

Physics



STUDY LEVEL

A level

CONTACT DETAILS

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Physics is about unravelling the universe to try and find out how it works. From observing the furthest stars to the inner secrets of the nucleus, physics has been at the heart of most advances in technology. Come and discover.

What will I study?

Physics is an exciting and challenging subject to study, requiring an enquiring mind and clear thinking. The course allows you to learn about the fundamental ideas in Physics and their application in technological settings. It shows how Physics is used and its place in today's world. The course is very mathematical and involves describing and explaining physical phenomena. You will have the opportunity to develop practical, data-handling and ICT skills.

Topics you will cover are wide-ranging but include: electricity, materials, wave and quantum

behaviour, astrophysics, mechanics and medical physics. You will also study radioactivity, atoms, electric and magnetic fields, atomic, nuclear and sub-nuclear structure.

Co-curricular activities?

The physics department offers a number of enrichment opportunities for students each year. Recent activities have included a trip to the Daresbury Laboratory. We also take part in a Physics Olympics event at Liverpool University and the British Physics Olympiad competition and AS Challenge.

Where might it lead?

The skills that you gain through studying Physics are in high demand in the world beyond College. Physics A level is a well-respected academic and scientific qualification that keeps many doors open on your career path. The degree courses that many of our students go on to study cover a wide range of subjects – from Engineering and Medicine to Mathematics and Computing, as well as Physics, Astrophysics and Electronics.

Course Breakdown

Course Summary

- Exam board is OCR specification A

Paper	Content	Marks	Duration	Weighting
Paper 1	Modelling physics	100	2 hours 15 minutes	37%
Paper 2	Exploring Physics	100	2 hours 15 minutes	37%
Paper 3	Unified Physics	70	1 hour 30 minutes	26%

Summary of Content

Development of practical skills in physics

Skills of planning, implementing, analysis and evaluation

Foundations of Physics

Physical quantities and units; Making measurements and analysing data; Nature of quantities, Proportional relationships and graphs

Forces and Motion

Motion; Forces in action; Work, energy and power; Materials, Density; Newton's laws of motion and momentum.

Electrons, Waves and Photons

Charge and current; Energy, power and resistance; Electrical circuits; Waves, Refraction, Diffraction; Quantum physics.

Newtonian World and Astrophysics

Thermal physics; Circular motion; Oscillations; Gravitational fields; Astrophysics.

Particles and Medical Physics

Capacitors; Electric fields; Electromagnetism; Nuclear and particle physics; Medical imaging.

Suggested Preparation for September

Students may find it useful to read up on the following topics: SI units, basic algebra, trigonometry, drawing graphs, calculating gradients.