

PHYSICS AS and A2

What do I need to know, or be able to do, before taking this course?

The qualification builds on the knowledge, understanding and process skills that you achieved in GCSE Science. You will need at least a GCSE grade C, preferably B, in Physics or Additional Science (or equivalent). You should also have at least a grade C in GCSE Mathematics (or equivalent).

What will I learn?

AS Physics

Unit 1: Physics on the go	You will learn about motion, forces, energy, power, flow of liquids, viscosity and properties of materials. Applications that use these concepts include sports, the production of sweets and biscuits, and spare-part surgery.
Unit 2: Physics at work	You will learn about wave properties, the nature of light and electric circuits. The content of this unit relates to applications that include medical physics, music, technology in space and solar cells.

A2 Physics

Unit 4: Physics on the move	You will learn about momentum, circular motion, electric and magnetic fields, evidence for a nuclear atom, particle accelerators and different types of sub-atomic particles. These topics are related to applications that include transport, communications and display techniques as well as current research in the field of particle physics.
Unit 5: Physics from creation to collapse	You will learn about thermal energy, radioactive decay, simple harmonic motion, resonance, gravitation, the life cycle of stars, nuclear reactions and the development of the universe. As well as nuclear physics, applications include the construction of buildings in earthquake zones and a detailed exploration of astrophysics and cosmology.

Units 3: Exploring physics (AS) and **6: Experimental physics (A2)** are written assessments of practical skills, including planning and analysis, that you will develop throughout the course. These assessments contribute 20% towards final grades.

You will also gain an appreciation of how scientific models are developed and evolve, the applications and implications of science, the benefits and risks that science brings, and the ways in which society uses science to make decisions.

Is this the right subject for me?

AS/A2 Physics is suitable if you:

- have an interest in, and enjoy, physics
- want to find out about how things work in the physical world
- enjoy applying your mind to solving problems
- enjoy carrying out investigations by the application of imaginative, logical thinking
- are taking A-levels in the other Sciences and/or Mathematics or other relevant courses and want to take a course that will support your studies
- want to use physics to move on to further studies in Higher Education or to support other qualifications.
- are planning a career in a physics-based profession, research, any branch of engineering, astronomy, communications, architecture and, of course, teaching.

How will I be assessed?

There are separate examinations for each Unit which are sat June. Candidates who think they can improve on their scores have opportunities to resit each Unit.

AS For each of the 3 Units, you will sit a written paper that lasts for 90 minutes. Each paper consists of some multiple-choice questions plus open questions, some short and some longer.

A2 Assessment is similar to AS.

What can I do after I've completed the course?

Physics leads on to a wide range of courses and careers. You could use Physics to support other qualifications or move on to further studies including:

- a BTEC Higher National (HNC and HND) or a degree course such as Physics, other Sciences (pure or applied), Medicine, Meteorology, Engineering (including Chemical Engineering) and related programmes
- employment in any one of the following occupations:

Aeronautical engineer * Agricultural scientist + Air traffic controller + Architect + Army * or + Astronomer * Audiologist * Automobile engineer * Biomedical engineer * Biophysicist * Building technologist * Civil engineer * Civil Service scientific officer + Computer aided design + Computer programmer + Dental technician + Dentist + Doctor + Draughtsperson + Electrical engineer * Electrician * Electronics engineer * Environmental health officer + Ergonomist * Flight engineer * Food scientist + Forensic scientist * Geophysicist * Health and safety officer + Industrial designer + Information scientist + Journalist (science) + Laboratory technician * Lighting technologist *	Marine scientist + Materials scientist + Mechanical engineer * Medical physicist/technician + Merchant navy, deck, engineer, radio officer * Metallurgist * Meteorologist * Mining engineer * Motor mechanic + Nuclear scientist * Optician * Patent agent/examiner * Pharmacist + Physicist * Physiotherapist + Pilot + Production engineer * Quantity surveyor + Radio and TV repair * Radiographer * Radio studio manager + Recording engineer * Royal Air Force * or + Royal Navy * or + Space scientist * Structural engineer * Systems analyst + Teacher (Science) * Technical writer + Telecommunications (radio, telephone, satellite) * TV camera operator + Veterinary surgeon/assistant +
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Next steps!

You could:

- visit http://learningphysics.iop.org/beyond_school/careers/index.html for further information on careers in physics
- discuss the possibility of studying this subject with your Physics or Science teacher(s) and your careers teacher.
- order free physics careers booklets from the Institute of Physics website: http://www.iop.org/activity/education/Promoting_Physics/Career_Resources/page_5893.html
- visit the Edexcel website, www.edexcel.org.uk, to obtain a full copy of the Edexcel GCE in Physics specification.

For more information see: Mr R Hollingworth and Mr A Lopes