



Year 12 Physics Curriculum Map

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| Overview | <p>This section introduces students both to the fundamental properties of matter, and to electromagnetic radiation and quantum phenomena. Teachers may wish to begin with this topic to provide a new interest and knowledge dimension beyond GCSE. Through a study of these topics, students become aware of the way ideas develop and evolve in physics. They will appreciate the importance of international collaboration in the development of new experiments and theories in this area of fundamental research.</p> <p>GCSE studies of wave phenomena are extended through a development of knowledge of the characteristics, properties, and applications of travelling waves and stationary waves. Topics treated include refraction, diffraction, superposition and interference.</p> <p>Vectors and their treatment are introduced followed by development of the student's knowledge and understanding of forces, energy and momentum. The section continues with a study of materials considered in terms of their bulk properties and tensile strength. As with earlier topics, this section and also the following section Electricity would provide a good starting point for students who prefer to begin by consolidating work.</p> <p>This section builds on and develops earlier study of these phenomena from GCSE. It provides opportunities for the development of practical skills at an early stage in the course and lays the groundwork for later study of the many electrical applications that are important to society.</p> | | | | | |
| Year 12 | Autumn 1 | Autumn 2 | Spring 1 | Spring 2 | Summer 1 | Summer 2 |
| Topic | Matter and radiation Waves | Quarks and leptons Quantum phenomena Optics | Forces and equilibrium On the move Materials | Newton's laws Electric current | Force and momentum DC circuits | Motion in a circle DC circuits |
| Knowledge | 3.2.1 Particles 3.3.1 Progressive and stationary waves | 3.2.2 Electromagnetic radiation and quantum phenomena 3.3.2 Refraction, diffraction and interference | 3.4.1 Force, energy and momentum 3.4.2 Materials | 3.4.1 Force, energy and momentum 3.5.1 Current electricity | 3.4.1 Force, energy and momentum 3.5.1 Current electricity | 3.6.1 Periodic motion 3.5.1 Current electricity |
| Skills | Correctly follow instructions to carry out experimental procedures. | Correctly follow instructions to carry out experimental procedures | Carry out procedures methodically, identify practical issues and make adjustments when necessary. | Identify hazards and assess risks in the field and laboratory. Make safety adjustments as necessary. | Use appropriate software to process data, research and report findings. | Correctly follow instructions to carry out experimental procedures. |

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| | <p>Correctly use appropriate apparatus to carry out investigations</p> <p>Carry out procedures methodically, identify practical issues and make adjustments when necessary.</p> | <p>Make accurate observations relevant to the investigation</p> <p>Obtain accurate, precise and sufficient data and record methodically using appropriate units and conventions.</p> | <p>Identify and control significant quantitative variables.</p> <p>Identify hazards and assess risks in the field and laboratory. Make safety adjustments as necessary</p> <p>Use appropriate safety equipment to minimise risk.</p> | <p>Use appropriate safety equipment to minimise risk.</p> | <p>Cite sources of information to support planning and conclusions.</p> | <p>Identify hazards and assess risks in the field and laboratory. Make safety adjustments as necessary.</p> <p>Use appropriate safety equipment to minimise risk. Obtain accurate, precise and sufficient data and record methodically using appropriate units and conventions.</p> |
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