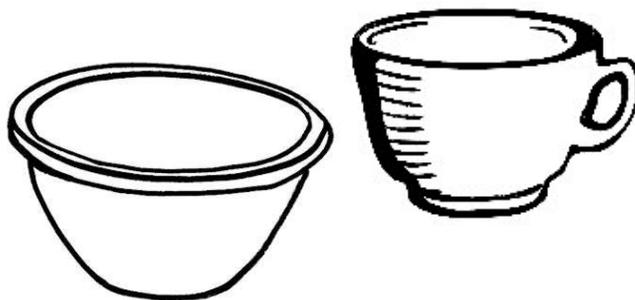


## Activity 7: Cupside Down

### Materials

Sink, bath, or bin filled part way with water  
Small glass cup or bowl



### Procedure

1. Have the student predict if the cup/bowl will float or sink when right side up. Have the student predict if the cup/bowl will float or sink when upside down.
2. Gently place the cup or bowl right side up on the surface of the water. Watch what happens (upright cup should float).
3. Turn the cup or bowl upside down and place on the surface of the water. Watch what happens (upside down cup should fill with water and sink).

### Science Notes

Objects will sink or float depending on their *placement* (how they sit) in the water. Other objects such as bottle caps and jar lids also support this concept. In the earlier activities, students would have generated some responses that indicated some of the objects will do both (float and sink).

Adding sides to an object increases its buoyancy. *Buoyant force* increases because there is a greater surface area for the water to hold the object up. If the object is one that sinks, the addition of sides (depending upon the height of the sides) could cause a change that allows the object to float. This happens because the altered object would now displace a volume of water having greater mass than the object that was first placed in the water.

For additional practice, provide each group of students with a variety of containers (such as styrofoam trays, foil muffin cups, plastic cups, waxed cups, styrofoam cups, yogurt containers, etc.). Let each group experiment with whether or not it floats and its stability. Encourage students to experiment with adding mass to each container.

### Optional Curricular Extension

Experiment with frozen balloons (filled with water). Place the frozen balloon in a large container of water. Note that the balloon of ice floats. However, the majority of the balloon is below the surface of the water. This is very similar to an iceberg. Only 70% of an iceberg is seen above the surface of the water. Note the change in the water level when the “iceberg” (balloon) is placed in the water. Research and talk about the Titanic.