

**Specification: OCR Physics A**

	<b>Autumn 1</b>	<b>Autumn 2</b>	<b>Spring 1</b>	<b>Spring 2</b>	<b>Summer 1</b>	<b>Summer 2</b>	
<b>Year 13</b>	<p><b>GRAVITATIONAL FIELDS</b> Approx. 8 lessons. <b>What will be learnt?</b> Newton’s Law of Gravitation. Gravitational Fields. Gravitational potential and potential energy. Kepler’s Laws. <b>Why will it be learnt?</b> <b>Main outcome:</b> To describe and predict the effects of the gravitational force and apply it to planetary and satellite motion. <b>Skills developed:</b> • Inverse-square laws <b>How will learning be assessed?</b> End of topic test</p> <p><b>ELECTRIC FIELDS</b> Approx. 8 lessons. <b>What will be learnt?</b> Electric fields. Coulomb’s law. Uniform fields. Electric potential and energy. <b>Why will it be learnt?</b> <b>Main outcome:</b> To describe and predict the effects of the electric force. <b>Skills developed:</b></p>	<p><b>MAGNETIC FIELDS</b> Approx. 10 lessons. <b>What will be learnt?</b> Magnetic fields. Charged particles in magnetic fields. Electromagnetic induction. Faraday’s law. Lenz’s law. Transformers. <b>Why will it be learnt?</b> <b>Main outcome:</b> To describe magnetic fields and use them to predict the behaviour of motors, generators and transformers. <b>Skills developed:</b> • Using trigonometric functions. <b>How will learning be assessed?</b> End of topic test</p> <p><b>IDEAL GASES</b> Approx. 8 lessons. <b>What will be learnt?</b> Kinetic theory of gases. Ideal gas laws. Temperature and kinetic energy. <b>Why will it be learnt?</b> <b>Main outcome:</b> To describe the behaviour of gases on a macroscopic</p>	<p><b>STARS</b> Approx. 6 lessons. <b>What will be learnt?</b> Lifecycle of stars. Spectra. Stellar luminosity. <b>Why will it be learnt?</b> <b>Main outcome:</b> To describe the main properties of stars and how we measure them as well as how they evolve. <b>Skills developed:</b> • Sequencing explanations <b>How will learning be assessed?</b> End of topic test</p> <p><b>MEDICAL PHYSICS</b> Approx. 12 lessons. <b>What will be learnt?</b> X-ray production. X-ray absorption. CAT scans. The gamma camera. PET scans. Ultrasound. Acoustic impedance. Doppler imaging. <b>Why will it be learnt?</b> <b>Main outcome:</b> To explain how various medical procedures are carried out and the physics behind them.</p>	<b>REVISION</b>			<b>REVISION</b>

Long term planning grid

<ul style="list-style-type: none"> <li>Inverse-square laws</li> </ul> <p><b>How will learning be assessed?</b> End of topic test</p> <p><b>PARTICLE PHYSICS</b> Approx. 8 lessons.</p> <p><b>What will be learnt?</b> Alpha scattering experiment. Particle classification. Strong and weak nuclear forces. Beta decay.</p> <p><b>Why will it be learnt?</b> <b>Main outcome:</b> To know evidence for our model of the atom, including the two nuclear forces and apply ideas from electromagnetism to them.</p> <p><b>Skills developed:</b></p> <ul style="list-style-type: none"> <li>Using conservation laws.</li> </ul> <p><b>How will learning be assessed?</b> End of topic test</p>	<p>scale and explain this using microscopic modelling</p> <p><b>Skills developed:</b></p> <ul style="list-style-type: none"> <li>Recording data</li> <li><math>y=mx+c</math> analysis</li> </ul> <p><b>How will learning be assessed?</b> End of topic test PAG</p> <p><b>RADIOACTIVITY</b> Approx. 8 lessons.</p> <p><b>What will be learnt?</b> Measuring radioactivity. Nuclear decay equations. Half-life and activity. Modelling radioactive decay. Radioactive dating.</p> <p><b>Why will it be learnt?</b> <b>Main outcome:</b> To predict the behaviour of radioactive sources and apply this to their use in dating.</p> <p><b>Skills developed:</b></p> <ul style="list-style-type: none"> <li>Recording data</li> <li><math>y=mx+c</math> analysis</li> <li>Exponential functions</li> <li>Spreadsheet modelling</li> <li>Safe handling of radioactive sources.</li> </ul> <p><b>How will learning be assessed?</b> End of topic test PAG</p> <p><b>NUCLEAR PHYSICS</b></p>	<p><b>Skills developed:</b></p> <ul style="list-style-type: none"> <li>Sequencing explanations</li> <li>Exponential functions</li> <li><math>y=mx+c</math> analysis</li> </ul> <p><b>How will learning be assessed?</b> End of topic test</p> <p><b>COSMOLOGY</b> Approx. 6 lessons.</p> <p><b>What will be learnt?</b> Measuring astronomical distances. The Doppler effect and Hubble's Law. The origin and possible fates of the universe.</p> <p><b>Why will it be learnt?</b> <b>Main outcome:</b> Understand evidence for the Big Bang Theory and scenarios for the long-term fate of the universe.</p> <p><b>Skills developed:</b></p> <ul style="list-style-type: none"> <li>Sequencing explanations</li> <li>Linking evidence and conclusions.</li> </ul> <p><b>How will learning be assessed?</b> End of topic test</p>			
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Long term planning grid

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