

# Atomic Theory | Definitions

**Covalent Bonding:** Sharing of electrons

**Polar Covalent:** Where bonding electrons are shared unequally between atoms

**Ionic Bonding:** Bond is held together by the attraction of oppositely charged ions.  
(e.g. Sodium Chloride)

**Electronegativity:** Measure of the forces of attraction an atom in a molecule has for a shared pair of electrons

**First ionisation energy:** Minimum energy required to remove the electron most loosely bound from gaseous elements

**Energy Levels:** Specific or fixed amounts of energy an electron in an atom can have

**Orbitals:** Regions in space where an electron is most likely to be found

**Ground State:** When an atom occupies the lowest available energy level

**Dipole movement:** If an atom's centre of positive charge does not coincide with its centre of negative charge.

**Transition Elements/Metals definition:** Partially filled d-sub-level

**Transition Elements characteristics:** Catalysts, Coloured compounds, Variable valency

**Atomic Number:** Number of protons in an atom (in a neutral atom this equals the number of electrons also)

**Mass number:** Number of protons and neutrons in the nucleus of an atom

**Relative atomic mass:** Average mass of an atom of an element compared to the average mass of  $\frac{1}{12}^{th}$  of a carbon-12 atom

**Excited state:** When an atom gains energy and jumps up one or more energy levels

**Crystal Structure:** A unique arrangement of atoms in a crystal

**Allotrope:** Different physical forms in which an element can exist.

**Shape of an S-Orbital:** Spherical

**Shape of a P-Orbital:** Dumbbell shaped

**Quantum number:** Gives the main energy level or shell that an electron is on (e.g. n=1, n=2, etc ....)

**Bond Angle:** The angle that is formed between two adjacent bonds on the same atom.

**Hydrogen Bonds:** When Hydrogen is bonded to a very electronegative element, the bond is polar.

**Electronic configuration:**  $1S^2, 2S^2, 2P_x^2, 2P_y^2, 2P_z^2, 3S^2, 3P_x^2, 3P_y^2, 3P_z^2$