

## Why study A Level Physics?

Physics is at the heart of the modern world. Have you ever used a mobile phone, flown on an aeroplane, crossed a bridge, watched TV or used the internet? The chances are that you have done most, if not all, of these – and without Physics they would be impossible. A Level Physics is your gateway into this world of advanced engineering and technology. We follow the OCR A course, which provides a solid foundation in basic Physics, while also including modules on cutting-edge topics such as particle physics and cosmology.

## Career routes in Physics

A Level Physics is essential to study the subject at university, and is also essential or beneficial for many courses in Engineering, Natural Sciences and Computer Science.

In recent years A Level physicists from Brooksbank have gone on to study related subjects at top universities such as Oxford, York, Nottingham, Cardiff and Newcastle.

Independent research has shown that Physics graduates earn around £190,000 more in their career than someone entering employment with A Levels alone. This figure is double the amount that an English or History graduate would earn in a similar career.

Physics is also a 'facilitating subject' that will allow you to access a huge range of degree-level courses. The analytical skills required to achieve success at A Level Physics are valued in fields as varied as Law and Medicine.

## What new skills will I learn?

Studying Physics gives you many transferable skills that are frequently sought after in the world of work. By the end of the course you will be able to confidently analyse and solve complex problems. You will also learn a range of experimental skills that will allow you to proficiently collect and evaluate many forms of scientific data. You should also expect to learn some new Mathematics skills during the course.

## Do I also have to study A Level Mathematics?

Not necessarily; in order to take A Level Physics, we do expect you to have achieved at least a grade 6 in Mathematics at GCSE and to study another mathematical subject (Mathematics or Chemistry). This will help you to develop the strong maths skills that you need to succeed in Physics.

If you have a grade 7 in GCSE Mathematics then we think that your Maths skills are already strong enough for A Level Physics, and you can take it with any combination of subjects that you choose.

Nevertheless, you should be prepared to be using Mathematics in almost every A Level Physics lesson.

**Want to increase your earning potential? Research shows that the skills Physics students develop are in high demand. As a result, Physics graduates can earn higher salaries than other areas of study.**

# Course Outline

## Year 12

**Module 1 (Practical skills) and Module 2 (Foundations of Physics).** During the course you will develop a range of mathematical and experimental skills that will be assessed in your examinations.

**Module 3 (Forces and Motion).** Familiar topics of forces and energy are studied in much more depth than at GCSE. New topics include Archimedes' principle (will a ship float or sink?) projectile motion (what happens when you kick a football?) materials science (how much weight can I add before it snaps?).

**Module 4 (Electrons, Waves, and Photons).** This unit begins by studying electrical circuits in terms of the fundamental motion of electrons in a wire, leading on to the analysis of whole circuits. We then move on to study waves and their applications, including: standing waves, polarisation (how do sunglasses cut out glare?) and quantum mechanics.

## Year 13

**Module 5 (Newtonian World and Astrophysics).** This unit begins with an introduction to Newton's law of gravitation. Other topics include: resonance (why do some bridges collapse, and how can we prevent it?) and an introduction to cosmology (what is the Universe like and why?)

**Module 6: (Particles and Medical Physics).** This unit covers a range of exciting and complex phenomena at the frontiers of current research. Electromagnetism, particle physics and medical imaging are just a few of the topics that you will encounter.

Throughout the course you will also conduct a number of assessed practicals and will receive a separate Pass grade for your practical skills.

**Lead Teacher:** Mr C Smith

**Exam Board:** OCR Physics A

## Sixth Form Entry Requirements:

To study **Level 3** (academic A Level) courses students must have a minimum of at least **five** GCSEs at 9 - 4 grades (or equivalent).

These must include a grade 4 and 5 in English Language and Mathematics (either way round, but higher grade must support subject choices).

## Additional requirements:

GCSE grade 6 or above in Physics or 6 / 6 or above in Science.

GCSE Mathematics grade 6 or above, if studying Physics in combination with Mathematics or Chemistry.

GCSE Mathematics grade 7 or above, if not studying Mathematics or Chemistry A Level.

## Assessment:

There are three exams covering six modules.

Students also receive a practical endorsement for Physics which is reported separately, as a Pass, if the skills have been demonstrated during the course.

**Find out more ... visit our website [www.bbs.calderdale.sch.uk](http://www.bbs.calderdale.sch.uk)**

**Here to help ... speak to the course tutor or your form tutor**

**Call us on 01422 328928. Email [admin@bbs.calderdale.sch.uk](mailto:admin@bbs.calderdale.sch.uk)**

