



Year 9 Curriculum Overview: Physics



	Topics/ content outline:	Powerful Knowledge (key concepts, skills)	What will you be assessed on?	How can you help at home?
Autumn Term	<p>Motion 4.5.6.1 Describing Motion Along a Line:</p> <p>Waves 4.6.1.1 Transverse & Longitudinal - Energy transfer/ medium/ amplitude/ frequency/ wavelength</p>	<p>Calculations using distance = speed \times time Average speed of instantaneous speed Distance-time graphs including gradients Acceleration & using acceleration = change in speed / time Velocity-time graphs including gradients & the area under lines (including curved lines)#</p> <p>Transverse & Longitudinal waves – their nature & examples of them. Amplitude, frequency, wavelength, medium</p>	<p>The Y9 topic "Motion" and some of the "Waves" topic.</p> <p>The most up-to-date listings re. what's on the tests will be on Showbie "Physics ALL Y9"</p>	<ul style="list-style-type: none"> - Question students to test their recall of the Knowledge Organisers ("KOs" or Checklists - Encourage students to turn KOs into fact cards - Encourage students to use fact cards properly - Encourage students to use the practice topic questions, or work on them together - Encourage students to follow the links to Bitesize or Free GCSE Science lessons & show them how to use them effectively eg turning content into a visual representation, pausing & rewinding where necessary. <p>Links, topic questions etc are available in the Showbie class "Physics ALL Y9".</p>
Spring Term	<p>Waves 4.6.1.1 & 4.6.1.2 Measuring the speed of sound. Period & $T = 1/f$. Using $v = f\lambda$. Making measurements of waves on a ripple tank</p> <p>Electromagnetic Waves 4.6.2.1 – 4.6.2.4 Types, properties, uses and applications of electromagnetic waves. Refraction.</p>	<p>Using the equation: wave speed = frequency \times wavelength</p> <p>The nature of electromagnetic waves Applications of electromagnetic waves Reasons for the use of certain electromagnetic waves for particular purposes Refraction of electromagnetic waves at media interfaces explained in terms of wavelength & speed change Representing refraction using ray diagrams</p>	<p>The Y9 topics "Motion" & "Waves"</p> <p>The most up-to-date listings re. what's on the tests will be on Showbie "Physics ALL Y9"</p>	<ul style="list-style-type: none"> - Question students to test their recall of the Knowledge Organisers ("KOs" or Checklists - Encourage students to turn KOs into fact cards - Encourage students to use fact cards properly - Encourage students to use the practice topic questions, or work on them together - Encourage students to follow the links to Bitesize or Free GCSE Science lessons & show them how to use them effectively eg turning content into a visual representation, pausing & rewinding where necessary. <p>Links, topic questions etc are available in the Showbie class "Physics ALL Y9".</p>
Summer Term	<p>Electricity (Parts of section 6) Current/PD/resistance. Circuits & symbols. $W=QV$. $V=IR$. $I=V$ for a fixed resistor. Series & parallel circuits. Resistors in series and parallel.</p> <p>Atomic Structure 4.4 Atomic Structure: Atoms & isotopes. Structure of atom. Development of the atomic model. Mass no. & atomic no.</p>	<p>Electrical current as a flow of charge. The interdependence of current, resistance and potential difference Connecting ammeters and voltmeters Investigating how the length of a wire affects its resistance Current-PD graph for a fixed resistance A selection of the standard circuit symbols (see checklist) The equations: $PD = \text{current} \times \text{resistance}$ $\text{energy transferred} = \text{charge flow} \times PD$</p> <p>The nuclear model & evidence for the nuclear model Atomic structure, isotopes & isotope notation</p>	<p>The Y9 topics "Motion", "Waves" & "Electromagnetic Waves"</p> <p>The most up-to-date listings re. what's on the tests will be on Showbie "Physics ALL Y9"</p>	<ul style="list-style-type: none"> - Question students to test their recall of the Knowledge Organisers ("KOs" or Checklists - Encourage students to turn KOs into fact cards - Encourage students to use fact cards properly - Encourage students to use the practice topic questions, or work on them together - Encourage students to follow the links to Bitesize or Free GCSE Science lessons & show them how to use them effectively eg turning content into a visual representation, pausing & rewinding where necessary. <p>Links, topic questions etc are available in the Showbie class "Physics ALL Y9".</p>