



Year 12: Physics

Curriculum Intent: Students follow the two-year OCR A-Level (A) Physics specification building on their existing knowledge from GCSE. In the early stages of the course, students are given a grounding in some of the basic skills they will need for the course such as the treatment of experimental data. Pupils will then study Module 3 and 4 of the OCR specification up to their PPEs. Some topics from Module 5 and 6 are also introduced towards the end of the year. Learning is supported by practical work and students will complete approximately 9 practical assessments (PAGs) during the year which count towards their final qualification. Students are taught by 2 teachers

	Module 1 & 2	Module 3- Forces and Motion	Module 4 – electricity, waves and photons	Module 5 (part)- physics and Module 6 (part) –
Key ideas	<ul style="list-style-type: none"> • What are scalars and vectors? • How can the uncertainty in experimental results be expressed numerically? • How can units be determined using SI base units ? 	<ul style="list-style-type: none"> • How can the motion of objects be mathematically modelled in 1 and 2 dimensions and how do forces affect that motion? • How can systems be analysed in terms of energy? • How can Newton’s Laws be used to predict motion of interacting objects ? 	<ul style="list-style-type: none"> • How can circuits be analysed in terms of current, potential difference and resistance? • How can circuits be used to control other devices by using potential divider circuits? • How do waves interact with matter and with other waves? • How do particles behave at the quantum level? 	<ul style="list-style-type: none"> • How do objects respond to being heated and what is absolute zero? • What are the fundamental particles that make up all matter?
Sequence of Learning	<ul style="list-style-type: none"> • Homogenous equations • Uncertainties • Plotting graphs and analysing data • PAGs are completed at various points throughout the course 	<ul style="list-style-type: none"> • Forces and motion • Forces in action • Work, energy and power • Materials • Newton’s laws of motion and momentum 	<ul style="list-style-type: none"> • Charges and current • Energy, power and resistance • Electrical circuits • Wave basics • Wave interference and stationary waves • Quantum physics 	<ul style="list-style-type: none"> • Thermal physics • Particles physics
Vocabulary	The list of key words is too numerous for inclusion here. The recommended course textbook provides a complete Glossary of key words			
Practical Skills (relevant PAGs)		PAG 1.1 - measuring g PAG 1.3 – braking distances PAG 2.1 – Young Modulus	PAG 3.1 – resistivity of a metal PAG 3.3 – power from a cell PAG 4.1 – resistor combinations PAG 5.3 – oscilloscopes	PAG 11.2 investigating specified heat capacity PAG 12.2 research report

		PAG 2.2 – springs in series and parallel	PAG 6.1- Planck's constant	
Assessment (Related to mastery grids)	Pupils will complete a skills test after completing this section	Pupils will be assessed through completion of tests, practical work and other assignments.	Pupils will be assessed through completion of tests, practical work and other assignments.	Pupils will be assessed through completion of tests, practical work and other assignments.