

Physics KS5 Overview 2022-23

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 12	<p>Mechanics:</p> <ul style="list-style-type: none"> - Velocity and acceleration - Forces - Moments - Motion <p>Electric circuits:</p> <ul style="list-style-type: none"> - Current - Energy transfer - Resistivity <p><i>- Core Practical 2: Determine the electrical resistivity of a material.</i></p>	<p>Mechanics:</p> <p><i>- Core Practical 1: Determine the acceleration of a freely-falling object.</i></p> <ul style="list-style-type: none"> - Energy, work and Power - Momentum <p>Electric circuits:</p> <ul style="list-style-type: none"> - Series and Parallel - Potential dividers - Internal resistance <p><i>Core Practical 3: Determine the emf and internal resistance of an electrical cell.</i></p> <ul style="list-style-type: none"> - Power 	<p>Paper 1 centre assessment.</p> <p>Materials:</p> <ul style="list-style-type: none"> - Fluids - Stokes' law <p><i>- Core Practical 4: Use a falling-ball method to determine the viscosity of a liquid.</i></p> <p>Waves:</p> <ul style="list-style-type: none"> - Wave basics <p><i>- Core Practical 6: Determine the speed of sound in air using a 2-beam oscilloscope, signal generator, speaker and microphone.</i></p> <ul style="list-style-type: none"> - Phase - Superposition - Standing waves <p><i>- Core Practical 7: Investigate the effects of length, tension and mass per unit length on the frequency of a vibrating string or wire.</i></p>	<p>Materials:</p> <ul style="list-style-type: none"> - Hooke's law - Young's modulus - Stress-Strain graphs <p><i>- Core Practical 5: Determine the Young modulus of a material.</i></p> <p>Waves:</p> <ul style="list-style-type: none"> - Diffraction - Interference <p><i>- Core Practical 8: Determine the wavelength of light from a laser or other light source using a diffraction grating.</i></p> <ul style="list-style-type: none"> - Refraction <p>BPhO Senior Physics challenge</p>	<p>Waves:</p> <ul style="list-style-type: none"> - Total internal reflection - Lenses - Polarisation - Wave-Particle duality - Photoelectric effect - Electron diffraction - Atomic electron energies 	<p>Paper 2 Centre assessments.</p> <p>Further Mechanics:</p> <ul style="list-style-type: none"> - Collisions <p><i>- Core Practical 9: Investigate the relationship between the force exerted on an object and its change of momentum.</i></p> <p>Electric and Magnetic Fields:</p> <ul style="list-style-type: none"> - Electric Fields - Radial fields - Coulomb's law

Physics KS5 Overview 2022-23

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 13	<p>- <i>Core Practical 9: Investigate the relationship between the force exerted on an object and its change of momentum.</i></p> <p>Further Mechanics:</p> <p>- <i>Core Practical 10: Use ICT to analyse collisions between small spheres.</i></p> <p>- Centripetal force</p> <p>Electric and Magnetic Fields:</p> <p>- Electric fields</p> <p>- Capacitors</p> <p>BPhO Physics challenge</p> <p>BPhO Experimental Project</p>	<p>- <i>Core Practical 11: Display and analyse the potential difference across a capacitor as it discharges through a resistor.</i></p> <p>Electric and Magnetic Fields:</p> <p>- Magnetic fields</p> <p>- Electric motors</p> <p>- Generators</p> <p>- Alternating current.</p> <p>Nuclear & Particle Physics:</p> <p>- Accelerators and detectors</p> <p>- Particle interactions</p> <p>- Standard model</p> <p>- Particle reactions</p>	<p>Paper 1 centre assessment.</p> <p>Thermodynamics:</p> <p>- <i>Core Practical 12: Calibrate a thermistor in a potential divider circuit as a thermostat.</i></p> <p>- Internal energy</p> <p>- Heat transfer</p> <p>- <i>Core Practical 13: Determine a value for the specific latent heat of ice.</i></p> <p>- Ideal gas behaviour</p> <p>- <i>Core Practical 14: Investigate the relationship between the pressure and volume of a gas at fixed temperature.</i></p> <p>- Kinetic theory</p> <p>Nuclear Radiation:</p> <p>- Radioactive decay</p> <p>- Fission & Fusion</p> <p>- Power Stations</p>	<p>- <i>Core Practical 15: Investigate the absorption of gamma rays by lead.</i></p> <p>Gravitational fields:</p> <p>- Fields and forces</p> <p>- Newton's law of universal gravitation.</p> <p>Space:</p> <p>- Black-body radiation</p> <p>- Stellar classification</p> <p>- Distances to the stars</p> <p>- Doppler effect</p> <p>- Hubble constant</p> <p>Oscillations:</p> <p>- SHM</p> <p>- <i>Core Practical 16: Determine the value of an unknown mass using the resonant frequencies of known masses on a spring.</i></p> <p>- Energy, Resonance and damping</p>	<p>Paper 2 Centre assessments.</p> <p>Paper 3 Centre assessments.</p>	<p>Course end</p>