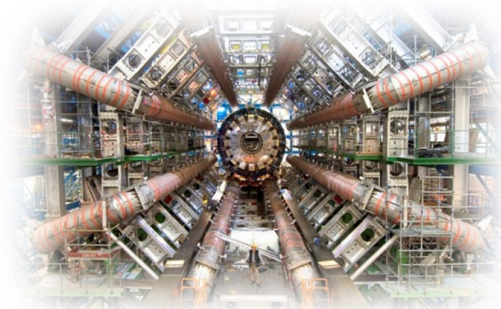




# Physics

## Course Information

From the smallest sub-atomic particle to the largest star; Physics is the subject which tries to explain why the universe is the way it is. It is an ideal subject to be combined with Mathematics, Chemistry, Biology, Economics, Geography, History, Product Design, Art...



## Course Content

During the course you will develop your understanding of the laws of physics which govern how the universe works. By studying the theories of some of humankind's greatest thinkers (from Einstein to Newton) and replicating the research of, among others, Faraday, Millikan and Kirchhoff, you will study topics ranging from Mechanics to Electric & Magnetic Fields, and from Thermodynamics to Nuclear & Particle Physics.

### AS Topics

#### Unit 1: Practical skills

- Development practical skills in physics - *practical skills*

#### Unit 2: Foundations of physics

- *Units and scalar & vector quantities*

#### Unit 3: Forces and Motion

- *constant acceleration, free fall, projectile motion*
- *Newton's law of motion, drag and terminal velocity, forces and equilibrium, car safety*
- *conservation of energy, Hooke's law, the Young Modulus*

#### Unit 4: Electrons, Waves and photons

- *charge, current and potential difference, conservation of energy and charge in circuits*
- *longitudinal and transverse waves, the electromagnetic spectrum,*
- *the photoelectric effect, energy levels and photon emission, wave-particle duality*

### A2 Topics

#### Unit 4: Newtonian World and Astrophysics

- *gravitational fields*
- *simple harmonic motion*
- *ideal gases, internal energy and temperature*
- *stellar evolution, the Big Bang model, evolution of the universe*

#### Unit 5: Particle physics and Medical physics

- *charged particles in electric & magnetic fields, electromagnetic induction*
- *capacitors & radioactive decay*
- *antiparticles, quarks, nuclear fission & fusion*
- *x-rays, ultrasound, magnetic resonance imaging and medical uses of nuclear radiation*

## Entry Requirements

To study A level Physics you are required to have achieved at least:

GCSE Maths - grade 5 or above

GCSE Sciences - grade B or above in either Additional Science or in the Physics GCSE if separate/Triple Sciences were studied.

## Future Opportunities

By studying A level Physics you are opening the doors to a wide range of higher educational opportunities and possible careers, such as engineering, architecture, telecommunications, astronomy, armed forces, even teaching. Problem solving, thinking logically and working methodically are desirable attributes in future employees.

