









## Curriculum Overview for Physics

### Year 10

<p><b>Half Term 1: Electromagnetism</b></p> <p><b>Substantive Knowledge:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Name the three magnetic materials</li> <li><input type="checkbox"/> describe the difference between a permanent and induced magnet</li> <li><input type="checkbox"/> describe the interaction between different poles of a magnet</li> <li><input type="checkbox"/> describe the magnetic field around a magnet.</li> <li><input type="checkbox"/> describe how a compass works.</li> <li><input type="checkbox"/> Recall that <math>F = B \times I \times L</math></li> <li><input type="checkbox"/> describe how an electric current in a wire creates a magnetic field.</li> <li><input type="checkbox"/> describe a solenoid</li> <li><input type="checkbox"/> describe how to increase the strength of an electromagnet.</li> <li><input type="checkbox"/> describe the motor effect</li> <li><input type="checkbox"/> explain how to build a motor (H)</li> <li><input type="checkbox"/> explain how a speaker works. (T)</li> <li><input type="checkbox"/> explain how to build a generator (T)</li> <li><input type="checkbox"/> explain how microphone works (T)</li> <li><input type="checkbox"/> explain the structure of a transformer (T)</li> <li><input type="checkbox"/> explain how a step up and step down transformer works. (T)</li> </ul> <p><b>Disciplinary Knowledge:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> understand how to find and draw a magnetic field around a bar magnet.</li> <li><input type="checkbox"/> draw the magnetic field between two poles/plates.</li> <li><input type="checkbox"/> calculate the force exerted due to an electromagnet.</li> <li><input type="checkbox"/> use Fleming's right-hand rule to find the direction of force, current or magnetic field.</li> <li><input type="checkbox"/> calculate the voltage or current in a step up or step down transformer (T).</li> </ul>		<p>Decoding of key terminology Skim reading Etymology of key terms</p>
		<p>Force, Permanent Magnet, Temporary magnet, Magnetic material, Magnetic field, Compass, Magnetic flux, Electromagnet, Solenoid, Motor effect, Left-Hand Rule, Current, Potential Difference, Electrical energy, Kinetic energy, Motor (H), Generator (T), Resistance (T), Step up Transformer (T) Step Down Transformer (T)</p>
		<p>Recall tests Review sheet End of unit test</p>
		<p>Review sheet Memorising revisions cards and preparing revision cards for every lesson</p>
<p><b>Half Term 2: Forces</b></p> <p><b>Substantive</b></p> <ul style="list-style-type: none"> <li>• Define vectors and scalars</li> <li>• label the motion on a distance time graph</li> <li>• recall equation for speed</li> <li>• recall acceleration equation</li> <li>• label the motion on a velocity time graph</li> <li>• identify common forces.</li> <li>• Describe and identify contact and non-contact forces.</li> <li>• define mass and weight</li> <li>• recall newtons three laws</li> <li>• describe the method to measure the acceleration of a object when you change the mass or force on the object.</li> <li>• recall the definition of stopping distance</li> <li>• describe what affect braking and thinking distance.</li> <li>• describe how the time of a collision affects the force exerted.</li> <li>• recall the equation for momentum.</li> </ul> <p><b>Disciplinary</b></p> <ul style="list-style-type: none"> <li>• Calculate speed from a distance time graph</li> <li>• calculate acceleration from a velocity time graph</li> <li>• draw a force diagram</li> <li>• calculate the resultant force in a situation</li> <li>• calculate weight.</li> <li>• calculate the force the causes acceleration.</li> <li>• calculate moment of and object</li> <li>• calculate the momentum of an object in a collision.</li> </ul>		<p>Decoding of key terminology Skim reading Etymology of key terms</p>
		<p>Scalar, Vector, Speed, Velocity Acceleration , Force, Contact Force Noncontact Force, Force diagram Resultant force, Newtons laws Mass, Weight, Stopping distance Thinking distance, Braking distance Momentum (H), Collision</p>
		<p>Recall tests Review sheet End of unit test</p>
		<p>Review sheet Memorising revisions cards and preparing revision cards for every lesson</p>