

Staplegrave Church School
Knowledge and Skills Progression in Science

Electricity

Year group	Knowledge	Skills	Unit
1			
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4	<p>Electrical conductors allow electricity to flow through them, whereas insulators do not. Common electrical conductors are metals. Common insulators include wood, glass, plastic and rubber.</p> <p>Electrical components include cells, wires, lamps, motors, switches and buzzers. Switches open and close a circuit and provide control.</p> <p>A series circuit is a simple loop with only one path for the electricity to flow. A series circuit must be a complete loop to work and have a source of power from a battery or cell.</p> <p>Electrical components include cells, wires, lamps, motors, switches and buzzers. Switches open and close a circuit and provide control.</p> <p>Electricity is a type of energy. It is used to power many everyday items, such as kettles, computers and televisions. Electricity can also come from batteries. Batteries eventually run out of power and need to be recycled or recharged. Batteries power devices that can be carried around, such as mobile phones and torches.</p>	<p>Describe materials as electrical conductors or insulators.</p> <p>Construct operational simple series circuits using a range of components and switches for control.</p> <p>Predict and describe whether a circuit will work based on whether or not the circuit is a complete loop and has a battery or cell.</p> <p>Construct operational simple series circuits using a range of components and switches for control.</p> <p>Compare common household equipment and appliances that are and are not powered by electricity.</p>	<p>Electrical circuits</p>
5			
6	<p>There are recognised symbols for different components of circuits.</p>	<p>Create circuits using a range of components and record diagrammatically using the recognised symbols for electrical components.</p>	

	<p>A circuit needs a power source, such as a battery or cell, with wires connected to both the positive and negative terminals. Other components include lamps, buzzers or motors, which an electric current passes through and affects a response, such as lighting a lamp or turning a motor. When a switch is open, it creates a gap and the current cannot travel around the circuit. When a switch is closed, it completes the circuit and allows a current to flow all the way around it.</p> <p>Voltage is measured in volts (V) and is a measure of the difference in electrical energy between two parts of a circuit. The bigger the voltage, the more electrons are pushed through the circuit. The more voltage flowing through a lamp, buzzer or motor, the brighter the lamp, the louder the buzzer and the faster the motor.</p>	<p>Compare and give reasons for variations in how components in electrical circuits function (brightness of lamps; volume of buzzers and function of on or off switches).</p> <p>Explain how the brightness of a lamp or volume of a buzzer is affected by the number and voltage of cells used in a circuit.</p>	<p>Electrical circuits</p>
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