



Physics: Curriculum Overview

Year 13

Term	Topic studied	What will I learn?	How will I be assessed?
Year 13 Autumn	<p>Teacher 1 Circular Motion Simple harmonic Motion Thermal Physics Ideal Gases</p> <p>Teacher 2 Gravitational Fields Electric Fields Magnetic Fields</p>	<ul style="list-style-type: none"> Angular velocity and centripetal force and acceleration. Time period. The radian. Vertical and horizontal circular motions, banked tracks Definition of SHM, damping, resonance, x, v & $a - t$ graphs of SHM. Investigating SHO systems - simple pendulum, mass-spring system. Kinetic theory of matter, solids, liquids & gases. Specific heat capacities, specific latent heats, cooling and heating curves Definition of ideal gas, assumptions of ideal gases, the 3 gas laws, ideal gas equation, particle energy, the mole and Avogadro number, the Boltzmann constant and the molar gas constant. Gravitational fields, Gravitational Field Strength, Gravitational Potential, Orbits Electric Fields, Electrical Potential, Comparing Electric and Gravitational Fields Magnetic Flux Density; Investigating a Current Carrying Wire; Forces on Charged Particles; Electromagnetic Induction; Investigating Flux Linkage; Faraday's and Lenz's Law; Alternating Current; Transformers 	<p>Practical assessments - Investigating Charles Law, Investigating Boyle's Law, Investigating Pressure Law, Investigating simple harmonic motion - simple pendulum, Investigating simple harmonic motion - mass-spring system</p> <p>Private Study assessments - Circular Motion, SHM, Thermal Physics, Ideal Gases</p> <p>Test assessment - Structured Questions</p> <p>Private Study assessments - Gravitational fields, Gravitational Field Strength, Gravitational Potential, Orbits, Electric fields, Electric Potential Gravitational and Electric Field, Flux, Force on charges, Induction, Faraday's Law, Transformers</p> <p>Test assessment - Structured Questions</p> <p>Practical assessments - $F=BIL$, Investigating Flux Linkage</p>
Year 13 Spring	<p>Teacher 1 Radioactivity Nuclear Physics Capacitor</p> <p>Teacher 2 Option D Turning points in Physics</p>	<ul style="list-style-type: none"> 4 types of radioactive emission, their properties and decay equations; Reasons for decay, N-Z curve; Exponential decay law & decay curves. Half-life and decay constant. Radioactive waste. Nuclear density & radius; Concepts of binding energy and mass difference, Energy mass relation, Nuclear energy, nuclear reactions including fission & fusion. Practical fission and developing fusion. Definition of capacitance, the farad, the parallel plate capacitor, permittivity, CR circuits, charging and discharging, the time constant RC, energy stored by a capacitor & Q-V graphs. Discovering Electrons; Specific Charge of an Electron; Millikan's Oil-Drop Experiment; Light – Newton v's Huygens; Electromagnetic wave; The Photoelectric Effect; Wave-Particle Duality; Electron Microscopes; Michelson-Morley Experiment; Special Relativity 	<p>Practical assessment - intensity of gamma rays, investigating CR circuits</p> <p>Private Study assessment – radioactivity, Nuclear Physics, capacitors</p> <p>Test assessment - Structured Questions Mock exam, Structured Questions Radioactivity, Structured Questions Nuclear Physics, Structured Questions Capacitors</p> <p>Private Study assessment - Discovering Electrons, Specific Charge of an Electron, Millikan's Oil-Drop Experiment, Light – Newton v's Huygens, Electromagnetic waves, The Photoelectric Effect, Wave-Particle Duality, Electron Microscopes, Michelson-Morley Experiment, Special Relativity</p> <p>Test assessment - Structured Questions</p>
Year 13 Summer	Revision	<p>Revision of key principles from year 12 study.</p> <p>Revision of key principles from year 13 study.</p>	<p>Practical assessment - Completion of lab book assessment</p> <p>Test assessment - past paper practices</p> <p>Final exam</p>