

PHYSICS IN THE SIXTH FORM

Why study Physics?

A study of Physics is concerned with exploring and justifying what we observe happening around us. It involves not only linking the (macroscopic) properties of an object or substance as a whole to the (microscopic) properties of its constituents, but also trying to explain the interaction between samples of matter. Physicists have inquiring minds, and the answer to one question often leads to the generation of another.

Because of its direct and indirect relevance to so many areas, a study of A level Physics will assist access to a wide range of degree courses and careers ranging from Engineering to Optometry and from Computer Science to Medicine. Progress in Physics in the Sixth Form will be aided by a decent level of competence in Mathematics, the physicist's tool, and you must be prepared to work hard.

Qualifications needed to study A level Physics: Students must have achieved at least a grade 7 in GCSE Physics, or a grades 7,7 (at least) in GCSE Combined Science, or acceptable alternatives, in addition to meeting the general entry requirements for the Sixth Form.

COURSE STRUCTURE – YEAR 12 (AS) CONTENT

Subject content

- Measurement and their errors
- Particles and radiation
- Waves
- Mechanics and materials
- Electricity

Practicals:

Physics, like all sciences, is a practical subject. Throughout the course you will carry out practical activities including the following Required Practicals:

- Investigation into stationary waves
- Investigation into interference and diffraction effects
- Determination of the acceleration due to gravity
- Determination into the Young Modulus
- Determination of the resistivity of a wire
- Investigation of the electromotive force and internal resistance of electric cells

Assessment

We follow the terminal course structure at KEVI HGS, with external A level examinations only at the end of Year 13. However, there are regular internal assessment tests in Year 12, including the so-called 'Finals' in June.

FULL A LEVEL COURSE STRUCTURE – ADDITIONAL YEAR 13 COURSE CONTENT

Subject content:

- Further mechanics and thermal physics
- Fields and their consequences
- Nuclear physics
- Turning points in physics

Practicals, to include the following Required Practicals:

- Investigation into simple harmonic motion using a mass-spring system and a simple pendulum
- Investigation of Boyle's law and Charles's law
- Investigation of the charge and discharge of capacitors
- Investigation of how the force on a wire varies with flux density, current and length of wire
- Investigation, using a search coil and oscilloscope, of the effect on flux linkage of varying the angle between the search coil and the magnetic field direction
- Investigation of the inverse square law for gamma radiation

Assessment

There are internal tests during Year 13 but formal external assessment is by means of three 2 hour written examinations taken in May/June of Year 13. These assess all of the course content. There is no coursework component but you are assessed on your Practical Competences during all of the Required Practicals mentioned previously. More details about the course content can be found from the following link:

<http://www.aqa.org.uk/subjects/science/as-and-a-level/physics-7407-7408>

How is the course delivered?

Study of Physics in the Sixth Form involves a variety of learning experiences including teacher and student presentation, class discussion, teacher demonstration and class practical work. Question sheets to consolidate knowledge and understanding are set on a regular basis and student progress is monitored through regular assessment tests. Students benefit from access to the on-line tool 'Kerboodle' for consolidation and extension. A wider interest in Science is also encouraged; students should aim to keep abreast of current developments through reading relevant articles on the internet or in the press or scientific magazines e.g. New Scientist, which is available for perusal both in the Physics Department and in the School Library. A wealth of informative and interesting television programmes is also screened nowadays.

Mr P Jones, Head of Science and Physics

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