Physics A level

Hertswood

Why take this subject?

Physics provides the foundation for all natural sciences.Physicists look for all the hidden laws that explain why all matter (that's every physical thing) and energy in the known universe exists, where it comes from and how it behaves the way it does.Physics explains the fundamental laws of the universe and introduces important concepts that are essential for advanced study of chemistry, biology and all other branches of science.Physics helps us to understand how the world around us works, from can openers, light bulbs and cell phones to muscles, lungs and brains; from paints, piccolos and pirouettes to cameras, cars and cathedrals; from earthquakes, tsunamis and hurricanes to quarks, DNA and black holes.Physics helps us to organize the universe. It deals with fundamentals, and helps us to see the connections between seemingly disparate phenomena.Physics gives us powerful tools to help us to express our creativity, to see the world in new ways and then to change it.

What do I need to have studied in year 11?

- You must have at least 5 GCSES at grades 9-5 including English and Maths
- Minimum of grade 6 in physics & grade 6 in maths

What will we study?

In Year 12, topics include studying ideas from the fundamental groundings of Newtonian mechanics and Waves through to the fascinating world of Particles and Quantum phenomena, from behaviour of Materials to the study of Electricity. Students will also develop their practical, analytical and mathematical problem-solving skills.

In Year 13, students reinforce and broaden the content covered during Year 12, through the study of Further Mechanics and the practicalities of Electric, Magnetic and Gravitational Fields. We also introduce some of the fundamentals which underpin Thermal Physics and the Radioactive Decay. The Engineering Physics topic provides an ideal opportunity to apply key concepts such as Rotational Dynamics and Thermodynamics to engineering and technology.

How will I be examined?

Unit	Assessment	Weighting
Paper 1: Measurements and errors; Particles and radiation; Waves; Mechanics and materials, Electricity; Periodic Motion	written exam	34%
Paper 2: Thermal Physics, Fields, Nuclear Physics, knowledge of Paper 1 topics)	written exam	34%
Paper3: Practical skills and data analysis; Engineering Physics topic	written exam	32%

What super curricular opportunities will be available to me?

The department also offers students an excellent opportunity to visit an area where cutting-edge research into Physics is taking place.Some of our sixth form Physicists take on leadership roles such as Physics Captain or leading our Robot Club for younger students.

What can this subject lead to?

A Physics degree helps prepare you to do almost anything. An incredible range of careers benefit from the quantitative and analytical skills – the problem solving skills of physics, and from an understanding of the

fundamentals behind science and technology that a physics degree provides.Physics is a seriously useful subject for the majority of STEM (science, technology, engineering and maths) careers and you'll find physicists everywhere, in industry, transport, government, universities, the armed forces, the secret service, games companies, research labs and more.

Physics is especially helpful for jobs that involve building things and developing new technologies, including: engineering (flight, buildings, space, you name it…), astronomy, robotics, renewable energies, computer science, communications, space exploration, science writing, sports and games technology, research and nanotechnology (that's engineering on a seriously tiny molecular scale).

Subject Specification

Link to the AQA course specification:
https://www.aqa.org.uk/subjects/science/as-and-a-level/physics-7407-7408

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