

Physics

AQA A-level Physics (7408)

Head of Department: Mr Richard Alton

Introduction

If you are inquisitive and have strong science and maths skills then A-level physics could be for you. Physics studies how things work and interprets the natural world. It teaches the ability to think logically and apply mathematical skills to solve problems. You will develop lots of skills, including many transferable ones, such as analysing data and interpreting diagrams in both two and three dimensions.

The Department also provides lots of opportunities to delve beyond the syllabus through extension sessions, the Physics Olympiad, Astronomy and Engineering Societies, visiting speakers and trips to laboratories and sites of interest.

Subject Requirements

Grade 8 or 9 in IGCSE physics (or equivalent) and maths. Students studying the double award science course should be aiming for 8,8 to pursue physics A-level.

Course Outline

L6 topics:

1. Measurements and their errors
2. Particles and radiation
3. Waves
4. Mechanics and materials
5. Electricity

U6 topics:

6. Further mechanics and thermal physics
7. Fields and their consequences
8. Nuclear physics
9. Engineering physics

The course is assessed over three exam papers at the end of the second year, each of which are 2 hours long. Paper 1 includes content from Topics 1-6, Paper 2 tests the content from Topics 6-8 and Paper 3 tests Topic 9 and practical skills. There is no coursework element and instead there are 12 required practicals that students must complete to be awarded the practical endorsement.

Higher Education and Careers

Leading universities rank physics among the most highly respected A-levels. It is a requirement for physics-related degrees, including many engineering courses, as well as being helpful for many other science degrees, including medicine and related fields.

Former students have moved on from Epsom to a wide range of degrees at leading universities, from astrophysics to computer science to business-related courses.

What should I study alongside physics?

The very mathematical nature of physics means that A-level maths alongside is highly recommended, and students should carefully consider whether physics is the right choice for them if they do not want to also take maths. Certainly, students intending to move onto further scientific study should study maths A-level with physics to keep a broad range of options open to them. Beyond this, physics fits most naturally with the other sciences (chemistry and biology) and mathematical and technical subjects such as computer science, DT and economics.

Is there anything else I should consider?

There is a large jump in the complexity of questions from GCSE to A-level, which can prove challenging even for students who excelled at GCSE level. Students should anticipate a huge step up when they start in the Lower Sixth and be ready to be resilient in the face of more complex and technical material. They will be required to complete significant amounts of work each week outside of the classroom if they aspire to an A grade or higher; often, the most crucial determinant of success at A-level is the quantity and quality of work that a student undertakes away from lessons.