

Year 11: Physics

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Topics	P5 Forces: Describing motion along a line, Newtons Laws, braking, momentum (HT) Focus: Exam practice & revision of P1 to P4 in preparation for the mock	P5 Forces (complete topic) & P6 waves: Waves in fluids/solids, Electromagnetic waves (Triple: black body radiation, lenses and sound) Focus: Practical skills including analysing/evaluating and memorising equations	P6 Waves (complete topic) & P7 Magnetism & Electromagnetism: magnets, forces & fields, the motor effect (Triple: Induction, transformers and the national grid) Focus: links (retrieval practice) to P1 Energy topic in Y9 and memorising equations	P7 Magnetism & Electromagnetism: (complete topic) & Commence revision Focus: review of key content for paper 1 and 2, practical and mathematical skills, exam practice & preparation	Revision (all topics) Focus: review of key content for paper 1 and 2, practical and mathematical skills, exam practice & preparation	Revision (all topics) Focus: review of key content for paper 1 and 2, practical and mathematical skills, exam practice & preparation
Assessments	Exam style mini assessment based on forces topics	Full AQA paper 1 Mock exam based on topics P1-P4 (year 9 & 10)	AQA paper 2 Mock exam based on paper 2 topics covered in Y10/11 (P5 -P8)	Exam style assessment based on P7 only.	AQA Exams Paper 1 and 2.	AQA Exams Paper 1 and 2.
Building on Prior Learning	<p>Substantive Knowledge – students apply the basic knowledge of forces that they developed in the first part of the forces topic (Year 10 & earlier) and use it to analyse and explain the motion of objects in a straight line. The initial study of waves and magnetism topic is based on learning that has not been developed since the Key stage 3 review in Autumn of Y9 and so the core knowledge will be thoroughly reviewed before developing it much further as students study complex ideas such as refraction and the motor effect.</p> <p>Disciplinary/procedural Knowledge – Students will continue to develop their ability to use equations in performing more complex calculations, including both changing the subject of the equation and performing multi-step calculations involving more than one equation from multiple topic areas. Students also apply the skill of taking gradients to speed/velocity time graphs. The practical skills developed in Y9/10 are consolidated further as students use them to undertake the final few required practicals in preparation for their final examinations.</p>					
Cultural Capital	<p>There is cultural capital in abundance in this programme of study: Students will learn about the importance of driving safely and safety features in car design during the latter part of the forces topic. Although we do not study it directly, some of the key concepts behind explaining how the atmosphere absorbs & retains thermal energy is studied during the waves topic.</p>					
Mastery	<p>In terms of mastery students will be given opportunities to apply their Physics knowledge through varied and complex contexts & scenarios. In year 11 this is achieved largely through exam practice and the completion of two mock examinations, the rationale being that at this point in the course, students benefit most from practicing as wide a range of exam question as possible. Student routinely practice and apply the methodical approach to performing calculations in preparation for the exams and are given a wide range of required practical exam questions which help develop practical skills further.</p>					
Development of Character	<p>A wide range of virtues are covered through the teaching of Physics: The intellectual virtue of resilience is explored with students being taught the importance of regular review and revision (perseverance) in the run up to exams. Collaborative working and honesty are important to the scientific method and development/acceptance of new ideas. These will be covered throughout Year 11.</p>					
Extra-Curricular opportunities	<p>In School: STEM Club (across all 3 science) Outside of School: Science Live GCSE Event in Birmingham Visit to QE Hospital radiotherapy unit (potential A Level students)</p>					
Metacognitive Learning	<p>Students will continue to be exposed to more complex mathematical calculations, (through modelling where needed but this will be used less and less over time) as well as the use of a systematic approach, which by Year 11 should be almost automatic. Students are encouraged to reflect more on their own performance in mocks/exam practice and increasingly guide themselves through setting and then completing their own targets for revision and improvement.</p>					