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Physical Property

= Physical characteristic that can be observed using one of the 5 senses

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Examples of Physical Properties

malleability
 color
 odor
 density
 magnetic

BP
 MP
 FP
 hardness
 viscosity

ductility
 conductivity
 texture

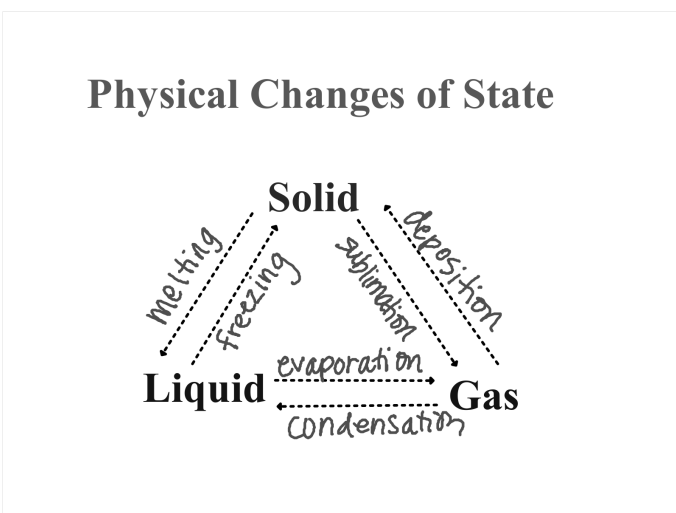
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Physical Change

= A change in which original substances remain unchanged and no new substances are produced.

= Can be reversed using physical techniques such as: distillation, filtration, evaporation, crystallization, etc.

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Chemical property

= the ability of a substance to react with other substances.

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Examples of Chemical Properties

ability to react with water

ability to react with air

ability to react with acid

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Chemical Change

= **Chemical reaction.**

= **Substances are changed into new substances with new properties.**

= **Can only be reversed by another chemical reaction.**

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Law of Multiple Proportions

John Dalton: When elements combine, they do so in small, whole numbers

Examples: CO₂ CO
H₂O H₂O₂

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Law of conservation of mass

**Mass of reactants =
Mass of products
in a chemical reaction**

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Law of definite proportions

Any given compound contains the same elements combined in the same proportions by weight.

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Example: Sucrose

8 g Carbon

2 g Hydrogen

10 g Oxygen

20 g total

Percent by mass:

$$\frac{8\text{g C}}{20\text{g}} \times 100 = 40\%$$

$$\frac{2\text{g H}}{20\text{g}} \times 100 = 10\%$$

$$\frac{10\text{g O}}{20\text{g}} \times 100 = 50\%$$

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