



The curriculum for this stage of students' education has been designed to build upon their prior knowledge from year 9 GCSE Physics. This course provides a worthwhile background for all students, whether or not they intend to go on to study Physics beyond GCSE. The course enables students to acquire a body of scientific knowledge and develop an understanding of the ideas and applications of Physics e.g. Energy, Forces and Motion, Waves and the Electromagnetic Spectrum. This is set in the context of knowing and understanding a body of scientific facts. Students acquire an understanding and experience of the methods used in science and of the application of experimental techniques in everyday life.

<p><b>HALF TERM 1: Atomic Structure</b></p> <p><b>STUDENTS MUST KNOW:</b></p> <ul style="list-style-type: none"> <li>• Atoms and Radiation. How can we identify a radioactive source.</li> <li>• The Discovery of the Nucleus. How can we establish the structure of an atom.</li> <li>• Changes in the Nucleus. How can we identify changes to a nucleus.</li> <li>• Activity and Half Life. To understand how long does a radioactive source remain active.</li> </ul> <p><b>HOW THIS WILL BE ASSESSED:</b> Students will be assessed by a progress test half way through the topic as well as an end of topic assessment.</p>	<p><b>HALF TERM 2: Energy</b></p> <p><b>STUDENTS MUST KNOW:</b></p> <ul style="list-style-type: none"> <li>• Changes in Energy Stores. To understand energy, its different types and how it transfers between different energy types.</li> <li>• Energy and Work. To define work done and understand the principle of conservation of energy applied to any energy transferred.</li> <li>•</li> </ul> <p><b>REQUIRED PRACTICAL 1</b> Investigation to determine the specific heat capacity of one or more materials.</p> <p><b>HOW THIS WILL BE ASSESSED:</b> Students will be assessed by a progress test half way through the topic as well as an end of topic assessment.</p>	<p><b>HALF TERM 3: Energy Continued</b></p> <p><b>STUDENTS MUST KNOW:</b></p> <ul style="list-style-type: none"> <li>• Kinetic and Gravitational Potential Energy. To understand the factors that affect kinetic and gravitational potential energy and how it can be calculated.</li> <li>• Energy Efficiency. To understand the factors affecting efficiency and how to calculate percentage efficiency.</li> <li>• Energy and Power. To understand the definition of power and how it can be used to calculate efficiency.</li> <li>• Energy Transfer by Conduction. To understand the mechanism of conduction and identify materials that are good conductors.</li> </ul> <p><b>HOW THIS WILL BE ASSESSED:</b> Students will be assessed by a progress test half way through the topic as well as an end of topic assessment.</p>
<p><b>HALF TERM 4: Energy Continued</b></p> <p><b>STUDENTS MUST KNOW:</b></p> <ul style="list-style-type: none"> <li>• Infrared Radiation. To understand what infrared radiation is and how it is detected (T).</li> <li>• Heating and Insulation Buildings. To understand how homes are heated and how to reduce the cost of heating homes (T).</li> <li>• Energy Demands. To identify the advantages and disadvantages of Fossil Fuels, Nuclear Fuels and Biomass energy generation.</li> <li>• Energy from Wind, Water, Sun and Earth. To describe the advantages and disadvantages of renewable energy sources.</li> <li>• Energy and the Environment. To understand how non-renewable energy sources affect our environment the impact of renewables on global resources.</li> </ul> <p><b>HOW THIS WILL BE ASSESSED:</b> Students will be assessed by a progress test half way through the topic as well as an end of topic assessment.</p>	<p><b>HALF TERM 5: Forces</b></p> <p><b>STUDENTS MUST KNOW:</b></p> <ul style="list-style-type: none"> <li>• Vectors and Scalars. How to represent, interpret and draw vectors.</li> <li>• Forces between Objects. What happens to the force between two objects when they interact/ touch?</li> <li>• Moments at Work. To understand how the turning effect of a force is called the moment of force and how levers act as force multipliers with turning moments applied to gears (T).</li> <li>• Centre of Mass. How to determine the centre of mass of an object and the equilibrium of a suspended object.</li> </ul> <p><b>HOW THIS WILL BE ASSESSED:</b> Students will be assessed by a progress test half way through the topic as well as an end of topic assessment.</p>	<p><b>HALF TERM 6: Forces Continued</b></p> <p><b>STUDENTS MUST KNOW:</b></p> <p><b>REQUIRED PRACTICAL 6</b> – Investigate the relationship between force and extension for a spring.</p> <ul style="list-style-type: none"> <li>• Resolution of Forces. How to describe a system in equilibrium in which parallel/non-parallel forces are acting and calculate the resultant force</li> <li>• Acceleration, Velocity and Distance Time Graphs. How to establish an objects motion from a graph.</li> </ul> <p><b>HOW THIS WILL BE ASSESSED:</b> Students will be assessed by a progress test half way through the topic as well as an end of topic assessment.</p>

Embedding this knowledge can be supported at home by reviewing class notes, guided learning wider reading, exam practice questions, independent research and study, completing set independent study tasks, watching in scientific documentaries and understanding current issues in the scientific world. In addition, use the AQA website, BBC Bitesize and GCSEPOD in conjunction with suitable revision guides.