



PHYSICS



Who are physicists?

- Physicists try to discern the laws governing the interaction of matter and fundamental forces and to predict their consequences in different circumstances and at different scales and energies.
- The sweep of Physics is vast. Physicists are interested in studying the universe from the scale of the subatomic to the astronomical.
- Physics is the basis of many engineering disciplines and its understanding has driven developments in power generation, telecommunication, defence, transport, space exploration, material science, construction and medical scanning.

ASSESSMENT

Level: AS and A level

Specification: H557 OCR Physics B

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Assessment details:

Modules 1 to 6 are assessed through written papers in June.

AS and A2 course material will be co-taught. All material is assessed at the end at an A2 level.

QUALITIES AND QUALIFICATIONS

In order to succeed at A level Physics several qualities are required. First you need to have a genuine curiosity about the natural world and an enjoyment in using a scientific approach to investigate it. You must be willing to engage with abstract concepts in order to draw connections between different areas of knowledge. Physics calls on a student's imagination whilst demanding logical, analytic and critical thought. In Physics you will need to think things out for yourself as some ideas need to be grappled with through hours of independent study before they are fully understood. Students will be engaged in experimental work which will call for a careful, methodical approach and the ability and tenacity to solve practical problems in order to get reliable data. You will be expected to take part in class discussions and to be able to communicate effectively both in written form and through verbal and visual presentation. **NB. Because of the high level of mathematical understanding required to be successful in this subject, you will be expected to also be studying A Level Maths. If an appropriate, alternative choice of course is desired, which does not include A Level Maths, then students must have at least a level 7 in GCSE Maths.**

OUTLINE OF SUBJECT

In the first year you will study:

- Module 1-develops the practical skills required at advanced level.
- Module 2- focuses on data analysis.
- Module 3- physics of communication, including areas of imaging, sensing and signalling.
- Module 4- physics of Newtonian mechanics, waves and be introduced to quantum theory.

In the second year you move on to study:

- Module 5-on mathematical models, gravitation and cosmology, kinetic theory and thermodynamics.
- Module 6- the physics of electric and magnetic field and their combination in electromagnetism. In this topic you will also study particle physics and the physics of the nucleus.
- All students will be assessed on the practical skills through a series of experimental tasks which will inform a Practical Skills Endorsement - a qualification which assures the students future employers or colleges/universities of their practical competence.

COMPLEMENTARY SUBJECTS AND FUTURE PATHWAYS

- Physics is an essential choice for students entering many disciplines at a tertiary level, including obviously Physics, Astrophysics, Medical Physics and Geophysics but also aeronautical, electronic, telecommunication, mechanical and civil engineering.
- Like all of the sciences, Physics is regarded highly as an A Level subject of high academic rigour and many other degree courses and professions recognise the achievement of an A Level in Physics.
- Physicists, due to their specific skill set, are in demand in many areas of the economy including research and development in cutting edge technologies, system modelling in the financial sector and developing techniques to aid medical diagnosis and treatment.