CAN YOU MAKE CLAY FLOAT?

A. Question: *How can we make an object float?*

B. Materials Needed:

1. A lump of modeling clay.
2. A large beaker or transparent container.

C: Procedure:

1. Make a ball of clay with a diameter of about 5cm.
2. Fill the beaker half way with water and mark off the water level.
3. Ask students: “Will clay float or sink in water?” Plunge the clay ball in the water, mark off the water level and take it back out.
4. Transform the same ball of clay into a small boat (make sure it is watertight), and let it float on the water.
5. Draw students’ attention to the water level with the floating clay boat on the water.

D: Anticipated Results:

Students should observe the clay boat float, but not the clay ball.

E: Thought Questions for Class Discussion:

1. Was the clay ball heavier than the clay boat?
2. Which of the two displaced more water?
3. What is the volume of the displaced water equal to?
4. What is the weight of the displaced water equal ?
5. Would we be able to float iron or lead this same way?

F: Explanation:

The clay ball and clay boat were of the same weight, because the boat was made of the same mass of clay that the ball was made of. Mass is conserved and no clay has been taken away or added, the mass and thus the weight are the same. The boat however, displaced more water because of its shape. The volume of this displaced water is equal to the volume of the submerged part of the boat or ball, whereas the weight of the displaced water is equal to the buoyant force, which is the force upward. This is equal to the mass of the clay boat when floating, but less than the mass of the clay ball (this is why the ball sinks.)