

## Physics

### Entry Requirements

Potential candidates must essentially have achieved **at least a grade B in GCSE Physics**. Students with a B grade will have their performance in the two modules at GCSE closely examined, to determine whether they are making an appropriate choice. It is also **highly desirable that students have at least a grade B in Further Mathematics**, to ensure that they have adequate skills and experience to cope with the mathematical elements that permeate the course.

Physics is the study of how energy interacts with matter. It includes the study of topics such as heat, light, sound, electricity, motion and gravity. The concepts associated with quantum theory, electromagnetic theory and the nature and structure of matter are covered. The CCEA specification which we deliver includes applications of Physics in the areas of astronomy and high-energy particle accelerators. It is a challenging and enlightening programme, presenting students with opportunities to develop highly-prized skills of analysis and deduction, interpretation and experimentation.

### AS Course (\*new specification from Sept 2016)

Module	Content
<b>AS 1</b> Forces, Energy & Electricity	Students will build on their knowledge and understanding of Newtonian mechanics and electricity, important concepts in explaining many economic and social applications of Physics.
<b>AS 2</b> Waves, Photons & Astronomy	Students use a wave model to explore aspects of sound and light. Students are introduced to quantum theory and wave-particle duality. In the Astronomy section they learn about the age and size of the universe.
<b>AS 3</b> Practical Techniques & Data Analysis	Experimental skills are examined by short practical tasks on one paper, a separate paper tests analysis of experimental results.

**A2 Course (completion in 2016)**

<b>A2 1</b> Momentum, Thermal Physics, Circular Motion, Oscillations, Atomic & Nuclear Physics	The mechanics theory of AS 1 is extended here, through momentum, circular motion and oscillatory motion. Thermal Physics introduces modelling to explain gas properties. Important social and economic applications are dealt with in the atomic and nuclear section.
<b>A2 2</b> Fields and their Applications	The fundamentals of Physics, with their numerous applications to everyday life, are covered in this module. Students are introduced to the most up-to-date theories of the structure and nature of matter and experimentation in the Particle Physics section.
<b>A2 3</b> Practical Techniques	The essential skills of planning, implementing, analysis evaluation and communication are examined by two practical tests and a planning question.

**Scheme of Assessment**

Module	Assessment Format	Duration	Weighting	Availability
<b>*AS 1</b>	Written examination	1 ¾ hours	40% of AS 16% of A level	*AS 1
<b>*AS 2</b>	Written examination	1 ¾ hours	40% of AS 16% of A level	*AS 2
<b>*AS 3</b>	Practical skills test and data analysis examination	2 x 1 hour components	20% of AS 8% of A level	*AS 3
<b>A2 1</b>	Written examination	1 ½ hours	18.5% of A level	A2 1
<b>A2 2</b>	Written examination	1 ½ hours	18.5% of A level	A2 2
<b>A2 3</b>	Practical examination	1 ½ hours	13% of A level	A2 3

There is no element of coursework. Year 13 students take three AS modules at the end of the first year, constituting the AS award, as outlined below. Year 14 students take the further three modules in the summer of their second year, thus completing their A2.

**Career Opportunities**

Never have there been more or broader career options stemming from studies of Physics at A-level, including those in the fields of Medicine and Health, Environment, Telecommunications, Astrophysics, Energy, Finance, Engineering, Transport, Media, Education and Research.