

PHYSICS (Course Code Ph)

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OCR Physics A A Level Code H156, H556

Course Entry Requirements

Students must have achieved a minimum of a 77 grade at GCSE level for Core and Additional Science: double award or a 7 grade in Physics, plus a 7 grade in Mathematics.

Physics has always been a popular choice at Sir William Borlase's Grammar School. An A level in physics can lead to a wide range of future careers which value the skills of thought and analysis which the subject develops. It is also a good choice for those who wish to leave their options for future study open. Physics seeks to explore the world around us, attempting to describe and make sense of the way it works. Physics is an exciting and developing subject and is becoming increasingly more important as the pace of technological development in the world accelerates.

Students follow the OCR A course. The course will:

- Provide extensive knowledge of physics
- Place the development of physics ideas in a social and historical context
- Develop the ability to learn independently and research skills
- Develop a wide range of analytical, practical and other skills
- Stimulate curiosity, and provide depth and challenge

During the first year the course will explore the nature of physics and its place in the world; concentrating on some of the core topics. It will provide a sound foundation for the second-year course. The A Level course will enable the student to gain the necessary skills and knowledge for further study of physics or engineering at university. For those not intending to study beyond A level, the course will provide an interesting and stimulating experience.

Current Course:

This A-level course considers the main topics of mechanics, electricity, wave behaviour, radioactivity, particle physics, and kinetic theory. Topics are presented so that knowledge and understanding of key concepts are treated separately at in year 12 and important links between different areas of physics are largely assessed synoptically at the final A Level. Whilst the teaching of practical skills is integrated with the theoretical topics, and they are assessed within the examinations, there is a pass/fail requirement on the completion of the experiments and the keeping of a laboratory notebook as well an independent research project. The syllabus will also include consideration of the latest developments in physics, such as quantum theory, astrophysics, medical imaging and particle physics.

Mathematics and physics go together naturally, and the mathematical requirements of the course *should* be within the grasp of anyone who has gained a 7 grade at GCSE mathematics at the Higher tier. However, confidence and competence in mathematics is extremely important and it is strongly recommended that A level physics students undertake at least an A level in mathematics. For those intending to read engineering or physics at university, both physics and mathematics at A level are essential. Further mathematics is not required, but is found to be particularly helpful.

The physics department has an excellent record of success at A-level, founded on a high level of commitment from staff and students – essential for what is undoubtedly a demanding but rewarding course. It is vital that students keep up to date with the work set, and are prompt and regular in handing in assignments. Good study habits will be emphasised throughout the course, with plenty of encouragement given to students to develop these. The transition from GCSE to A level can be very daunting, and will be handled with care. Our intention is that study of physics should lead to an informed view of the role of science in an increasingly technological world, and an ability to approach problems in a structured and logical way, no matter what their future career.

Year 12	Year 13
1. Development of practical skills 2. Foundations of physics 3. Forces and motion 4. Electrons, waves and photons 2 internal examinations assessing all content: 50% Breadth in physics 50% Depth in physics	5. Newtonian world and astrophysics 6. Particles and medical physics 3 examinations assessing various content: 37% Modelling physics (modules 1,2,3 & 5) 37% Exploring physics (modules 1,2,4 & 6) 26% Unified physics (modules 1-6) Practical endorsement (pass/fail)

A-Level from 2017:

There is a specification available from OCR. To view please go to:

<https://www.ocr.org.uk/Images/171726-specification-accredited-a-level-gce-physics-a-h556.pdf> for A-Level physics

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