

Learning Journey	Science	Electricity	Year 6 Autumn 1	
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Building on prior learning	Theme overview	Preparing for future learning	Vocabulary
<p>In Y4, children will have made simple circuits and understand that electricity comes from a cell or battery and travels in a circuit. In doing so, it passes through wires to make a device work and then returns to the cell.</p> <p>They will have explored making and breaking circuits, what the effect of adding in more cells is and what insulators and conductors are.</p>	<p>A. Batteries are a store of energy. This energy pushes electricity round the circuit. When the battery's energy is gone it stops pushing. Voltage measures the push.</p> <p>B. The greater the current flowing through a device the harder it works.</p> <p>C. Current is how much electricity is flowing around a circuit. When any device is placed in a circuit, it makes it harder for current to flow (resistance). The more devices, the greater the resistance, the lower the current.</p> <p>D. When current flows through wires heat is released. The greater the current the more heat is released.</p>	<p>Children will learn about electrons, positive and negative charge in KS3. They will look more depth into resistance and learn the physics of volts, amps and ohms.</p>	<ul style="list-style-type: none"> • Electricity, energy, heat. • Circuit, current, voltage, resistance. • Conductor, insulator. • Cell, battery, bulb, amp, lead, motor, switch. <p>Useful website https://phet.colorado.edu/sims/html/circuit-construction-kit-dc-virtual-lab/latest/circuit-construction-kit-dc-virtual-lab_en.html</p>

NC coverage and HWJS skills development

National curriculum coverage for science

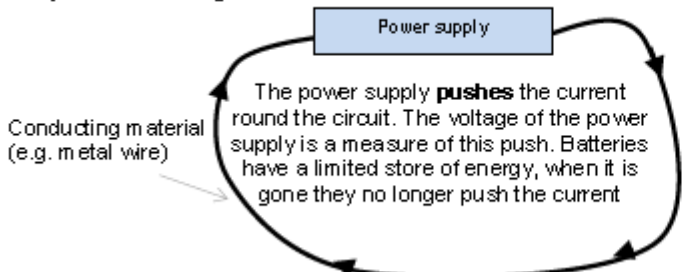
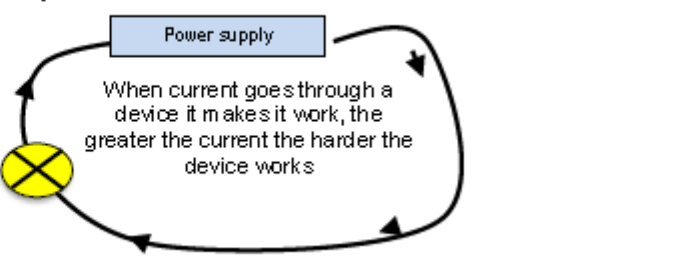
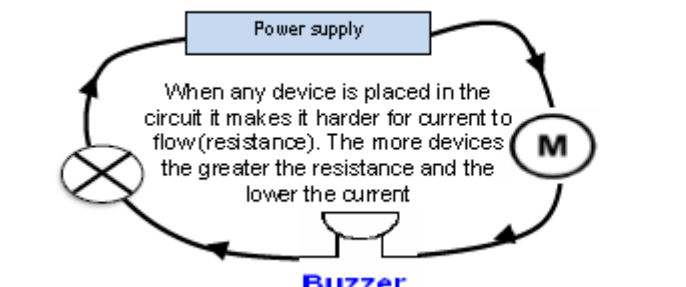
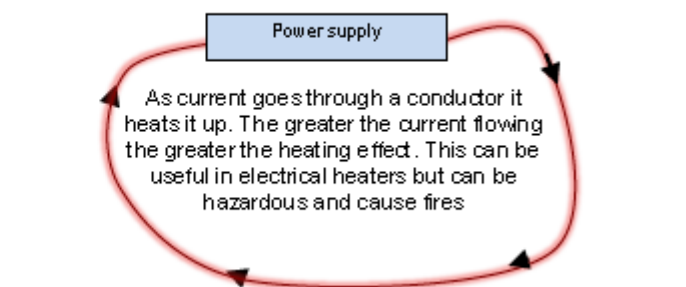
- associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches
- use recognised symbols when representing a simple circuit in a diagram

HWJS skills development

Details of the skills that will be taught within the unit. These should match up with the skills progression documentation.

- Recognise that conclusions may be uncertain due to difficulties controlling and measuring variables accurately.
- That measurement always introduces some error. Understand that repeating experiments helps to identify what the true value is and that data points far from the mean

Knowledge organisers

<p>Chapter 1: Pushing electrical current</p>  <p>Conducting material (e.g. metal wire)</p>	<p>Chapter 2: Electrical current makes devices work</p> 
<p>Chapter 3: All devices resist current</p>  <p>Buzzer</p>	<p>Chapter 4: Electrical current has a heating effect</p> 

<p>are likely to be inaccurate and should be discounted.</p> <ul style="list-style-type: none"> Adapting experiments to produce more precise conclusions when the question requires it, especially when seeking to find maximum, minimum or specific values 				
<p><u>Connections / deepening understanding</u></p> <p>How is the understanding of this area deepened in other areas of the curriculum? What links are there in the other subjects in the curriculum?</p>	<p><u>RADE</u></p> <p>Are the rights of the child relevant in this area of study - do they get referred to in the work?</p>	<p><u>Assessment</u></p> <p>By the end of the unit the children will be able to ... Details of the objectives that they will have covered within this unit of work</p>		
<p>English – Formal report writing, explanation DT – Autumn unit (gears & pulleys) and Summer unit (electrical systems)</p>		<p>Revision Y4 A complete circuit is needed for electricity to flow and devices to work.</p>	<p>Batteries are a store of energy. This energy pushes electricity round the circuit. When the battery's energy is gone it stops pushing. Voltage measures the push.</p>	<p>The greater the current flowing through a device the harder it works. When any device is placed in a circuit, it makes it harder for current to flow (resistance). The more devices, the greater the resistance, the lower the current.</p>

Assessment recording for the unit - checking the level of pitch of the work

<u>Key skill(s)/ knowledge to be assessed by the end of the unit</u>	<u>Lower attaining</u>	<u>Middle attaining</u>	<u>Higher attaining</u>
Details of the key knowledge that the children will have at the end of the unit :	Description of level of knowledge that a child who at this stage :	Description of level of knowledge that a child who at this stage:	Description of level of knowledge that a child who at this stage:
<ul style="list-style-type: none"> • The power supply pushes current round the circuit. • The voltage of the power supply is a measure of this push. • Batteries have a limited store of energy, when it is gone they no longer push the current. • When current goes through a device it makes it work, the greater the current the harder the device works. • When any device is placed in the circuit it makes it harder for current to flow (<i>resistance</i>). • The more devices the greater the resistance and the lower the current. • As current goes through a conductor it heats it up. • The greater the current flowing the greater the heating effect. 	<p>Cells push current around the circuit making a device work.</p> <p>The higher the current the harder a device will work.</p> <p>Batteries run out after working for a while.</p> <p>Devices slow down the current.</p> <p>Devices can get warm when current flows through them.</p>	<p>Cells push current around the circuit making a device work.</p> <p>Voltage is a measurement of the power (push) of a battery/cell</p> <p>The higher the current the harder a device will work. This will change if we add further devices or further cells.</p> <p>Batteries run out after working for a while. The time it takes can vary depending on devices in the circuit.</p> <p>Devices slow down the current. This can vary depending on the device.</p> <p>Devices can get warm when current flows through them.</p>	<p>Cells push current around the circuit making a device work.</p> <p>Voltage is a measurement of the power (push) of a battery/cell. The more voltage the greater the push of electricity.</p> <p>The higher the current the harder a device will work. This will change if we add further devices or further cells. To test this we need to think about what the variables will be and how we will measure this.</p> <p>Batteries run out after working for a while. The time it takes can vary depending on devices in the circuit.</p> <p>Devices slow down the current. This can vary depending on the device. Resistance can lower the current. They can consider how to measure this and make predictive graphs as to what might happen.</p> <p>Devices can get warm when current flows through them. They can discuss and predict the effect of more resistance on heat. They can recognise that this can be useful in electrical heaters but can be hazardous and cause fires.</p>

NB: The assessments are completed for two reasons – to enable the class teacher and in turn the subject leader to evaluate the pitch of the learning within the unit in order to consider any necessary updates and for the class teacher to report to parents on the attainment of pupils in the end of year reports