

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Physical Science Notes 3  
Measuring Volume and Density

Volume

- Is the amount of space occupied by an object.
- **Volume of a solid**
  - Measuring the volume of a regular solid is simple. We measure the length (l), width (w), and height (h) of the object and use the formula:

$$l \times w \times h$$

- Examples of units typically used include: m<sup>3</sup>, cm<sup>3</sup>, Km<sup>3</sup>.
- **Volume of a liquid**
  - To measure the volume of a liquid, we use a graduated cylinder.
  - Similarly, we use the same tool to measure the volume of an irregularly shaped solid. The volume of an irregular solid is the same as the water that is displaced when it is submerged.
  - Usually, we use mL or L as the units for liquid measurements. Remember, however, that:  
 $1 \text{ mL} = 1 \text{ cm}^3$   
so we can find the volume of a solid and use the different units.

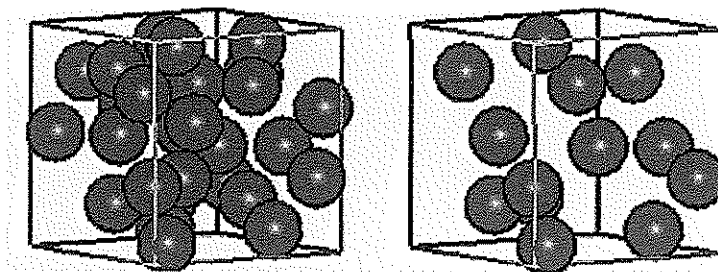
( $\text{cm}^3 = \text{CC}$   
in doctor speak)

## Density

- Is a measure of the mass of an object per unit of volume.
- To calculate density, we need to know the mass and the volume of an object.
- Use the methods above to determine the volume and use a scale (balance beam) to determine the mass.
- Then, we simply use the following formula to determine the density of an object:

$$D = \frac{m}{V}$$

- Less dense objects will float on top of denser ones. This happens in both liquids and air.



Units for density:

$g/cm^3$

$g/mL$