

Definitions and Concepts for AQA Chemistry GCSE

## Topic 1 - Atomic Structure and the Periodic Table

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

Definitions marked by '\*' are for separate sciences only

Definitions have been taken, or modified from the <u>AQA Specification for</u> <u>GCSE Chemistry. 8462. Version 1.1 04 October 2019</u>.

Alkali metals: The elements in Group 1 of the periodic table.

Atom: The smallest part of an element that can exist. All substances are made up of atoms.

**Atomic nucleus:** Positively charged object composed of protons and neutrons at the centre of every atom with one or more electrons orbiting it.

Atomic number: The number of protons in the nucleus.

**Chromatography:** A separation technique used to separate a mixture of chemicals by distributing the components between two phases.

**Compound:** A substance made up of two or more types of atoms chemically combined together.

**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.

**Electron:** Negatively charged subatomic particle which orbit the nucleus at various energy levels. Very small relative mass (negligible).

Electron shell: Different energy levels in atoms occupied by electrons.

**Element:** A substance made up of only one type of atom.

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



**Fractional distillation:** A method of separating a mixture of substances according to their different boiling points.

**Group (periodic table):** The columns of the periodic table represent different groups of elements. Elements with similar properties are in the same group.

Halogens: The elements in Group 7 of the periodic table.

Ion: An atom or molecule with an electric charge due to the loss or gain of electrons.

**Isotope:** Atoms of the same element with the same number of protons but a different number of neutrons.

Mass number: The total number of protons and neutrons in the nucleus.

**Metals:** Elements that react to form positive ions. Found to the left and towards the bottom of the periodic table.

**Mixture:** A mixture consists of two or more elements or compounds not chemically combined together.

**Neutron:** Neutral subatomic particle present in the nucleus of the atom. Relative mass of 1.

Noble gases: The elements in Group 0 of the periodic table.

**Non-metals:** Elements that react to form negative ions. Found towards the right and top of the periodic table.

**Nuclear model:** The nuclear atomic model stated that the mass was concentrated at the centre of the atom and that the nucleus was charged.

**Periodic table:** Table of elements arranged in order of atomic number and such that elements with similar properties are in the same column (group).

**Plum pudding model:** Atomic model devised after the discovery of the electron. The model suggests the atom is a ball of positive charge with negative electrons scattered through it.

**Proton:** Positively charged subatomic particle present in the nucleus of the atom. Relative mass of 1.

**Relative atomic mass:** An average value that takes account of the abundance of the isotopes of the element.

**Simple distillation:** A procedure by which two liquids with different boiling points can be separated.

Transition metals: The collection of metallic elements in the middle of the periodic table.

