

Physics tells us stories about how the world works and leads to exciting technologies that can improve our lives.



Are you interested in:

- problem solving
- an intellectual challenge
- experimental work
- improving your ICT skills

Leading to a career in:

- Physics
- Engineering
- Medicine
- Architecture
- Finance

Teacher to contact:

Mr J Gould

Exam Board: OCR Physics A

A-level

Why Choose OCR A-Level Physics?

Physics is the study of how everything works, from the smallest sub-atomic particles to the entire universe. Choosing OCR Physics A means you will develop advanced problem-solving skills, learn to think logically, and see the world through a mathematical lens. It is highly valued by top universities and opens doors to careers in engineering, finance, medicine, aerospace, and data science.

In lessons, you will learn through a wide variety of activities including practical work, discussions, problem solving tasks, internet research and computer modelling. You will be guided and supported through the transition to the much more independent learning that you will need at Advanced Level. Your mathematical skills will improve with lots of practice of calculations and lots of quantitative work.

You will have many opportunities for extracurricular enhancement. You might like the Engineering Education Scheme, or if you are interested in High Energy Physics, you might want to make or use Cosmic Ray and other particle detectors. Maybe you'd like to take part in the University's ScienceXchange or School Zone events. You will be encouraged to attend Cambridge Physics Centre lectures at the Cavendish Laboratory.

This course is taught through six modules split across two years

Year 1: Foundations, Mechanics & Core Physics

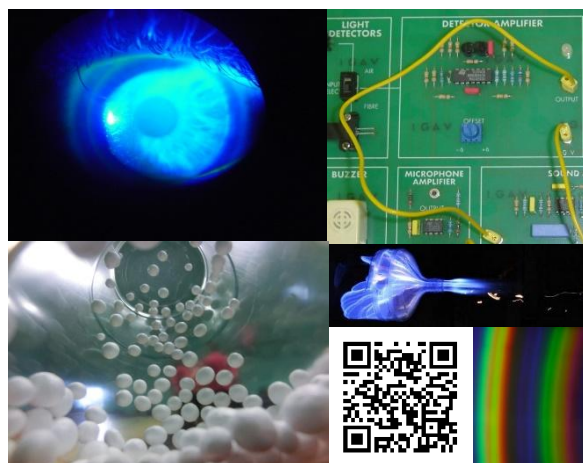
In your first year, you will build the foundational knowledge needed to analyse the physical world and explore how energy and matter behave.

- **Foundations & Motion:** Learn to handle vectors, units, and data, then apply them to the laws of motion and projectile paths.
- **Forces, Energy & Materials:** Discover how forces deform objects, calculate the energy of moving systems, and test the strength of materials.
- **Electricity & Circuits:** Explore how charge moves through components, master circuit laws, and investigate internal resistance.
- **Waves & Quantum Physics:** Study properties of light, lasers, and interference, before diving into the strange world of quantum packets of energy.

Year 2: Space, Fields & Advanced Physics

In your second year, the concepts become bigger and more abstract, stretching from deep space down to the nucleus of an atom.

- **Thermal & Circular Motion:** Look at the behaviour of ideal gases, absolute zero, and the physics of objects spinning in circles.
- **Astrophysics & Cosmology:** Study the life cycles of stars, calculate gravitational fields, and use Hubble's Law to trace the history of the universe.
- **Capacitors & Invisible Fields:** Master the storage of electrical energy and compare how electric and magnetic fields shape our technology.
- **Nuclear & Medical Physics:** Investigate radioactive decay, binding energy, and how physics is applied to save lives using X-rays, CAT scans, and ultrasound.



Assessment

	Paper Title	Exam Length	% of Grade	Paper format
Paper 1	Paper 1: Modelling Physics	2h 15m	37%	• 100 marks total • 15 multiple-choice questions • 85 marks structured short/long-answer questions • Assesses Modules 1, 2, 3, and 5
Paper 2	Paper 2: Exploring Physics	2h 15m	37%	• 100 marks total • 15 multiple-choice questions • 85 marks structured short/long-answer questions • Assesses Modules 1, 2, 4, and 6
Paper 3	Paper 3: Unified Physics	1h 30m	26%	• 70 marks total • No multiple-choice questions • Structured short/long-answer synoptic questions

Practical Endorsement	non-exam assessment	Minimum of 12 practical activities to be completed across the 2 year course. Students must keep a practical log book / portfolio of these tasks. These tasks will be assessed by your teacher against the Common Practical Assessment Criteria.
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