**Supplemental Teacher Resource**

**Submersing a solid object to find its volume**



How can we use a graduated cylinder to find the volume of a solid? You may recall using the formula *length x width x height* to find the volume of a cube; however, your students can also use water displacement.

Imagine you had water with a volume of 15mL in a graduated cylinder, and when you placed a small block inside, the water level rose to 25mL (as shown in the picture). That is, the block displaced10 mL of water.

What does that tell you about the volume of the block? The amount of space the block takes up is 10 mL. In other words, the volume is 10 mL.

We have students practice finding the volume (mL) by water displacement using cubes made of different materials—for example, steel, aluminum, cooper, brass, acrylic, PVC, and oak. In cases where objects float, we must submerge them in order to find the full water displacement.

As we practice with students, wediscuss the following:

* Which graduated cylinder will be best to use? What constraints do we have to consider? (e.g., size of the cube)
* How much water is needed? Do you have to use the same amount of water each time? Would it make a difference in our measurements if we repeated it with a different amount of water to start with?
* How can we completely submerge a floating cube to find its volume? (If you use an object that displaces water as well, this affects the measurement; we have found plastic drinking straws provide a negligible effect)
* What if we splash water when we drop the cube in? Could that affect our measurements? How?