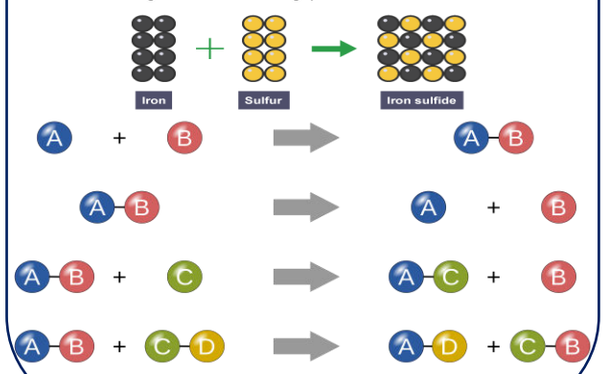
Year 8 Chemical reactions

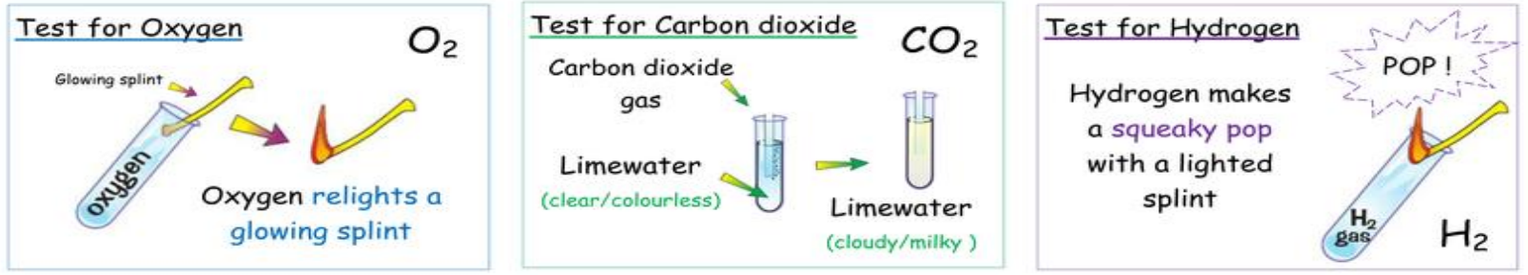
Keyword	Definition
Exothermic	A reaction that transfers energy to the surroundings, usually as thermal energy. This causes the reaction mixture and the surroundings to become hotter.
Endothermic	A reaction that takes in energy from the surroundings, usually as thermal energy. This causes the reaction mixture and the surroundings to become colder.
Combustion	The process of burning by being heat.
Limewater	A solution which turns cloudy in the presence of carbon dioxide.
Thermal decomposition	A reaction in which a compound breaks down when it is heated.
Oxidation	The gaining of oxygen during a chemical reaction.
Fuel	A material that is used to release thermal energy when burning such as coal, oil and gas.
Indicator	A substance which changes colour when it is added to an acidic or alkaline solution.
pH	A scale from 1 – 14 showing how acidic or alkaline a substance is.
Acidic	Having a pH lower than 7
Alkaline	Having a pH higher than 7
Base	A substance that reacts with an acid to neutralize it and produce a salt.
Neutralisation	When an acid reacts with an alkali to produce a neutral solution.
A salt	A substance produced by the reaction of an acid and a base.

Chemical reactions

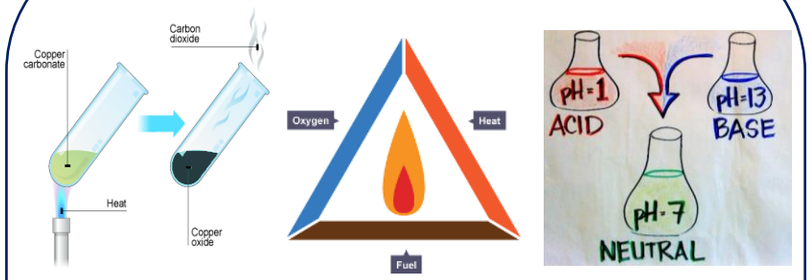
Chemical reactions create new substances or products. The atoms rearrange themselves and join back together in a different way, but the number of atoms of each type is the same before and after the reaction. It is very difficult to reverse a chemical reaction to get the starting products back.

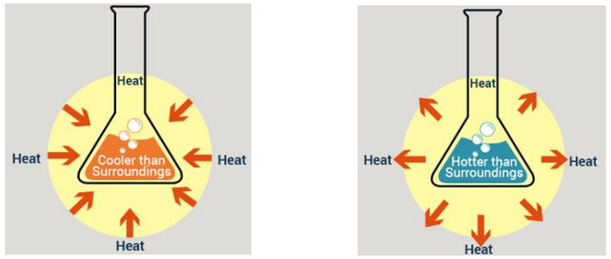


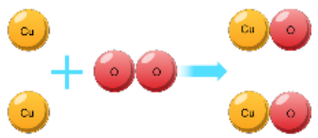
Testing for common gases



Types of chemical reaction







Writing equations

Chemical equations can be written as word or symbol equations. Word equations show the names of each substance whereas the symbol equation shows the chemical symbols, formulae and number of atoms and molecules.

Example of an oxidation reaction:

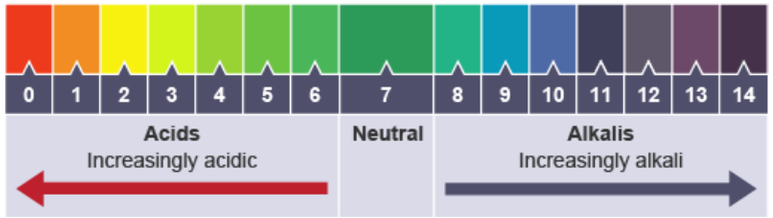
Word = Copper + oxygen ⟶ Copper oxide

Symbol = $Cu + O_2 \longrightarrow CuO$

Balanced symbol = $2Cu + O_2 \longrightarrow 2CuO$

Acids and alkalis

Universal indicator shows how strong an acid or alkali is using the pH scale below.

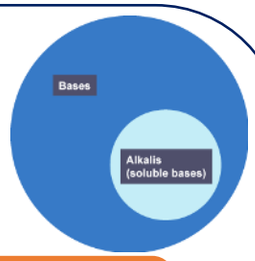


This sign means corrosive which is a property of acids and alkalis.

There are other hazard symbols such as flammable, acutely toxic, environmental hazard, explosive and health hazard which shown in the next column.

Salts

Salts are produced when an acid reacts with a base. Bases are usually metal oxides, metal hydroxides or metal carbonates. All alkalis are bases which are soluble as shown by the diagram.



Acid + Alkali = A salt + Water

Acid + Metal = A salt + Hydrogen

The salt produced will depend on the acid used:

Type of acid	Name of salt
Hydrochloric	_____ chloride
Sulfuric	_____ sulfate
Nitric	_____ nitrate

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Useful YouTube links:

Testing gases

Acids and alkalis

Making salts

Skills:

Hazard symbols

Flammable

Acutely toxic

Environmental hazard

Explosive

Health hazard