

Movement

- Students begin to link their understanding of energy transfers and forces to explain how work is done on an object
- Students explore Newton's second law and how an object's momentum and other factors affect its stopping distance

Electrical Circuits and Energy

- Students further their knowledge of electrical relationships such as current, voltage and resistance to include special types of resistors such as LDR and thermistors
- Students are introduced to the concept of induced potential and the need for transformers in the national grid

YEAR 11 – CURRICULUM

Sound and Light Waves

- Students will learn about different types of waves, their properties, and the characteristics of sound waves.
- They will calculate wave velocity and investigate it through experiments, while also studying reflection and refraction.
- Students will explore practical applications of waves, light as an energy-transferring wave, its properties, and how it allows us to see objects.
- They will explore ray diagrams to understand the emission, reflection, and formation of shadows by light.
- Students will investigate reflection, including surface types and the law of reflection, as well as refraction, focusing on the process, ray diagrams, and the role of media density.

Radioactivity

- Students will learn that some atomic nuclei are unstable and undergo radioactive decay to become more stable.
- They will understand that the rate of decay is measured by activity, expressed in becquerels (Bq), and count-rate measures the number of decays recorded per second.
- Students will also learn about the types of nuclear radiation emitted, including alpha particles (α), beta particles (β), gamma rays (γ), and neutrons (n), and their limited knowledge of their properties such as penetration, range, and ionizing power.
- Additionally, they will be able to apply their knowledge to evaluate the best sources of radiation for specific situations and understand the importance of publishing and sharing findings of radiation effects through peer review.

Force Fields

- Students will learn about the poles of magnets, understanding that like poles repel and unlike poles attract as examples of non-contact forces.
- They will be introduced to permanent and induced magnets and how to distinguish between them
- Students will explore magnetic field patterns using compasses and relate compass behaviour to Earth's magnetic field
- They will also study Fleming's left-hand rule to understand the motor effect

Electromagnetic Radiation

- Students will learn that electromagnetic waves form a continuous spectrum, all traveling at the same velocity through a vacuum or air.
- They will understand the groups of electromagnetic waves in terms of their wavelength and frequency, ranging from radio to gamma rays.
- The limited range of waves detectable by our eyes is visible light.
- Students should be able to provide examples illustrating the transfer of energy by electromagnetic waves and understand the practical applications of different types of electromagnetic waves

Revision of Physics – PPE's used to identify priority areas.