

Definitions and Concepts for AQA Chemistry GCSE

Topic 4 - Chemical Changes

*Definitions in **bold** are for higher tier only*

Definitions marked by '' are for separate sciences only*

Definitions have been taken, or modified from the [AQA Specification for GCSE Chemistry, 8462, Version 1.1 04 October 2019](#).

Acid: Acids produce hydrogen ions (H^+) in aqueous solutions. They have a pH range of 0-6.

Alkali: Alkalis produce hydroxide ions (OH^-) in aqueous solutions. They have a pH range of 8-14.

Crystallisation: A separation technique used to produce solid crystals from a solution by evaporating the solvent.

Displacement: A chemical reaction in which a more reactive element displaces a less reactive element from its compound.

Electrolysis: The splitting up of an ionic compound using electricity. The electric current is passed through a substance causing chemical reactions at the electrodes and the decomposition of the materials.

Electrolyte: A solution containing free ions from the molten or dissolved ionic substance. The ions are free to move to carry charge.

Extraction: Extraction techniques are used to separate a desired substance when it is mixed with others.

Filtration: A separation technique used to separate solids from liquids.

Negative electrode (cathode): The electrode where hydrogen is produced if the metal in the electrolyte is more reactive than hydrogen. **It is where positively charged ions gain electrons and so the reactions are reductions.**

Neutralisation: The reaction when an acid and a base react to form water and a salt.

Oxidation: A reaction involving the gain of oxygen. **Oxidation is the loss of electrons.**



pH scale: The pH scale, from 0 to 14, is a measure of the acidity or alkalinity of a solution, and can be measured using universal indicator or a pH probe.

Positive electrode (anode): The electrode where oxygen is produced unless the solution contains halide ions then the halogen is produced. **It is where negatively charged ions lose electrons and so the reactions are oxidations.**

***Redox reaction:** A reaction in which both oxidation and reduction occur simultaneously.

Reduction: A reaction involving the loss of oxygen. **Reduction is the gain of electrons.**

Reduction with carbon: Metals less reactive than carbon can be extracted from their oxides by reduction with carbon.

Strong acid: **A strong acid is completely ionised in aqueous solution. Examples of strong acids are hydrochloric, nitric and sulfuric acids.**

The reactivity series: Metals are arranged in order of their reactivity in a reactivity series. This can be used to predict products from reactions.

***Titration:** A technique used where a solution of known concentration is used to determine the concentration of an unknown solution.

Universal indicator: A mixture of dyes that changes colour gradually over a range of pH and is used in testing for acids and alkalis.

Weak acid: **A weak acid is only partially ionised in aqueous solution. Examples of weak acids are ethanoic, citric and carbonic acids.**

