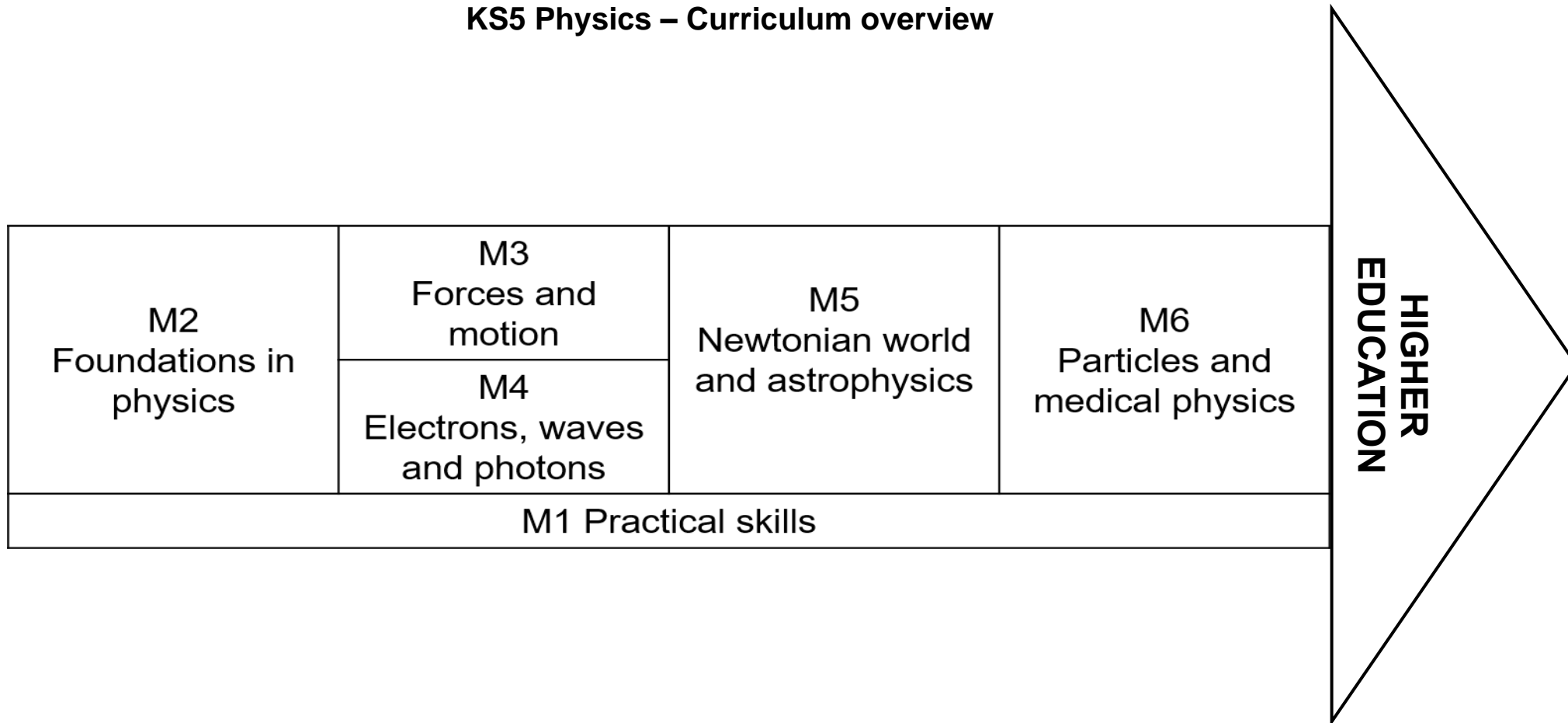


KS5 Physics – Curriculum overview



The above arrow shows the progression of physics topics across Key Stage 5. It shows how substantive knowledge is built upon in a sequential nature to prepare learners for Higher Education. Running alongside and integrated throughout is the thread of working scientifically whereby students develop their knowledge of scientific methods, apparatus and data analysis.

KS5 Physics – Curriculum intent

Intent		What new knowledge/content do we introduce?					
By the end of KS5 students are able to...		Year 12	Year 13		Choices	How does this curriculum incorporate the National Curriculum and go beyond? How does going beyond the NC ensure challenge?	
<p>Explore the phenomena of the universe and to think critically about the theories that explain what is observed.</p> <p>Conduct and perform a variety of experiments including utilising statistics to analyse data.</p>	Autumn	Foundations of physics Physical quantities and units Making measurements and analysing data Nature of quantities		Newtonian world and astrophysics Thermal physics Circular motion Oscillations Gravitational fields Astrophysics and cosmology	Particles and medical physics Capacitors Electric fields Electromagnetism Nuclear and particle physics Medical imaging	With students potentially arriving from multiple schools of diverse science provisions, we begin the course with a prolonged foundation in chemistry topic. This ensures all learners are equipped with the necessary substantive knowledge to access the following content and acts as a springboard for the subsequent modules.	A-level Physics goes beyond the national curriculum by providing opportunity for additional challenge and extension within each scheme of work. This often bridges the content between A-level and Higher Education and permits students the opportunity to uncover potential career pathways within the scientific fields.
	Spring	Forces and motion Motion Forces in action Work, energy and power Materials Newton's laws of motion and momentum	Electrons, waves, photons Charge and current Energy, power and resistance Electrical circuits Waves Quantum physics	Revision and assessment			
	Summer						

	<p>Rationale for this sequence</p>	<p>Students arrive with diverse prior knowledge of relevant physics. Therefore, the first topic provides a foundational knowledge of the subject. The content here underpins much of the requisite content needed to access subsequent modules.</p> <p>The first topic begins with motion and forces where the maths used to model motion will be introduced and the concepts of forces and energy are developed from GCSE to further understanding. Similarly, electrons, waves and photons are taught so that students can heighten their knowledge of circuitry from KS4. This will improve their knowledge of circuitry and waves and thus scaffold their understanding as they move towards key ideas in quantum physics in Year 13.</p>	<p>In Year 13, Newtonian World builds upon the forces and motion topic of Y12. In this unit, students will learn to apply their knowledge of forces to model the motion of atoms as well as planets and distant galaxies.</p> <p>Meanwhile, in the particles and medical physics topic, students will learn to apply what has been covered in Y12 to a variety of topics. This includes capacitors, electric fields, electromagnetism, nuclear physics, and particle physics and medical imagining.</p>		<p>Further, there are also opportunities to enrich learning beyond the curriculum through the use of trips in the local area (e.g. treasure trails around Cambridge) or visiting guest speakers.</p>
	<p>How does the KS5 Curriculum build on previous learning at KS4?</p>	<p>In each case, A level physics develops substantive knowledge in specific domains and invites students to make connections and links with existing knowledge. Examples include:</p> <ul style="list-style-type: none"> - Forces and motion building upon GCSE knowledge of P5 Forces - Particles and medical physics building upon GCSE P7 Magnetism and electromagnetism - Astrophysics building upon GCSE P8 Space 			