A Level Physics

Why this subject?

Physicists are scientists who try to understand and explain how the world works from the very small – quantum physics – to the very large – astrophysics. The physics concepts we will look at explain how most things in your life work such as televisions, smart phones, cars, and planes. We use this understanding to drive forward new discoveries and to push the development of new technologies. You could be part of that process!

Course Outline

Year 12

Module 1 – Development of practical skills in Physics: During the course we carry out many investigations of which some you need to know how to carry out, analyse data and make conclusions. This leads to both a practical endorsement qualification (needed for engineering and science FE courses) and is examined across all assessments.

Module 2 – Foundations of physics: This unit covers the basics in physics and mathematical skills required to access all the concepts in the course and is fundamental to all assessments.

Module 3 – Forces and motion: All units start from familiar work in GCSE and build to a higher depth of knowledge allowing better and more varied examples to be analysed, this unit covers motion, effects of forces, material behaviour and energy.

Module 4 – Electrons, waves and photons: Like all modules it builds upon GCSE knowledge that we recall which for this unit centre on electricity and waves. With a greater understanding of these concepts we can also introduce the exciting world of quantum physics.

Year 13

Module 5 – Newtonian world and astrophysics: This module builds on from module 3 and is used to explain more classical physics phenomena such as planetary orbits as well as explaining the starts and cosmos.

Module 6 – Particles and medical physics: Building on from module 4 this covers electric and magnetic fields, particle physics, radioactivity and how all these concepts are used in the medical field such as CAT scans and PET scans.

Vasilieos went to Cambridge to study Natural Science

Key Information	
Exam Board	OCR
Qualification Type	A Level
Entry Requirements	A Level Pathway Level 7 Science
Head of Department	Mr Coyle

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Assessment Outline

As we do not do the AS qualification there are only AS style internal assessments carried out at the end of Year 12 to assess progress to Year 13.

In Year 13 there are 3 exams:

Modelling physics (01)

Assesses material from modules 1, 2, 3 and 5

100 marks 2 hours 15 minutes written paper, 37% of total A level

Exploring physics (02)

Assesses material from modules 1, 2, 4 and 6

100 marks 2 hours 15 minutes written paper, 37% of total A level

Unified physics (03)

Assesses material from all modules

70 marks 1 hour 30 minutes written paper, 26% of total A level

Practical endorsement in physics (04)

Non-exam assessment - reported separately, needed for some science and engineering based courses

Careers and next steps

Studying Physics sets you apart from many students as it is recognised as a highly challenging course so shows a high level in intelligence but also key skills such as problem solving, imagination and evaluation. Many physics student pursue obvious careers such as scientists, engineers (cars, robotics, aircraft, building etc), however, the problem-solving skills and the ability to model a process mean they are highly sought in other areas such as finance, economics, web developing in jobs like investment banking, as an actuary, modelling economic growth forecasts. You may even end up being a hospital physicist who calculates the amount of radiation used for medical tracers or for radiotherapy.

In the past few years students have gone on to study physics specific courses and engineering at Cambridge, Bristol, Manchester, Loughborough and others. The feedback from students is they feel well prepared for the next steps in their education or career.