IGCSE Physics 0625 definitions

Exams in 2026, 2027 and 2028 · From the official Cambridge syllabus · Extended = Extended (Supplement) only · * standard definition: the syllabus gives no wording

Motion, forces and energy

Speed	Distance travelled per unit time.
Velocity	Speed in a given direction.
Acceleration Extended	Change in velocity per unit time.
Deceleration Extended	A negative acceleration.
Scalar quantity Extended	A quantity with magnitude (size) only, e.g. distance, speed, time, mass, energy, temperature.
Vector quantity Extended	A quantity with magnitude and direction, e.g. force, weight, velocity, acceleration, momentum.
Mass	A measure of the quantity of matter in an object at rest relative to the observer.
Weight	A gravitational force on an object that has mass.
Gravitational field strength	Force per unit mass ($g = W/m$); near the Earth it is about 9.8 N/kg.
Density	Mass per unit volume ($\rho = m/V$).
Spring constant Extended	Force per unit extension ($k = F/x$).
Limit of proportionality Extended	The point beyond which the extension is no longer proportional to the load.*
Solid friction	The force between two surfaces that may impede motion and produce heating.
Moment of a force	A measure of its turning effect: force × perpendicular distance from the pivot.
Equilibrium	When there is no resultant force and no resultant moment on an object.
Centre of gravity	The point through which the whole weight of an object appears to act.*
Momentum Extended	Mass × velocity ($p = mv$).
Impulse Extended	Force × time for which the force acts ($F\Delta t = \Delta(mv)$).
Resultant force Extended	The change in momentum per unit time ($F = \Delta p/\Delta t$).
Work done	Equal to the energy transferred ($W = Fd = \Delta E$).
Power	Work done per unit time, or energy transferred per unit time.
Efficiency Extended	(Useful energy output ÷ total energy input) × 100%, or the same with power.
Pressure	Force per unit area ($p = F/A$).

Thermal physics

Absolute zero	The lowest possible temperature (-273 °C), where particles have the least kinetic energy.
Brownian motion	The random motion of microscopic particles in a suspension, caused by random collisions with the particles of the gas or liquid.
Specific heat capacity Extended	The energy required per unit mass per unit temperature increase ($c = \Delta E/(m\Delta\theta)$).
Evaporation	The escape of more-energetic particles from the surface of a liquid.
Thermal radiation	Infrared radiation, emitted by all objects; it does not need a medium.

Waves

Wave	Waves transfer energy without transferring matter.
Wavelength	The distance between two neighbouring identical points on a wave, e.g. crest to crest.*
Frequency	The number of complete waves passing a point per second, measured in hertz (Hz).*
Amplitude	The maximum displacement of a point on the wave from its rest position.*
Transverse wave	The direction of vibration is at right angles to the direction of propagation.
Longitudinal wave	The direction of vibration is parallel to the direction of propagation.
Critical angle	The angle of incidence in the denser medium for which the angle of refraction is 90°.*
Refractive index Extended	The ratio of the speeds of a wave in two different regions ($n = \sin i / \sin r$).
Principal focus	The point where rays parallel to the principal axis meet after passing through a converging lens.*
Focal length	The distance from the centre of the lens to the principal focus.*
Virtual image	Formed when diverging rays are extrapolated backwards; it does not form a visible projection on a screen.
Monochromatic light Extended	Visible light of a single frequency.
Echo	The reflection of sound waves.
Ultrasound	Sound with a frequency higher than 20 kHz.

Electricity and magnetism

Magnetic field	A region in which a magnetic pole experiences a force.
Electric field Extended	A region in which an electric charge experiences a force.
Electric current Extended	The charge passing a point per unit time ($I = Q/t$).
Electromotive force (e.m.f.)	The electrical work done by a source in moving a unit charge around a complete circuit.
Potential difference (p.d.)	The work done by a unit charge passing through a component.
Resistance	The ratio of p.d. to current ($R = V/I$).
Kilowatt-hour (kWh)	The energy transferred by a 1 kW appliance in 1 hour (3.6 MJ).*
Conventional current Extended	Flows from positive to negative; free electrons flow from negative to positive.

Nuclear and space physics

Proton number (Z)	The number of protons in the nucleus.*
Nucleon number (A)	The total number of protons and neutrons in the nucleus.*
Isotopes	Atoms of the same element with the same number of protons but different numbers of neutrons.*
Background radiation	Ionising radiation that is always present in the environment, from natural and artificial sources.*
Radioactive decay	A spontaneous and random change in an unstable nucleus that can emit α-particles, β-particles and/or γ-radiation.
Half-life	The time taken for half the nuclei of an isotope in any sample to decay.
Light-year	The distance travelled in space by light in one year (about 9.5×10^{15} m).
Redshift	An increase in the observed wavelength of electromagnetic radiation from receding stars and galaxies.
Hubble constant Extended	The ratio of a galaxy's speed away from the Earth to its distance from the Earth ($H_0 = v/d$).

Astra Academy, Jeddah
In-person IGCSE, O Level & A Level tuition in Al-Rehab · First class free
WhatsApp 053 4077 611 · astraacademyksa.com