

Subject	Year 10 Core Knowledge – Autumn/Spring/Summer term	How to support students' learning
Science – Physics	<p><b>Autumn Term</b></p> <p><b>Atomic Structure –</b></p> <ol style="list-style-type: none"> <li>1. Understand nuclear decay equations.</li> <li>2. Understand half-lives and the random nature of radioactive decay.</li> <li>3. Compare contamination and irradiation.</li> <li>4. Describe the nature of background radiation (Triple only).</li> <li>5. Understand different half-lives of radioactive isotopes (Triple only).</li> <li>6. Describe the uses of nuclear radiation (Triple only).</li> <li>7. Describe nuclear fission (Triple only).</li> <li>8. Describe nuclear fusion (Triple only).</li> </ol> <p><b>Energy 2 –</b></p> <ol style="list-style-type: none"> <li>9. Calculate kinetic energy.</li> <li>10. Calculate gravitational potential energy.</li> <li>11. Calculate elastic potential energy.</li> <li>12. Apply the law of conservation of energy to calculations of changing energy stores.</li> </ol> <p><b>Spring Term</b></p> <p><b>Forces –</b></p> <ol style="list-style-type: none"> <li>13. Describe scalars and vectors.</li> <li>14. Forces - Describe contact and non-contact forces.</li> <li>15. Describe gravity.</li> <li>16. Determine resultant forces.</li> <li>17. Describe work done and energy transfer.</li> <li>18. Understand forces and elasticity.</li> <li>19. Describe motion along a line.</li> <li>20. Compare distance and displacement.</li> <li>21. Compare speed and velocity.</li> <li>22. Understand and interpret distance-time graphs.</li> <li>23. Understand and interpret velocity-time graphs.</li> <li>24. Describe Newton's laws of motion.</li> </ol>	<p>Students can revise on the following websites:</p> <ul style="list-style-type: none"> <li>• Educake: <a href="http://www.educake.co.uk">www.educake.co.uk</a></li> <li>• Oak academy lessons: <a href="https://continuityoak.org.uk/lessons">https://continuityoak.org.uk/lessons</a></li> <li>• Free science lessons: <a href="https://www.youtube.com/c/freesciencelessons">https://www.youtube.com/c/freesciencelessons</a></li> <li>• BBC bitesize- select Physics (Single science) and then AQA if studying for Triple Science or Combined and then select AQA Trilogy if studying Combined Science and then select the relevant topics – <a href="https://www.bbc.co.uk/bitesize/levels/z98j.mp3">https://www.bbc.co.uk/bitesize/levels/z98j.mp3</a></li> <li>• Save my exams - <a href="https://www.savemyexams.com/gcse/">https://www.savemyexams.com/gcse/</a></li> <li>• Primrose Kitten - <a href="https://www.primrosekitten.com/collections/gcse">https://www.primrosekitten.com/collections/gcse</a></li> <li>• Past paper questions can be found on the Physics and Maths Tutor website for all three science subjects - <a href="https://www.physicsandmathstutor.com/">https://www.physicsandmathstutor.com/</a></li> </ul>

25. Understand acceleration.
26. Understand forces and braking.
27. Describe stopping distance.
28. Describe factors affecting stopping distance.
29. Understand momentum is a property of moving objects (HT only).
30. Understand conservation of momentum (HT only).
31. Understand moments, levers and gears (Triple only).
32. Understand pressure in a fluid (Triple only).
33. Understand atmospheric pressure (Triple only).
34. Understand changes in momentum (Triple only).

**Summer Term**

**Electricity –**

35. Recognise standard circuit diagram symbols.
36. Understand electrical charge and current.
37. Calculate current, resistance and potential difference.
38. Understand resistors.
39. Compare series and parallel circuits.
40. Compare direct and alternating potential difference.
41. Understand mains electricity.
42. Calculate power.
43. Describe energy transfers in everyday appliances.
44. Describe the National Grid.
45. Understand static charge. (Triple only).
46. Understand electric fields (Triple only).