



## QPHS Year 13 Physics Curriculum Map

Half term	Title	Unit summary	Assessment
<b>1</b>	Radioactivity & Nuclear Energy	<ul style="list-style-type: none"> <li>• Random nature of radioactive decay and the use of exponential decay equations</li> <li>• Determination of half-life and use of natural logarithms</li> <li>• Binding energy and the generation of energy through induced nuclear fission and nuclear fusion</li> </ul>	<ul style="list-style-type: none"> <li>• Assessed homework – Radioactive decay, half-life and atomic radii</li> <li>• Assessed homework – Nuclear power and binding energy</li> <li>• End of topic assessment – Radioactivity with cumulative knowledge from particle physics</li> </ul>
	Gravitational & Electric Fields	<ul style="list-style-type: none"> <li>• Newton's law of gravitation and gravitational potential</li> <li>• Orbits of planets and satellites</li> <li>• Coulomb's law and electric potential</li> </ul>	<ul style="list-style-type: none"> <li>• Assessed homework – Gravitational fields</li> <li>• Assessed homework – Electric Fields</li> <li>• End of topic assessment – Gravitational fields and electric fields with cumulative knowledge from further mechanics</li> </ul>
<b>2</b>	Magnetic Fields & Capacitance	<ul style="list-style-type: none"> <li>• Magnetic flux density and magnetic flux linkage</li> <li>• Electromagnetic induction and transformers</li> <li>• Capacitance, charging and discharging of capacitors</li> </ul>	<ul style="list-style-type: none"> <li>• Assessed homework – Magnetic flux and forces</li> <li>• Assessed homework – Electromagnetic induction and transformers</li> <li>• Assessed homework – Capacitance</li> <li>• End of topic assessment – Magnetic fields and capacitance with cumulative knowledge from electricity</li> <li>• Required practical 9 – Investigation of the charge and discharge of capacitors</li> <li>• Required practical 10 – Investigate how the force on a wire varies with flux density, current and length of wire using a top pan balance</li> <li>• Required practical 11 – Investigate, using a search coil and oscilloscope, the effect on magnetic flux linkage of varying the angle between a search coil and magnetic field direction</li> </ul>
<b>3</b>	Thermal Physics	<ul style="list-style-type: none"> <li>• Specific heat capacity and specific latent heat</li> <li>• Ideal gas laws and model assumptions</li> <li>• Molecular kinetic theory model</li> </ul>	<ul style="list-style-type: none"> <li>• Assessed homework – Thermal energy transfer</li> <li>• Assessed homework – Ideal gases</li> <li>• End of topic assessment – Thermal physics with cumulative knowledge from particle physics</li> <li>• Required practical 8 – Investigation of Boyle's law and Charles's law for a gas</li> </ul>
<b>4</b>	Astrophysics	<ul style="list-style-type: none"> <li>• Reflecting and refracting telescopes</li> <li>• Classification of stars and the life cycle of stars</li> <li>• Cosmology, including the doppler effect, quasars, black holes and exoplanets</li> </ul>	<ul style="list-style-type: none"> <li>• Assessed homework – Astronomy</li> <li>• Assessed homework – Classification of stars</li> <li>• Assessed homework – Doppler effect, Big Bang theory, quasars, black holes and exoplanets</li> <li>• End of topic assessment – Astrophysics with cumulative knowledge from gravitational fields, nuclear energy and further mechanics</li> </ul>
<b>5</b>	Revision		