



## Year 12 PHYSICS

Subject and Year Group	Autumn Year 11	Autumn 2 Year 11	Spring 1 Year 11	Spring 2 Year 11	Summer 1 Year 11	Summer 2 Year 11
<b>Topic/Unit to be studied</b>	1+2 Particles & Radiation  14+15+16 Practical & Maths Skills 6 Forces in Equilibrium	3 Quantum Phenomena 4 Waves  7 On the Move	5 Optics  8 Newton's Laws	12 Electric Current  9 Force & Momentum	13 DC Circuits  10 Work, Energy & Power 11 Materials	19 Thermal Physics  17 Motion in a circle
<b>Core Knowledge and skills</b>	<ul style="list-style-type: none"> <li>Atomic structure and radioactivity</li> <li>The standard model of particle physics: hadrons and leptons</li> <li>Fundamental forces and bosons</li> <li>Particle interactions and Feynman diagrams</li> <li>Antiparticles and conservation</li> <li>Precision and uncertainty</li> <li>Accurate measurements</li> <li>Graphing skills</li> <li>Resultant and resolving forces</li> <li>Moments</li> <li>Stability and equilibrium</li> </ul>	<ul style="list-style-type: none"> <li>Light as a particle (photons)</li> <li>The photoelectric effect</li> <li>Energy levels and ionisation</li> <li>Wave quantities and measurements</li> <li>Wave properties</li> <li>Stationary waves</li> <li><b>RP1:</b> Stationary waves on a string</li> <li>Oscilloscopes</li> <li>Speed, velocity and acceleration</li> <li>Graphing motion</li> <li>Free fall</li> <li>Equations of uniform acceleration</li> <li><b>RP3:</b> determination of g by freefall</li> <li>Projectile motion</li> </ul>	<ul style="list-style-type: none"> <li>Refraction</li> <li>Total internal reflection</li> <li>Double slit interference</li> <li>Diffraction and diffraction gratings</li> <li><b>RP2:</b> Young's slits and diffraction gratings</li> <li>Force and acceleration</li> <li>Terminal velocity</li> <li>Forces and braking/ road safety</li> </ul>	<ul style="list-style-type: none"> <li>Charge and current</li> <li>PD and power</li> <li>Resistance and resistivity</li> <li><b>RP5:</b> resistivity of a wire</li> <li>Characteristic graphs for components</li> <li>Momentum and impulse</li> <li>Impact forces</li> <li>Conservation of momentum</li> <li>Elastic and inelastic collisions</li> </ul>	<ul style="list-style-type: none"> <li>Calculating resistance in circuits</li> <li>Defining and measuring EMF and internal resistance</li> <li><b>RP6:</b> EMF and internal resistance</li> <li>How potential dividers work</li> <li>GPE and KE</li> <li>Work and power</li> <li>Energy conservation and efficiency</li> <li>Density</li> <li>Deformation</li> <li>Young's Modulus (stress and strain)</li> <li><b>RP4:</b> Young's modulus of a wire</li> </ul>	<ul style="list-style-type: none"> <li>Internal energy</li> <li>Specific heat capacity and temperature changes</li> <li>Latent heat and changes of state</li> <li>Describing circular motion</li> <li>Centripetal acceleration</li> <li>Applying ideas about circular motion</li> </ul>
<b>Assessment</b>	End of Unit assessment (MCQ/short answer/long answer) with interleaved content from previous units. Feedback on assessed practicals (in lab books)					