



| Term                      | Autumn 1  | Autumn 2   | Spring 1  | Spring 2  | Summer 1   | Summer 2  |
|---------------------------|---|--|---|---|--|---|
| <b>Topic</b>              | Forces  | Motion   | Energy Stores   | Introduction to Waves   | Introduction to Circuits   | Energy Recourses  |
| <b>Content</b>            | <ul style="list-style-type: none"> <li>-Contact &amp; Non-contact Forces</li> <li>-Magnets &amp; Magnetic fields</li> <li>-Forces &amp; Elasticity (springs)</li> <li>-Gravity</li> </ul> | <ul style="list-style-type: none"> <li>-Scalars and Vectors (definitions and examples)</li> <li>-Speed</li> <li>-Stopping Distance</li> </ul>                | <ul style="list-style-type: none"> <li>-Energy Stores and Transfers</li> <li>-Efficiency</li> </ul>                           | <ul style="list-style-type: none"> <li>-Transverse and Longitudinal Waves</li> <li>-Properties of the Electromagnetic Spectrum</li> <li>-Reflection and Refraction</li> </ul> | <ul style="list-style-type: none"> <li>-Building Circuits and Circuit Diagrams</li> <li>-Current, Potential Difference and Resistance</li> </ul>       | <ul style="list-style-type: none"> <li>-National and Global Energy Resources</li> </ul> |
| <b>Rationale/ Linking</b> | Provides a good introduction to forces which underpins future work on motion. This also provides opportunities to develop practical skills with the springs required practical.           | Continues to develop student's understanding of using equations with the speed equation and an opportunity to explore unit conversions in familiar settings. | Introduces energy stores and concepts of energy transfer so that students can identify these throughout their future studies. | Provides an application of energy transfers as well as introducing wave topics to underpin future study on waves in Y10   | Provides an application of energy transfer and develops an understanding of circuits, including practical experience, to underpin study of this in Y10 | Follows on from discussion of energy and looks at the application of this in real life  |
| <b>Assessment</b>         | Synoptic Assessment in at the end of Autumn term<br>Mid and end of topic test   |  |   | <b>Learning Resources</b>   |  |   |



| Term                      | Autumn 1   | Autumn 2  | Spring 1  | Spring 2  | Summer 1  | Summer 2  |
|---------------------------|--|---|---|---|---|---|
| <b>Topic</b>              | Forces and their influence on Motion   | Analysis of Motion  | Density, Pressure and Floating  | Calculating Changes in Energy and Thermal Energy  | Waves   | Electricity   |
| <b>Content</b>            | -Newtons Laws<br>-Acceleration<br>-Terminal Velocity   | -Motion graphs<br>-Momentum and Collisions  | -Pressure in Fluids<br>-Floating and sinking<br>-Density  | -Quantitative treatment of energy stores<br>-Heat Capacity<br>-Latent Heat<br>-Conduction | -The Wave Equation<br>-Sound and Ultrasound<br>-Investigating waves<br>-Seismic Waves<br>-Light and Lenses  | -Factors Affecting Resistance<br>-V-I Characteristics of components<br>-Energy transfers within circuits<br>-Mains electricity and the National Grid. |
| <b>Rationale/ Linking</b> | Builds on Y9 work on forces with quantitative treatment of the material. Allows more difficult calculations to be introduced to build on prior work. | Builds on work from Autumn 1 to apply force and motion to more complex systems. Provides an opportunity to revisit stopping distances through motion graphs | Brings together ideas about forces from Autumn to consider forces in fluids. Density investigations follow naturally within this theme. | Builds on Y9 work on energy stores to include equations to calculate changes in energy.   | Builds on Y9 work to include quantitative treatment of waves and wave of applications. Study of light allows refraction to be revisited and expanded. | Builds on Y9 study of electricity as well as providing foundation for Y11 study on electromagnetism.  |
| <b>Assessment</b>         | Mid and end of topic test<br>End of Year Assessment  |   |   | <b>Learning Resources</b>   |   |   |



| Term                      | Autumn 1   | Autumn 2  | Spring 1  | Spring 2   | Summer 1                      | Summer 2                      |
|---------------------------|--|---|---|--|-------------------------------|-------------------------------|
| <b>Topic</b>              | The Atom and Radiation   | Fission, Fusion, Gases and Space Physics  | Scalars, Vectors and Advanced Motion  | Electromagnetism   | Revision and Exam Preparation | Revision and Exam Preparation |
| <b>Content</b>            | -History of the Atom<br>-Radioactivity<br>-Applications of radiation (including medical physics) | -Nuclear Fission, Reactors and Fusion<br>-Gas properties (Pressure, Volume and Temperature)<br>-The Solar System<br>-Big Bang theory  | -Adding vectors by scale drawing<br>-Resolving vectors into components<br>-Applications of acceleration and final velocity equations                                  | -Electromagnetic Devices<br>-Motors<br>-Generators<br>-Transformers  |                               |                               |
| <b>Rationale/ Linking</b> | Builds on work from Y9 chemistry, providing opportunity to revisit this topic.                   | Follows from Autumn 1 work thematically, with links between atoms, gases and radiation and leading into stars through nuclear fusion. | Represents the most difficult mathematical aspects of the course (vectors and velocity equations). By visiting this in Y11, students have the necessary maths skills. | Builds on work from Y9 on magnetic fields (giving opportunity to revisit this) and Y10 electricity. Conceptually challenging topic, benefiting from secure foundations build in Y9 and 10. |                               |                               |
| <b>Assessment</b>         | Mid and end of topic test<br>Mock Exam in December   |   |   | <b>Learning Resources</b>  |                               |                               |