

Chemical Reactions

Picture Vocabulary

C3AB Chemical Reactions

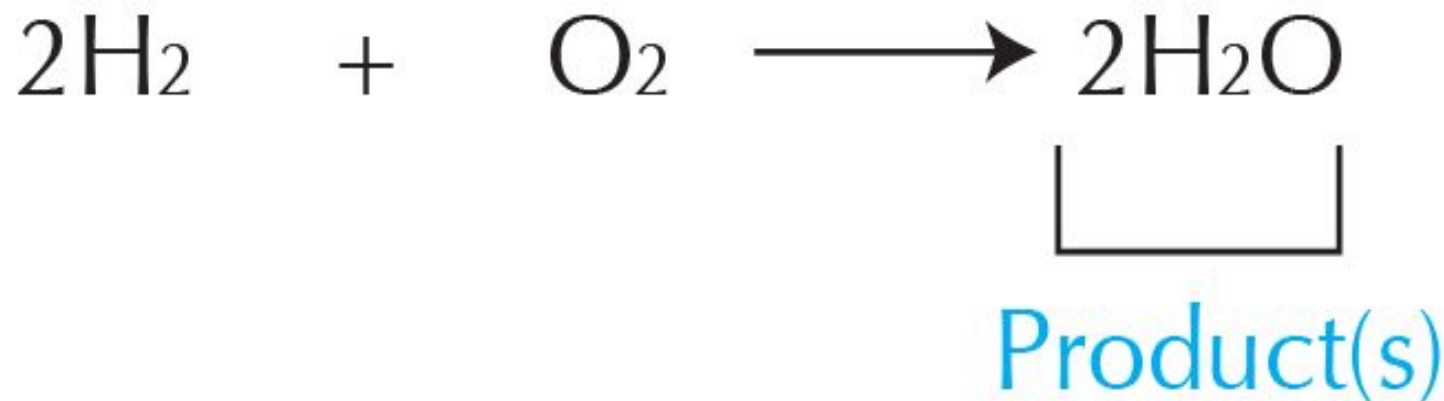
Reactant(s)



Reactants

The starting substance, written on the left side of the chemical reaction arrow, that will be destroyed during a chemical change

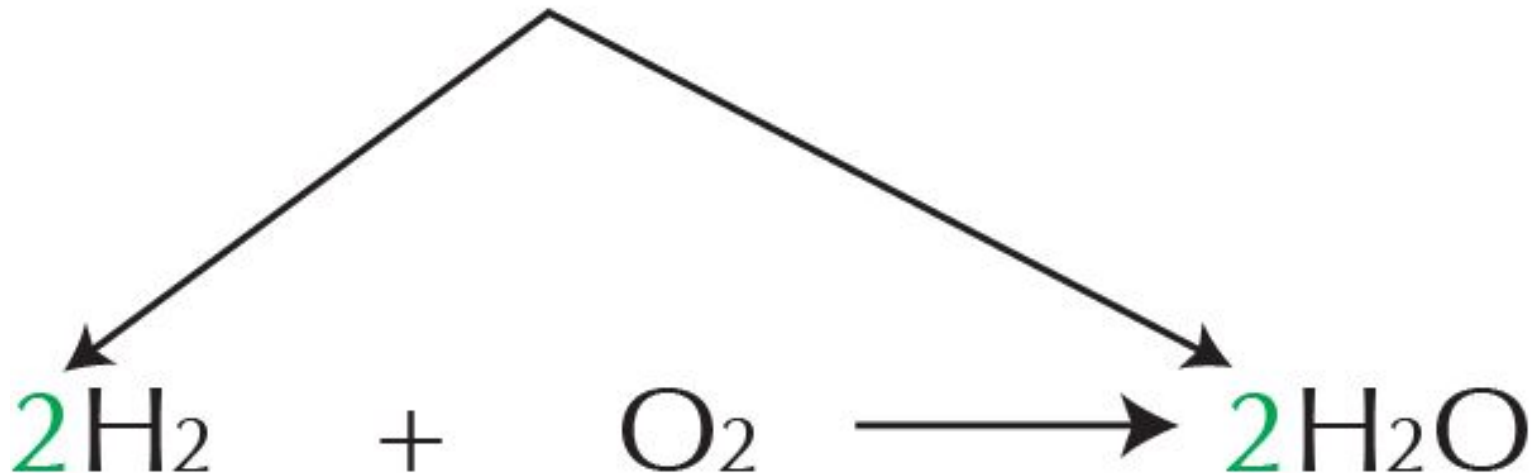
Product(s)



The ending substance(s), written on the right side of the chemical reaction arrow, that are created during a chemical change

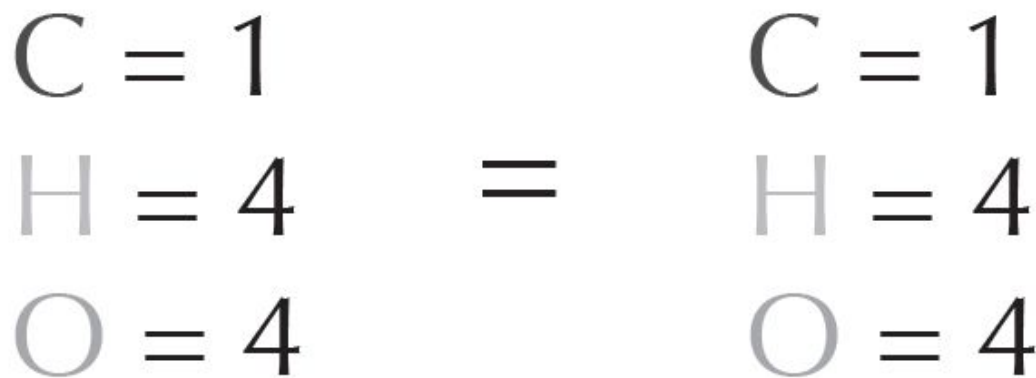
Coefficient

Coefficients



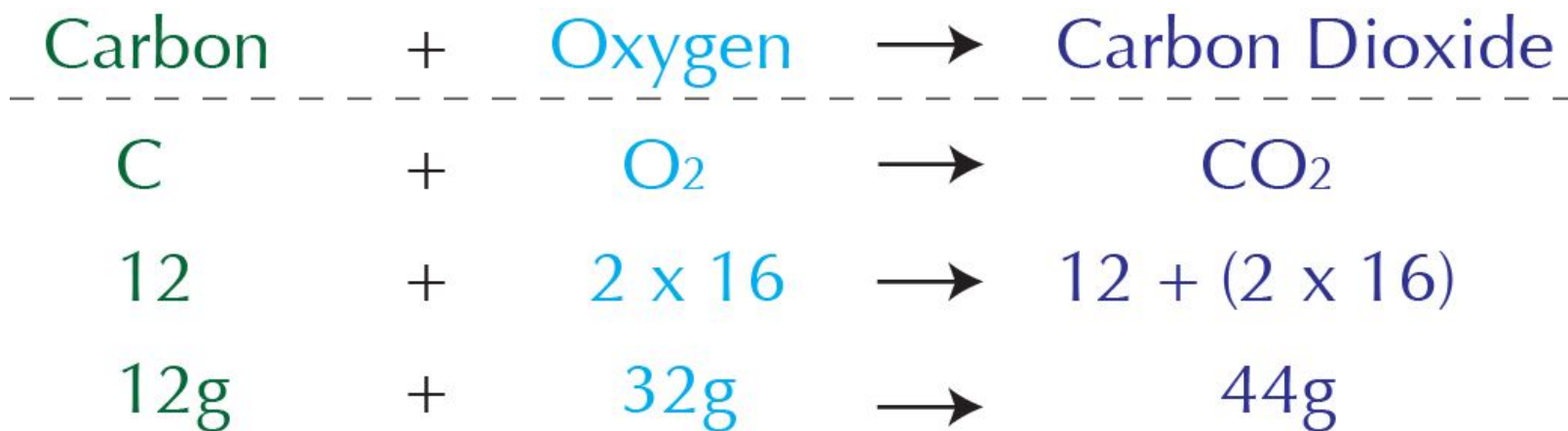
A number placed in front of a chemical symbol or formula in order to balance the equation

Balanced Chemical Equation



A chemical equation in which mass is conserved and each side of the equation has the same number of atoms of each element

Law of Conservation of Mass



The law that states matter can change states, but the mass remains the same

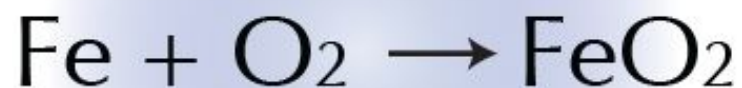
Mole Ratio



Mole ratio between O_2 and H_2O is **1:2**

The ratio between the amounts of moles of any two substances in a chemical reaction

Combination Reaction



Also known as a synthesis reaction; two or more reactants will combine during a chemical change to create one product. The general equation is:



Decomposition Reaction

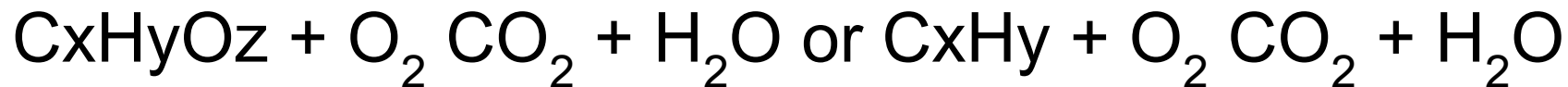


Where a single compound on the reactant side breaks down into two or more products during a chemical change; the general equation is: $\text{AX} \rightarrow \text{A} + \text{X}$

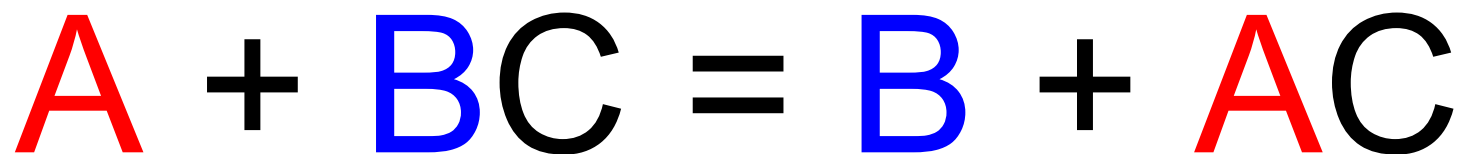
Combustion Reaction



This type of reaction is an oxidation process in which a compound of carbon, hydrogen, and sometimes oxygen reacts with oxygen gas to produce carbon dioxide gas and water. The general equations are:

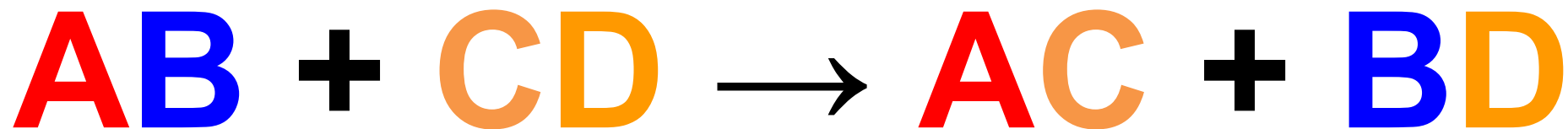


Single-Replacement Reaction



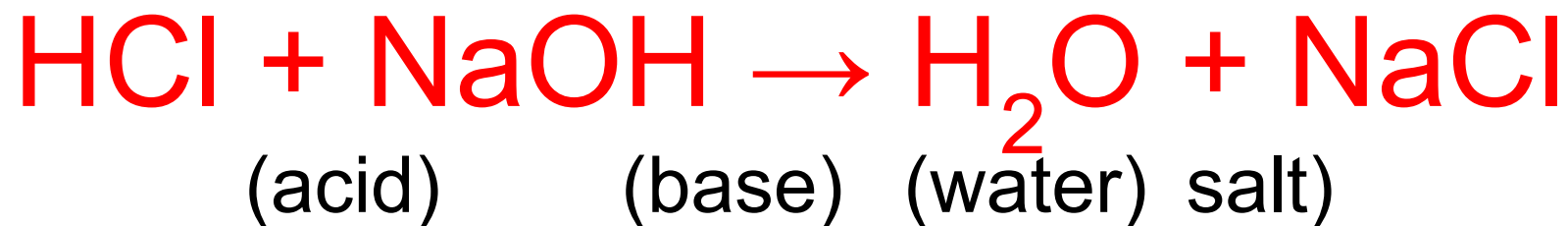
A redox reaction where one element or ion moves out of one compound and into another

Double-Replacement Reaction



In this type of reaction, the reacting compounds exchange cations during the chemical reaction. Precipitation reactions and acid-base reactions are both examples of this type of reaction. The general equation is $AX + BY = AY + BX$

Acid-Base Reaction



This type of double-replacement reaction occurs when equal amounts of an acid are added to a base so that the acid and the base neutralize each other, forming water and salt. The general equation is: $\text{HX (acid)} + \text{MOH (base)} = \text{H}_2\text{O (l)} + \text{MX (salt)}$

Precipitation Reaction



This type of double-replacement reaction occurs in aqueous solutions of ionic compounds where one of the reactants formed is a solid that “precipitates” from the solution. The general equation is: $\text{AX}(\text{aq}) + \text{BY}(\text{aq}) \rightarrow \text{AY}(\text{aq}) + \text{BX}(\text{s})$

Oxidation-Reduction Reaction



A chemical reaction that involves the transfer of electrons between atoms or molecules, changing the oxidation state of the reactants; the atom or molecule that gains electrons is oxidized, and the atom or molecule that loses electrons is reduced.

Activity Series

Metal	Oxidation Reaction					
Lithium	Li	\Leftrightarrow	Li ⁺	+	e ⁻	
Rubidium	Rb	\Leftrightarrow	Rb ⁺	+	e ⁻	
Potassium	K	\Leftrightarrow	K ⁺	+	e ⁻	
Barium	Ba	\Leftrightarrow	Ba ²⁺	+	2e ⁻	
Calcium	Ca	\Leftrightarrow	Ca ²⁺	+	2e ⁻	
Sodium	Na	\Leftrightarrow	Na ⁺	+	e ⁻	
Magnesium	Mg	\Leftrightarrow	Mg ²⁺	+	2e ⁻	
Aluminum	Al	\Leftrightarrow	Al ³⁺	+	3e ⁻	

A list of metals ranked by their ability or tendency to react with other substances

Chemical Reaction



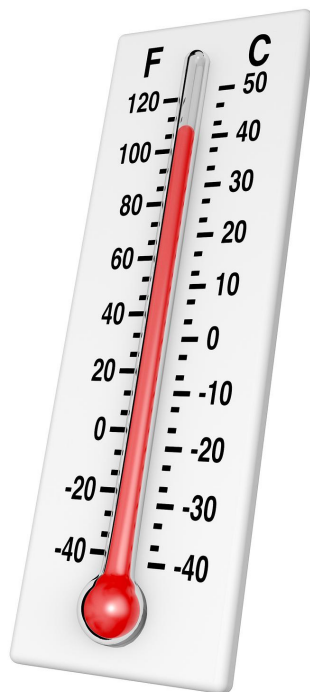
The process by which one or more substances change to produce one or more different substances

Color Change



A change that alters the identity of a substance, resulting in a new substance or substances with different properties

Temperature Change



Increase or decrease of heat energy in a substance, which may be evidence of a new substance formed during chemical change