

Physics AS / A Level



What will I learn in A-level physics?

You will already be familiar with many of the topics that you will study, including forces, waves, radioactivity, electricity and magnetism.

At A-level, you'll look at these areas in more detail and find out how they are interconnected. You will also learn how to apply maths to real-world problems and explore new areas such as particle physics, cosmology, medical physics and physics of sport.

Perhaps more importantly, you will develop skills that can be transferred to just about any other area of work, from setting up a business to saving the planet. Even if you don't go on to become a physicist, learning to think like one will help you get to the root of any problem and draw connections that aren't obvious to others. Physics won't give you all the answers, but it will teach you how to ask the right questions.

Studying A-level physics doesn't restrict your options, it expands them. As well as being needed for many careers in science and engineering, the skills and knowledge that you can develop by studying physics keeps the door open to doing just about everything else.

The WJEC A level in Physics provides a broad, coherent, satisfying and worthwhile course of study. It encourages learners to develop confidence in, and a positive attitude towards, physics and to recognise its importance in their own lives and to society.

Listed below are the topics studied during the two years:

AS Physics

Two units are covered in Year 12:

AS UNIT 1: MOTION, ENERGY AND MATTER This unit includes the following topics:

1. Basic physics
2. Kinematics
3. Dynamics
4. Energy concepts
5. Solids under stress
6. Using radiation to investigate stars
7. Particles and nuclear structure

examination: 1 hour 30 minutes 20% of qualification

AS UNIT 2: ELECTRICITY and LIGHT - This unit includes the following topics:

1. Conduction of electricity
2. Resistance
3. D.C. circuits
4. The nature of waves
5. Wave properties
6. Refraction of light
7. Photons
8. Lasers

Written examination: 1 hour 30 minutes 20% of qualification

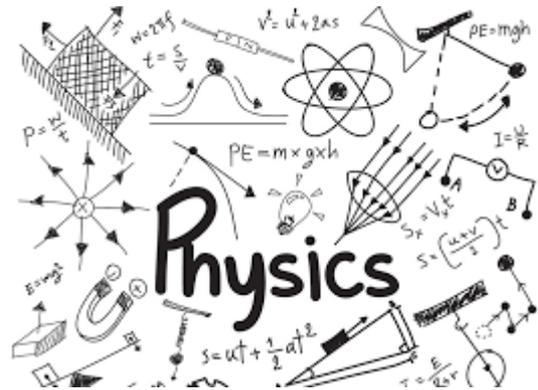
A2 Physics

Three units are covered in Year 13:

A2 UNIT 3: OSCILLATIONS and NUCLEI

This unit includes the following topics:

1. Circular motion
2. Vibrations
3. Kinetic theory
4. Thermal physics
5. Nuclear decay
6. Nuclear energy



Written examination: 2 hours 15 minutes 25% of qualification

A2 UNIT 4: FIELDS and OPTIONS

This unit includes the following topics:

1. Capacitance
2. Electrostatic and gravitational fields of force
3. Orbits and the wider universe
4. Magnetic fields
5. Electromagnetic induction
6. Option choice: The physics of sports

Written examination: 2 hours 25% of qualification

A2 UNIT 5: PRACTICAL EXAMINATION

Practical work is an intrinsic part of this specification. It is vitally important in developing a conceptual understanding of many topics and it enhances the experience and enjoyment of physics. The practical skills developed are also fundamentally important to learners going on to further study in physics and related subjects, and are transferable to many careers

This unit gives learners the opportunity to demonstrate their ability to carry out an investigation and to analyse and evaluate experimental data. This will be carried out individually, under controlled conditions. The practical examination comprises two tasks.

10% of qualification

- Experimental Task (25 marks)
- Practical Analysis Task (25 marks)