



PHYSICS

Entry Requirement: GCSE Physics grade 7 **or** GCSE Double Science grade 7-7
Mathematics grade 7.

Examination Board: AQA 7408

Course Content and Assessment

Paper	Components Assessed	Format	Duration	Weighting
1	Topics 1-5	60 marks of short and long answer questions 25 multiple choice questions	2hr	34%
2	Topics 6-8 (Assumed knowledge from topics 1-5)	60 marks of short and long answer questions 25 multiple choice questions	2hr	34%
3	Practical Skills and Data Analysis Optional Topic	45 marks on practical skills and data analysis 35 marks on optional topic	2hr	32%

The A-level Physics course consists of eight compulsory topics and one optional topic.

1. Measurements and Their Errors

Knowledge of fundamental units of measurement is taught, alongside the nature of measurement errors and the ability to make reasonable numerical estimations.

2. Particles and Radiation

This topic introduces students both to the fundamental properties of matter, and to electromagnetic radiation and quantum phenomena.

3. Waves

GCSE studies of wave phenomena are extended through a development of knowledge of the characteristics, properties, and applications of travelling waves and stationary waves.

4. Mechanics and Materials

This topic develops student's knowledge and understanding of forces, energy and momentum. Materials are considered in terms of their properties and tensile strength.

5. Electricity

This section builds on the earlier study of electricity phenomena from GCSE. It develops students understanding of circuits and their properties.

6. Further Mechanics and Thermal Physics

The study of mechanics is continued with circular motion and simple harmonic motion. Thermal properties of materials, ideal gases, and kinetic theory are also studied in depth.

7. Fields and Their Consequences

The ideas of gravitation, electrostatics and magnetic field theory are considered with applications that include planetary orbits, capacitors, and electromagnetic induction.

8. Nuclear Physics

This topic looks at the production of nuclear power through the characteristics of the nucleus, the properties of unstable nuclei, and the link between energy and mass.

9. Optional Topic

A final optional topic will be taught from one of the following: Astrophysics, Medical Physics, Engineering Physics, Turning Points in Physics, or Electronics.

Practical Assessment

Some practical skills will be assessed in Paper 3. A separate endorsement of practical skills will also be taken alongside the A-level. This will be assessed by teachers and will be based on direct observation of students' competency in a range of skills that are not assessable in written exams.

Teaching and Learning Methods

The content is delivered using a range of activities. Practical tasks and demonstrations of key experiments are central to the delivery of this subject. Developing knowledge of theoretical principles involves undertaking problem solving tasks, and the ability to explain key concepts is developed through individual and group tasks including research and presentation activities.

Homework

Regular homework is set to reinforce topics covered in lessons. This will include further research, problem solving and examination style questions. In addition to this there is a recommended reading list and students are expected to extend their knowledge by reading around the subject and beyond the scope of the course.

Complementary Subjects

Mathematics (with Mechanics), Chemistry (Scientific method, Atomic Theory), Biology (Scientific method), Technology (Electricity, mechanics), PE (Physiology, Biomechanics).

Trips and Visits

Year 12 trip to CERN

Materials

Textbook
Kerboodle

Key Features

- Develops problem solving skills.
- Encourages imaginative and logical thinking.
- Develops investigative and practical skills.
- Enhances students' understanding of the Physical world.
- Prepares students for careers in STEM subjects e.g. Architecture, Astronomy, Broadcasting, Technician, Medicine, Civil Service Scientific Officer, Engineering, Metallurgy, Meteorology, Optics, Pharmacy.