

Definitions and Concepts for WJEC (Eduqas) Chemistry GCSE

Topic 2 - Particles and Atomic Structure

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

Definitions have been taken, or modified from the [WJEC \(Eduqas\) Specification for GCSE Chemistry, C410, Version 3 January 2019](#)

Atom: The smallest part of an element that can exist. All substances are made up of atoms. Typical atomic radii are in the order of 10^{-10} m. Atoms contain a positively charged nucleus surrounded by negatively charged electrons. The nuclear radius is much smaller than the atomic radius and most of the mass is in the nucleus.

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.

Chemical change: Require a chemical reaction and the products must have a different chemical composition to the reactants.

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.

Group (periodic table): A column of the periodic table. Elements in the same group have similar chemical properties.

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.

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

Particle model: Models the three states of matter by representing the particles as small solid spheres. The particle model can help to explain melting, boiling, freezing and condensing.

Period (periodic table): A row of the periodic table. Elements in the same period have the same number of electron shells.

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

Physical change: Requires energy and involves a change in state. The form of the chemical is changed but the chemical composition remains the same.

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. The relative atomic mass is the average mass of an atom of an element compared to 1/12th the mass of an atom of carbon-12.

