

Notes: Measuring Matter

Weight and Mass

Weight is the measure of the force of gravity on mass. Weight changes as the force of gravity changes.

Mass is a measure of the amount of matter an object is made of. The mass of an object does not change.

Mass is measured in the base unit of grams (actually Kilograms).

Volume

Volume is the amount of space occupied by a three-dimensional object or region of space. The volume of a liquid is usually measured in milliliters (ml) or liters (l). The volume of a solid is usually measured in milliliters (ml) or liters (l).

Calculating the Volume of a Solid

Volume = length x width x height

If measuring in centimeters, the units of measurement would be cm^3 . Why? $\text{cm} \times \text{cm} \times \text{cm} = \text{cm}^3$

Density

Density is a measure of the mass per unit of volume of a substance.

The density of a substance can be used using the following formula...

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

What are the units of measurement for density?

For a solid, if measuring in grams and centimeters, the units of measurement would be g / cm^3 .

For a liquid, if measuring in grams and centimeters, the units of measurement would be g / ml .