

Year 6 – Electricity																													
Links made with other subjects	-Design technology Electrical systems																												
The BIG Question	Can we vary the effects of electricity?																												
The BIG Outcome	Diagram of 2 different circuits with children explanations of the differences																												
Science objectives (link to NC)	- 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.																												
Prior knowledge What prior knowledge is needed for children to be successful in this unit?	Children already know: EYFS – Understanding the world - Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. Yr 6 - Electricity																												
Future learning Consider the conceptual knowledge within a subject that pupils need for future learning not just the recall of facts but the importance of concepts	This unit gives prior knowledge to: KS3 Electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge. - Potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current. - Differences in resistance between conducting and insulating components (quantitative). - Static electricity																												
Science strands	<table><tr><td colspan="2">Related Enquiry Questions</td></tr><tr><td>Classifying</td><td></td></tr><tr><td>Not relevant</td><td></td></tr><tr><td>Observing over time</td><td></td></tr><tr><td>Not relevant</td><td></td></tr><tr><td>Pattern Seeking</td><td></td></tr><tr><td>Not relevant</td><td></td></tr><tr><td>Comparative testing</td><td></td></tr><tr><td>-Investigate the effect of adding more bulbs to a circuit.</td><td></td></tr><tr><td>-Investigate the effect of adding more cells to a circuit.</td><td></td></tr><tr><td>-Investigate the effect of adding more buzzers to a circuit.</td><td></td></tr><tr><td>-Investigate the effect of adding more motors to a circuit</td><td></td></tr><tr><td>Researching</td><td></td></tr><tr><td>Not relevant</td><td></td></tr></table>	Related Enquiry Questions		Classifying		Not relevant		Observing over time		Not relevant		Pattern Seeking		Not relevant		Comparative testing		-Investigate the effect of adding more bulbs to a circuit.		-Investigate the effect of adding more cells to a circuit.		-Investigate the effect of adding more buzzers to a circuit.		-Investigate the effect of adding more motors to a circuit		Researching		Not relevant	
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Vocabulary/ Glossary	Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage N.B. Children do not need to understand what voltage is but will use volts and voltage to describe different batteries. The words “cells” and “batteries” are now used interchangeably.																												
Knowledge (see italics for knowledge to remember)	<i>The knowledge that children will learn and remember:</i> 1. Adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound. 2. If you use a battery with a higher voltage, the same thing happens. 3. Adding more bulbs to a circuit will make each bulb less bright.																												

Science Scheme of Work

	- 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 bulbs, motors or buzzers will then turn off as well. - Can use recognised circuit symbols to draw simple circuit diagrams - Explain how a circuit operates to achieve particular operations, such as to control the light from a torch with different brightnesses or make a motor go faster or slower
SEND expectations	- Adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound. - The more components added, the less well they work - Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well. - Can use some recognised circuit symbols to draw simple circuit diagrams
Common misconceptions	Some children may think: -larger-sized batteries make bulbs brighter -a complete circuit uses up electricity - components in a circuit that are closer to the battery get more electricity