Definitions and Concepts for AQA Physics A-level

Topic 6.2: Thermal Physics

Absolute Zero: The lowest possible temperature of a system, where no heat remains and the particles in the system have no kinetic energy.

Avogadro Constant: The number of particles that make up one mole of any gas.

Boltzmann Constant: A constant relating the average kinetic energy of the particles in a gas, to the gas' temperature.

Boyle's Law: The pressure of an ideal gas is inversely proportional to its volume when held at constant temperature.

Brownian Motion: The random motion of particles.

Charles' Law: The volume of an ideal gas is directly proportional to its absolute temperature when held at constant pressure.

Ideal Gas: A gas that meets the ideal gas assumptions. All the gas laws are based on ideal gases.

Internal Energy: The sum of the randomly distributed kinetic and potential energies of the particles in a given system.

Kelvin Scale: An absolute temperature scale that starts at absolute zero (0K = -273°C).

Molar Gas Constant: A fundamental constant, used in the ideal gas law.

Molar Mass: The mass of one mole of the substance in question.

Molecular Mass: The mass of one molecule of the substance in question.

Pressure Law: The pressure of an ideal gas is directly proportional to its absolute temperature, when the volume is fixed.

Specific Heat Capacity: The amount of energy required to increase the temperature of 1kg of a substance by 1 Kelvin.

Specific Latent Heat: The amount of energy required to change the state of 1kg of a substance without a change of temperature.

State Changes: During a state change, the potential energy of the system is changing but the kinetic energy is not.