Curriculum Map

Physics

Year 11

Waves
Waves in air, fluids and solids. The electromagnetic spectrum.

Magnetism and electromagnetism
Permanent and induced magnetism, magnetic, forces and fields. The motor effect. Induced potential, transformers and the National Grid.

Space
Solar system; stability of orbital motions; satellites. Red-shift and the Big Bang Theory.

Revision
Revision and examination technique. Walking talking mock past papers.

Exam Information
Two exam papers, 1h 45 mins each
Foundation or Higher Tier

Next Steps
A-Level Physics or a Level 3 Science course. Careers in Engineering, Game design, Healthcare, Materials Science, Medical imaging, Astrophysics and Finance

Year 10

Forces and motion
Newton's First Law and the consequences of it. Velocity, acceleration. Graphing movement. Inertia, thinking and braking distance and stopping distance.

Forces
Forces and their interactions. Work done and energy transfer. Elasticity, moments, levers and gears. Pressure and pressure differences in fluid.

Atomic structure
Atoms, isotopes and radiation. Hazards and uses of radioactive emissions and of background radiation. Nuclear fission and fusion.

Particle model of matter
Changes of state and the particle model. Internal energy and energy transfers. Particle model and pressure.

Electricity
Current, potential difference and resistance. Series and parallel circuits. Domestic uses and safety. Static electricity.

Energy
Energy changes in a system, and the ways energy is stored before and after such changes. Conservation and dissipation of energy. National and global energy resources.

Year 9

Work
Energy transfer calculations and evaluation. Considering power and efficiency.

Energy at a particle level
Investigating convection, conduction and radiation. Considering everyday applications of insulation, conduction and evaporation.

Energy sources.
How do we get the energy we use. Evaluating renewable and non-renewable resources.

Representing forces
Mapping forces in 2 and 3 dimensions. Calculating centre of mass and resultant forces.

Moving forces
Calculating momentum, stopping distance and kinetic energy. Considering factors that can affect stopping distanc3es in real life situations.

Life cycle of stars
looking deep into the galaxy and back in time, to see how the Universe was formed and how stars including our sun change during their lifetime.

Year 8

Waves
Investigating longitudinal, transverse waves and superposition.

Heat is on
Comparing heat energy and temperature. Considering evaporation and insulation.

Magnets
Magnetic fields, effects of magnets and electromagnets.

Keeping afloat.
Learning about the forces that affect us; upthrust, buoyancy, pressure at depth.

Movement
Compression, extension, air resistance, friction and upthrust. How objects are affected by forces.

Lenses, Optics & Colour
How do we see our world, looking at optical effects such as reflection and refraction.

Prep School / Year 7

Being a Scientist
Understanding the scientific method and experimentation. Safe laboratory practice.

Energy
How is energy transferred and transformed.

Electricity
Investigating voltage, current, resistance and static electricity.

Waves
Light and sound.

Forces
Speed, acceleration and calculating resultant forces.

Space
The structure and evolution of the Earth. Our place in the Universe.