

**Subject Lead:** Mr D Jenkins, MSc, BSc (Hons).

## OCR (A) A Level Physics.

*“Physics is really nothing more than a search for ultimate simplicity, but so far all we have is a kind of elegant messiness.”*

*Bill Bryson*

### Subject Information

Most people hear the word 'physics' and run for cover. But it's not just for rocket scientists! You are surrounded by physics all the time, and whether you realize it or not, you use physics every day.

Physics, the study of matter and energy, is an ancient and broad field of science. The word 'physics' comes from the Greek 'knowledge of nature,' and in general, the field aims to analyse and understand the natural phenomena of the universe.

One thing that may come to mind when you think of physics is the many scientific laws, which are statements describing phenomena that have been repeatedly tested and confirmed. This is actually an important part of physics.

Physicists perform and repeat experiments, sometimes ad nauseam, to formulate these laws and explain how our universe works. These laws (such as gravity and Newton's laws of motion) are so thoroughly tested that they are accepted as 'truths,' and they can be used to help us predict how other things will behave.

Physics explains natural phenomena in the universe, it's often considered to be the most fundamental science. It provides a basis for all other sciences - without physics, you couldn't have biology, chemistry, or anything else!

### Career Pathways

*Where do you think choosing physics could take you?*

*There are thousands of exciting, rewarding physics-related careers to choose from – picking just one is hard. From cancer treatment to tackling climate change, gaming to robotics and artificial intelligence, physics and physicists are on the front line, helping to shape the future. At a time when jobs are changing, physics offers a vast and expanding range of career paths. It could be to a game studio, designing the next Minecraft? Or to the Met Office, creating computer models to predict climate change? Perhaps into education, to inspire the next generation? Or to a hospital, using physics to help to save lives? It's not only science and technology. What many people don't realise is how valued and respected physics skills and ways of thinking are in other, often well-paid, industries like finance and law.*

### Course Content

Exam Papers	Exam Time	Total Marks
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<p>Paper 1 “Modelling Physics”.</p> <ul style="list-style-type: none"> <li>• Module 1 - Development of practical skills in physics.</li> <li>• Module 2 - Foundations of physics.</li> <li>• Module 3 - Forces and motion.</li> <li>• Module 5 - Newtonian world and astrophysics.</li> </ul>	<b>2 Hours 15 mins</b>	<b>100 marks (37% of the A level)</b>
<p>Paper 2 “Exploring Physics”</p> <ul style="list-style-type: none"> <li>• Module 1 - Development of practical skills in physics.</li> <li>• Module 2 - Foundations of physics.</li> <li>• Module 4 - Electrons, waves and photons.</li> <li>• Module 6 - Particle and medical physics.</li> </ul>	<b>2 Hours 15 mins</b>	<b>100 marks (37% of the A level)</b>
<p>Paper 3 “Unified Physics”</p> <ul style="list-style-type: none"> <li>• All modules.</li> </ul>	<b>1 hour 30 mins</b>	<b>70 marks (26% of the A level)</b>

### **Entry Requirements:**

### **Complementary subjects:**

Students taking Physics at “A” Level opt for many other choices, some based in the Sciences and mathematical areas of the curriculum, but others in the Humanities and Arts. Although Mathematics and Physics do complement each other, it is possible to gain the highest grades in Physics without studying Mathematics in the Sixth Form. Subjects often linked to Physics include art, biology, chemistry, maths, pure maths, further maths, economics, statistics, electronics, computer science and geography.

### **Excellence in thinking**

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