DENSITY-

NOTES ON DENSITY

I Density(D)

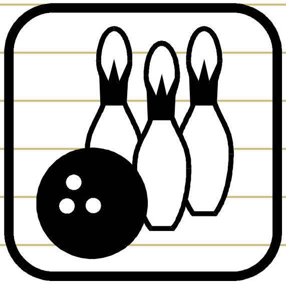
- An object's mass compared to its volume

- On Earth we can sometimes use weight for mass.

IV Density Facts

- Things with <u>HIGH Density</u>:
  Bowling Ball
  Shot put
- Big Marble

- Things with <u>LOW</u> <u>Density</u>:
  Soccer Ball
  Soft Ball
- Ping Pong Ball



I Density(D) Terms

- Mass = how many atoms is in an object (kind of like weight)
- Volume = how much room (space) an object occupies.
- Matter = anything has mass and volume.

I Density(D) Terms

- Mass = grams (or kilograms)
- Volume = milliliters (ml) or cubic centimeters (cc or cm^3) , liters (L)

II Density Definition(def)

- Density = how much stuff (matter) is in an object's volume.
- Density = mass divided by volume
- $D = \dfrac{M \text{ (mass)}}{V \text{ (volume)}}$ $\qquad D = V\overline{)M}$

2. Calculate the density of a material that has a mass of 52.457g and a volume of $13.5cm^3$.

D= M/V

M= 52.457g

V= $13.5cm^3$

D= $52.457g/13.5cm^3$

D= $3.9g/cm^3$

4. The density of silver is $10.49 g/cm^3$. If a sample of pure silver has a volume of $12.993 cm^3$, what would its mass be?

$M = D \times V$

$D = 10.49 g/cm^3$

$V = 12.993\ cm^3$

$M = 10.49 g/cm^3 \times 12.993\ cm^3$

$M = 136.3 g$

6. Pure gold has a density of $19.32 g/cm^3$. How large would a piece of gold be if it had a mass of 318.97g?

$V=M/D$

$D= 19.32 g/cm^3$

$M= 318.97 g$

$V= 318.97 g/19.32 g/cm^3$

$V= 16.5\ cm^3$

3. A student finds a rock on the way to school. In the laboratory he determines that the volume of the rock is 22.7 mL, and the mass is 39.943g. What is the density of the rock?

D= M/V

M= 39.943g

V= 22.7 mL

D= 39.943g/22.7 mL

D= 1.8g/mL

Bellringer #4

What is the mass of a 350 cm^3 sample of pure silicon with a density of 2.336g/cm^3?

The density of lead is 11.342g/mL. What would the volume of a 200.0g sample of this metal?

The mass of a toy spoon is 7.5 grams, and its volume is 3.2 mL. What is the density of the toy spoon?

Bellringer #4

What is the mass of a 350 cm^3 sample of pure silicon with a density of 2.336g/cm^3?

M=D x V

D= 2.336g/cm^3

V= 350 cm^3

M= 2.336g/cm^3 x 350 cm^3

M= 817.6g

7. The density of lead is 11.342g/mL. What would the volume of a 200.0g sample of this metal?

V=M/D

D= 11.342g/mL

M= 200.0g

V= 200.0g/11.342g/mL

V= 17.6 mL

8. The mass of a toy spoon is 7.5 grams, and its volume is 3.2 mL. What is the density of the toy spoon?

D=M/V

M= 7.5g

V= 3.2 mL

D= 7.5g/3.2mL

D= 2.3 g/mL

9. A mechanical pencil has the density of 3 grams per cubic centimeter. The volume of the pencil is 15.8 cubic centimeters. What is the mass of the pencil?

$M = D \times V$

$D = 3 g/cm^3$

$V = 15.8\ cm^3$

$M = 3 g/cm^3 \times 15.8\ cm^3$

$M = 47.4\ g$

10. A screwdriver has the density of 5.5 grams per cubic centimeter. It also has the mass of 2.3 grams. What is the screwdriver's volume?

V=M/D

M= 2.3g

D= 5.5g/cm^3

V= 2.3g/5.5g/cm^3

V= 0.4 cm^3