



## Year 12 Curriculum Grid

# Physics

Year/Term	Unit	Intent
Curriculum purpose		To inspire students, nurture a passion for Physics, lay the groundwork for further study in Physics related courses whilst providing numerous opportunities to use practical experiences to link theory to reality and equip students with the essential practical skills they need for future scientific study
Autumn	Measuring and Uncertainty	<ul style="list-style-type: none"> <li>• Understand sources of uncertainty and how these can be calculated</li> <li>• Uses of SI units and their prefixes</li> <li>• Limitations of physical measurements</li> <li>• Estimate orders of magnitude</li> </ul>
	Particle Physics	<ul style="list-style-type: none"> <li>• Name the different particles and how they interact: Constituent of an atom, stable and unstable nuclei, particles and antiparticles and photons and the understanding the four fundamental forces of the gauge bosons and their interactions</li> <li>• Particle classification; Hadrons, Baryons, Leptons quarks/antiquarks</li> <li>• Application of the conservation laws</li> </ul>
	Quantum	<ul style="list-style-type: none"> <li>• Describe wave particle duality and evidence for it in terms of Threshold frequency, photon explanation of threshold frequency.</li> <li>• Understand about photoelectric effect and energy levels</li> </ul>
	Mechanics	<ul style="list-style-type: none"> <li>• Mathematical descriptions of mechanics including Force, Energy, Momentum and Moments.</li> <li>• Understand and develop their ideas around motion in a straight line and that of a projectile with the use of SUVAT</li> <li>• Build on their understanding of work, energy, power and the conservation of energy.</li> </ul>
	Waves	<ul style="list-style-type: none"> <li>• Develop knowledge of progressive and stationary waves and the principle of superposition of waves and the formation of a stationary wave.</li> <li>• Understand properties of waves and their uses</li> <li>• Further develop knowledge of waves including using more complex work on light with lasers</li> </ul>
Spring	Electricity	<ul style="list-style-type: none"> <li>• Further develop knowledge of circuits, which including current, voltage and the introduction of resistivity and potential dividers.</li> <li>• Understand what internal resistance and electromotive force and how it applies to terminal potential difference.</li> </ul>
	Materials	<ul style="list-style-type: none"> <li>• Use practical skills to work out different material properties e.g. Young's Modulus</li> <li>• Bulk properties of a solid</li> </ul>
Summer	Thermal Physics	<ul style="list-style-type: none"> <li>• Introduction to A2 content of thermal physics</li> </ul>
	Further Mechanics	<ul style="list-style-type: none"> <li>• Introduction to A2 content of further mechanics</li> </ul>
	Revision	<ul style="list-style-type: none"> <li>• Revise Year 12 content</li> </ul>