



Year 13 Curriculum Overview: **Physics**



	Topics/ content outline:	Powerful Knowledge (key concepts, skills)	What will you be assessed on?	How can you help at home?
Autumn Term	<p>Electric Fields</p> <p>Circular Motion & Gravity</p> <p>Periodic Motion inc. Simple Harmonic Motion</p> <p>Capacitors</p> <p>Electromagnetism</p> <p>Thermal Physics</p>	<p>Forces between charges. Electric field strength & potential. Uniform & radial fields. Circular motion & centripetal force. Simple harmonic motion. Forced vibrations and resonance.</p> <p>Gravitational fields and potential. Orbits of planets and satellites. Escape velocity.</p> <p>Parallel plate capacitors. Equations re capacitance, area, PD, electric permittivity. Internal energy, specific heat capacity & latent heat capacity. Ideal gases and equations modelling their behaviour. Brownian Motion.</p>	<p>Electric Fields</p> <p>Circular Motion & Gravity</p> <p>Periodic Motion</p> <p>Capacitors</p>	<ul style="list-style-type: none"> - Question students to test their recall of the topics - Encourage students to turn superglossaries into fact cards - Encourage students to use fact cards properly - Encourage students to use practice topic questions, or work on them together <p>Links, topic questions etc are available in the Showbie class "Physics ALL Y12".</p>
Spring Term	<p>Electromagnetism</p> <p>Thermal Physics</p> <p>Nuclear Physics</p> <p>Astrophysics</p>	<p>Magnetic fields. The motor effect. Faraday & Lenz's laws of electromagnetic induction. Alternating currents and transformers.</p> <p>Radioactivity, Rutherford scattering, Nuclear radiations. Exponential decay. N-Z plot & how N:Z ratios determine decay paths. Investigating the nuclear structure. Mass-energy equivalence. Nuclear reactors & induced fission.</p>	<p>Y12 Topics & Electric Fields</p> <p>Circular Motion & Gravity</p> <p>Periodic Motion</p> <p>Capacitors</p> <p>Electromagnetism</p> <p>Thermal Physics</p>	<ul style="list-style-type: none"> - Question students to test their recall of the topics - Encourage students to turn superglossaries into fact cards - Encourage students to use fact cards properly - Encourage students to use practice topic questions, or work on them together <p>Links, topic questions etc are available in the Showbie class "Physics ALL Y12".</p>
Summer Term	<p>Astrophysics</p> <p>Revision of all Y12 & Y13 topics</p>	<p>Telescopes: Optical & radio telescopes. Classification of stars by luminosity. Absolute magnitude. Black-body radiation. The Hertzsprung-Russell diagram. Supernovae, neutron stars & black holes.</p> <p>Cosmology: Doppler effect and red shift. Hubble's law. Quasars. Detection of exoplanets.</p>	<p>All topics.</p>	<ul style="list-style-type: none"> - Question students to test their recall of the topics - Encourage students to turn superglossaries into fact cards - Encourage students to use fact cards properly - Encourage students to use practice topic questions, or work on them together <p>Links, topic questions etc are available in the Showbie class "Physics ALL Y12".</p>