

# Physics

# Pathway 1

## Course description:

Physics is the study of what makes everything work – from mobile phones, to computers to the universe itself. In Physics we study the very small, from the components of atoms and smaller, to the very large such as stars and galaxies. We make regular use of technology to help us in our experiments as we unlock the mysteries of nature. Physics is the most basic and fundamental of sciences – and the least restricted in terms of its field of interest.

## Qualifications required:

- In line with the entry requirements for a Pathway 1 subject
- Grade 6 in GCSE Physics or grade 7-6 in GCSE Combined Science.
- Grade 6 in GCSE Maths
- Grade 5 in English Language

## Aims of the course:

We follow the AQA specification. Much of the content is delivered in experiments and investigations. We make extensive use of the schools ICT facilities in order to support our experiments using data capture hardware and spreadsheets and to organise our studies. Our aim is to inspire students to develop their curiosity about how the universe works and to give them the skills to explore and problem solve.

## Future prospects:

- Students with qualifications in physics may choose to go on to courses in engineering or a science degree, leading to careers in research or in industry advancing technology that has led to innovations such as mobile phones, MRI scanners or lasers.
- Physics students may also progress onto careers in newspapers, government or finance – places where problem solving abilities and analytical skills are great assets. Physics graduates earn on average £187,000 more in their career than a student leaving with just 'A' levels, which is more than twice that of other, well respected Degrees.  
(Source: PricewaterhouseCoopers report, February 2005)

## Student feedback:

"It's great to be able to find something out for yourself" "We work together as a team to succeed"  
"There is always something more to find out!"

## Subject Teachers:

Dr Bell (Head of Physics), and Miss Ellis

# Physics

## Features of the course:

- Measurements and their errors
- Particles and radiation
- Waves
- Mechanics and materials
- Electricity
- Further mechanics and thermal physics
- Fields and their consequences
- Nuclear physics
- Plus a choice of one of...
  - Astrophysics
  - Medical physics
  - Engineering physics
  - Turning points in physics
  - Electronics

## Year 12

### Paper 1

This unit assesses Measurements and their errors, Particles and radiation, Waves, Mechanics and materials and Electricity. It is a 1 hour 30 minutes written examination worth 50% of the AS qualification. It contains 70 marks of short and long answer questions split by topic.

### Paper 2

This unit assesses the same topics as paper 1. It is also a 1 hour 30 minutes written examination worth 50% of the AS qualification. However it contains 20 marks of short and long answer questions on practical skills and data analysis, 20 marks of short and long answer questions from across all areas of AS content and 30 multiple choice questions.

## Year 13

The AS Level no longer counts towards the A2 Level which is a standalone qualification. All of the content that students learn in year 12 in the AS Level will also be examined in the year 13 A2 Level.

### Paper 1

This unit assesses Measurements and their errors, Particles and radiation, Waves, Mechanics and materials, Electricity and Periodic motion. It is a 2 hour written examination worth 34% of the A2 qualification. It contains 60 marks of short and long answer questions and 25 multiple choice questions on content.

### Paper 2

This unit assesses Thermal physics, Fields and their consequences and Nuclear physics. It also assumes knowledge from paper 1. It is a 2 hour written examination worth 34% of the A2 qualification. It contains 60 marks of short and long answer questions and 25 multiple choice questions on content.

### Paper 3

This unit assesses Practical skills and data analysis as well the optional topic which students can choose in year 13. It is a 2 hour written examination worth 32% of the A2 qualification. It contains 45 marks of short and long answer questions on practical experiments and data analysis and 35 marks of short and long answer questions on the optional topic.

## Methods of Assessment:

Both the Year 12 and Year 13 units are assessed 100% by written examination marked externally.