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## Subject: Physics (Triple) Year 9 Curriculum Map 2020 – 2021

### Resources:

Week Commencing	Topic (including links to additional resources)	Assessment Window
1 <sup>st</sup> September	Bridging work	
7 <sup>th</sup> September	Bridging work	
14 <sup>th</sup> September	<b><u>P1 Energy</u></b> Lesson 1 – Energy stores and systems Explain the law of conservation of energy Describe energy changes taking place Be able to name different types of energy	<a href="https://www.bbc.co.uk/bitesize/guides/z8hsrwx/revision/1">https://www.bbc.co.uk/bitesize/guides/z8hsrwx/revision/1</a> <a href="https://www.my-gcsescience.com/aqa/physics/energy-changes-in-a-system-2/">https://www.my-gcsescience.com/aqa/physics/energy-changes-in-a-system-2/</a>
21 <sup>st</sup> September	<u>Lesson 2 – Potential energy, equations and examples</u> Rearrange and use the equation for GPE Interpret examples of energy transfer Recognise examples of gravitational potential energy <u>Lesson 3 – Kinetic energy, equations and examples</u> Re-arrange an equation for the other terms Calculate kinetic energy from an equation Describe the factors affecting kinetic energy	<a href="https://www.bbc.co.uk/bitesize/guides/z8hsrwx/revision/1">https://www.bbc.co.uk/bitesize/guides/z8hsrwx/revision/1</a> <a href="https://www.bbc.co.uk/bitesize/guides/z8hsrwx/revision/1">https://www.bbc.co.uk/bitesize/guides/z8hsrwx/revision/1</a>
28 <sup>th</sup> September	<u>Lesson 4 – SHC, equation and practice</u> Calculate specific heat capacity from an investigation Use an equation for specific heat capacity Investigate specific heat capacity	<a href="https://www.bbc.co.uk/bitesize/guides/z8hsrwx/revision/1">https://www.bbc.co.uk/bitesize/guides/z8hsrwx/revision/1</a> LC1 – Kinetic Energy
5 <sup>th</sup> October	<u>Lesson 5 – SHC Required practical, aluminum blocks and heaters</u> Calculate specific heat capacity from an investigation Use an equation for specific heat capacity Investigate specific heat capacity	<a href="https://www.bbc.co.uk/bitesize/guides/z8hsrwx/revision/1">https://www.bbc.co.uk/bitesize/guides/z8hsrwx/revision/1</a> <a href="https://www.youtube.com/watch?v=jW2ANwnfsUY">https://www.youtube.com/watch?v=jW2ANwnfsUY</a>
12 <sup>th</sup> October	<u>Lesson 6 – Conservation and power</u> Explain how to Rearrange the equation for the other two terms State and use the equation for power Describe power and its units	<a href="https://www.bbc.co.uk/bitesize/guides/zp8jtv4/revision/1">https://www.bbc.co.uk/bitesize/guides/zp8jtv4/revision/1</a> <a href="https://www.my-gcsescience.com/aqa/physics/power/">https://www.my-gcsescience.com/aqa/physics/power/</a> <a href="https://www.my-gcsescience.com/aqa/physics/conservation-and-dissipation-of-energy-physics-only/">https://www.my-gcsescience.com/aqa/physics/conservation-and-dissipation-of-energy-physics-only/</a>

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19 <sup>th</sup> October (inset Friday 22 <sup>nd</sup> )	<p><u>Lesson 7 – Reducing energy transfer</u> Explain and investigate different methods of reducing heat transfer Recall ideas on conduction and convection Identify methods of reducing energy transfer</p> <p><u>Lesson 8 – Required practical, beakers and cooling of water</u> Evaluate an experimental procedure Analyse data to identify trends Use scientific ideas to make predictions</p>	<p><a href="https://www.bbc.co.uk/bitesize/guides/zp8jtv4/revision/1">https://www.bbc.co.uk/bitesize/guides/zp8jtv4/revision/1</a></p> <p><a href="https://www.my-gcsescience.com/aqa/physics/conservation-and-dissipation-of-energy-physics-only/">https://www.my-gcsescience.com/aqa/physics/conservation-and-dissipation-of-energy-physics-only/</a></p> <p><a href="https://www.youtube.com/watch?v=RZfSA2Xa6SU">https://www.youtube.com/watch?v=RZfSA2Xa6SU</a></p>
Half Term		
2 <sup>nd</sup> November	<p><u>Lesson 9 – Efficiency, equation and kettle practical</u> Investigate the energy efficiency of an electric kettle and suggest why it is so inefficient Use an equation to calculate energy efficiency Describe what is meant by energy efficiency</p>	<p><a href="https://www.bbc.co.uk/bitesize/guides/zp8jtv4/revision/1">https://www.bbc.co.uk/bitesize/guides/zp8jtv4/revision/1</a></p> <p><a href="https://www.my-gcsescience.com/aqa/physics/conservation-and-dissipation-of-energy-physics-only/">https://www.my-gcsescience.com/aqa/physics/conservation-and-dissipation-of-energy-physics-only/</a></p>
9 <sup>th</sup> November	<p><u>Lesson 10 – Non-renewable energy</u> Compare and analyse the use of the different energy resources available Explain how each renewable energy resource is used Define the key term “renewable energy”</p> <p><u>Lesson 11 – Renewable energy</u> Compare the fossil fuels (advantages and disadvantages) Define the key term “non-renewable energy” Name the main fuels used in power stations</p>	<p><a href="https://www.bbc.co.uk/bitesize/guides/zchgdxs/revision/1">https://www.bbc.co.uk/bitesize/guides/zchgdxs/revision/1</a></p>
16 <sup>th</sup> November	<u>Lesson 12 – Revision</u>	
23 <sup>rd</sup> November	AR1 Assessment DDI Wave 1	AR 1 ASSESSMENTS
30 <sup>th</sup> November	DDI Wave 2	AR 1 ASSESSMENTS
7 <sup>th</sup> December	<p><b><u>TOPIC P2 Electricity</u></b> <u>Lesson 1- Current and circuit symbols</u> Calculate charge, current and time using an equation Describe each of the key terms used in electricity Draw simple circuit diagrams and identify the symbols used Draw and interpret circuit diagrams, identify symbols</p>	<p><a href="https://www.bbc.co.uk/bitesize/guides/zpdtv9q/revision/1">https://www.bbc.co.uk/bitesize/guides/zpdtv9q/revision/1</a></p> <p><a href="https://www.my-gcsescience.com/aqa/physics/circuit-symbols/">https://www.my-gcsescience.com/aqa/physics/circuit-symbols/</a></p> <p><a href="https://www.my-gcsescience.com/aqa/physics/introduction-to-electricity/">https://www.my-gcsescience.com/aqa/physics/introduction-to-electricity/</a></p> <p><a href="https://www.bbc.co.uk/bitesize/guides/zpdtv9q/revision/1">https://www.bbc.co.uk/bitesize/guides/zpdtv9q/revision/1</a></p> <p><a href="https://www.my-gcsescience.com/aqa/physics/introduction-to-electricity/">https://www.my-gcsescience.com/aqa/physics/introduction-to-electricity/</a></p> <p><a href="https://www.my-gcsescience.com/aqa/physics/resistors/">https://www.my-gcsescience.com/aqa/physics/resistors/</a></p> <p><a href="https://www.bbc.co.uk/bitesize/guides/zpdtv9q/revision/1">https://www.bbc.co.uk/bitesize/guides/zpdtv9q/revision/1</a></p> <p><a href="https://www.my-gcsescience.com/aqa/physics/investigating-resistance-in-circuits/">https://www.my-gcsescience.com/aqa/physics/investigating-resistance-in-circuits/</a></p> <p><a href="https://www.youtube.com/watch?v=ZJKmovo-MoM">https://www.youtube.com/watch?v=ZJKmovo-MoM</a></p>

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14 <sup>th</sup> December	<p><u>Lesson 2 – Resistance and Ohms Law, Equation, calculations</u></p> <p>Use an equation to calculate voltage, current and resistance</p> <p>Explain resistance and the units used</p> <p>Demonstrate how to use ammeters and voltmeters</p>	<p><a href="https://www.bbc.co.uk/bitesize/guides/zpdtv9q/revision/1">https://www.bbc.co.uk/bitesize/guides/zpdtv9q/revision/1</a></p> <p><a href="https://www.my-gcsescience.com/aqa/physics/introduction-to-electricity/">https://www.my-gcsescience.com/aqa/physics/introduction-to-electricity/</a></p> <p><a href="https://www.my-gcsescience.com/aqa/physics/resistors/">https://www.my-gcsescience.com/aqa/physics/resistors/</a></p> <p><a href="https://www.bbc.co.uk/bitesize/guides/zpdtv9q/revision/1">https://www.bbc.co.uk/bitesize/guides/zpdtv9q/revision/1</a></p> <p><a href="https://www.my-gcsescience.com/aqa/physics/investigating-resistance-in-circuits/">https://www.my-gcsescience.com/aqa/physics/investigating-resistance-in-circuits/</a></p> <p><a href="https://www.youtube.com/watch?v=ZJKmovo-MoM">https://www.youtube.com/watch?v=ZJKmovo-MoM</a></p>
Christmas Holiday		
4 <sup>th</sup> January	<p><u>Lesson 3 - Resistance of a wire.*Required practical*, length of wire</u></p> <p>Use an equation to calculate resistance and explain the shape of the graph</p> <p>Use the results from the investigation to plot a graph</p> <p>Investigate the resistance of a wire using ammeters and voltmeters</p>	LC2 – Insulation
11 <sup>th</sup> January	<p><u>Lesson 4 - I-V Characteristics</u></p> <p>Analyse and explain the shape of the graphs</p> <p>Investigate 3 different components as regards to resistance</p> <p>Recall circuit symbols of components</p>	
18 <sup>th</sup> January	<p><u>Lesson 5 - Resistance of a lamp.*Required practical*</u></p> <p>Interpret and explain graphs using scientific ideas.</p> <p>Evaluate how an experimental procedure can yield more accurate data.</p> <p>Understand how an experiment can be designed to test an idea</p>	
25 <sup>th</sup> January	<p><u>Lesson 6 – Circuit devices, Thermistors, LDR'S</u></p> <p>Construct current-pd graphs for different devices and explain the relationships</p> <p>Investigate how current varies with voltage for different devices</p> <p>Describe the uses of thermistors and LDR's</p>	
1 <sup>st</sup> February	<p><u>Lesson 7 – Series circuits</u></p> <p>Explain the resistance rule for a series circuit</p> <p>Investigate how current and voltage behaves in a series circuit</p> <p>Construct series circuits on paper and using equipment</p>	
8 <sup>th</sup> February (Inset 12 <sup>th</sup> February)	<p><u>Lesson 8 – Parallel circuits</u></p> <p>Explain the advantages of parallel circuits</p> <p>Describe how a parallel circuit affects current and voltage</p> <p>Construct parallel circuits and draw parallel circuits</p>	LC3 – Renewable energy

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February Half Term		
22 <sup>nd</sup> February	<p><u>Lesson 9 – Electricity at home</u>            Explain what each part is for            Describe the parts in a plug and the colours of the wires            Identify the materials used in a three pin plug</p>	
1 <sup>st</sup> March	<p><u>Lesson 10 - Insulation, fuses and circuit breakers (TRIPLE ONLY)</u>            Explain earthing and the use of double insulation            Show how to select a fuse for a particular appliance            Describe the use of fuses and circuit breakers</p>	
8 <sup>th</sup> March	<p><u>Lesson 11 – Power</u>            Re-arrange an equation to calculate power            Identify different units for power            Understand the meaning of electrical power and energy transferred</p>	
15 <sup>th</sup> March	<p><u>Lesson 12 – More on power</u>            Re-arrange the equations involving power            Relate energy transfer to power using equations            Understand the meaning of electrical power and energy transferred</p>	
22 <sup>nd</sup> March	<p><u>Lesson 13 – National Grid</u>            Explain why transformers are important in the National Grid            Describe the use of transformers            Name the main parts of the Grid</p>	LC4 – PD Graphs
29 <sup>th</sup> March	<p><u>Lesson 14 – Electrical charge</u>            Explain these observations in terms of electron transfer            Compare the effects of the two different charges            Describe how insulating materials can become charged</p>	
Easter Holiday		
19 <sup>th</sup> April	<p><u>Lesson 15 – Electric fields</u>            I can explain how the concept of electric fields helps to explain non-contact forces and sparking            I can explain the concept of an electric field            I can draw the field pattern for an isolated charged sphere</p>	
26 <sup>th</sup> April	Revision	
3 <sup>rd</sup> May	Revision	

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10 <sup>th</sup> May	Revision	
17 <sup>th</sup> May	Revision	AR 2 ASSESSMENTS
24 <sup>th</sup> May	Revision	AR 2 ASSESSMENTS
7 <sup>th</sup> June	DDI	LC5 – National Grid
14 <sup>th</sup> June	<u>Lesson 1 Particle model</u> Use particle theory to describe and explain the amount of energy at each state Describe the character of the three states Model the three states of matter	
21 <sup>st</sup> June	<u>Lesson 2 Density of materials</u> Calculate density using a formula and re-arrange the equation Compare dense and less dense materials and explain how this relates to states of matter Describe the key word “density” and use it correctly	
28 <sup>th</sup> June	<u>Lesson 3 Density of materials practical, *Required practical*</u> Explain why some objects float while others sink Calculate the density of an object using experimental techniques Describe the forces on a floating object	
5 <sup>th</sup> July	<u>Lesson 4 Internal energy and state changes</u> Explain the processes involved in changing state Use kinetic theory to explain what happens when a material is heated Describe the phrase “internal energy” as it is used in Physics  <u>Lesson 5 Specific Latent Heat</u> Construct and explain a graph showing a substance being heated Calculate specific latent heat using an equation Describe what is meant by the key term “specific latent heat”	
12 <sup>th</sup> July	<u>Lesson 6 Pressure in gases</u> Describe the qualitative relationship between the speed of the particles and the temperature of the gas. Relate the importance of the wall of a container to the pressure of a gas. Explain how pressure can increase the temperature of a gas.	
19 <sup>th</sup> July (School closed from 22 <sup>nd</sup> )	Recap	LC6 – States of matter

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