Name _____
Date _____ Per. _____

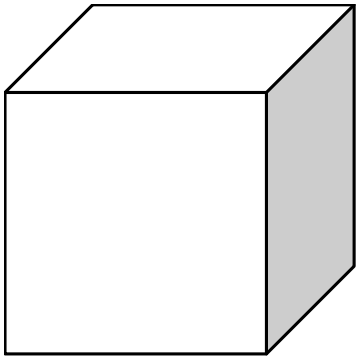
Density

Calculating Density

To find the volume of a regular-shaped object use the formula:

_____ X _____X_____

Find the volume of the cube below.



1 cm

1 cm

1 cm

_____ X _____X_____ = _____

1 cm^3 = 1 cubic cm

Water is the standard when comparing the densities of different objects.

1 mL of water would fill up 1 cm^3, therefore 1 mL of water = 1cm^3

1 mL of water = 1 g of water, therefore 1 mL of water = 1 cm^3 of water = 1 g of water

10 mL of water = _____ cm^3 = _____ g of water.

200 mL of water = _____ cm^3 = _____ g of water.

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

$$\text{Density} = \frac{M}{V}$$

Density of Water = _____ = _____ /

Name _____
Date _____ Per. _____

Calculate Density and Identify Substances Using a Density Chart

Density is a measure of the amount of mass in a certain volume.

This **physical property** is often used to identify and classify substances.

It is usually expressed in grams per cubic centimeters, or g/cm^3.

The chart on the right lists the densities of some common materials.

Densities of Substances

Substance	Density (g/cm^3)
Gold	19.3
Mercury	13.5
Lead	11.4
Iron	7.87
Aluminum	3.7
Bone	1.7 - 2.0
Gasoline	0.66 - 0.69
Air (dry)	0.00119

Equation: density = $\frac{\text{mass}}{\text{volume}}$ $D = \frac{m}{V}$

Sample Problem: What is the density of a billiard ball that has a volume of 100 cm^3 and a mass of 250 g?

$D = \frac{250\ g}{100\ cm^3}$ $D = 2.5\ g/cm^3$

Your turn! Show your work!

1. A loaf of bread has a volume of 2270 cm^3 and a mass of 454 g. What is the density of the bread?

2. A liter of water has a mass of 1000 g. What is the density of water? (Hint: 1 mL = 1 cm^3)

3. A block of wood has a density of 0.6 g/cm^3 and a volume of 1.2 cm^3. What is the mass of the block of wood? Be careful!

4. Use the data below to calculate the density of each unknown substance. Then use the density chart above to determine the identity of each substance.

	Mass (g)	**Volume** (cm^3)	**Density** (g/cm^3)	**Substance**
	Example: 4725	350	4725 ÷ 350 = 13.5	mercury
a.	171	15		
b.	148	40		
c.	475	250		
d.	680	1000		