

# Curriculum Map Year 11 Separate Science - Physics

| Topic Name   | Term                  | Skills developed with link to NC Subject content   | Reflection on previous link in the curriculum   | Progress to future link in the curriculum  |
|--|-----------------------|--|---|--|
| <b>Forces</b>                                      | <i>Autumn<br/>HT1</i> | <b>Understanding of:</b> <ul style="list-style-type: none"> <li>• Speed and D-T graphs</li> <li>• Acceleration and V-T graphs</li> <li>• Equation of linear motion</li> <li>• Forces and resultant forces</li> <li>• Newton's laws of motion</li> <li>• Weight and mass</li> <li>• Momentum</li> <li>• Road safety</li> <li>• Moments</li> <li>• Levers and Gears</li> <li>• Pressure in fluids and atmospheric pressure</li> <li>• Hooke's law</li> </ul> | Year 7: Forces <ul style="list-style-type: none"> <li>• What is a force</li> <li>• Resultant forces</li> <li>• Newton's second law</li> <li>• Weight and mass</li> <li>• Hooke's law</li> <li>• Speed, distance and time</li> </ul>   | Year 12: Forces <ul style="list-style-type: none"> <li>• Scalars and vectors</li> <li>• Forces in equilibrium</li> <li>• Moments</li> <li>• Momentum</li> <li>• D-T, V-T and A-T graphs</li> <li>• Newton's laws of motion</li> <li>• Equations of linear motion</li> <li>• Work and power</li> <li>• Projectile motion</li> </ul>   |
| <b>Space</b>                                       | <i>Autumn<br/>HT2</i> | <b>Understanding of:</b> <ul style="list-style-type: none"> <li>• The solar system</li> <li>• Orbits and circular motion</li> <li>• Star formation and main sequence</li> <li>• Life cycle of a star</li> <li>• Nuclear fusion forming new elements</li> <li>• Red shift, big bang and explaining universe</li> <li>• The further universe</li> </ul>  | Year 7: Space <ul style="list-style-type: none"> <li>• The solar system</li> <li>• Beyond the solar system</li> </ul>   | Year 12: Further mechanics <ul style="list-style-type: none"> <li>• Circular motion</li> </ul> Year 13: Gravitational fields <ul style="list-style-type: none"> <li>• Satellites and orbits</li> </ul> Year 13: Astrophysics <ul style="list-style-type: none"> <li>• Stars and black bodies</li> <li>• Evolution of stars</li> <li>• Supernova, neutron stars and black holes</li> <li>• Doppler effect and red shift</li> <li>• Big bang theory</li> </ul> |
| <b>Electromagnetism</b>                            | <i>Spring<br/>HT3</i> | <b>Understanding of:</b> <ul style="list-style-type: none"> <li>• Magnetic fields and forces</li> <li>• Plotting magnetic field lines</li> <li>• Solenoids and electromagnets</li> <li>• Uses of electromagnets</li> <li>• Calculating the force on a conductor</li> <li>• The motor effect and loudspeakers</li> <li>• The generator effect and its uses</li> <li>• Transformers</li> </ul>   | Year 8: Electromagnetism <ul style="list-style-type: none"> <li>• Permanent magnets and magnetic fields</li> <li>• Compasses and the earth's magnetic field</li> <li>• Electromagnets and their applications</li> <li>• The kicking wire</li> <li>• Applications of electromagnets</li> </ul> | Year 13: Magnetic fields <ul style="list-style-type: none"> <li>• Magnetic flux density</li> <li>• Forces on current carrying wire and charged particles</li> <li>• Electromagnetic induction</li> <li>• Faraday's law and Lenz's law</li> <li>• Transformers</li> </ul>   |
| <b>Reflection and preparation for examinations</b> | <i>Spring<br/>HT4</i> | Recap and reflection on content learnt during year 10 & 11<br>Exam question focus<br>Application question focus<br>Mathematical skills focus<br>Scientific skills focus  | Year 10 and Year 11 content   |  |
| <b>Reflection and preparation for examinations</b> | <i>Summer<br/>HT5</i> | Recap and reflection on content learnt during year 10 & 11<br>Exam question focus<br>Application question focus<br>Mathematical skills focus<br>Scientific skills focus  | Year 10 and Year 11 content   |  |

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| <b>Examination period</b> | <i>Summer<br/>HT6</i> |  |  |  |