

Estimating and Measuring Volume



Check-In: Questions 1–2

1. Use 8 centimeter connecting cubes to make an object that will fit into a 250-cc graduated cylinder. What is the volume of your object?

- A.** Fill a 250-cc graduated cylinder with a convenient amount of water. Good choices are 160 or 200 cc. Use an eyedropper to carefully add the last few drops.

- B.** Read the water level. Put your eyes at the level of the water. When water creeps up the sides of a cylinder, it forms a **meniscus** which makes it look as though there are two lines. Read the lower line.

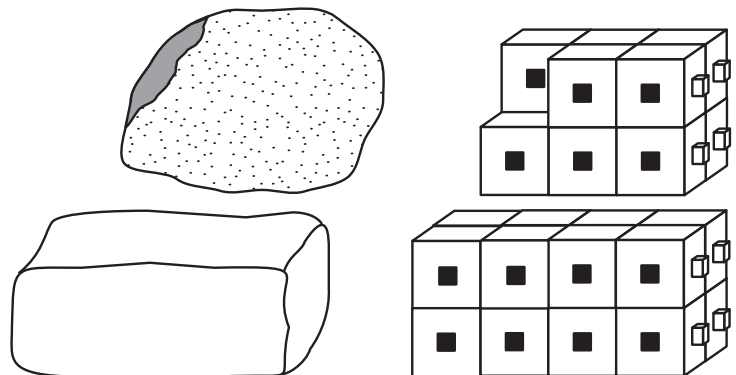
- C.** Place your object made from connecting cubes into the cylinder. Slide it in gently so that no water will splash. Read the water level now.

- D.** What is the difference in the level of the water before you added the object and after you added it? Explain the change in water level.

2. Estimate the volume of objects using centimeter connecting cubes and find the volume of these objects by displacement.

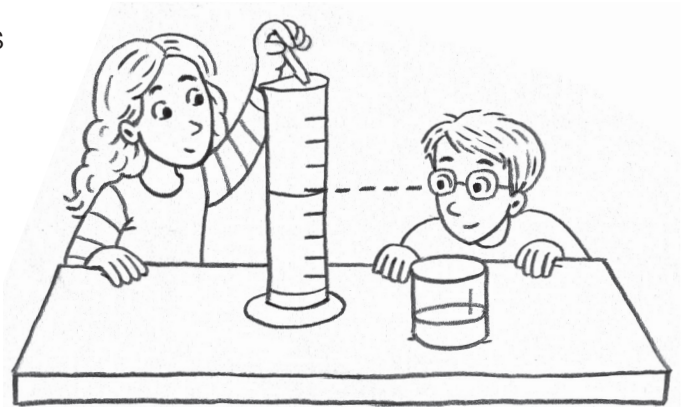
- A.** Choose objects that will fit into a graduated cylinder.

- B.** Make models of your objects using centimeter connecting cubes. Estimate the volume of the objects by counting the number of cubes in your models.



- C.** Find the volume of your objects by displacement.

- D.** Record your results in the table on the next page. Follow the examples.



Volume Data Table

| Object | Estimated Volume from Cube Model | Volume by Displacement |
|--------|----------------------------------|------------------------|
| Rock | 11 cc | 12 cc |
| Clay | 16 cc | 15 cc |
| | | |
| | | |
| | | |
| | | |



3. A. Were your estimates close to your measured volumes? Why or why not?

B. Which estimates were closest to the measured volumes? Why?

4. Frank made a model of a marker using centimeter connecting cubes. By counting the cubes, he estimated that the marker has a volume of 14 cc. When he measured the volume using a graduated cylinder, he found the volume to be 11 cc. Why do you think there is a 3 cc difference?

