

# Physics

## SCIENCE DEPARTMENT

Head of Department: Ms F Wright    Key Stage 5 Physics Co-Ordinator: Mr S Gibbs

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 an A grade (or above), although those with a B grade will be considered. Students who have sat triple science awards should have a minimum of a B grade in Physics <b>and</b> 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 2017/19 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 (01) examines modules 1, 2, 3 and 5; Paper (02) 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 further six practicals which are required to be completed in Year 13 in addition to the six covered in Year 12. 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 (01) Modelling Physics	2 hours 15 minutes written paper 100 marks 37% of total A level
	Exam paper (02) 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

### AS LEVEL QUALIFICATION

Year 2017/18 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 six practical tasks which are required to be 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 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>		
	<table border="1"> <tr> <td>Exam Paper (O1) Breadth in Physics</td> <td>1 hour 30 minutes written paper 70 marks 50% of total AS level</td> </tr> </table>	Exam Paper (O1) Breadth in Physics	1 hour 30 minutes written paper 70 marks 50% of total AS level
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	<table border="1"> <tr> <td>Exam paper (O2) Depth in Physics</td> <td>1 hour 30 minutes written paper 70 marks 50% of total AS level</td> </tr> </table>	Exam paper (O2) Depth in Physics	1 hour 30 minutes written paper 70 marks 50% of total AS level
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## STUDENT VIEW

## Physics

Physics is an exciting and challenging subject to study at A Level and beyond, and is highly regarded by universities across the country. The course covers ideas ranging from the everyday such as momentum and motion, to the more unusual like cosmology and particle physics. It also encompasses some ideas from mathematics and chemistry. Physics will help to enhance your problem solving and critical thinking skills, as well as providing you with the opportunity to do a lot more stimulating practical work than was possible at GCSE. The physics teachers at BSG are always able to provide help and answer questions, whether they are simple maths problems or more extracurricular queries, and are available whenever you need it. I would recommend that anyone taking physics also considers taking mathematics as the two are highly complementary. If you are willing to work hard at this logical and inspiring subject, a great feeling of achievement can be yours and the doors to many exciting careers can be opened.

Lili Alderson