



Areas of study	EYFS	Y1	Y2	Y3	Y4	Y5	Y6
<b>Core substantive knowledge</b>					<p>Electricity</p> <ul style="list-style-type: none"> <li>Identify common appliances that run on electricity.</li> <li>construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</li> <li>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>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> </ul> <p>Recognise some common conductors and insulators, and associate metals with being good conductors.</p>	<p>Materials</p> <ul style="list-style-type: none"> <li>compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets</li> </ul>	<p>Electricity</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>
<b>Cross-curricular links</b>					DT	DT	Text: <i>Frankenstein</i> DT
<b>Range and depth of scientific knowledge-substantive knowledge</b>					<p>Understand that many household devices and appliances run on electricity. Some plug in to the mains and others run on batteries.</p> <p>Learn that an electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit the component will not work.</p>	<p>Understand that materials can be classified depending on whether they are conductors or insulators.</p>	<p>Learn that adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer makes a louder sound.</p> <p>Identify that if a battery with a higher voltage is used, the same thing happens.</p> <p>Recognition that adding more bulbs to a circuit will make each bulb less bright. Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter. Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any</p>



				<p>Understand that a switch can be added to the circuit to turn the component on and off.</p> <p>Identify that metals are good conductors so they can be used as wires in a circuit. Non-metallic solids are insulators except for graphite (pencil lead). Water, if not completely pure, also conducts electricity</p> <p>N.B. Children in year 4 do not need to use standard symbols</p>		<p>bulbs, motors or buzzers will then turn off as well.</p> <p>Learn that recognised circuit symbols should be used to draw simple circuit diagrams.</p> <p>Note: Pupils are expected to learn only about series circuits, not</p>
<b>Range and depth of disciplinary knowledge.</b>				<p>Observation of patterns. E.g. that bulbs get brighter if more cells are added, that metals tend to be conductors of electricity, and that some materials can and some cannot be used to connect across a gap in a circuit.</p>		<p>Systematic identification of the effect of changing one component at a time in a circuit; designing and making a set of traffic lights and a burglar alarm.</p>
<b>Scientific enquiry-disciplinary knowledge</b>				<p>Observation Pattern-finding</p>	<p>Classification</p>	<p>Observation Construction</p> <p>Research and record</p> <p>Explanation</p>
<b>Organisation and communication</b>				<p>Diagrams Verbal explanations</p>	<p>Diagrams Verbal communication</p>	<p>Diagrams Verbal communication</p>