

A-LEVEL PHYSICS



WHY STUDY PHYSICS AT A-LEVEL?

A-Level Physics is a challenging and rewarding course that will give you a deep understanding of the universe, from the smallest subatomic particles to the largest galaxies. You will learn about the fundamental laws of physics, such as Newton's laws of motion and the laws of thermodynamics, and you will apply these laws to solve real-world problems. Physics is a practical subject, and you will have the opportunity to develop essential scientific skills such as designing and carrying out experiments, analysing data, and drawing conclusions. These skills are highly transferable and will be valuable in any career.

TOPICS STUDIED:

MODULE 1

Development of practical skills in physics

This module covers the essential practical skills that students need for success in A-Level Physics. Students will learn how to design and carry out experiments, collect and analyse data, and draw conclusions.

MODULE 2

Foundations of physics

This module covers the fundamental principles of physics, including physical quantities and units, motion, forces and energy, and waves.

MODULE 3

Forces and motion

This module covers the laws of motion, gravity, and momentum. Students will learn how to apply these laws to solve problems involving motion, forces, and energy.

In addition to these six modules, students also need to complete a practical endorsement in order to achieve the full A-Level qualification. This endorsement is awarded to students who have demonstrated the ability to plan, carry out, and analyse practical investigations.

MODULE 4

Electrons, waves and photons

This module covers the structure of the atom, electricity and magnetism, and waves. Students will learn about the different types of waves, their properties, and how they interact with matter.

MODULE 5

Newtonian world and astrophysics

This module covers the laws of gravity, motion in a gravitational field, and astrophysics. Students will learn about the motions of planets and stars, and the structure and evolution of the universe.

MODULE 6

Particles and medical physics

This module covers the nature of particles, nuclear physics, and medical physics. Students will learn about the different types of particles, their properties, and how they can be used in medicine and industry.

ASSESSMENT STRUCTURE

ASSESSMENT 1

Modelling Physics (Modules 1, 2, 3 & 5)

- 100 marks
- 2hr 15
- 37% of total A-level

ASSESSMENT 2

Exploring Physics (Modules 1, 2, 4 and 6)

- 100 marks
- 2hr 15
- 37% of total A-level

ASSESSMENT 3

Unified Physics (synoptic exam including all modules)

- 70 marks
- 1hr 30
- 26% of total A-Level

PRACTICAL COMPONENT

Completion of 12 required practical's across the course

- Teacher assessed.

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ENTRY REQUIREMENTS

Grade 6 in GCSE Physics or
Grade 6-6 in GCSE Combined Science

Grade 6 in GCSE Maths

CAREER PATHWAY

Physics is a highly sought-after subject by employers, and studying OCR A-Level Physics will open up a wide range of career opportunities for you. You could go on to study physics, engineering, mathematics, or other related subjects at university, or you could pursue a career in research, teaching, or industry. Physics is also a highly relevant subject for many other careers, such as finance, medicine, and law.

IS THIS COURSE FOR ME?

Yes, if you have enjoyed the GCSE course and have a real interest in learning more deeply about the chemical systems that underpin so many areas of technology and medicine. A-Level physics develops a vast array of key skills within our students. To perform well, excellent mathematical skills are essential for you, especially if you desire going on to study beyond A-Levels. A-Level physics is an essential course for anybody looking to go on and study physical sciences, and is very supportive of applicants for maths, computer science, astrology, medicine, dentistry and veterinary courses.

NEED MORE INFORMATION?

Please contact Mr Stephen Butler, Head of Science, sbutler@lighthall.co.uk

Link to exam board specification: <https://www.ocr.org.uk/qualifications/as-and-a-level/physics-a-h156-h556-from-2015/specification-at-a-glance/>

READING LIST

- Six Easy Pieces: Fundamentals of Physics Explained (Richard Feynman)
- The First Three Minutes (Stephen Weinberg)
- Just Six Numbers (Martin Rees)
- The Great Courses (Available on Audible, select topics based on interest)

