

Chemical Physical Change Notes

STATION #1

Physical changes – Alters the form of a substance, but not its identity. Examples include boiling, melting, tearing, crushing, & dissolving a substance. Physical changes can be reversible.

STATION #2

Chemical change or reaction –

Substances change chemically by new bonds being formed between the electrons of elements or bonds being broken between atoms . It takes some form of energy to do this. The result is a **new substance**. Examples include heating sugar until it melts. The bonds in the sugar are broken. New substance is caramel and water vapor. Burning wood is another example. The wood combines with oxygen, new bonds are formed. The new substances are ash and gases (CO₂).

STATION #3

Evidence of a Chemical Reaction

- Color Change - Ex: Burnt Toast
- Gas Production - From Solid or Liquid Reactants to a gas (not to be confused with air bubbles that form when something boils)
- Formation of a Precipitate - a solid that forms from two liquids

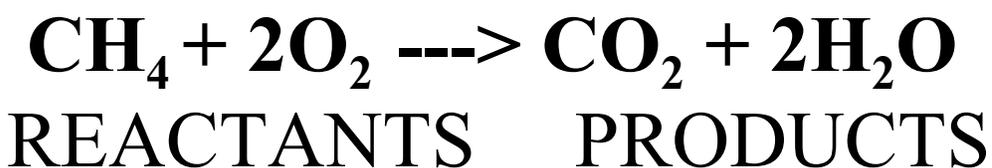
The result is always a **new substance/substances are formed.**

STATION #4

Reactants – The materials you have before a chemical reaction takes place

Products – The entirely new material(s) that result after a chemical reaction taking place.

Chemical Equation for burning methane gas:



STATION #5

Synthesis Reaction: -When two or more substances combine to make a different substance(s). (To synthesize is to put things together.)

Example: $2\text{H}_2 + \text{O}_2 \text{ ---> } 2\text{H}_2\text{O}$ (**Synthesis of water**)

Decomposition Reaction- Breaks down compound(s) into new products.

Example of Hydrogen Peroxide breaking down when exposed to light:



STATION #6

Law of Conservation of Mass –

The amount of matter in a chemical reaction does not change.

Therefore, the **total mass of the reactants** is equal to the **total mass of the products in a closed system**.

REACTANTS MASS = PRODUCTS MASS