Subject: Physics

Level: A Level

Entry Requirements

Students will be expected to have 5 A*-B grades at GCSE or equivalent, including English and Maths and a minimum of Physics grade B or an A in Additional Science.

Course Outline

The course will prepare students to progress into further education to follow courses in physics, engineering, another science or related subjects, or to enter employment where knowledge of physics would be useful.

What will I learn on this course?

This course will enable you to:

- The core principles and laws of physics in mechanics, electricity, fields, waves, nuclear and quantum physics.
- To set physics in a variety of contexts, illustrating connections with everyday life, people, places and cultures
- The use of essential mathematical methods in physics

Who would be a successful student of Physics?

This course will appeal to students who:

- Enjoy asking questions about how and why things happen the way they do
- Are inquisitive and analytical
- Are good at solving problems

Enrichment opportunities

On a two yearly cycle the physics department visits the world biggest particle accelerator, the LHC at CERN on the France/ Switzerland border near Geneva. The next visit is planned for 2017.

Career Opportunities

Physics is well respected by universities and can lead to a wide variety of exciting careers. For those who may study an arts subject at degree level, physics A-level indicates a high level of application and well-rounded interests. Physics applications, like the career opportunities, are extremely varied. Employers today actively seek out people who can prove their ability to think logically, understand complex ideas and apply them to the real world. If you want a career in science, the media, education, business or a host of other fields, physics can help give you the edge.

Course Structure (Exam Board: OCR Physics A)

Foundations of physics

- Physical quantities and units, making measurements and analysing data.

Forces and motion

- Motion
- Forces in Action
- Work and Energy
- Materials
- Newton's Laws of motion

Electrons, Waves and Photons

- Electricity: charge and current
- Electricity: energy, power and resistance
- Electricity: electrical circuits
- Waves
- Quantum Physics

The Newtonian World

- Thermal physics
- Circular motion
- Oscillations
- Gravitational fields
- Astrophysics and cosmology

Particles and medical physics

- Capacitors
- Electric fields
- Electromagnetism
- Nuclear and particle physics
- Medical imaging

Practical Skills in Physics

- Practical skills assessed in a written examination
- Practical skills assessed in the practical endorsement

For further information about this course, please see Mr Boycott or Mrs Allum