# 2. Atomic Structure

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| Keyword | Definition |
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| Absorption spectrum | A spectrum of electromagnetic radiation transmitted through a substance, showing dark lines or bands due to absorption at specific wavelengths. |
| Anion | A negatively charged ion. |
| Atom | The smallest unit of an element. |
| Atomic Number | The number of protons in the nucleus. |
| Atomic Orbitals | A region around an atomic nucleus in which there is a 90% probability of finding an electron. |
| Aufbau Principle | States that electrons are placed into orbitals of the lowest energy first. |
| Cation | A positively charged ion. |
| Compounds | A substance made by chemically combining two or more elements. It has different properties from its constituent elements. |
| Continuous Spectrum | A spectrum that exhibits all the wavelengths of visible light with no breaks. |
| Converge | To meet in a point or line. |
| D Block | Elements whose valence electrons occupy a d sub-level |
| Degenerate | Atomic orbitals which have equal energy. |
| Electron | A subatomic particle with a negative charge |
| Electron Configurations | How electrons are arranged around a nucleus. |
| Elements | A substance that cannot be broken down into simpler substances by a chemical reaction. |
| Emission | The process of elements releasing different photons of colour as their atoms return to their lower energy levels. |
| Excited State | Any of the energy levels of a particle that has higher energy level than the lowest ener0gy level. |
| F Block | Elements whose valence electrons occupy an f sub-level. |
| Frequency | The number of waves that pass a point in one second. |
| Ground State | The lowest energy state of an atom or other particle. |
| Hund's Third Rule | If more than one orbital in a sub-level is available, electrons will occupy different orbitals with parallel spin. |
| Ionization energy | The energy needed to pull an electron away from the attraction of the nucleus. |
| Ions | Atoms with a charge, either positive or negative, due to the movement of electrons |
| Isotopes | Atoms of the same element with different numbers of neutrons. |
| Line Spectrum | The emission spectrum of an atom consists of a series of lines that get closer together at higher frequency. |
| Mass Number | The number of protons plus the number of neutrons in an atom. Also known as the nucleon number. |
| Mass | An instrument used to measure the mass of individual atoms. |

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| Spectrometer | |
| Mass Spectrum | The results of the analysis by the mass spectrometer. |
| Molecules | Two or more atoms bonded together. |
| Neutron | A subatomic particle with no overall charge. |
| Nucleons | Subatomic particles found in the nucleus; protons or neutrons. |
| Nucleus | The dense, positively charged centre of an atom. |
| P Block | Elements whose valence electrons occupy a p sub-level |
| Paradigm Shift | A major change in scientific thinking. |
| Pauli Exclusion Principle | States that each orbital can hold a maximum of two electrons which have opposite directions of spin. |
| Photon | A particle representing a quantum of light. |
| Proton | A subatomic particle with a positive charge. |
| Quantized | Only allowing discrete values. No continuum of values. |
| Quantum Theory | That electrons can behave as both particles and waves. |
| S Block | Elements whose valence electrons occupy an s sub-level. |
| Speed | The amount of wavelengths that pass a point each second. |
| Sub-Atomic Particles | Small particles which make up atoms. |
| Sub-levels | An energy level occupied by an electron defined by quantum theory. |
| Uncertainty Principle | States that the act of observing an electron causes it to move and no longer occupy that area of space. |
| Valence Electrons | Electrons that are found in the outermost shell and are involved in bonding. |
| Wavelength | The distance between two successive crests on different waves. |