

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 are also introduced towards the end of the year. Learning is supported by practical work and students will complete approximately 10 practical assessments (PAGs) during the year which count towards their final qualification. Students are taught by 2 teachers					
	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Key ideas	Module 1 and 2 - Homogenous equations - Uncertainties Module 3 - Motion in one and two dimensions Module 4 - Charges, current and resistance	Module 3 - Forces and motion - Force in action Module 4 - Energy and power in circuits - Electrical circuits	Module 3 - Work, energy and power - Materials Module 4 - Wave properties - Wave refraction - Wave interference	Module 3 - Newton’s laws of motion and momentum Module 4 - Stationary waves - Diffraction gratings - Quantum physics	Revision for PPE exams and PPE Exams	Module 5 - Thermal physics - Astrophysics Module 6 - Particle physics Research Project
Sequence of Learning (taught by 2 teachers)	Module 1 and 2 - Experimental uncertainty - SI base units and homogeneity of units Module 3 - Vectors and scalars - Motion graphs - SUVAT equations - Stopping distances - Freefall - Projectile motion - Forces and $F=ma$ Module 4 - Charge and current - Emfs and pds - Resistance	Module 3 - Terminal velocity - Equilibrium - Moments - Density - Pressure and buoyancy - Conservation of energy Module 4 - Kirchhoff’s laws - Resistance in series & parallel - Analysing circuits	Module 3 - Potential and Kinetic energy - Power & efficiency - Work done - Materials - Hooke’s law - Young’s Modulus - Deforming materials - Newton’s Laws - Momentum Module 4 - wave basics - wave phase	Module 3 - Impulse - Collisions Module 4 - Stationary waves in strings and pipes - Photon - Photoelectric effect - Wave particle duality	PPE exams	Module 5 - Temperature - Heat capacities - Kinetic theory of gases - Gas laws and the ideal gas equation - Life cycle of stars - Radiation from stars - Diffraction grating - Wiens and Stefan’s law

	• IV characteristics • LDR & thermistors • Resistivity • Electrical power • Cost of electricity	• Internal resistance • potential divider circuits • sensing circuits	• wave speed and intensity • EM waves • Polarisation • Refraction • Total internal reflection • Interference • Young's Double Slit experiment			Module 6 • Fundamental particles
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 1.3 – braking distances	PAG 3.1 – resistivity of a metal PAG 3.3 – power from a cell PAG 4.1 – resistor combinations	PAG 2.1 – Young Modulus PAG 5.3 – oscilloscopes	PAG 5.1 – diffraction grating		PAG 6.1- Planck's constant PAG 8.2 Boyles law PAG 12.2 research report