



## Year 9 Physics - Electricity – Spring Term - Knowledge Overview

Year group:		Unit:		Resources	
Week beginning:	Big question / concept:	Learning intentions:			
			Offline		Online including links on how to access these:
4 <sup>th</sup> January 2021	How do we represent components in circuits?	<p><b>Identify</b> circuit symbols and the components they relate too.</p> <p><b>State</b> the definition for current, potential difference, charge, resistance, series circuit and parallel circuit.</p> <p><b>Apply</b> the calculation for charge flow = current x time</p>	<p>Read and make notes from slides 1-6</p> <p><a href="#">Answer the exam questions on slides 7-9</a></p> <p><a href="#">Mark your answers using slides 10 and 11</a></p>	<p>From the YouTube video make notes on the circuit symbols and explain the uses of these.</p> <p>YouTube video on circuit symbols and components</p> <p><a href="https://www.youtube.com/watch?v=sFUmuuJjAcw">https://www.youtube.com/watch?v=sFUmuuJjAcw</a></p> <p>Oak national Academy Lesson on Charge</p> <p><a href="https://classroom.thenational.academy/lessons/charge-and-current-64r36t">https://classroom.thenational.academy/lessons/charge-and-current-64r36t</a></p>	
	How does the length of wire affect its resistance?	<p><b>Describe</b> factors that affect resistance in a wire.</p> <p><b>Rearrange</b> and <b>apply</b> the following equation Potential difference = Current x Resistance</p>	<p>Read and make notes from slides 14-16</p> <p><a href="#">Answer the exam questions on slides 17 to 18</a></p> <p><a href="#">Mark your answers using slide 19</a></p>	<p>Oak National Academy Resistance</p> <p><a href="https://classroom.thenational.academy/lessons/electrical-resistance-6wvk4t">https://classroom.thenational.academy/lessons/electrical-resistance-6wvk4t</a></p> <p>Oak National Academy Resistance of a Wire</p> <p><a href="https://classroom.thenational.academy/lessons/resistance-of-a-wire-69h64d">https://classroom.thenational.academy/lessons/resistance-of-a-wire-69h64d</a></p>	

11 <sup>th</sup> January 2021	How do different components, resist flow of electricity?	<p><b>Explain</b> what an ohmic conductor is.</p> <p><b>Explain</b> what a non ohmic conductor is and provide examples of these.</p> <p><b>Explain</b> how thermistors and LDR's work</p>	<p>Read and make notes from slides 20-23</p> <p>Answer the exam questions on slides 24-26</p> <p>Mark your answers using slides 27-28</p>	<p>Oak national academy lesson on Thermistors</p> <p><a href="https://classroom.thenational.academy/lessons/thermistors-cqr68d">https://classroom.thenational.academy/lessons/thermistors-cqr68d</a></p> <p>Oak national academy lesson on Diodes</p> <p><a href="https://classroom.thenational.academy/lessons/diodes-6gtpcr">https://classroom.thenational.academy/lessons/diodes-6gtpcr</a></p> <p>Oak national academy lesson on LDRs</p> <p><a href="https://classroom.thenational.academy/lessons/light-dependent-resistors-chhk8c">https://classroom.thenational.academy/lessons/light-dependent-resistors-chhk8c</a></p>
	How can you calculate resistance from a practical?	<p><b>Describe</b> how to setup a circuit to be able to measure resistance, and apply the correct equation to calculate resistance.</p> <p><b>Describe</b> the differences between series and parallel circuits</p>	<p>Read and make notes from slides 29-31</p> <p>Answer the exam questions on slides 32-36</p> <p>Mark your answers using slides 37-38</p>	<p>Make notes to create a method, results table, graph and risk assessment on the required practical.</p> <p>YouTube video on resistance of a wire required practical</p> <p><a href="https://www.youtube.com/watch?v=m_3JrA-sDEq">https://www.youtube.com/watch?v=m_3JrA-sDEq</a></p> <p>Watch the video, write a method, draw a table, graph and write a conclusion</p> <p>Complete the exam question on the link below for the required practical video.</p> <p><a href="https://kitiwob.exampro.net/">https://kitiwob.exampro.net/</a></p>
18 <sup>th</sup> January 2021	What is electrical current and how does the configuration of a circuit effect this?	<p><b>Explain</b> how current and potential difference behave in series and parallel circuits.</p> <p><b>Describe</b> the difference in current when potential difference is alternating or direct.</p>	<p>Read and make notes from slides 39-42</p> <p>Answer the exam questions on slides 43-46</p> <p>Mark your answers using slide 47</p>	<p>Oak National Academy Lesson 1 on Series Circuits</p> <p><a href="https://classroom.thenational.academy/lessons/series-circuits-6wrrpad">https://classroom.thenational.academy/lessons/series-circuits-6wrrpad</a></p> <p>Oak National Academy Lesson on Parallel Circuits</p> <p><a href="https://classroom.thenational.academy/lessons/parallel-circuits-68w3ct?step=2&amp;activity=worksheet">https://classroom.thenational.academy/lessons/parallel-circuits-68w3ct?step=2&amp;activity=worksheet</a></p>

	How do plugs work?	<p><b>Identify</b> the three types of wire in plug.</p> <p><b>Explain</b> the uses of these three types of wire.</p>	<p>Read and make notes from slides 48-53</p> <p>Answer the exam questions on slides 54-56</p> <p>Mark your answers using slides 57</p>	<p>GCSEPOD Video on Plugs and Wiring  <a href="https://members.gcsepod.com/shared/podcasts/title/10473/64256">https://members.gcsepod.com/shared/podcasts/title/10473/64256</a>  Make notes on the roles of the different wires.</p> <p>Complete the exam questions on ExamPro using the link below  <a href="https://yapeten.exampro.net/">https://yapeten.exampro.net/</a></p>
25 <sup>th</sup> January 2021	How is the power of an electrical appliance affected by potential difference and current?	<p><b>Explain</b> how transfer of energy determines power of an appliance.</p> <p><b>Calculate</b> the power of an appliance using the correct formula, and to be able to rearrange the formula.</p>	<p>Read and make notes from slides 58-62</p> <p>Answer the exam questions on slides 67</p> <p>Mark your answers using slide 65</p>	<p>Oak National Academy Lesson 1 on Electrical Power  <a href="https://classroom.thenational.academy/lessons/electrical-power-part-1-6hjk6r">https://classroom.thenational.academy/lessons/electrical-power-part-1-6hjk6r</a></p> <p>GCSEPOD Video Energy Transfers in The Home  <a href="https://members.gcsepod.com/shared/podcasts/title/10979/67368">https://members.gcsepod.com/shared/podcasts/title/10979/67368</a></p>
1 <sup>st</sup> February 2021	How does energy change in an appliance?	<p><b>Identify</b> and describe the energy changes that take place in an appliance.</p> <p><b>Calculate</b> the energy transferred by electrical work in an appliance. Using the correct formula. (E=P×T or E=Q×V)</p>	<p>Read and make notes from slides 68-72</p> <p>Answer the exam questions on slides 76</p> <p>Mark your answers using slide 74</p>	<p>Oak National Academy Lesson 2 on Electrical Power  <a href="https://classroom.thenational.academy/lessons/electrical-power-part-2-cgvkjc">https://classroom.thenational.academy/lessons/electrical-power-part-2-cgvkjc</a></p> <p>Complete the electrical energy exam question  <a href="https://buuyuuu.exampro.net/">https://buuyuuu.exampro.net/</a></p>

	<p>How is electricity provided to homes and businesses?</p>	<p><b>Explain</b> the role of the national grid in providing electricity to homes.</p> <p><b>Explain</b> how a step up and step down transformer works.</p> <p><b>Explain</b> why the national grid is an efficient way to transfer energy.</p>	<p>Read and make notes from slides 77-79</p> <p>Answer the exam questions on slides 80-84</p> <p>Mark your answers using slides 85-87</p>	<p>Oak National Academy Lesson on National Grid</p> <p><a href="https://classroom.thenational.academy/lessons/the-national-grid-c4rp6t">https://classroom.thenational.academy/lessons/the-national-grid-c4rp6t</a></p> <p>Oak National Academy Lesson on Domestic Electricity</p> <p><a href="https://classroom.thenational.academy/lessons/domestic-electricity-review-c4wpcc">https://classroom.thenational.academy/lessons/domestic-electricity-review-c4wpcc</a></p>
8 <sup>th</sup> February 2021	<p>Why do we get static shocks?</p>	<p><b>State</b> how static charge is produced applying this to different scenarios.</p> <p><b>Explain</b> what is meant by an electric field.</p> <p><b>Explain</b> the effects of an electric field.</p>	<p>Read and make notes from slides 88-97</p> <p>Answer the exam questions on slides 98-100</p> <p>Mark your answers using slide 101</p>	<p>Oak National Academy Lesson on Static Electricity</p> <p><a href="https://classroom.thenational.academy/lessons/static-electricity-74t32t">https://classroom.thenational.academy/lessons/static-electricity-74t32t</a></p> <p>Oak National Academy Lesson on Electric Fields</p> <p><a href="https://classroom.thenational.academy/lessons/electric-fields-65hk8c">https://classroom.thenational.academy/lessons/electric-fields-65hk8c</a></p>