

GCSE Physics Long Term Plan

Year 10

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
SP4 Waves	SP5 Light and the Electromagnetic Spectrum	SP6 Radioactivity	SP7 Astronomy	SP8&9 Energy - Forces Doing Work and Forces and their Effects	SP10 Electricity and Circuits
Assessment SP4 6MQ - Speed of Sound Transition test	Assessment SP5 SMQ - Radio / Gamma SP4&5 EOT test	Assessment SP6 6MQ - Structure of an atom SP6 EOT test	Assessment SP7 6MQ - Stellar life cycles SP7 EOT test	Assessment PPE SP8&9 EOT test	Assessment SP10 6MQ - Resistance SP10 EOT test
Builds upon Light and sound waves and how they can be described How sound waves are produced and detected Some uses of sound waves How light can be absorbed, scattered and reflected Different colours of light	Builds upon How light transfers energy How different colours and absorbed and reflected	Builds upon The particle model of matter That atoms contain electrons Nuclear fuel as a non-renewable energy resource	Builds upon The Solar System The Earth's gravitational field and weight That there are stars and galaxies beyond the solar system	Builds upon How energy can be stored and transferred Balanced and unbalanced forces Moments as the turning effect of forces The difference between vector and scalar quantities How to calculate GPE and KE Energy transfer diagrams and calculating efficiency	Builds upon That current is measured in Amps and potential difference is measured in volts That components can be connected in series or parallel That conductors have low resistance and insulators have high resistance
Introduces How waves transfer energy and information	Introduces That light is part of the electromagnetic	Introduces How the particles inside atoms are arranged	Introduces The bodies in our Solar System and how ideas	Introduces How the energy in a system can be changed	Introduces Current, charge and potential difference

<p>How to describe the characteristics of waves</p> <p>How the speed of a wave is related to its frequency and wavelength</p> <p>How the speed of a wave is related to time and distance</p> <p>How waves are refracted at boundaries between different materials</p> <p>More about how our ears work</p> <p>The uses of ultrasound and infrasound</p>	<p>spectrum</p> <p>Uses of the waves in the electromagnetic spectrum</p> <p>Harmful effects of waves in the electromagnetic spectrum</p> <p>How to use ray diagrams to explain reflection, refraction and total internal reflection</p> <p>How to make coloured light and why some objects appear coloured</p> <p>How lenses work and their uses</p> <p>Factors that affect the temperature of the Earth</p>	<p>How to represent atoms using symbols</p> <p>The different types of radiation and how they affect atoms</p> <p>Background radiation</p> <p>The uses of radioactivity</p> <p>The dangers of radiation and how we can protect ourselves</p> <p>How radioactive materials are used to diagnose and treat cancer</p> <p>The advantages and disadvantages of nuclear power</p> <p>Fission and fusion reactions</p>	<p>about it have changed over time</p> <p>How methods of observing the universe have changed over time</p> <p>Why gravity is different on different bodies and how this affects orbits</p> <p>What redshift is and what it shows</p> <p>Different theories of the universe</p> <p>The life cycles of stars</p>	<p>How to calculate power and work done</p> <p>Force fields and contact forces</p> <p>Calculate moments to understand how levers and gears work</p> <p>Using vector diagrams to work out the effects of forces on an object (H)</p>	<p>How to calculate resistance, power and energy transferred</p> <p>Components with changing resistance</p> <p>The UK domestic electricity supply and safety features</p> <p>How earthing works and why it is important</p>
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Year 11

Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
SP11 Static Electricity	SP12&13	SP14&15	Revision for PPE	Revision for exams	
Assessment SP11 6MQ SP11 EOT test	Assessment PPE SP12&13 6MQ - Electromagnetic induction	Assessment SP12&13: End of Topic Test SP14&15 6MQ - Specific heat capacity	Assessment SP14&15 EOT test PPE		
Builds upon Electric fields, how objects become charged and how charged objects behave	Builds upon How to plot the shape of a magnetic field and that the Earth has a magnetic field That electric currents cause electric fields, including electromagnets and motors	Builds upon That mass is conserved during changes of state The properties of solids, liquids and gases How particles are arranged in solids, liquids and gases, and how this is affected by temperature The effects that forces have on objects	Builds upon		
Introduces The shape and size of electric fields and how they explain electrical phenomena	Introduces Permanent and induced magnets, and how to represent a magnetic field The magnetic field around a current in a wire	Introduces How to calculate densities of substances How to calculate specific heat capacity and specific latent heat How changing the temperature of a gas	Introduces		

	<p>The magnetic field in a solenoid</p> <p>The power equation for transformers</p> <p>How to use the turns ratio equation for transformers (H)</p> <p>How transformers are used in the national grid</p> <p>How current can be induced in a wire (H)</p> <p>How to calculate the force on a wire in a magnetic field (H)</p> <p>How to work out the direction of the force on a wire in a magnetic field (H)</p>	<p>affects its pressure and how to calculate temperatures and pressures</p> <p>The Kelvin and Celsius temperature scales</p> <p>Elastic and inelastic distortion</p> <p>The relationship between force, extension and the spring constant</p> <p>How to calculate the work done when stretching a spring</p> <p>How pressure in fluids depends on density and depth</p>			
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