

Year 11 Physics Sequence (class of 2023)

	Content Taught	Reference	Essential knowledge	Assessment	Rationale
Year 11 Physics					
HT1	<p>Combined Science complete second half of Atomic Structure unit. Then- Electricity 4: Domestic electricity</p> <p>Pupils will deepen their understanding of electricity by applying their previous knowledge of electrical current in the home. They learn about plugs, alternating current and how power is transferred to our homes.</p>	4.2.4 4.2.5	<p>Energy transfers Static electricity</p> <p><i>Essential knowledge reading for consolidation:</i> https://www.bbc.co.uk/bitesize/topics/zp3ftv4</p>	<p>Formative Assessment: Daily, Weekly and Monthly Reviews focussing on reviewing material on Essential Knowledge. Homework tests are completed approximately every 3 lessons. Use of TLaC techniques in lessons to check pupil understanding of essential knowledge during each lesson.</p> <p>Electricity 5 Summative Assessment: End of Topic assessed questions focussing on application of the essential knowledge in this unit of work.</p>	<p>Students begin year 11 by completing the second part of the Atomic structure unit Then continue by studying topic Electricity 4. Students apply prior essential knowledge from Energy 3 and Electricity 3 in year 10 to real life applications, including electrical power, alternating current and mains electricity. The topic also links with prior knowledge of Waves 2 in year 9 with understanding of oscillations and frequency.</p>
HT2	<p>Waves 3 Properties and uses of waves</p>	4.6.1 4.6.2	<p>Waves in air, fluids and solids Electromagnetic waves</p>	<p>Formative Assessment: Daily, Weekly and Monthly Reviews focussing on reviewing material on Essential</p>	<p>During the waves unit, students will be required to measure waves and find out about the</p>

<p>In this waves topic, pupils will learn about transverse and longitudinal waves and their properties. They will learn about the applications of electromagnetic waves as well as their uses and hazards.</p>			<p>Essential knowledge reading for consolidation: https://www.bbc.co.uk/bitesize/topics/zcwkgdm</p>	<p>Knowledge. Homework tests are completed approximately every 3 lessons. Use of TLaC techniques in lessons to check pupil understanding of essential knowledge during each lesson.</p> <p>Waves 3 Summative Assessment: End of Topic assessed questions focussing on application of the essential knowledge in this unit of work.</p>	<p>electromagnetic spectrum. Again, this is a fundamental unit that builds on prior knowledge from Waves 2 in year 9 and energy transfers from Year 10 and provides an excellent extension to building mathematical knowledge such as using standard form and re-arranging equations. For separate science students this unit forms the precursor to Waves 4 – Applications of wave theory.</p>
<p>Waves 3: Applications of waves (separates only) Pupils learn in depth about Sound waves, Seismic waves and the applications of em-waves, including lenses, reflection, and Black body radiation.</p>	<p>4.6.1.3 4.6.1.4 4.6.1.5 4.6.2.5 4.6.2.6 4.6.3</p>	<p>Reflection of waves Sound waves Waves for detection and exploration Lenses Visible light Black body radiation</p>		<p>Formative Assessment: Daily, Weekly and Monthly Reviews focussing on reviewing material on Essential Knowledge. Homework tests are completed approximately every 3 lessons. Use of TLaC techniques in lessons to check pupil understanding of essential knowledge during each lesson.</p> <p>Application of waves Summative Assessment (GCSE Physics only): End of Topic assessed questions focussing on application of the essential knowledge in this unit of work.</p> <p>PPE 1 - Summative Test: Summative assessment is taken in the exam Hall and covers all paper 1 topics Topics:</p>	<p>GCSE Physics students further develop their understanding of waves with the application of waves unit. Students build on their prior knowledge of wave properties and apply this to real life applications such as lenses and black body radiation.</p>

	<p>Students also begin the Force 5 – mechanics topic-see below.</p>			<p>Energy 3, Electricity 3, Particles 3, Atomic 3, Electricity 4</p> <p>Questions are taken from past exam papers and graded using typical grade boundaries from GCSE Physics exams.</p>	
HT3	<p>Forces 5: Mechanics</p> <p>Pupils develop their previous knowledge of forces to apply this to how objects move, including speed, distance, time and acceleration. Pupils will plot and analyse graphs of motion before moving on to concepts of braking distance and momentum.</p> <p>Forces 5: Further mechanics (separates only) Pupils studying separate science will learn about moments,</p>	<p>4.5.1.1 4.5.6 4.5.7</p> <p>4.5.4 4.5.5 4.5.7.3</p>	<p>Scalar and vector quantities Forces and motion Momentum</p> <p><i>Essential knowledge reading for consolidation:</i> https://www.bbc.co.uk/bitesize/topics/z82j97h</p> <p>Moments, levers and gears Pressure Changes in momentum</p>	<p>Formative Assessment: Daily, Weekly and Monthly Reviews focussing on reviewing material on Essential Knowledge. Homework tests are completed approximately every 3 lessons. Use of TLaC techniques in lessons to check pupil understanding of essential knowledge during each lesson.</p> <p>Forces 5: Mechanics Summative Assessment: End of Topic assessed questions focussing on application of the essential knowledge in this unit of work.</p>	<p>Students utilise their prior essential knowledge of all forces topics from year 7-10 and apply this to the concept of motion in the mechanics topic. Students also further develop their essential mathematical knowledge with use of graphs to apply data numerically which was introduced in year 9.</p>

<p>HT3</p>	<p>pressure, terminal velocity and change in momentum.</p> <p>Magnetism 3: Magnetism and electromagnetism</p> <p>Pupils reinforce their understanding of magnets by understanding the difference between permanent and induced magnetism. They will use knowledge of electricity to understand electromagnets, the motor effects and for separate scientists, generators and transformers.</p>	<p>4.7.1 4.7.2 4.7.3 (physics only)</p>	<p>Permanent and induced magnetism The motor effect Induced potential, transformers and the National Grid</p> <p>Essential knowledge reading for consolidation: https://www.bbc.co.uk/bitesize/topics/z39ry4j</p>	<p>Formative Assessment: Daily, Weekly and Monthly Reviews focussing on reviewing material on Essential Knowledge. Homework tests are completed approximately every 3 lessons. Use of TLaC techniques in lessons to check pupil understanding of essential knowledge during each lesson.</p> <p>Magnetism Summative Assessment: End of Topic assessed questions focussing on application of the essential knowledge in this unit of work.</p>	<p>Students complete their final (combined science) or penultimate (GCSE Physics) topic, bringing together prior learning from electricity and magnetism 2 in year 9 and electricity 4: Domestic electricity. This unit provides secure essential knowledge for students wishing to study A Level Physics.</p>
<p>HT4</p>	<p>Space 3: Space physics (separates only)</p> <p>Separate scientists study space as their final topic, learning about the</p>	<p>4.8.1 4.8.2</p>	<p>Solar system and stars Red shift</p> <p>Essential knowledge reading for consolidation: https://www.bbc.co.uk/bitesize/topics/zsbyh39</p>	<p>Formative Assessment: Daily, Weekly and Monthly Reviews focussing on reviewing material on Essential Knowledge. Homework tests are completed approximately every 3 lessons. Use of TLaC techniques in lessons to check pupil understanding of essential knowledge during each lesson.</p>	

	<p>life cycle of stars, the solar system and evidence of how the Universe began.</p> <p>Combined science start: Revisit of content.</p>	All	Identify skill and knowledge weaknesses and deliver re-teach	<p><u>Space Summative Assessment:</u> End of Topic assessed questions focussing on application of the essential knowledge in this unit of work.</p> <p><u>PPE - Summative Test:</u> Summative assessment is taken in class and covers all topics studied up to this point. Topics: Energy Electricity Waves Particle model of matter Forces Atomic structure Domestic electricity Mechanics</p> <p>Questions are taken from past exam papers and graded using typical grade boundaries from GCSE Physics exams.</p>	
HT5 and HT6	Revisit of all content.	All	Identify skill and knowledge weaknesses and deliver re-teach	<p>Assessment is taken in class and covers all topics. Questions are taken from past exam papers and graded using typical grade boundaries from GCSE Physics exams.</p>	