Physics GCSE Y11 – Course Overview

Physics helps us understand the forces, energy and interactions that govern the universe. In Year 11, students deepen their understanding of electricity, waves, forces and electromagnetism before exploring the origins and structure of the universe through space physics. Through practical investigations and scientific enquiry, students develop the knowledge and skills needed to apply physical principles to real-world situations and prepare for their GCSE examinations.

Advent 1: Electricity – Circuits

Students develop their understanding of electrical circuits and learn how current, potential difference and resistance are related. They investigate the behaviour of series and parallel circuits and develop practical skills through experimental work.

Key areas of study:
• Electrical charge and current
• Potential difference and resistance
• Circuit symbols and diagrams
• Series and parallel circuits
• Current and potential difference in circuits
• Required practical investigations

Advent 2: Electricity – Domestic Uses

Students explore how electricity is generated, transferred and used safely in homes and industry. They investigate energy transfers in electrical appliances and learn how electrical systems are designed to minimise risk.

Key areas of study:
• Domestic electricity supply
• Mains electricity
• Electrical power and energy transfers
• Efficiency of electrical appliances
• Electrical safety
• Static electricity and its applications

• Lenses and image formation
• Sound waves
• Wave applications and communication
• Required practical investigations

Lent 1: Forces

Students examine how forces affect the motion and behaviour of objects. They investigate elastic deformation, energy transfers and the relationship between mass and weight.

Key areas of study:
• Forces and motion
• Hooke's Law and springs
• Work done and energy transfer
• Weight and gravitational force
• Resultant forces
• Required practical investigations

Lent 2: Electromagnetism and Space Physics

Students explore the relationship between electricity and magnetism and investigate how electromagnetic principles are used in modern technology. Separate Physics students also study space physics, examining the structure and evolution of the universe.

Key areas of study:
• Magnetic fields
• Electromagnets
• The motor effect
• Induced potential and transformers
• The National Grid
• Space physics (separate Physics only)
• The Solar System and life cycle of stars
• The expanding universe