



Physics

Edexcel A level Physics



Physics is the study of the fundamental principles that govern the universe, from subatomic particles to galaxies. A-level Physics is a challenging subject that sharpens analytical skills, promotes critical thinking, and provides a solid foundation for careers in science, engineering, and technology.

Topics you will study

Year 12:

Mechanics: vectors, motion, forces, and energy principles

Electricity: electric circuits, resistors, potential difference, and current

Materials: density, elasticity, and the behaviour of materials under stress

Waves and Light: properties of waves, interference, diffraction, and the electromagnetic spectrum

Quantum Physics: introduction to quantum phenomena, photons, and wave-particle duality

Year 13:

Further Mechanics: circular motion, momentum, and oscillations

Thermal Physics: temperature, heat transfer, and the kinetic theory of gases

Electric and Magnetic Fields: electric fields, capacitance, magnetic fields, and electromagnetic induction

Nuclear and Particle Physics: atomic structure, radioactivity, and particle physics

Astrophysics and Cosmology: life cycles of stars, the Big Bang, and the structure of the universe

Why study this subject?

- Explore the Principles of the Universe: Physics provides a deeper understanding of how everything works, from gravity to atomic interactions.
- Develop Practical and Mathematical Skills: Physics requires precise experimentation, strong problem-solving skills, and a solid grasp of mathematics.
- Open Pathways to High-Impact Careers: A-level Physics is highly valued for courses and careers in engineering, technology, and the natural sciences.

Why study this subject at Aston?

- Excellent outcomes year on year
- Specialist Physics Teachers: Taught by experienced Physics teachers with post-doctoral research in a range of cutting-edge science
- Smaller Class Sizes Than College: Benefit from personal feedback, individualised support, and enriched practical sessions.

Assessment

Your grade will be based on three exams in the summer of Year 13.

Paper 1: Advanced Physics I (Mechanics, Electric Circuits, Further Mechanics, Electric and Magnetic Fields) – 1 hr 45 mins

Paper 2: Advanced Physics II (Materials, Thermal Physics, Nuclear and Particle Physics, and Astrophysics) – 1 hr 45 mins

Paper 3: Synoptic paper assessing practical skills and experimental techniques, as well as all topics across both years – 2 hr 30 mins

Links particularly well with these subjects

Maths, Chemistry, Further Maths, Applied Science, Medical Science

Entry requirements

Grade 6 or above in GCSE Physics or Combined Science and grade 5 or above in Mathematics.

Useful for careers in....

Physics is particularly useful for careers in Engineering, Astrophysics, Computer Science, Medical Physics, Aerospace, Robotics, Data Science, Environmental Science, and Finance.