

## Discovering Buoyancy

### Pre Lab:

Define buoyancy.

Define buoyant force.

### Materials:

water

metal object

plastic cup

spring scale

large plastic container

### Procedure

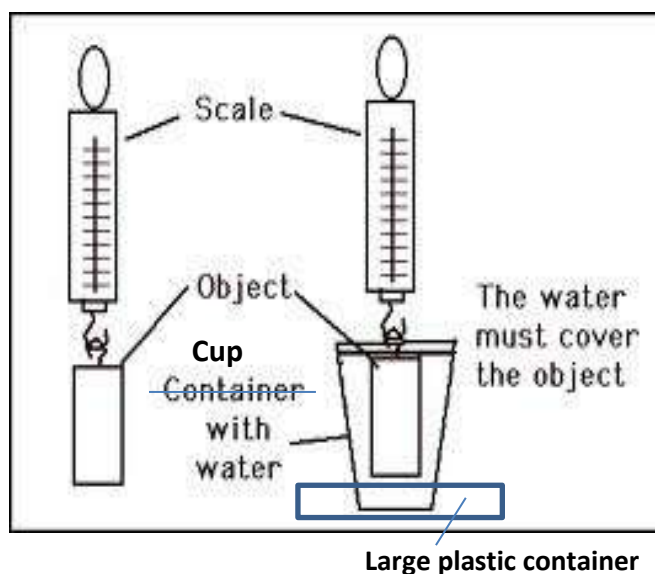
- Place the cup in the larger plastic container.
- Carefully fill the cup FULL to the brim with water.
- Hang the object from the spring scale and record weight in newtons.

Weight = \_\_\_\_\_

- With the object hanging from the spring scale, completely submerge the object in the water.
- Record the reading on the spring scale.

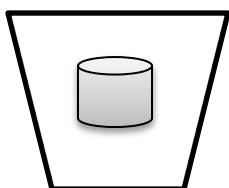
Weight = \_\_\_\_\_

- Calculate the buoyant force. \_\_\_\_\_



### Analysis:

1. Explain how the total force on the object changed when it was submerged in the water.
2. Reflect on Archimedes' principle and apply it to this lab. (What is Archimedes' principle and what does it have to do with this lab?)
3. How would the buoyant force change if the object was submerged only halfway in the water?
4. Draw the forces (with units) acting on the metal object.



5. Does the object sink or float? Use your drawing to explain why?