

National Curriculum Objectives	Sticky Knowledge		Prior/Future Learning	
<ul style="list-style-type: none"> <li>• Pupils should be taught to identify common appliances that run on electricity.</li> <li>• Pupils should be taught to construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</li> <li>• Pupils should be taught to identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery.</li> <li>• Pupils should be taught to recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</li> <li>• Pupils should be taught to recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul>	<ul style="list-style-type: none"> <li>• Electricity is a type of energy that can build up in one place, to flow to another.</li> <li>• A power station is a place where electricity is created and sent to our homes.</li> <li>• Electricity comes from power stations, wind, the sun, water and even animal pool!</li> <li>• Electricity can be generated from a renewable energy source, or a non-renewable energy source.</li> <li>• Renewable energy is energy from a source that is not depleted when used, such as wind, hydro or solar power.</li> <li>• Non-renewable energy comes from sources that will run out or will not be replenished for thousands or even millions of years, such as fossil fuels.</li> <li>• Thomas Edison was a very famous inventor who helped us make the most of electricity from bulbs to fuses.</li> <li>• An electrical circuit is a looped path through which an electrical current flows.</li> <li>• A conductor is an object or type of material that allows the flow of an electrical current to pass through it, such as most metals.</li> <li>• An insulator is a material that doesn't allow an electrical current to flow through it, such as wood, plastic, rubber.</li> <li>• An electrical cell is a device that is used to generate electricity (e.g. battery, solar panel, wind turbine).</li> <li>• A battery is a type of cell that stores chemical energy and makes it available in an electrical form.</li> <li>• A bulb will only light in a simple series circuit if it is part of a complete loop with a battery.</li> <li>• A switch is an electrical component that can make or break an electrical circuit.</li> <li>• An electrical appliance is a device that uses electricity (either battery or mains) to work.</li> </ul>		<p><u>Children will have an awareness that:</u></p> <ul style="list-style-type: none"> <li>• Objects need electricity to work.</li> <li>• That a switch will turn something on or off.</li> <li>• Some electric hazard awareness.</li> </ul> <p>N.B. This is a new unit of learning not studied previously</p> <p><u>In Year 6 children will:</u></p> <ul style="list-style-type: none"> <li>• Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</li> <li>• 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.</li> <li>• Use recognised symbols when representing a simple circuit in a diagram.</li> </ul>	
<p><b>Links to NHFS core curriculum themes</b></p>			<p><b>BIG Question. . .</b> How can electricity help us to live in a sustainable way?</p>	
<p><b>Sustainability</b> – Renewable energy, impact of electricity generation on the planet  <b>Aspirations</b> – Inventors, STEM careers  <b>Equality</b> – countries without electricity and the impact on our lives</p>				
<p><b>Key Questions</b></p>				
<p>What would life be like without electricity? What sorts of things use/need electricity? In which ways can we 'get' electricity? (mains/plugs/batteries/wireless) How do we make electricity? How do batteries work? How quickly can batteries run out? Does this make a difference depending on the number of components? How does the number of batteries added to the circuit affect a device? What materials can carry electricity? (conductors/insulators)</p>				
<p><b>Key Scientists</b></p>	<p>How long does a battery light a torch for?</p>			
<p>Hertha Ayrton (Engineer, Physicist &amp; Inventor) Joseph Swan (Physicist, Chemist &amp; Inventor)</p>				
<p><b>Vocabulary</b></p>				
<p>Electricity, energy, energy source, flow, series circuit, appliance, conductor, insulator, cell, battery, bulb, wires, crocodile clips, buzzer, switch, renewable, non-renewable, solar-power, hydro-power, wind-power, wind turbine, socket, electrical current, component, power station, Thomas Edison.</p>	<p>Which room has the most electrical sockets in a house? Why?</p>	<p>How has electricity changed the way we live? How does a light bulb</p>		
 <p>How does the thickness of a conducting material affect how bright the lamp is? Which metal is the best conductor of electricity?</p>	 <p>How would you group these electrical devices based on where the electricity comes from?</p>			

# Science Knowledge and Skills Overview – Year Four Electricity



				work?
--	--	--	--	-------