












Electricity: Circuits and Symbols

<p>Aim: Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit by observing and explaining the effect of different voltages in a circuit.</p> <p>I can observe and explain the effects of differing voltages in a circuit.</p>	<p>Success Criteria: I can draw circuit diagrams indicating the voltage.</p> <p>I can explain the effect of increasing or decreasing the voltage on different parts of a circuit.</p>	<p>Resources: Lesson Pack</p> <p>Electrical wires with crocodile clips</p> <p>Bulbs</p> <p>Bulb Holders</p> <p>Batteries (a selection of batteries with different voltages)</p> <p>Battery Holders (single and double)</p> <p>Buzzers</p> <p>Motors</p>
	<p>Key/New Words: Voltage, circuit, bulb, wires, cell, battery, buzzer, motor, switch, circuit diagram, brightness, loudness, increase, decrease.</p>	<p>Preparation: Volts Activity Sheet - 1 per pair</p>

Prior Learning: Children will have learnt how to draw circuits using circuit symbols in Lesson 2.

NB: if the voltage is not written on the batteries the children will use to create their circuit, check with manufacturer for details and ensure children know how many voltages each battery supplies.

Learning Sequence

	<p>Current and Voltage: Watch this BBC video about current and voltage. State the main points related to current and voltage.</p>	
	<p>How Many Volts? Allow children to examine a range of different batteries and check the number of volts each one supplies.</p>	
	<p>Labelling Volts: Show children a circuit diagram with the volts labelled. Discuss the location of the label and how to label a battery containing multiple cells, as opposed to a single cell.</p>	
	<p>What Difference Do the Volts Make? Make predictions together about what will happen to a bulb, motor or buzzer depending on the voltage of the cell or battery. Discuss what difference they would expect (e.g. <i>bulb will get brighter, it will increase in brightness, the brightness will stay the same</i>). Model one example using a bulb, including how to draw the circuit diagram of each step with volts labelled accurately.</p>	
	<p>Observing the Effect of Volts: In mixed ability pairs, children obtain the appropriate equipment and record their observations and circuit drawings on the Volts Activity Sheet.</p>	
	<p>Appropriate Volts: What would happen to an electrical appliance that requires 3V if it were powered by 5V cell or battery? Discuss as a whole class.</p>	

Taskit

Researchit: Children research the voltage required by different electrical appliances using the [How Many Volts? Activity Sheet](#).

Diagramit: Children draw circuit diagrams of different electrical appliances using the correct circuit symbols as well as labelling the voltage required.