Experiment 7: DENSITY

First Things First...
Please Hand in Last Week's Lab!

MASS

Mass is the number of protons and neutrons that an object has

Mass vs. Weight

- MASS = amount of stuff or number of protons and neutrons
- Same everywhere in universe

- WEIGHT = gravitational attraction on a given mass
- Different depending on where you are, i.e. you weigh less on the moon

Volume

The VOLUME of an object is simply how much space it takes up

Aggie Stadium –
LOTS of volume!

Mini-Me: Not so much...

Which Has More Mass?

A pound of feathers? Or a pound of lead?

Trick Question!!

- They both have the same mass... 1 lb
- In other words, they both have the same amount of stuff – protons and neutrons

BUT... how many feathers do you need to get 1 lb vs. how much lead to get 1 lb?

DENSITY!!

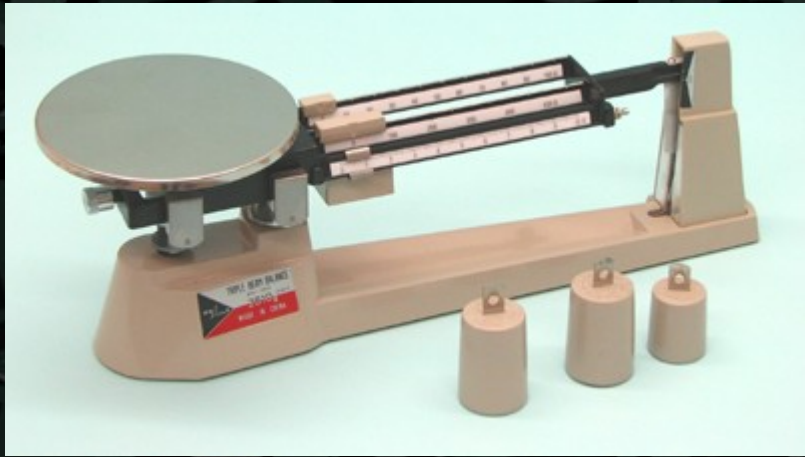
DENSITY = MASS/VOLUME

In other words… amount of stuff/amount of space

UNITS: g/cm^3

So to get DENSITY, need to know mass and volume

How do I find out the mass?



How do I find out the volume?

- Easy if it's a perfect sphere, or a cube...
- But WHAT IF it's something irregular?

DUNK IT IN WATER!

- 1 mL of water occupies exactly 1 cm^3

  => at room temperature, anyway
- Place object in graduated cylinder, see how much water it displaces (i.e. how much water level changes)
- This equals the volume

Archimedes and the Crown