

PHYSICS

“We are just an advanced breed of monkeys on a minor planet of a very average star. But we can understand the universe. That makes us something very special.” –
Stephen Hawking

Year 12			
	Autumn	Spring	Summer
Curriculum Knowledge	<ul style="list-style-type: none"> ● Measurements and their errors ● Particle physics ● Materials ● Mechanics 	<ul style="list-style-type: none"> ● Quantum phenomena ● Waves ● Optics ● Electric current ● DC circuits 	<ul style="list-style-type: none"> ● Gravitational fields ● Circular motion ● Simple harmonic motion
Tier 3 Vocabulary	Uncertainty Nucleon, Specific charge, Strong force, Photon, Pair production, Annihilation, Boson, Hadron, Lepton, Baryon, Meson, Quark Density, Elastic, Stress, Strain, Young modulus Vector, Scalar, Equilibrium, Moment, Displacement, Velocity, Acceleration, Projectile, Freefall, Impulse, Elastic collision, Motive power	Photoelectric effect, Threshold frequency, Work function, Excitation, Fluorescence, Spectrum, Diffraction, de Broglie wavelength Polarisation, Phase difference, Radian, Superposition, Stationary wave, Refractive index, Total internal reflection, Monochromatic, Coherent Current, Potential difference, Resistivity, Internal resistance, Electromotive force, Potential divider	Radial, Uniform, Field strength, Potential, Escape velocity, Geostationary satellite Centripetal, Angular velocity Time period, Amplitude, Damping, Resonance
Curriculum Opportunities	Reading and research via independent study tasks Problem solving on Isaac Physics and IWantToStudyEngineering Online lectures and events Science mentoring of younger students	Reading and research via independent study tasks Problem solving on Isaac Physics and IWantToStudyEngineering Online lectures and events Science mentoring of younger students	Biennial trip to CERN, Geneva Outreach activities with primary school children Science mentoring of younger students
Year 13			

	Autumn	Spring	Summer
Curriculum Knowledge	<ul style="list-style-type: none"> ● Capacitors ● Electric fields ● Magnetic fields ● Electromagnetic induction ● Radioactivity ● Nuclear physics 	<ul style="list-style-type: none"> ● Thermal physics ● Gases ● Discovery of the electron ● Wave particle duality 	<ul style="list-style-type: none"> ● Special relativity ● Problem-solving and synoptic questions
Tier 3 Vocabulary	Capacitance, Time constant, Exponential, Dielectric Field strength, potential, point charge Flux density, Motor effect, Induced, Transformer, Eddy current Count rate, Activity, Nuclide, Half life, Decay constant, Binding Energy, Mass defect, Fission, Fusion, Moderator	Internal energy, Absolute zero, Specific heat capacity, Specific latent heat Mole, Ideal gas Cathode ray, Thermionic emission, Viscous Corpuscle, Permeability of free space, Ultraviolet catastrophe, Black body radiation, Electron microscope	Interferometer, Invariance, Inertial frame of reference, Time dilation, Length contraction, Relativistic mass
Curriculum Opportunities	Problem solving on Isaac Physics and IWantToStudyEngineering Online lectures and events Outreach activities with primary school children	Problem solving on Isaac Physics and IWantToStudyEngineering Online lectures and events	Biennial trip to CERN, Geneva