

# HIGHFIELDS SCHOOL

CURRICULUM OVERVIEW 2023-2024



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**SUBJECT: A LEVEL PHYSICS**

**EXAMINATION BOARD: OCR**

| AUTUMN TO SPRING TERM - YEAR 12   | AUTUMN TO SUMMER TERM - YEAR 12  | SUMMER TERM - YEAR 12  |
|---|--|--|
| <p><b>Module 1 - Development of practical skills in Physics</b></p> <p><b>Module 2 - Foundations of Physics</b></p> <p><b>Module 3 - Forces and motion</b></p> <p>3.1 Motion<br/>3.2 Forces in action<br/>3.3 Work, energy and power<br/>3.4 Materials<br/>3.5 Momentum</p> <p><b>Potential Practical Activities</b></p> <ul style="list-style-type: none"> <li>Investigation to compare methods of determining</li> <li>Investigating terminal velocity</li> <li>Connecting springs in series and parallel</li> <li>Determining Young's modulus for a metal</li> <li>Investigation to determine the resistivity of a metal</li> <li>Investigating electrical characteristics</li> <li>Determining the maximum power available from a cell</li> </ul> | <p><b>Module 1 - Development of practical skills in Physics</b></p> <p><b>Module 2 - Foundations of Physics</b></p> <p><b>Module 4 - Electrons, waves and photons</b></p> <p>4.1 Charge and current<br/>4.2 Energy, power and resistance<br/>4.3 Electrical circuits<br/>4.4 Waves<br/>4.5 Quantum physics</p> <p><b>Potential Practical Activities</b></p> <ul style="list-style-type: none"> <li>Investigating combinations of resistors and their use in potential divider circuits</li> <li>Investigating circuits with more than one source of E.M.F.</li> <li>Using non-ohmic devices as sensors</li> <li>Determining the wavelength of light with a diffraction grating</li> <li>Determining frequency and amplitude of a wave using an oscilloscope</li> <li>Determining the Planck constant</li> <li>Experiments with light</li> <li>Experiments with polarisation</li> </ul> | <p><b>Revision and intervention Modules 1 to 4</b></p>   |
| <p><b>ASSESSMENT</b></p> <p>Question packs - All modules<br/>Progress Review 1 - Assessment (Oct), classwork, homework &amp; question packs<br/>Progress Review 2 - Assessment (Dec), classwork, homework &amp; question packs</p>  | <p><b>ASSESSMENT</b></p> <p>Year 12 School Examination (Jan)<br/>Question packs - All modules<br/>Mock examinations / past-paper practice<br/>Progress Review 3 - Year 12 Examination (Jan), classwork, homework and question packs<br/>Progress Review 4 - Past paper progress, classwork, homework and question packs</p>  | <p><b>ASSESSMENT</b></p> <p>Internal end of Year 12 assessment based on past examination questions</p> |

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**EXAMINATION BOARD: OCR**

| AUTUMN TO SPRING TERM - YEAR 13   | AUTUMN TO SUMMER TERM - YEAR 13   | SUMMER TERM - YEAR 13   |
|---|---|---|
| <p><b>Module 1 - Development of practical skills in Physics</b><br/> <b>Module 2 - Foundations of Physics</b></p> <p><b>Module 5 - Newtonian world and astrophysics</b><br/>                     5.1 Thermal physics<br/>                     5.2 Circular motion<br/>                     5.3 Oscillations<br/>                     5.4 Gravitational fields<br/>                     5.5 Astrophysics and cosmology</p> <p><b>Potential Practical Activities</b></p> <ul style="list-style-type: none"> <li>Determining an estimate of absolute zero using variation of gas temperature with pressure</li> <li>Investigating the factors affecting the period of a simple harmonic oscillator</li> <li>Determination of the specific heat capacity of a material</li> <li>The principles behind the operation of the Global Positioning System</li> </ul> | <p><b>Module 1 - Development of practical skills in Physics</b><br/> <b>Module 2 - Foundations of Physics</b></p> <p><b>Module 6 - Particles and medical physics</b><br/>                     6.1 Capacitors<br/>                     6.2 Electric fields<br/>                     6.3 Electromagnetism<br/>                     6.4 Nuclear and particle physics<br/>                     6.5 Medical imaging</p> <p><b>Potential Practical Activities</b></p> <ul style="list-style-type: none"> <li>Determining time constant using the gradient of <math>\ln V</math> or <math>\ln I</math>-time graph</li> <li>Absorption of <math>\alpha</math> or <math>\beta</math> or <math>\gamma</math> radiation</li> <li>The use of radioactive materials as tracers in medical imaging</li> </ul> | <p style="text-align: center;"><b>Revision and intervention Modules 1 to 6</b></p>  |
| <p><b>ASSESSMENT</b><br/>                     Question packs - All modules<br/>                     Progress Review 1 - Assessment (Oct), classwork, homework and question packs<br/>                     Progress Review 2 - Assessment (Dec), classwork, homework and question packs</p>  | <p><b>ASSESSMENT</b><br/>                     Y13 School Examination (Jan)<br/>                     Question packs - All modules<br/>                     Mock examinations / past-paper practice<br/>                     Progress Review 3 - Year 13 Examination (Jan), classwork, homework and question packs<br/>                     Progress Review 4 - Past paper progress, classwork, homework &amp; question packs</p>   | <p><b>ASSESSMENT</b><br/> <b>Final A2 examinations (H556)</b><br/>                     Modelling physics (01) assesses content from modules 1, 2, 3 and 5<br/>                     100 marks 2 hours 15 minutes written paper<br/>                     37 % of total A level<br/>                     Exploring physics (02) assesses content from modules 1, 2, 4 and 6<br/>                     100 marks 2 hours 15 minutes written paper<br/>                     37 % of total A level<br/>                     Unified physics (03) assesses content from all modules (1 to 6)<br/>                     70 marks 1 hour 30 minutes written paper<br/>                     26 % of total A level<br/>                     Practical Endorsement GCE Physics (Non-examined)</p> |