

# Curriculum Map Year 10 Separate Science - Physics

Topic Name	Term	Skills developed with link to NC Subject content	Reflection on previous link in the curriculum	Progress to future link in the curriculum
Energy	Autumn HT1	<b>Understanding of:</b> <ul style="list-style-type: none"> <li>Gravitational potential, kinetic and elastic potential energy</li> <li>Work done and energy transfers</li> <li>Power</li> <li>Specific heat capacity</li> <li>Energy dissipation</li> <li>Efficiency</li> <li>Reducing unwanted energy transfers in a system</li> <li>Energy resources and global energy supplies</li> </ul>	Year 8: Energy <ul style="list-style-type: none"> <li>What is energy</li> <li>Energy stores and transfers</li> <li>Gravitational potential energy</li> <li>kinetic energy</li> <li>Work done</li> </ul>	HT2: Particle model of matter <ul style="list-style-type: none"> <li>Specific heat capacity</li> </ul> Year 11: Forces <ul style="list-style-type: none"> <li>Forces and energy in springs</li> <li>Kinetic energy and momentum</li> </ul>
Particle Model of Matter	Autumn HT2	<b>Understanding of:</b> <ul style="list-style-type: none"> <li>Density</li> <li>Measuring density of regular and irregular shapes</li> <li>Changes of state</li> <li>Internal energy</li> <li>Specific heat capacity</li> <li>Specific latent heat</li> <li>Particle motion in gases</li> <li>Pressure changes in a gas</li> </ul>	Year 9: Particle model of matter topic <ul style="list-style-type: none"> <li>Density</li> <li>States of matter and changes in state</li> <li>Specific heat capacity</li> <li>Specific latent heat</li> <li>Particle motion in a gas</li> <li>Gas pressure</li> </ul>	Year 13: Thermal physics <ul style="list-style-type: none"> <li>Specific heat capacity</li> <li>Specific latent heat</li> <li>Pressure of an ideal gas</li> </ul>
Atomic Structure	Spring HT3	<b>Understanding of:</b> <ul style="list-style-type: none"> <li>Atomic structure and the history of the atom</li> <li>Background radiation</li> <li>The types of radioactive decay</li> <li>Nuclear equations (transmutations)</li> <li>Radioactive half-life</li> <li>Hazards and uses of radiation</li> <li>Irradiation</li> <li>Uses of nuclear radiation</li> <li>Nuclear fission</li> <li>Nuclear fusion</li> </ul>	Year 9: Atomic structure topic: <ul style="list-style-type: none"> <li>The atom</li> <li>History of the atom and plum pudding</li> <li>Three types of radiation</li> <li>decay equations</li> <li>half-life</li> <li>Nuclear fission and fusion</li> </ul>	Year 12: Particles and radiation <ul style="list-style-type: none"> <li>Atomic structure</li> <li>Stable and unstable nuclei (alpha, beta-minus and beta-plus decay)</li> </ul>
Electricity	Spring HT4	<b>Understanding of:</b> <ul style="list-style-type: none"> <li>Circuit symbols and drawing electric circuits</li> <li>Key terms and definitions</li> <li>Electricity equations</li> <li>Series and parallel circuits</li> <li>Investigating circuits components</li> <li>I-V graphs for fixed resistor, filament lamp and diode</li> <li>The effect of length of a wire on resistance</li> <li>Electricity in the home</li> <li>Transmitting electricity</li> <li>Power and energy transfers</li> <li>Electric fields</li> <li>Static electricity</li> </ul>	Year 7: Electricity <ul style="list-style-type: none"> <li>Building circuits and measuring current</li> <li>Series and parallel circuits</li> <li>The test circuit - finding resistance</li> <li>Maths skills in <math>V=IR</math> and <math>Q=It</math></li> <li>Static electricity</li> </ul>	Year 11: Electromagnetism <ul style="list-style-type: none"> <li>Electromagnets</li> <li>Electric motors</li> </ul> Year 12: Electricity <ul style="list-style-type: none"> <li>Circuit diagrams</li> <li>Current, p.d. and resistance</li> <li>I-V graphs</li> <li>Power and electrical energy</li> <li>Resistivity of a wire</li> </ul>

Reflection and preparation for end of year assessments	Summer HT5	Recap and reflection on content learnt during the year Exam question focus Application question focus Mathematical skills focus Scientific skills focus		
Waves	Summer HT6	<b>Understanding of:</b> <ul style="list-style-type: none"> <li>• Describing and labelling waves</li> <li>• Longitudinal and transverse waves</li> <li>• Measuring wave speeds</li> <li>• Reflection and refraction, including wave fronts</li> <li>• The electromagnetic spectrum</li> <li>• Explaining the parts of the electromagnetic spectrum</li> <li>• Sound waves</li> <li>• Ultrasound</li> <li>• Seismic waves</li> <li>• Colour</li> <li>• Lenses</li> <li>• Images and magnification</li> <li>• Emission and absorption of IR</li> <li>• Temperature of the Earth</li> </ul>	Year 8: Waves <ul style="list-style-type: none"> <li>• What is a wave?</li> <li>• Longitudinal waves and sound</li> <li>• Transverse waves and light</li> <li>• Properties of waves</li> <li>• Electromagnetic spectrum</li> <li>• Maths skills in the wave speed</li> <li>• Visible light and colour</li> </ul>	Year 12: Waves <ul style="list-style-type: none"> <li>• Progressive waves</li> <li>• Wave speed</li> <li>• Transverse and longitudinal</li> <li>• Diffraction</li> <li>• Refractive index</li> <li>• Critical angle and TIR</li> </ul>