We sometimes confuse weight with mass. When you step on a scale at home you are getting your mass.

Force - is a push or pull.

Gravity - is a natural force that causes an object to move toward the center of the earth.

Weight - is the force of gravity exerted on an object.

- Measured in Newtons (N)

The pull of gravity everywhere on an earth' surface is the same. It is a downward force of 9.8 N for every kilogram of its mass. (9.8N/kg)

Ex) A bag of sugar has a mass of 2kg

$2\ kg \times \frac{9.8\ N}{1kg} = 19.6\ N$ BUT weighs 19.6 N

You Try

Assume you have a mass of 50 kg. What would be your weight on earth?

$50\ kg \times \frac{9.8\ N}{1\ kg} = 490\ N$

Supplies soon needed for activity

Density Formula

Density of a substance can be determined by calculating its mass-to-volume ratio.

$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

Shorthand

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

Rearranged

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

-For liquids density is measured in g/mL or g/L

-For solids density is measured in g/cm^3

Density of water is 1.00 g/mL

A substance that had a density of 2.85 g/mL would _____ in water. It is _____ dense than water.

A substance that had a density of 0.82 g/mL would _____ in water. It is _____ dense than water.