

Definitions and Concepts for WJEC (Eduqas) Physics GCSE

Topic 2: Particle Model of Matter

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

Definitions marked by '' are for separate sciences only*

Chemical Changes: Changes to the chemical structure of a substance. The substance does not usually restore its original properties when the changes are reversed.

Condensation: The changing from vapour state to a liquid state, when a substance is cooled. Mass is conserved.

Density: The mass per unit volume of an object.

Evaporation: The changing from liquid state to a vapour state, when a substance is heated. Mass is conserved.

Freezing: The changing from a liquid state to a solid state, when a substance is cooled.

Gas Temperature: The temperature of a gas is directly proportional to the average kinetic energy of its molecules.

Gas: A state of matter in which the particles are spread apart and have high kinetic energies. Any intermolecular forces acting between the particles are very weak.

Internal Energy: The energy stored by the atoms and molecules that make up a system. It is equal to the sum of the total kinetic and potential energies of the particles in the system.

Kelvin: The SI unit of temperature, based on an absolute temperature scale. To convert from degrees Celsius to degrees Kelvin, subtract 273 degrees.

Liquid: A state of matter in which the particles are in contact, but can flow over each other. Intermolecular forces act between the particles.

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Melting: The changing from solid state to liquid state, when a substance is heated. Mass is conserved.

Pascals: The unit of pressure, equal to a force of one Newton acting perpendicular to an area of one metre squared.

Physical Changes: Changes to the physical properties of a substance which can be reversed. Changes of state are physical changes since substances can restore their original properties when the changes are reversed.

Pressure of a Gas: The perpendicular force per unit area acting on the surfaces of a container as a result of the gas particles colliding with it.

Pressure: The force acting perpendicular to a surface, per unit area.

Pressure-Volume Relationship: When at a constant temperature, the volume of a fixed quantity of gas is inversely proportional to its pressure.

Pressure-Temperature Relationship: When at a constant volume, the pressure of a fixed quantity of gas is directly proportional to its absolute temperature.

Solid: A state of matter in which the particles are tightly packed together and can only vibrate about their fixed positions. Strong intermolecular forces act between the particles

Sublimation: The direct changing of a substance from a solid state to a vapour state, without passing through the liquid phase.

Temperature: A measure of the average kinetic energy of the particles in a substance. An increase in temperature will result in an increase in the particles' kinetic energies and velocities.

