

## Year 10

Timing	Unit Title	Key Question	Knowledge	Assessing understanding
Autumn	Waves	<p><b>What are waves and how do we measure them?</b></p> <p><b>What is the Electromagnetic Spectrum and How do we use it?</b></p>	<ul style="list-style-type: none"> <li>Waves Basics, Features of transverse and longitudinal waves including the basics of reflection and refraction</li> <li>Wave Equation</li> <li>Required Practical 8 - speed of wave in ripple tank and Speed of waves in solids</li> <li>How we hear sound.</li> <li>Uses of waves in imaging, sonar and developing theories on the structure of the Earth 1</li> <li>More about Earthquake waves</li> <li>The Electromagnetic Spectrum</li> <li>Infra red and Black body radiation</li> <li>required practical 10 silver and black cans</li> <li>X-rays</li> <li>Light</li> <li>reflection</li> <li>refraction</li> <li>Required practical 9 reflection and refraction from different substances</li> <li>diffraction</li> <li>Colour and how we see it</li> <li>Convex and concave lenses</li> <li>Ray diagrams</li> </ul>	<p><b>How understanding is assessed</b></p> <p>Students will be assessed on their ability to:</p> <ul style="list-style-type: none"> <li>Recall the knowledge covered</li> <li>Explain the Physical processes covered.</li> <li>Interpret graphical and experimental data</li> <li>Plan and describe valid experiments</li> <li>Evaluate experimental procedures and results</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>Description</li> <li>Explanation</li> <li>Evaluation</li> <li>Comparison</li> <li>Planning and carrying out investigations</li> <li>Manipulating Mathematical Formulae</li> </ul> <p><b>Assessment point information</b></p> <p>Based on:</p> <ul style="list-style-type: none"> <li>Home works during the term</li> <li>Test on Energy from Year 9</li> <li>Test on Waves</li> </ul>

Spring	<b>Atomic Structure and Space Physics</b>	<p><b>What is Radioactivity and how can we use it safely?</b></p> <p><b>How do we generate the electricity that we use?</b></p> <p><b>How are stars formed?</b></p>	<ul style="list-style-type: none"> <li>• Structure of the atom</li> <li>• The discovery of the atom 1</li> <li>• The discovery of the atom 2</li> <li>• Nature and properties of alpha, beta and gamma radiation</li> <li>• Nuclear decay equations for alpha and beta decay.</li> <li>• Determination of half-life using calculations and graphical methods.</li> <li>• Safety with radioactivity</li> <li>• Background radiation and sources of it. Medical and other Uses of radiation</li> <li>• Nuclear fission.</li> <li>• Nuclear fusion.</li> <li>• Global Energy resources</li> <li>• Life cycle of a star</li> <li>• Solar System</li> <li>• History and Future of the Universe</li> </ul>	<p><b>How understanding is assessed</b> Students will be assessed on their ability to:</p> <ul style="list-style-type: none"> <li>• Recall the knowledge covered</li> <li>• Explain the Physical processes covered.</li> <li>• Interpret graphical and experimental data</li> <li>• Plan and describe valid experiments</li> <li>• Evaluate experimental procedures and results</li> </ul> <p><b>Skills</b></p> <ul style="list-style-type: none"> <li>• Description</li> <li>• Explanation</li> <li>• Evaluation</li> <li>• Comparison</li> <li>• Planning and carrying out investigations</li> <li>• Manipulating Mathematical Formulae</li> </ul> <p><b>Assessment point information</b> Based on:</p> <ul style="list-style-type: none"> <li>• Home works during the term</li> <li>• Possible second test on waves</li> </ul>
Summer	<b>Electricity</b>	<b>What can we measure in electric circuits</b>	<ul style="list-style-type: none"> <li>• Electrostatics</li> <li>• Electricity introduction</li> </ul>	<p><b>How understanding is assessed</b> Students will be assessed on their ability to:</p> <ul style="list-style-type: none"> <li>• Recall the knowledge covered</li> <li>• Explain the Physical processes covered.</li> </ul>

		and how are these things related?	<ul style="list-style-type: none"> <li>• Current</li> <li>• Potential Difference and Resistance and Ohm's Law</li> </ul>	<ul style="list-style-type: none"> <li>• Interpret graphical and experimental data</li> <li>• Plan and describe valid experiments</li> <li>• Evaluate experimental procedures and results</li> </ul>
	Electricity	What can we measure in electric circuits and how are these things related?	<ul style="list-style-type: none"> <li>• Test Circuits (Electrical Component properties)</li> <li>• I-V Graphs (Electrical Component Graphs)</li> <li>• Circuit Rules (Theory: Series vs Parallel circuits)</li> <li>• Circuit Rules: (Required Practical 4: Series vs Parallel circuits)</li> <li>• Required Practical 3 Use circuit diagrams to set up and check appropriate circuits to investigate the factors affecting the resistance of electrical circuits.</li> </ul>	<b>Skills</b> <ul style="list-style-type: none"> <li>• Description</li> <li>• Explanation</li> <li>• Evaluation</li> <li>• Comparison</li> <li>• Planning and carrying out investigations</li> <li>• Manipulating Mathematical Formulae</li> </ul>
	Electricity	How do we access electricity at home?	<ul style="list-style-type: none"> <li>• Electrical Power</li> <li>• Energy Transfers in circuits</li> <li>• National Grid</li> <li>• Plugs and Wiring</li> <li>• Fuses and Circuit Breakers</li> <li>• AC vs DC and measuring</li> </ul>	<b>Assessment point information</b> Based on: <ul style="list-style-type: none"> <li>• Home works during the term</li> <li>• End of Year Exam</li> </ul>