

## Building Rectangular Prism Containers

### Investigating Volume of a Rectangular Prism

Volume is the number of cubic units it takes to fill a container.

#### Task:

1. Cut out the two nets you have been assigned and build your rectangular prisms.
2. Use the Centimeter cubes to *fill* each prism.
3. Record the dimensions of the base, the height and the volume of each prism in the table below.

Prism #	Dimensions of Base	Height	Volume
1			
2			
3			
4			
5			
6			
7			

4. Cut out the final net (Prism 7) and determine the volume by using *some* cubes.
5. Looking at the numbers in the chart and thinking about your method to find the volume for prism #7, make a conjecture about how to find volume of a rectangular prism *without* using the cm cubes.

To find volume without CM cubes, I think we can \_\_\_\_\_

\_\_\_\_\_.



## Teacher Directions

### Materials:

- Copies of Nets 1-6 (2 per pair) and net 7 (1 per student)- **COPY at 105% so the CM cubes will fit.**
- CM cubes- approximately 50- per pair
- Scissors (1 per student)

Begin with a quick explanation of the definition of volume from the top of the activity sheet. Show the students one of the nets, and ask them what they think shape it will be once you fold it up. Explain that a “net” is a 2-dimensional representation of the 3-dimensional solid. Give the students a minute to read the directions and then question them to make sure they understand. Assign each pair two of the nets (#’s 1-6) to study. Pass out the activity sheet, the nets, scissors and CM cubes to each pair. Give each pair about 15 minutes to cut out their net, build it, fill it with cubes and complete the table. Once done, have students share their data and record it on the class table (and have all the students record it on the table on their activity sheet).

Pass out net #7 and explain that they must use *some* cubes to fill this, but then figure out how to determine volume without using all the cubes necessary. Add the information for net #7 to the table and then give the students a minute or two to study the table and look for a pattern in terms of how they could calculate volume. Use think-pair-share to allow them to share their ideas for both how they determined the volume for net #7 as well as what pattern they see with a partner. Select student to explain their thinking, ensuring class concludes with students understanding “knowing” the formula for the volume of a rectangular prism is  $V = Bh$ , where  $B$  is the area of the base. It is crucial that students understand this and not  $v = l \times w \times h$ . While not wrong, you need to guide them to see how multiplying the three dimensions is actually the same as finding the area of the base, then multiplying by the height. Seeing volume as the area of the base multiplied by the height will allow them to understand the formulas for the volume of other polyhedra.

