



	Topics/ content outline:	Powerful Knowledge (key concepts, skills)	What will you be assessed on?	How can you help at home?
Autumn Term	<p>Forces &amp; Motion Newton's Laws of Motion, Inertia, <math>F = ma</math>, Acceleration due to gravity, Confirming <math>F = ma</math> by experiment, Forces &amp; Braking, Momentum</p> <p>2) Nuclear Radiation Some nuclei are unstable. Nuclear emissions <math>\alpha</math>, <math>\beta</math>, <math>\gamma</math> &amp; neutrons</p>	<p>The nature of forces &amp; named examples of forces Newton's 1<sup>st</sup>, 2<sup>nd</sup> &amp; 3<sup>rd</sup> laws of motion Resultant force. Using <math>F = ma</math> Weight, mass &amp; grav. Field strength including <math>W = mg</math> Explaining "terminal velocity" Explaining how thinking &amp; braking distance are affected</p> <p>The nature of alpha, beta &amp; gamma radiations, their relative ionising power, penetrating power and range in air Activity <math>cf</math> count rate &amp; the unit "becquerel" (8a)</p>	<p>The Y9 topic "Motion" and the Y10 topic "Forces &amp; Motion"</p> <p>The most up-to-date listings re. what's on the tests will be on Showbie "Physics ALL Y10 Trilogy ..."</p>	<ul style="list-style-type: none"> <li>- Question students to test their recall of the Knowledge Organisers ("KOs" or Checklists)</li> <li>- Encourage students to turn KOs into fact cards</li> <li>- Encourage students to use fact cards properly</li> <li>- Encourage students to use the practice topic questions, or work on them together</li> <li>- Encourage students to follow the links to Bitesize or Free GCSE Science lessons &amp; show them how to use them effectively eg turning content into a visual representation, pausing &amp; rewinding where necessary.</li> </ul> <p>Links, topic questions etc are available in the Showbie class "Physics ALL Y10 Trilogy ...".</p>
Spring Term	<p>Nuclear Radiation</p> <p>Y10 Electricity</p>	<p>Half-life &amp; the random nature of decay Calculations using half-life (limited to integer no.s of half-lives) Contamination &amp; irradiation</p> <p>Revision of Y9 Electricity (see Y9 page) Thermistors &amp; LDRs The nature of filament lamps &amp; diodes / LEDs Experiments investigating filament lamps &amp; diodes</p>	<p>The Y9 topics "Motion" &amp; "Waves" and the Y10 topic "Forces &amp; Motion"</p> <p>The most up-to-date listings re. what's on the tests will be on Showbie "Physics ALL Y10 Trilogy ..."</p>	<ul style="list-style-type: none"> <li>- Question students to test their recall of the Knowledge Organisers ("KOs" or Checklists)</li> <li>- Encourage students to turn KOs into fact cards</li> <li>- Encourage students to use fact cards properly</li> <li>- Encourage students to use the practice topic questions, or work on them together</li> <li>- Encourage students to follow the links to Bitesize or Free GCSE Science lessons &amp; show them how to use them effectively eg turning content into a visual representation, pausing &amp; rewinding where necessary.</li> </ul> <p>Links, topic questions etc are available in the Showbie class "Physics ALL Y10 Trilogy ...".</p>
Summer Term	<p>Y10 Electricity</p> <p>Energy</p>	<p>The application of LDRs, diodes and thermistors for responding to environmental change.</p> <p>Types of energy stores. Explaining processes/events in terms of energy moving between stores. Conservation of energy Using some energy equations</p>	<p>The Y9 topics "Motion", "Waves" &amp; "Y9 Electricity" and the Y10 topics "Forces &amp; Motion" &amp; "Y10 Electricity"</p> <p>The most up-to-date listings re. what's on the tests will be on Showbie "Physics ALL Y10 Trilogy ..."</p>	<ul style="list-style-type: none"> <li>- Question students to test their recall of the Knowledge Organisers ("KOs" or Checklists)</li> <li>- Encourage students to turn KOs into fact cards</li> <li>- Encourage students to use fact cards properly</li> <li>- Encourage students to use the practice topic questions, or work on them together</li> <li>- Encourage students to follow the links to Bitesize or Free GCSE Science lessons &amp; show them how to use them effectively eg turning content into a visual representation, pausing &amp; rewinding where necessary.</li> </ul> <p>Links, topic questions etc are available in the Showbie class "Physics ALL Y10 Trilogy ...".</p>



# Year 10 Curriculum Overview: Physics (Separate Science)

NB some sets' studies will differ from this program due to their particular teaching arrangements



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Autumn Term	<p>Forces &amp; Motion Newton's Laws of Motion, Inertia, <math>F = ma</math>, Acceleration due to gravity, Confirming <math>F = ma</math> by experiment, Forces &amp; Braking, Momentum</p> <p>2) Nuclear Radiation Some nuclei are unstable. Nuclear emissions <math>\alpha</math>, <math>\beta</math>, <math>\gamma</math> &amp; neutrons</p> <p>3) Moments &lt; Levers &amp; Gears</p>	<p>The nature of forces &amp; named examples of forces Newton's 1<sup>st</sup>, 2<sup>nd</sup> &amp; 3<sup>rd</sup> laws of motion Resultant force. Using <math>F = ma</math> Weight, mass &amp; <u>grav</u>. Field strength including <math>W = mg</math> Explaining "terminal velocity" Explaining how thinking &amp; braking distance are affected The nature of alpha, beta &amp; gamma radiations, their relative ionising power, penetrating power and range in air Activity of count rate &amp; the unit "becquerel" (Bq) Moments applied to levers &amp; gears.</p>	<p>The Y9 topic "Motion" and the Y10 topic "Forces &amp; Motion"</p> <p>The most up-to-date listings re. what's on the tests will be on Showbie "Physics ALL Y10 Trilogy ..."</p>	<ul style="list-style-type: none"> <li>- Question students to test their recall of the Knowledge Organisers ("KOs" or Checklists</li> <li>- Encourage students to turn KOs into fact cards</li> <li>- Encourage students to use fact cards properly</li> <li>- Encourage students to use the practice topic questions, or work on them together</li> <li>- Encourage students to follow the links to Bitesize or Free GCSE Science lessons &amp; show them how to use them effectively eg turning content into a visual representation, pausing &amp; rewinding where necessary.</li> </ul> <p><b>Links, topic questions etc are available in the Showbie class "Physics ALL Y10".</b></p>
Spring Term	<p>Nuclear Radiation</p> <p>Y10 Electricity</p> <p>IGS topic "Using Waves"</p>	<p>Half-life &amp; the random nature of decay Calculations using half-life (limited to integer <u>no.s</u> of half-lives) Contamination &amp; irradiation Fission Reactors. Background radiation. Medical uses.</p> <p>Revision of Y9 Electricity (see Y9 page) Thermistors &amp; LDRs The nature of filament lamps &amp; diodes / LEDs Experiments investigating filament lamps &amp; diodes Lenses &amp; ray diagrams. Seismic Waves &amp; the Earth's structure. Colour &amp; the Eye. Range finding. Reflection. Black-body radiation.</p>	<p>The Y9 topics "Motion" &amp; "Waves" and the Y10 topics "Forces &amp; Motion", "Using Waves" &amp; "Moments Levers &amp; Gears"</p> <p>The most up-to-date listings re. what's on the tests will be on Showbie "Physics ALL Y10 Trilogy ..."</p>	<ul style="list-style-type: none"> <li>- Question students to test their recall of the Knowledge Organisers ("KOs" or Checklists</li> <li>- Encourage students to turn KOs into fact cards</li> <li>- Encourage students to use fact cards properly</li> <li>- Encourage students to use the practice topic questions, or work on them together</li> <li>- Encourage students to follow the links to Bitesize or Free GCSE Science lessons &amp; show them how to use them effectively eg turning content into a visual representation, pausing &amp; rewinding where necessary.</li> </ul> <p><b>Links, topic questions etc are available in the Showbie class "Physics ALL Y10".</b></p>
Summer Term	<p>Y10 Electricity</p> <p>Energy</p> <p>Space Physics</p>	<p>The application of LDRs, diodes and thermistors for responding to environmental change.</p> <p>Types of energy stores. Explaining processes/events in terms of energy moving between stores. Conservation of energy Using some energy equations</p> <p>Orbits. Red shift &amp; the expansion of the universe as evidence for the Big Bang. Dark Matter &amp; Dark Energy. The "life cycle" of stars.</p>	<p>The Y9 topics "Motion", "Waves" &amp; "Y9 Electricity" and the Y10 topics "Forces &amp; Motion", "Y10 Electricity", "Moments, Levers &amp; Gears" and "Using Waves"</p> <p>The most up-to-date listings re. what's on the tests will be on Showbie "Physics ALL Y10 Trilogy ..."</p>	<ul style="list-style-type: none"> <li>- Question students to test their recall of the Knowledge Organisers ("KOs" or Checklists</li> <li>- Encourage students to turn KOs into fact cards</li> <li>- Encourage students to use fact cards properly</li> <li>- Encourage students to use the practice topic questions, or work on them together</li> <li>- Encourage students to follow the links to Bitesize or Free GCSE Science lessons &amp; show them how to use them effectively eg turning content into a visual representation, pausing &amp; rewinding where necessary.</li> </ul> <p><b>Links, topic questions etc are available in the Showbie class "Physics ALL Y10".</b></p>