

Physics

SCIENCE DEPARTMENT

Head of Department: Ms F Wright Key Stage 5 Physics Co-Ordinator: Dr C Pumphrey

Why choose the subject?	<p>Studying physics not only provides a broad training in skills that are highly valued and well rewarded by employers; it also keeps your options open.</p> <p>Some physicists apply their knowledge in healthcare (medical physics), studying the processes of the Earth (geophysics) or the climate (meteorology). Others investigate the universe; searching for extra-solar planets or looking for the remnants of the big bang. Others still play a vital role in many technology-based industries such as optoelectronics, nanotechnology, computing and renewable energy.</p>
Who is eligible?	<p>Students who have a double science qualification should preferably have a grade 7 (or above), although those with a grade 6 will be considered. Students who have sat triple science awards should have a minimum of a grade 6 in Physics and ideally Mathematics grade 6.</p> <p>It is also vital that students should have an interest in and enthusiasm for, the subject. The willingness to take on a challenge and the resourcefulness to overcome difficulties, with the help on offer, are other important qualities.</p>

A LEVEL QUALIFICATION

Year 2019/21 Advanced Level Award Examination Board: OCR	<p>Students will study the OCR exam board's A Level Physics A specification (H556).</p> <p>The A level Physics specification includes the four modules taught in Year 12 and an additional two modules taught in Year 13. There are two exam papers of length two hours fifteen minutes and a third of one hour 30 minutes. All of these papers will include a combination of short structured and extended response questions</p> <p>Paper (O1) examines modules 1, 2, 3 and 5; Paper (O2) examines modules 1, 2, 4 and 6; Paper 3 examines the content from all six modules.</p> <p>Practical skills underpin A level physics and there are a minimum of six practicals which are required to be completed in each year. Practical skills will be examined in the written papers.</p> <p>Module 1 – Development of practical skills in Physics Planning; implementing; analysis; evaluation. Module 2 – Foundations of Physics Physical quantities; S.I. units; measurements and uncertainties; nature of quantities. Module 3 – Forces and motion Motion; forces in action; work, energy and power; materials; Newton's laws of motion and momentum. Module 4 – Electrons, waves and photons Charge and current; energy, power and resistance; electrical circuits; waves; quantum physics Module 5 – Newtonian world and astrophysics Thermal physics; circular motion; oscillations; gravitational fields; astrophysics and cosmology. Module 6 – Particles and medical physics Capacitors; electric fields; electromagnetism; nuclear and particle physics; medical imaging.</p>	
	Exam paper (O1) Modelling Physics	2 hours 15 minutes written paper 100 marks 37% of total A level
	Exam paper (O2) Exploring Physics	2 hours 15 minutes written paper 100 marks 37% of total A level
	Exam paper (O3) Unified Physics	1 hour 30 minutes written paper 70 marks 26% of total A level

	Practical Endorsement in Physics (O4)	Non exam assessment
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AS LEVEL QUALIFICATION

Year 2019/20 Advanced Subsidiary Award Examination Board: OCR	<p>Students will study the OCR exam board's AS Level Physics A specification (H156). The content is divided into four teaching modules and each module is further divided into key topics. Some of these topics will be familiar to you from GCSE and A level will build upon the knowledge and understanding you already have. Other topics will be new to you. Assessment will be in the form of two written papers, each one hour 30 minutes in length and made up of a combination of short structured and extended response questions. 40% of the marks in both of the exams rely upon the use of mathematical skills. There are a minimum of six practical tasks carried out by students during the year and some of the skills involved in these will be examined within both of the written papers.</p> <p>The AS content is taught as part of the A level course.</p> <p>The four teaching modules, along with the key topics they are divided into, are shown below:</p> <p>Module 1 – Development of practical skills in Physics Planning; implementing; analysis; evaluation. Module 2 – Foundations of Physics Physical quantities; S.I. units; measurements and uncertainties; nature of quantities. Module 3 – Forces and motion Motion; forces in action; work, energy and power; materials; Newton's laws of motion and momentum. Module 4 – Electrons, waves and photons Charge and current; energy, power and resistance; electrical circuits; waves; quantum physics</p> <p>Both exams assess content from all four modules.</p>	
	Exam Paper (O1) Breadth in Physics	1 hour 30 minutes written paper 70 marks 50% of total AS level
	Exam paper (O2) Depth in Physics	1 hour 30 minutes written paper 70 marks 50% of total AS level

STUDENT VIEW

Physics



Studying Physics at A Level is a fascinating and rewarding challenge, which encompasses a broad spectrum of subjects and ideas. It is very well regarded by universities as it encourages you to think logically, whilst also improving your problem-solving skills. The course content ranges from studying the most fundamental particles, to astrophysics and cosmology on a macro scale. This is very inspiring as you never know what part of the universe you are going to learn about and question next. The teachers in the department are always happy to help whether that is with the basics, or with the more extra-curricular questions you will have when exploring the larger topics of the universe. The practical work completed during the course not only furthers your practical skills obtained at GCSE but it also enhances your understanding of the course content. I would highly recommend this subject to anyone who is willing to work hard and has a genuine interest in how the universe works. With this course, many exciting opportunities will become available to you for university and beyond.

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