Crystalline Solids	Long range order Sharp melting point Anisotropic Definite enthalpy of fusion E.g. Sodium chloride and quartz
Amorphous Solids	Short range order Soften over a range of temperature Pseudo solids or super cooled liquids Isotropic E.g. Quartz glass, rubber, plastics
Non-polar Molecular Solids	Soft and non-conductors of electricity The atoms or molecules are held by weak dispersion forces or London forces Low melting points and are usually in liquid or gaseous state at room temperature E.g. H_2, Cl_2, CCl_4, and I_2

Polar Molecular Solids	Soft and non-conductors of electricity The atoms or molecules are held by dipole-dipole interactions Low melting points and are usually in the liquid or gaseous state at room temperature E.g. Solid SO_2, HCl, NH_3
Hydrogen Bonded Molecular Solids	Non-conductors of electricity Molecules are held by hydrogen bonds Generally they are volatile liquids or soft solids under room temperature E.g. H_2O (ice)
Ionic Solids	Electrical insulators in the solid state but conduct electricity in the molten state Cations and anions bound by strong electrostatic forces High melting and boiling points Hard and brittle E.g. NaCl, MgO, ZnS, CaF_2

Metallic Solids	Positive ions surrounded by a sea of free electrons Show high electrical and thermal conductivity Lustrous, malleable and ductile E.g. Fe, Cu, Ag, Mg
Covalent Solids	Network Solids or giant molecules Hard and brittle Insulators and non-conductors of electricity (graphite- exception) Extremely high melting points and may even decompose before melting E.g. Quartz, diamond, graphite
Cubic Crystal System	Primitive, Body-centred, Face-centred **Axial distances or edge lengths** - a = b = c **Axial angles** - $\alpha = \beta = \gamma = 90°$ **Examples** - NaCl, Zinc blende, Cu

Tetragonal Crystal System	Primitive, Body-centred **Axial distances or edge lengths** - a = b ≠ c **Axial angles** - α = β = γ = 90° **Examples** - White tin, SnO_2, TiO_2, $CaSO_4$
Orthorhombic Crystal System	Primitive, Body-centred, Face-centred, End-centred **Axial distances or edge lengths** - a ≠ b ≠ c **Axial angles** - α = β = γ = 90° **Examples** - Rhombic sulphur, KNO_3, $BaSO_4$
Hexagonal Crystal System	Primitive **Axial distances or edge lengths** - a = b ≠ c **Axial angles** - α = β = 90°, γ = 120° **Examples** - Graphite, ZnO, CdS

Rhombohedral or Trigonal Crystal System	Primitive **Axial distances or edge lengths** - a = b = c **Axial angles** - $\alpha = \beta = \gamma \neq 90°$ **Examples** - Calcite (CaCO3), HgS (cinnabar)
Monoclinic Crystal System	Primitive, End-centred **Axial distances or edge lengths** - a ≠ b ≠ c **Axial angles** - $\alpha = \gamma = 90°$, $\beta \neq 90°$ **Examples** - Monoclinic sulphur, $Na_2SO_4.10H_2O$
Triclinic Crystal System	Primitive **Axial distances or edge lengths** - a ≠ b ≠ c **Axial angles** - $\alpha \neq \beta \neq \gamma \neq 90°$ **Examples** - $K_2Cr_2O_7$, $CuSO_4.5H_2O$, H_3BO_3

Primitive Cubic Unit Cell	Atoms are present only at its corner Total number of atoms in one unit cell is = 1 atom
Body-centred Cubic (bcc) Unit Cell	An atom at all the corners and also one atom at its body centre Total number of atoms in one unit cell is = 2 atoms
Face-centred Cubic (fcc) Unit Cell	Atoms at all the corners and at the centre of all the faces of the cube Total number of atoms in one unit cell is = 4 atoms

Frenkel Defect	Also called dislocation defect Ionic substances having a large difference in the size of ions The smaller ion (usually cation) is dislocated E.g. ZnS, AgCl, AgBr and AgI due to small size of Zn^{2+} and Ag^{+} ions
Schottky Defect	Ionic substances having a similar size of ions The number of missing cations and anions are equal E.g. NaCl, KCl, CsCl and AgBr
Semiconductors	Solids with conductivities in the intermediate range from 10^{-6} to 10^{4} $ohm^{-1}m^{-1}$ Electrical conductivity increases with a rise in temperature Intrinsic semiconductors - Si and Ge

n-Type Semiconductor	Intrinsic semiconductor (Si and Ge) doped with an electron-rich impurity, i.e. group 15 elements P, As or Sb
p-Type Semiconductor	Intrinsic semiconductor (Si and Ge) doped with an electron-deficit impurity, i.e. group 13 elements like B, Al or Ga
Paramagnetism	Due to the presence of one or more unpaired electrons Weakly attracted by a magnetic field Lose their magnetism in the absence of magnetic field E.g. O_2, Cu^{2+}, Fe^{3+}, Cr^{3+}

Diamagnetism	All the electrons are paired Weakly repelled by a magnetic field E.g. H_2O, NaCl and C_6H_6
Ferromagnetism	Attracted very strongly by a magnetic field Can be permanently magnetised E.g. iron, cobalt, nickel, gadolinium and CrO_2
Antiferromagnetism	Domains are oppositely oriented and cancel out each other's magnetic moment E.g. MnO

Ferrimagnetism	Weakly attracted by magnetic field Lose ferrimagnetism on heating and become paramagnetic E.g. Fe_3O_4 (magnetite) and ferrite like $MgFe_2O_4$ and $ZnFe_2O_4$