

Curriculum Map

Subject: Physics

Year: 11



	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>Content</p> <p>Knowledge</p>	<p>Wave Properties:</p> <ul style="list-style-type: none"> • Properties of waves • Reflection and refraction • Sound Waves • Uses of ultrasound • Seismic waves <p>Required Practicals:</p> <ul style="list-style-type: none"> • Investigating plane waves in a ripple tank and waves in a solid 	<p>Electromagnetic Waves:</p> <ul style="list-style-type: none"> • The electromagnetic spectrum • Infra-red, Microwaves, Radiowaves • Ultraviolet, X-rays, gamma rays • X-rays in medicine 	<p>Light:</p> <ul style="list-style-type: none"> • Reflection of light • Refraction of light • Light and colour • Lenses <p>Required Practicals:</p> <ul style="list-style-type: none"> • Investigating the reflection and refraction of light 	<p>Electromagnetism:</p> <ul style="list-style-type: none"> • Magnetic fields • Magnetic fields and electric currents • Electromagnets in devices • The motor effect • The generator effect • The alternating-current generator • Transformers and power stations 	<p>Space:</p> <ul style="list-style-type: none"> • Formation of the Solar System • The life cycle of a star • Planets, satellites and orbits • The beginning and expanding universe 	<p>Revision</p> <ul style="list-style-type: none"> • To focus on recapping key knowledge and re-address common misconceptions • Embed additional exam practice for each chapter • Focus on key aspects of required practicals
<p>Skills</p>	<ul style="list-style-type: none"> • To recall and identify correct scientific knowledge • To be able to use a ripple tank correctly • To be able to use a stop watch and meter ruler appropriately 	<ul style="list-style-type: none"> • To recall and identify correct scientific knowledge • To be able to compare and contrast differences in uses for various sections of the EM spectrum 	<ul style="list-style-type: none"> • To recall and identify correct scientific knowledge • To be able to use ray boxes, glass prism and lenses correctly and appropriately 	<ul style="list-style-type: none"> • To recall and identify correct scientific knowledge • To be able to describe both the generator and motor effect clearly and concisely • To be able to use and manipulate the transformer equations correctly 	<ul style="list-style-type: none"> • To be able recall and describe the respective stages in the life cycle of a star • To be able to recall and describe key evidences for Big Bang model. • To be able to compare and contrast evidences for both the Big Bang and Steady State Model 	<ul style="list-style-type: none"> • Recalling important information • Exam Technique • Spacing • Interleaving • Elaboration

<p>Key Questions</p>	<p>How can energy be passed from one place to another without moving matter between the two places?</p> <p>How are earthquakes formed?</p>	<p>How do mobile phones send signals to one another?</p> <p>How does your TV remote connect to your TV?</p>	<p>How do corrective lenses improve your eyesight?</p>	<p>How does an electric motor work?</p> <p>How can we send electricity across the entire country safely and efficiently?</p>	<p>How did our universe form?</p> <p>How are stars and planets formed?</p>	
<p>Assessment</p>	<p>Diagnostic test on P12 ReACT tasks P12 End of Chapter Test</p>	<p>Diagnostic test on P13 ReACT tasks P13 End of Chapter Test</p>	<p>Diagnostic test on P14 ReACT tasks P14 End of Chapter Test</p>	<p>Diagnostic test on P15 ReACT tasks P15 End of Chapter Test</p>	<p>Diagnostic test on P16 ReACT tasks P16 End of Chapter Test</p>	<p>End of year test on topics: P3, P2, P6, P, P4, P7, P9, P10, P10 and P11</p>
<p>Literacy/numeracy/SMSC/Character</p>	<p>Key words: Mechanical Waves, electromagnetic waves, Amplitude, Wavelength, Frequency, Refraction, Transmission, Ultrasound</p> <p>Numeracy: Calculating speed of waves and distance travelled and order of magnitude</p>	<p>Key words: Infrared, ultraviolet, radiowaves, gamma, white light, optical fibres, charge-coupled device (CCD)</p>	<p>Key words: Reflection, angle of incidence, angle of refraction, normal, specular reflection, diffuse reflection, virtual image, principal focus, magnification, real image</p> <p>Numeracy: Calculating the magnification of an image and order of magnitude</p>	<p>Key words: Magnetic field, induction, electromagnet, Fleming's Left Hand Rule, motor effect, generator effect, transformer</p> <p>Numeracy: Calculating current and voltage in a transformer and order of magnitude</p>	<p>Key words: solar system, main sequence star, protostar, neutron star, black hole, red giant, white dwarf, supernova, centripetal force, red-shift, cosmic microwave background radiation</p>	
<p>Enrichment opportunities and futures</p>	<p>Visiting the Science Museum in Central London Visiting local power stations and asking about how transformers work</p>					