

## Year 10 Physics Sequence

	Content Taught	Reference	Essential knowledge	Assessment	Rationale
<b>Year 10 Physics</b>					
<p><b>In Year 10</b>, students develop their understanding of all content studied in year 7 to 9 to prepare them for KS4. All topics build upon challenging concepts from KS3 as well as developing essential knowledge for GCSE Physics.</p>					
HT1	<p><b>Energy 3: Energy applications</b></p> <p>During this energy topic, pupils will develop their knowledge of energy stores, the conservation of energy, calculating energy and applying these to different energy resources.</p>	4.1.1.1 4.1.1.2 4.1.1.4 4.1.2 4.1.3	<p>Energy changes in a system            Conservation and dissipation of energy            National and global energy resources</p> <p><i>Essential knowledge reading for consolidation:</i>  <a href="https://www.bbc.co.uk/bitesize/topics/zycbsrd">https://www.bbc.co.uk/bitesize/topics/zycbsrd</a></p>	<p><b>Formative Assessment:</b>            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><b>Energy 3 Summative Assessment:</b>            End of Topic assessed questions focussing on application of the essential knowledge in this unit of work.</p>	<p>During the year 10 topics, pupils will build on their prior knowledge from KS3. Energy is studied first as it is the most fundamental area of physics, developing the essential knowledge that underpins future topics. Pupils will learn to apply essential mathematical knowledge and have to use and apply formula that will be required throughout the rest of the course.</p>
HT2	<p><b>Electricity 3: PD, current and resistance</b></p> <p>In this topic of electricity, pupils will learn about different</p>	4.2.1 4.2.2	<p>Current, potential difference and resistance            Series and parallel circuits</p> <p><i>Essential knowledge reading for consolidation:</i>  <a href="https://www.bbc.co.uk/bitesize/topics/zp3ftv4">https://www.bbc.co.uk/bitesize/topics/zp3ftv4</a></p>	<p><b>Formative Assessment:</b>            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><b>Energy 3 Summative Assessment:</b></p>	<p>The electricity topic builds on prior KS3 topics, builds links from electrical energy introduced in energy 3 and puts the key knowledge in context and challenges students to apply their knowledge to new</p>

	<p><b>components in series and parallel circuits, including resistors, bulbs, diodes, thermistors and LDRs. They will learn different calculations including Ohms law, charge and electrical energy.</b></p>			<p>End of Topic assessed questions focussing on application of the essential knowledge in this unit of work.</p> <p><b><u>Pre-Progress Assessment 1 - Summative Test:</u></b> Summative assessment is taken in class and covers all topics studied up to this point. Topics: Energy Electricity</p> <p>Questions are taken from past exam papers and graded using typical grade boundaries from GCSE Physics exams.</p>	<p>components such as LDRs and thermistors. Students develop their understanding of series and parallel circuits and their uses introduced in year 7 and 9.</p>
HT3	<p><b>Particles 3: Particle model of matter</b></p> <p>Pupils will begin to learn about the particle model of matter and how to calculate the density of each state of matter. Pupils learn about internal energy and how pressure is affected by temperature and volume.</p>	<p>4.3.1 4.3.2 4.3.3</p>	<p>Changes of state and the particle model Internal energy and energy transfers Particle model and pressure</p> <p><b><i>Essential knowledge reading for consolidation:</i></b> <a href="https://www.bbc.co.uk/bitesize/topics/zxsh2nb">https://www.bbc.co.uk/bitesize/topics/zxsh2nb</a></p>	<p><b><u>Formative Assessment:</u></b> 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><b><u>Particles 3 Summative Assessment:</u></b> End of Topic assessed questions focussing on application of the essential knowledge in this unit of work.</p>	<p>Particle model of matter is a topic that uses and applies essential knowledge of kinetic energy and density from previous topics in year 9 and year 8. It links to the ideas of pressure learned in forces 3 from year 9 and will be further developed in forces 5 in year 11.</p>
HT4	<p><b>Electricity 4: Domestic electricity</b></p>	<p>4.2.4 4.2.5</p>	<p>Energy transfers Static electricity</p>	<p><b><u>Formative Assessment:</u></b> Daily, Weekly and Monthly Reviews focussing on reviewing material on Essential Knowledge. Homework tests are completed approximately every 3 lessons.</p>	<p>Students now continue their study of electricity with the topic of domestic electricity. Students apply prior</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>		<p><b>Essential knowledge reading for consolidation:</b>  <a href="https://www.bbc.co.uk/bitesize/topics/zp3ftv4">https://www.bbc.co.uk/bitesize/topics/zp3ftv4</a></p>	<p>Use of TLaC techniques in lessons to check pupil understanding of essential knowledge during each lesson.</p> <p><b>Electricity 5 Summative Assessment:</b>  End of Topic assessed questions focussing on application of the essential knowledge in this unit of work.</p>	<p>essential knowledge from KS3 and energy 3 and electricity3 into 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>
HT5	<p><b>Atoms 3: Atomic Structure</b></p> <p><b>Atoms 3: Fission and Fusion (separates only)</b></p> <p>Pupils learn about the structure of the atom and the effects of radioactivity, including their applications and hazards. Students choosing separate science will go on to further</p>	<p>4.4.1  4.4.2  4.4.3  4.4.4</p>	<p>Atoms and isotopes  Atoms and nuclear radiation  Hazards and uses of radioactive emissions  Nuclear fission and fusion</p> <p><b>Essential knowledge reading for consolidation:</b>  <a href="https://www.bbc.co.uk/bitesize/topics/zqtmw6f">https://www.bbc.co.uk/bitesize/topics/zqtmw6f</a></p>	<p><b>Formative Assessment:</b>  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><b>Atomic structure Summative Assessment:</b>  End of Topic assessed questions focussing on application of the essential knowledge in this unit of work.</p> <p><b>Pre-Progress Assessment 3 - Summative Test:</b>  Summative assessment is taken in class and covers all topics studied up to this point.  Topics:  Energy  Electricity</p>	<p>Students finish paper 1 content with the unit Atomic Structure, building on initial ideas of the atom studied in year 9 particles 2 and links with the chemistry atomic structure topic. A lot of this topic introduces new concepts of radiation which provides secure essential knowledge for A Level Physics should students undertake this course.</p>

	applications of nuclear fission and fusion.			<p>Waves Particle model of matter Forces Atomic structure</p> <p>Questions are taken from past exam papers and graded using typical grade boundaries from GCSE Physics exams.</p>	
HT6	<p><b>Forces 4: Newton's laws</b></p> <p>Pupils develop their knowledge about forces, resultant force diagrams and apply these to Newton's laws of motion. At the end of the topic, pupils will learn about the deformation of solids and Hooke's law.</p> <p>Separate Science students will begin waves 3 – see year 11 for details.</p>	<p>4.5.1 4.5.2</p>	<p>Forces and elasticity Newton's laws of motion</p> <p><i>Essential knowledge reading for consolidation:</i> <a href="https://www.bbc.co.uk/bitesize/topics/z82j97h">https://www.bbc.co.uk/bitesize/topics/z82j97h</a></p>	<p><b>Forces 4 Summative Assessment:</b> End of Topic assessed questions focussing on application of the essential knowledge in this unit of work.</p>	<p>Students move on to start paper 2 content with Forces 4 which builds on prior learning of forces from years 7-9. This topic also reinforces the idea of work done from energy 3.</p>