A LEVEL PHYSICS

In the first year of the A level Physics course you will study five topics – measurements and their errors, particles and radiation, waves, mechanics and materials, and electricity. The first topic of measurements and their errors will help you to develop a working knowledge of fundamental units in physics, an awareness of the nature of measurement errors and of their numerical treatment and the ability to make reasonable estimations. These are all essential for your understanding of physics and when carrying out required experiments, and will be taught through hands on practical work.

The topics of waves, mechanics and materials, and electricity all build on knowledge and understanding developed at GCSE level, while the particles and radiation topic introduces new and exciting concepts not previously encountered including the standard model of particle physics and quantum phenomena.

In the second year there are three compulsory topics – further mechanics and thermal physics, fields and their consequences, and nuclear physics. There is then a choice of one of five optional topics – astrophysics, medical physics, engineering physics, turning points in physics or electronics.

Throughout the two year course you must also complete and write up twelve compulsory practical activities set by the exam board, such as carrying out an investigation to determine the gravitational field strength on Earth, and determining the time constant of a capacitor. You will have to answer written questions about these practicals in your exams so it is vital you carry them out and write them up thoroughly.

LEARNING AND ASSESSMENT

The A level physics course is taught through a variety of methods including practical work, demonstrations and independent research and study. There are many opportunities to develop communication skills, for example in creating and delivering presentations and writing essays, and mathematical skills through data analysis and question practice. Your progress throughout the course will be monitored with regular in class assessments and extra support offered where necessary,

The full A level course is examined through three external examinations at the end of the course in the second year. Each exam is two hours long. Papers 1 and 2 are each worth 34% of the A level grade and have 85 marks, and paper 3 is worth 32% and has 80 marks.

Paper 1 covers all five topics from the first year of the course plus periodic motion from topic 6. There are 60 marks worth of short and long answer questions and 25 marks of multiple choice questions.

Paper 2 covers the remaining areas of topic 6 and topics 7 and 8. Knowledge of topics 1 to 5 is also assumed. Again there are 60 marks worth of short and long answer questions and 25 marks of multiple choice questions.

Paper 3 has 2 sections – section A covers practical skills and data analysis and has 45 marks worth of short and long answer questions, and section B covers the chosen optional topic and has 35 marks worth of short and long answer questions.

PROGRESSION

Physics is highly regarded by universities and employers. If you wish to study physics at university you will need an A level in this subject. There are also a wide range of other courses that include physics as a requirement or useful option including engineering, architecture and medicine.

Physics related careers go far beyond what you might expect and include: Space Technology, Environmental Control, Audio Technology, Telecommunications, Medicine, Weather Forecasting and many more. The skills and knowledge developed through studying physics are also highly valued in fields such as accountancy, banking and finance, actuarial science, law, consultancy and project management.