

PHYSICS

“Physics is really nothing more than a search for ultimate simplicity but so far, all we have is a kind of elegant messiness” Bill Bryson

Current Teaching Staff:

Mr J Castillo - Head of Department
Mr R Baker, Dr L Cotton

Examination board and syllabus:

OCR Physics A (H156, H556)

Entrance requirement:

Separate Science GCSE students: Grade 7 or above in Physics and Grade 6 or above in Mathematics

Combined Science GCSE students: Grade 7-6 or above in Combined Science and Grade 6 or above in Mathematics.

Course outline

The specification is divided into six teaching modules, each covering different key concepts of physics. Modules 1 to 4 constitute the stand-alone AS Level qualification; Modules 1 to 6, combined with the Practical Endorsement, constitute the full A Level. As students progress through the course, they will build on their knowledge of the laws of physics, applying their understanding to areas from sub-atomic particles to the entire universe.

The modules can be summarised as:

Module 1: Development of Practical Skills in Physics

Module 2: Foundations of Physics

Module 3: Forces and Motion

Module 4: Electrons, Waves, and Photons

Module 5: Newtonian World and Astrophysics

Module 6: Particles and Medical Physics

For more information see: www.ocr.org.uk/qualifications/as-a-level-gce-physics-a-h156-h556-from-2015/

A-Level:

The A-Level qualification consists of Modules 1 to 6 and is assessed in three examinations; Papers 1 and 2 are both 2 hour 15 minute examinations each carrying a weighting of 37%, whereas Paper 3 is a 90 minute examination with a weighting of 26%:

- **Paper 1 Modelling Physics:** Modules 1, 2, 3 & 5 are assessed by multiple choice, short answer and extended response questions;
- **Paper 2 Exploring Physics:** Modules 1, 2, 4 & 6 are assessed by multiple choice, short answer and extended response questions;
- **Paper 3 Unifying Physics:** Modules 1 to 6 are assessed by short answer and extended response questions.

The A-Level qualification also includes a Practical Endorsement, which is reported separately as a Pass or Fail, and is assessed by the skills demonstrated during a minimum of 12 practical activities.

Teaching and Learning

Topics and lessons will be taught collaboratively among all the teachers. The diverse topics covered gives scope for a wide range of teaching and learning activities including practical work, class discussion and presentations, software modelling, student lead demonstrations and peer teaching.

Support sessions, A-level Physics clinics and an Immersion Day will be provided. Students will be expected to purchase their own textbook and may wish to subscribe to Physics Review to provide context and background reading. We use both Isaac Physics and Kerboodle platforms. Students will also be entered for competitions organised by the BPhO, such as the Physics Challenge in year 13 in the Autumn term and an online version in January for year 12 students. Our department usually organises a trip to CERN in Geneva, Switzerland, every two years.

Materials will be provided for students to read and to practise the mathematical aspects of the course. It is expected that candidates make full use of these.

Students will need to:	Compulsory	Optional
Attend extra sessions before Examinations		X
Read widely around the subject	X	
Make extensive notes		X
Carry out detailed revision for regular tests beyond public examinations	X	
Be willing to lead class discussions	X	

CAREERS

Physics is a must for careers in technology or engineering but is also valuable for careers in software engineering, medicine, architecture, veterinary science, finance and accounting, environmental, atmospheric and meteorological science. A-Level Physics is a highly regarded qualification that can open the door to many other surprising and interesting career paths.