PHYSICS

Physics at A Level is designed to give a seamless transition for students from their previous studies of Physics at GCSE. The specification aims to develop interest and enthusiasm in the subject by introducing students to new and exciting areas of the subject and to developing essential knowledge and understanding of key principles.

Examining Board	*Specification*
AQA	Physics A 7408

ENTRY REQUIREMENTS TO THE A LEVEL COURSE

Please see the Sixth Form Admissions Policy for the entry requirements to this course.

YEAR ONE

Year one consists of five modules. Each module is assessed in two written papers completed by the students at the end of their first year of study. Each paper is 1½ hours and makes up 50% of the end of year grade. Paper one covers all five modules and is made up of short and long style questions. Paper two is split into three sections: section A, twenty marks testing the students' knowledge of practical skills and data handling; section B, twenty marks covering modules 1 – 5; and section C, thirty multiple choice questions each worth one mark.

- Module 1: Measurements and their errors. This section is a continuing study for a student of physics. A working knowledge of the specified fundamental units of measurement is vital.
- Module 2: Particles and Radiation. This section introduces students both to the fundamental properties of matter, and to electromagnetic radiation and quantum phenomena.
- Module 3: Waves. Students will further their GCSE studies of wave phenomena and extend their knowledge of the characteristics, properties, and applications of travelling waves and stationary waves.
- Module 4: Mechanics and Materials. Vectors and their treatment are introduced followed by development of the student's knowledge and understanding of forces, energy and momentum.
- Module 5: Electricity. This section builds on and develops earlier study of these phenomena from GCSE. It provides opportunities for the development of practical skills at an early stage in the course and lays the groundwork for later study of the many electrical applications that are important to society.

YEAR TWO

Year two consists of three standard modules and one option module. All modules, including those from year one of the course, are assessed in the three written papers completed by the students at the end of their two-year study. All three papers are two hours long and make up 100% of the A Level grade.

- Module 6.1: Periodic Motion. The student's earlier study of mechanics is further advanced through a consideration of circular motion and simple harmonic motion (the harmonic oscillator).
- Module 6.2: Thermal Physics. This section allows the students to gain a greater understanding of the thermal properties of materials, the properties and nature of ideal gases, and the molecular kinetic theory.
- Module 7: Fields and their consequences. The concept of field is one of the great unifying ideas in physics. The ideas of gravitation, electrostatics and magnetic field theory are developed within the topic to emphasise this unification.
- Module 8: Nuclear Physics. This section builds on the work of Particles and radiation to link the properties of the nucleus to the production of nuclear power through the characteristics of the nucleus, the properties of unstable nuclei, and the link between energy and mass.
- Option Choice: Students are offered the opportunity to study one of the following optional topics to gain a deeper understanding and awareness of a selected branch of Physics: ▪ Astrophysics ▪ Electronics.

STUDENT VIEWPOINT

Pupils do find physics at A Level a challenge compared to other subjects. The mathematical content of the course is high and the course deals with difficult concepts. Despite this, students at all levels enjoy the course due to the fact that every lesson questions their current thinking about the nature of the Universe and the laws that govern it.

COMPLEMENTARY SUBJECTS

A study of A Level Mathematics is an advantage but not a necessity. Students will find that their mathematical skills will improve greatly by studying physics as will their ability to record, analyse and evaluate data. Physics can be taken with any other subject and, for some, offers a complete change from other subjects.

CAREER AND UNIVERSITY OPPORTUNITIES

Many universities recognise that Physics is a difficult A Level subject and often lower the entry grade required accordingly. Physics is a requirement for most engineering courses and is highly desirable for many other courses related to science. It can be used as a subject for any university course.