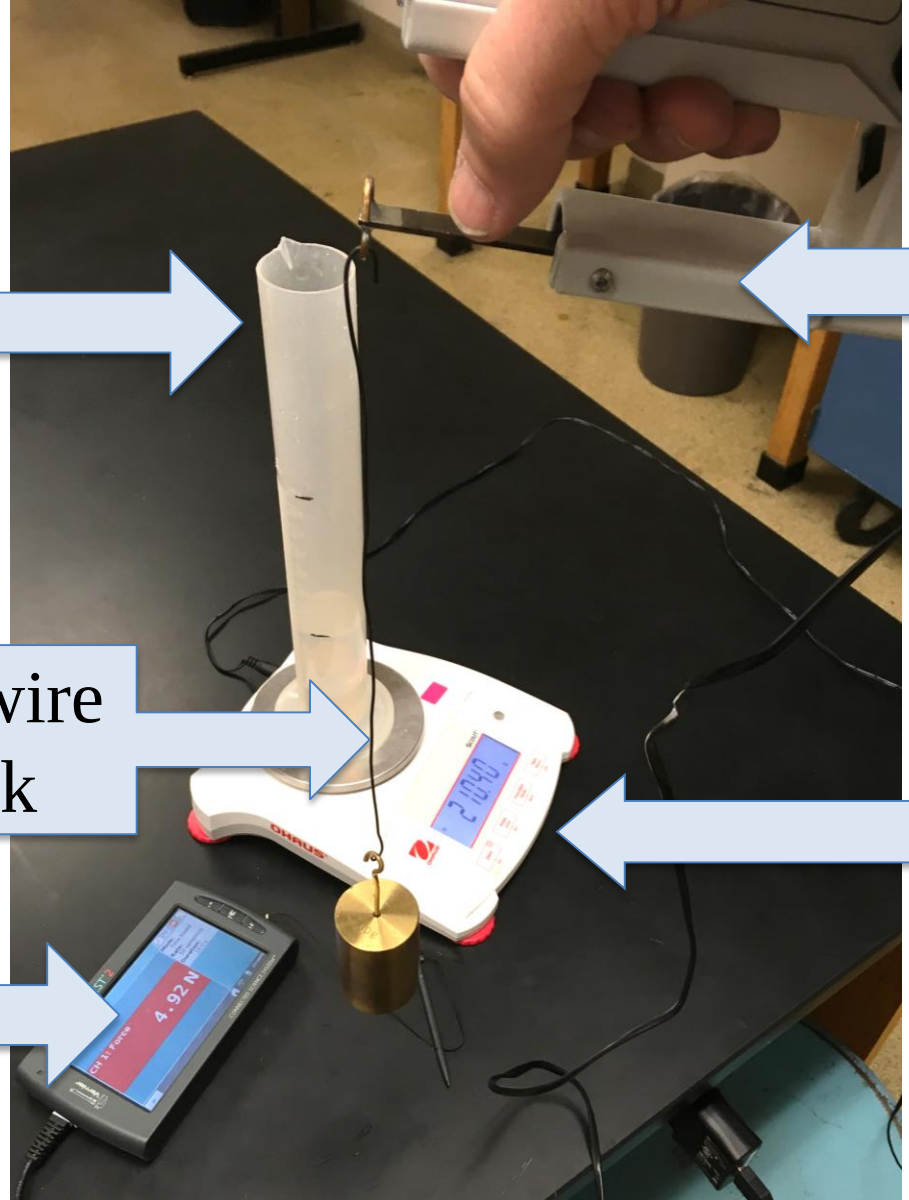
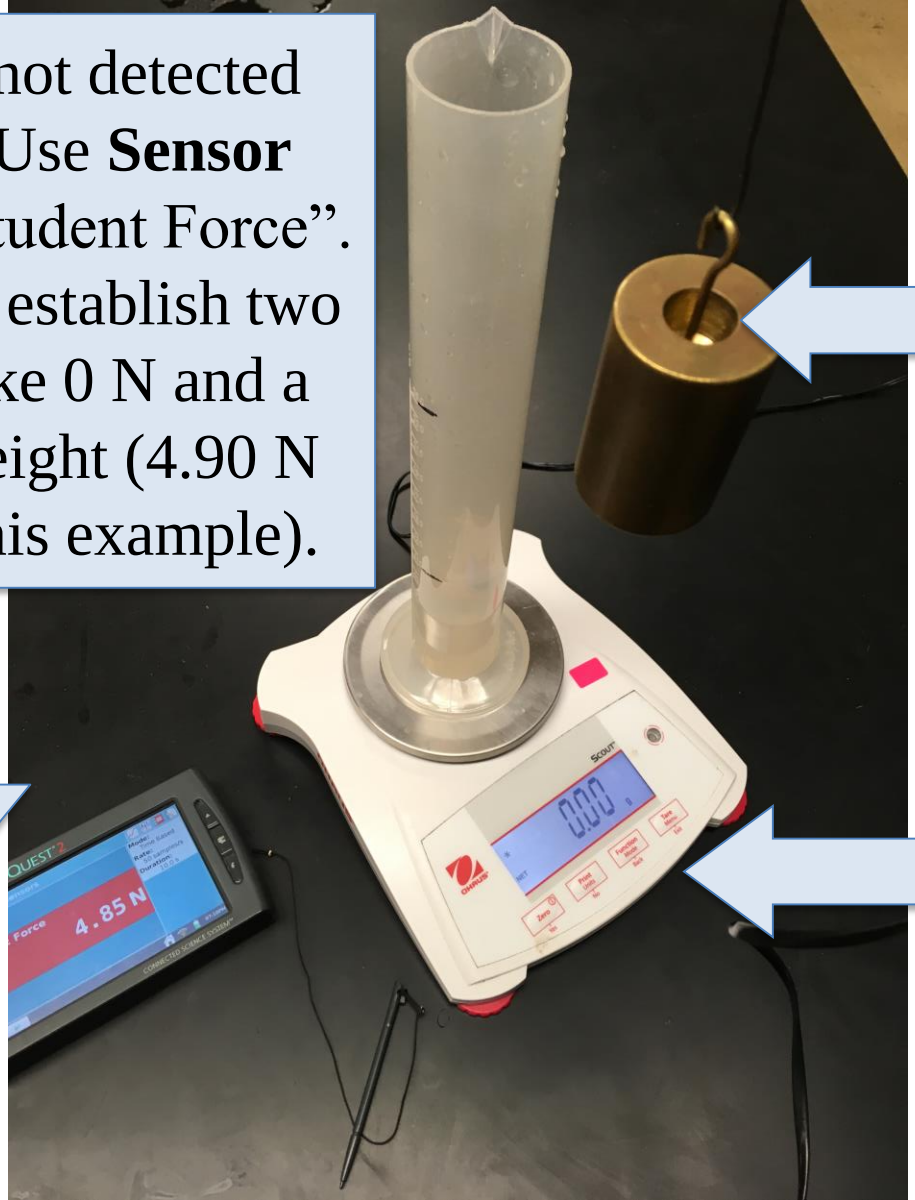
Buoyancy Lab

1. Collect data using three devices: mass (electronic balance), volume (graduated cylinder), and force (sensor and LabQuest).
2. Goals: determine specific gravity or density (your choice) of brass and stainless steel, verify Archimedes principle and the expected properties of buoyancy, verify Newton's 3rd Law as it applies to the submerged object.
3. Setup and procedure: devise a set of measurements that can be used to achieve the goals. Hint: observe and record anything and everything that might be useful!!
4. Zeros and calibration are important. So it a clear record of exactly what was done and what was measured and how.

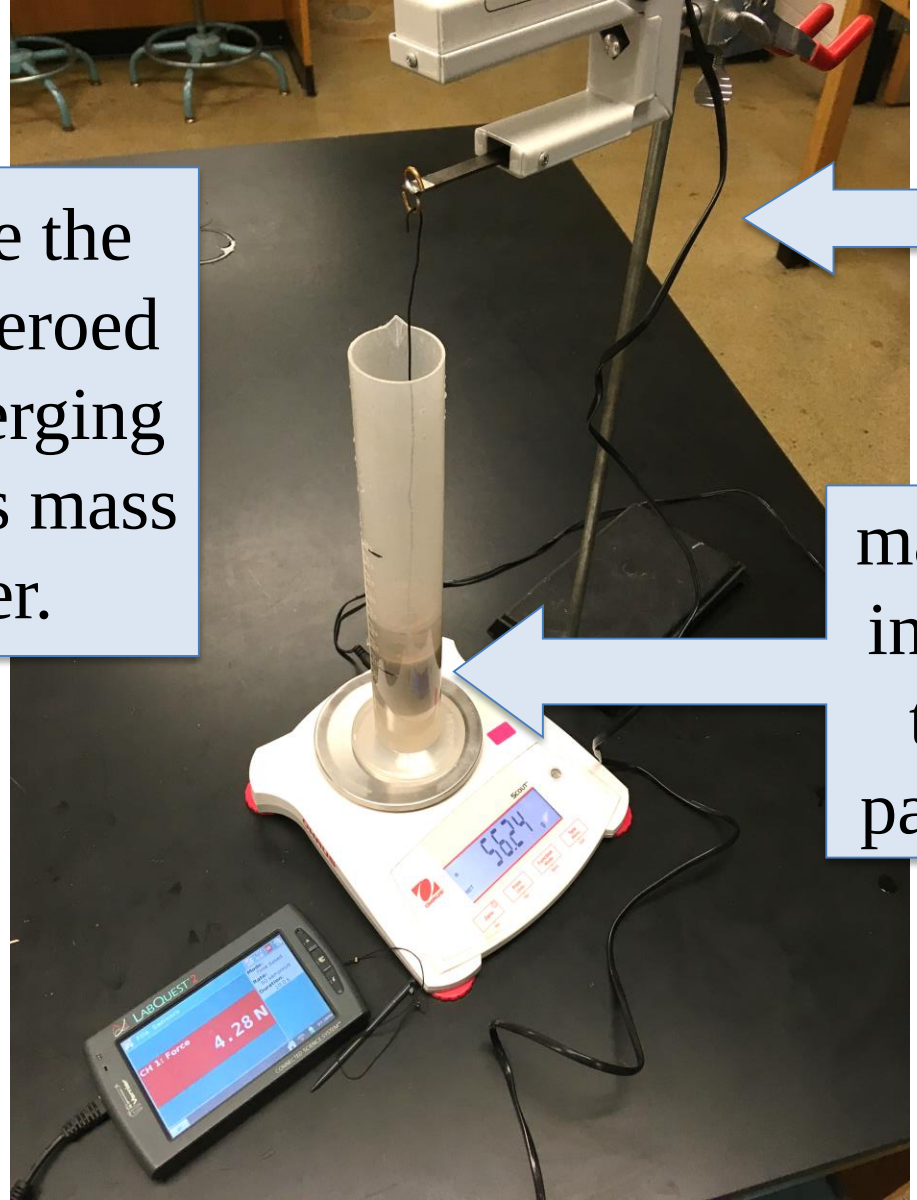

graduated cylinder with water
student force sensor
long wire hook
electronic balance
LabQuest force (weight)
4.92 N

Force sensor is not detected automatically. Use **Sensor** menu to select "Student Force". Use **Calibrate** to establish two known values like 0 N and a known object weight (4.90 N was entered in this example).



mass turned to prevent trapping air

the balance's zero (tare) feature may be helpful



In this picture the balance was zeroed prior to submerging the 500 g brass mass in the water.

force sensor attached to ring stead to steady it

mass submerged in water but not touching any part of cylinder!