

A-Level Physics at Yavneh College

Students must have achieved at least Grade AB in Dual Award Science GCSE (or grade B in physics GCSE) and at least Grade B in mathematics GCSE.

Course outline – AQA Physics A

Physics is so fundamental that there is scarcely a single area of modern life which is not affected by its theories and applications. It is the science of matter and the universe around us and is the basis of all developments in high technology and engineering.

A Level physics will appeal to students who have an interest in how the universe works, from the smallest particles to the end of the universe; like finding out how things work; enjoy solving practical and theoretical problems whether working alone or as part of a team; enjoy fitting difficult facts and ideas into simple working models.

The AQA Physics A curriculum is a concept-led teaching course demonstrating how science works, building upon the core disciplines learnt in Double and Triple Award Science at GCSE. The course is divided into six units over 2 years. Units 1, 2 and 3 comprise the AS Level. Units 4, 5 and 6 comprise the A2 Level.

- Unit 1: Particles, Quantum Phenomenon and Electricity
 - the atom, radioactivity, particles and anti-particles, particle interactions, particle classification, quarks, wave particle duality, current, potential difference, resistivity, EMF, internal resistance and AC.
- Unit 2: Mechanics, Materials and Waves
 - scalars, vectors, equations of motion, Newton's laws, energy and power, properties of materials including Hooke's law and Young's modulus, refraction, interference and diffraction of waves.
- Unit 3: Investigative and Practical Skills in AS Physics
 - internal assessment comprising of a series of practical tasks undertaken during the year and a practical test taken towards the end of year 12
- Unit 4: Fields and Further Mechanics
 - Further mechanics, introduction to fields and particles, momentum, circular motion, simple harmonic motion, resonance, gravitational, electrical and magnetic fields.
- Unit 5: Nuclear and thermal Physics
 - Radioactive decay, nuclear energy, thermal energy and kinetic theory. One option to be studied from: Astrophysics, Medical Physics, Applied Physics and Turning Points in Physics
- Unit 6: Investigative and Practical Skills in A2 Physics
 - Internal assessment, comprising of a series of practical tasks undertaken during the year and a practical test taken towards the end of Year 13.

The units in the A2 year also assess synoptically, which means that they contain material that also draws on knowledge from the AS year.

Why study A-level physics?

A-Level physics develops the skills that can be applied to any career or path of study chosen: logical thinking, analysing, using analogies as well as applying mathematics to practical situations. A Level physics students are well prepared for degrees and careers in science including engineering, medicine, dentistry and pharmacy, computing, actuary, sports science and aeronautics.