

A-Level Physics Curriculum Map 2025-26

Term	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit name:	Measurements and their errors & Particles and radiation	Particles and radiation	Mechanics & Waves	Materials Waves	Electricity	Further Mechanics
Yr 12	<p>Measurements and Errors:</p> <ul style="list-style-type: none"> Use of SI units and their prefixes. Limitation of physical measurements Estimation of physical quantities. <p>Particles and Radiation:</p> <ul style="list-style-type: none"> Constituents of the atom Stable and unstable nuclei Particles, anti-particles, and photons 	<ul style="list-style-type: none"> Particle interactions Classification of particles Quarks and antiquarks Photoelectric effect Collisions of electrons with atoms Energy levels and photon emission Wave-particle duality 	<p>Mechanics:</p> <ul style="list-style-type: none"> Scalars and vectors Moments Motion along a straight line Projectile motion Newton's laws of motion <p>Waves:</p> <ul style="list-style-type: none"> Progressive waves Longitudinal and transverse waves Principle of superposition of waves and formation of stationary waves 	<p>Materials:</p> <ul style="list-style-type: none"> Momentum Work, energy, and power Conservation of energy Bulk properties of solids The Young modulus Bulk properties of solids The Young modulus <p>Waves:</p> <ul style="list-style-type: none"> Interference Diffraction Refraction at a plane surface 	<ul style="list-style-type: none"> Basics of electricity Current-voltage characteristics Resistivity Circuits Potential divider Electromotive force and internal resistance 	<ul style="list-style-type: none"> Circular motion



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Unit name:	Further mechanics & Astrophysics	Astrophysics & Thermal Physics	Nuclear Physics & Fields	Nuclear Physics & Fields	Revision
Yr 13	<p>Further Mechanics:</p> <ul style="list-style-type: none"> • Circular motion • Simple harmonic motion • Simple harmonic systems • Forced vibrations and resonance <p>Astrophysics:</p> <ul style="list-style-type: none"> • Astronomical telescope • Reflecting telescopes • Single dish radio telescopes, I-R, U-V and X-ray telescopes • Advantages of large diameter telescopes • Classification by luminosity • Absolute magnitude • Classification by temperature, black-body radiation 	<p>Astrophysics:</p> <ul style="list-style-type: none"> • Principles of the use of stellar spectral classes • The Hertzsprung-Russell (HR) diagram • Supernovae, neutron stars and black holes • Doppler effect • Hubble's law • Quasars • Detection of exoplanets <p>Thermal Physics:</p> <ul style="list-style-type: none"> • Thermal energy transfer • Ideal gases • Molecular kinetic theory model 	<p>Nuclear Physics:</p> <ul style="list-style-type: none"> • Rutherford scattering • α, β and γ radiation • Radioactive decay • Nuclear instability • Nuclear radius • Mass and energy • Induced fission • Safety aspects <p>Fields:</p> <ul style="list-style-type: none"> • Newton's law • Gravitational field strength • Gravitational potential • Orbits of planets and satellites • Coulomb's law • Electric field strength • Electric potential 	<ul style="list-style-type: none"> • Capacitance • Parallel plate capacitor • Energy stored by a capacitor • Capacitor charge and discharge • Magnetic flux density • Moving charges in a magnetic field • Magnetic flux and flux linkage • Electromagnetic induction • Alternating currents • The operation of a transformer 	



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Academic
Excellence

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Ambition

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