

# Physics - A Level

Contact Person: Mr T Smith

## Course Outline:

Physics, also known as 'Natural Philosophy', is the study of nature and the universe in the broadest sense. It is at the heart of everything, and is a highly rewarding discipline to study. Physics is the foundation of technology, and has influenced the whole of our culture. This AQA specification has been developed in consultation with leading universities to provide students with the essential skills and knowledge required for degree level study, whilst incorporating interesting contemporary applications of Physics. Practical work is at the heart of the course, and the final option module allows students to focus on the topics that really engage them.

The course is taught through a mixture of teacher led sessions, practical problem solving, research and IT work, all designed to promote curiosity and develop independent study skills.

Candidates of this course are offered the exciting opportunity to take a trip to the Large Hadron Collider, CERN, Geneva (fees apply) which runs biennially.

### Year 12

- Students are introduced to Advanced Level Physics through a topic focussed on Measurements and Errors
- Students study 4 core modules across the year, including Particles and Radiation, Waves, Mechanics and Materials, and Electricity.
- Practical skills are developed through a series of activities which will be assessed in the exams

### Year 13

- A further 4 core modules are studied including Further Mechanics, Thermal Physics, Fields and their Consequences, and Nuclear Physics
- Students have an opportunity to choose an option from Astrophysics, Medical Physics, Engineering Physics and Turning Points in Physics
- An additional series of student led practical activities consolidates and enhances student critical thinking and problem solving.

Assessment - The course is fully assessed through final 3 exams in the summer term, each 2 hours.

- Paper 1 – Topics 1-5 + Practical skills – 34%
- Paper 2 – Topics 6-8 + Practical skills – 34%
- Paper 3 – Practical skill + Option topic – 32%

Examinations consist of short and long written answer questions, extended calculations, multiple choice, and questions focusing on practical skills and analysis.

Successful completion of a practical work lab-book to an acceptable standard rewards students with a 'Practical Endorsement'. Whilst this does not contribute to the overall mark, it is essential for many practical science and engineering university courses.

## Skills/Aptitudes Developed/Required:

- Assessing the validity, reliability and credibility of scientific information
- Using safe and skilful practical techniques and processes
- Making and recording reliable measurements with appropriate accuracy and precision
- Communicating scientific understanding through report writing and presentations
- Solving problems through methodical and logical application of mathematics

## Entry Requirements

Grade 6 or above in GCSE Science or Physics + Grade 6 or above in GCSE Mathematics. Those who are not entering for three separate sciences may wish to seek advice from their teachers regarding their readiness for the demands of the A-Level course.

## Progression Post-18

Previous A Level Physics students have gone on to study a range of scientific and non-scientific courses at university. These include: mathematics, aerospace engineering, music, astrophysics, electrical and mechanical engineering, audio technology and engineering

