



# PHYSICS

**QUALIFICATION:** AS Level Physics  
A Level Physics

**Examination Board:** OCR A

## **What do I need to know or be able to do before taking this course?**

You will have studied one of:

- GCSE Combined Science and achieved grade 7
- GCSE Physics and achieved grade 7

You will also need grade 7 in GCSE maths and be taking A level maths.

## **What will I learn on this AS/ A Level course?**

As you progress through the course, you'll build on your knowledge of key concepts in Physics, developing understanding of areas from sub-atomic particles, through the classical laws of Physics up to astrophysics and cosmology. You will study both theoretical and practical concepts, and obtain a firm grounding in the knowledge and skills that will take you not just into a physics-related degree or apprenticeship, but also give you strong transferable skills that will help you enter other disciplines.

## **What kind of student is this course suitable for?**

You need to be a strong scientist with a passion for understanding how things work. You also need to be comfortable with GCSE mathematics, and able to write accurately. It also helps if you enjoy practical work and finding things out through experiments. Although there are some key things that you will need to learn, a lot of Physics is about applying what you know to solve problems, so you need to be willing to give things a go and try out different approaches to your work.

## **What is covered on the AS and A level course?**

Physics is split into six modules. Modules 1 to 6, combined with the Practical Endorsement, constitute the full A Level. You can also take an AS level by studying modules 1 to 4 and taking an exam at the end of Year 12.

**Module 1: Development of practical skills** (taught throughout the course) - from measuring acceleration due to gravity to investigating radioactivity.

**Module 2: Foundations of physics** - all the key concepts that underpin the whole course such as vectors, units and orders of magnitude.

**Module 3: Forces and motion** - you will learn to calculate how things move, how forces affect motion and how the laws of motion apply to everyday life.

**Module 4: Electrons, waves, and photons** - how electrical circuits work, key properties of waves and an introduction to quantum physics

**Module 5: Newtonian world and astrophysics** - building on what you learnt in module 3 to understand how gases behave, circular motion, gravitational fields and how cosmologists and astrophysicists are piecing together knowledge about the universe.

**Module 6: Particles and medical physics** - this is many students' favourite unit! You will learn the basics of particle physics, extend your knowledge of radioactivity and understand how it is all applied in a medical context.

For the full A level, you sit two 2 hour 15minute papers on the content, and a 90 minute synoptic paper.

If you take the AS level, you will sit two 90 minute papers.

**What could I go on to do at the end of my course?**

There are many career options available to those that have studied Physics, for example Engineering, Astrophysics, Cosmology, Electronics, power generation, or Aeronautics. The skills that you develop are also valued in a wide range of other careers such as finance, IT services, computing and education and healthcare.

There are a number of excellent websites which give further details about careers in Physics:

<https://www.iop.org/careers-physics/your-future-with-physics>

<https://nationalcareersservice.direct.gov.uk/advice/planning/jobfamily/Pages/scienceandresearch.aspx>