

## 1.6 DENSITY

Density: \_\_\_\_\_  
 \_\_\_\_\_

Density depends on \_\_\_\_\_, not how much there is.

Is density an intensive or extensive property?

Density of 1 gram of iron = density of 10 grams of iron

INTENSIVE property: a measurable property of a sample of matter \_\_\_\_\_  
 \_\_\_\_\_ of the matter is being considered.

Ex:

EXTENSIVE property: a measurable property of a sample of matter that \_\_\_\_\_  
 \_\_\_\_\_ of the matter that is being considered.

Ex:

*Formula for density:*

Density =

KNOW HOW TO  
 USE FORMULA!

**Common units for density:  $\text{g/cm}^3$  or  $\text{g/mL}$  or  $\text{kg/m}^3$**

Density depends on two things:

1. How tightly packed the atoms are
2. What kind of atoms they are

Need to know information for density:

- density of water =  $1 \text{ g/mL}$
- objects with a density GREATER than  $1 \text{ g/mL}$  will sink in water
- objects with a density LESS than  $1 \text{ g/mL}$  will float in water

Example 1. A certain mineral has a mass of  $17.8 \text{ g}$  and a volume of  $2.35 \text{ cm}^3$ . What is the density of this mineral?

Example 2. What is the mass of a  $49.6 \text{ mL}$  sample of a liquid, which has a density of  $0.85 \text{ g/mL}$ ?

Example 3. Copper has a density of  $8.96 \text{ g/cm}^3$ . If  $75.0 \text{ g}$  of copper is added to  $50.0 \text{ mL}$  of water in a graduated cylinder, to what volume reading will the water level in the cylinder rise?

