as large?

4. Sam's grandma has two loaf pans. The larger loaf pan measures 9 in. by 5 in. by 3 in. and holds 8 cups of batter. The mini-loaf pan only holds 1 cup of batter. If the pans are similar in shape, what are the dimensions of the mini-loaf pan?

5. After a large storm, a neighbor cuts a fallen tree trunk into two pieces. The first piece was approximately 5 ft. long while the second piece was approximately 12½ ft. long. What is the relationship between the volume of wood in the smaller piece compared to the larger piece assuming the trunk has a consistent radius?

6. Lovely Locks shampoo bottle is cylindrical. It is 10 in. tall and has a diameter of 4.5 in. The travel size container is 5 in. tall and has a diameter of 2.25 in. The prices of the bottles are $6.25 and $1.50, respectively. Are these fair prices in comparison to the sizes of the bottles? Why or why not?

7. A physical education teacher is rearranging equipment. Currently, one container holds 30 baseballs. She is considering putting the hockey pucks in the container instead. If baseballs are approximately 3 inches in diameter and hockey pucks are 3 inches diameter and 1 inch thick, how many pucks will the container hold?