



| Science:  |  | Key Stage 2   | Cycle B  |
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| National Curriculum Objectives  |  | Declarative Knowledge (I know...)   | Procedural Knowledge (I can...)  |
| <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.</li> <li>Use recognised symbols when representing a simple circuit in a diagram.</li> </ul>  |  | <ul style="list-style-type: none"> <li>I know what each part of a circuit is used for.</li> <li>I know the scientific symbols for the main parts of a circuit.</li> <li>I know how to increase the brightness of a bulb and the volume of a buzzer.</li> <li>I know what will happen to my circuit if I change the voltage of a battery.</li> </ul> | <ul style="list-style-type: none"> <li>I can create scientific diagrams.</li> <li>I can draw a complete circuit.</li> <li>I can draw circuit diagrams indicating the voltage.</li> <li>I can explain the effect of increasing or decreasing the voltage for different parts of a circuit.</li> </ul> |
| <p><b>Prior Learning:</b></p> <p><b>Y3/4</b></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> <li>Recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul> |  |   | <p><b>Assessment Task:</b></p> <p>'Escape the Windfarm' revision lesson 4.</p>   |
| <p><b>Common Misconceptions:</b></p>  |  |   | <p><b>Vocabulary</b></p>   |
| <p>Lesson 1<br/>Week 1</p> <p>History</p>   | <p><b>LO: To identify how our understanding of electricity has changed over time. To explain how major discoveries affected our understanding.</b></p> <p><b>Resources:</b> 'Are you an electricity expert?' activity sheet, 'History of electricity' comprehension. 'Impact of electricity' activity sheet.</p> <p><b>Task:</b> As a class, recap the concepts learned in Year 3/4. The children need to answer questions regarding the history of electricity. Next, the Children will sort between electrical and non-electrical appliances and complete the table to explore the impact of electricity.</p>  |   | <p>electricity, alternating current, direct current, battery, cell, Thomas Edison, Nikola Tesla, Alessandro Volta, Michael Faraday</p>   |
| <p>Lesson 2<br/>Week 2</p>  | <p><b>LO: To know the scientific symbols for the main parts of a circuit. To create circuit diagrams.</b></p> <p><b>Resources:</b> 'Interpreting and drawing circuit symbols' activity sheet, 'Scientific circuit symbols' challenge activity.</p> <p><b>Task:</b> Recap what the children learned last lesson about the electrical and non-electrical appliances. Allow the children to draw a circuit containing a bulb and match the informal and scientific symbols on the PowerPoint. Give time for the children to label parts of a circuit and convert diagrams using circuit symbols. Finally, the children need to create a circuit diagram for an electrical appliance using the scientific symbols.</p> |   | <p>bulb, battery, cell, wires, switch, motor, buzzer, informal, circuit, diagram</p>   |

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| <p>Lesson 3<br/>Week 3</p> | <p><b>LO: To draw circuit diagrams indicating the voltage. To explain the effect of increasing or decreasing the voltage on different parts of a circuit.</b></p> <p><b>Resources:</b> 'Current and voltage' video, 'Volts' activity sheet, 'How many volts?' activity sheet.</p> <p><b>Task:</b> As a class, recap the parts of a circuit and what their symbols are. Allow the children to examine a range of different batteries and check the number of volts each one supplies. Discuss how to label a battery containing multiple cells, as opposed to a single cell. Allow the children to make predictions about what will happen to a bulb, motor or buzzer depending on the voltage of the cell or battery. In pairs, discuss the difference they would expect. Next the children need to obtain the appropriate equipment and record their observations and circuit drawings. Finally, give the children time to research the voltage required by different electrical appliances.</p> | <p>voltage, circuit, bulb, wires, cell, battery, buzzer, motor, switch, circuit diagram, brightness, loudness, increase, decrease</p> |
| <p>Lesson 4<br/>Week 4</p> | <p><b>LO: To revise circuit symbols.</b></p> <p><b>Resources:</b> 'Escape the Windfarm' clue cards and PowerPoint.</p> <p><b>Task:</b> As a class, revise the parts of a circuit, the circuit symbols and voltage and its importance. For the duration of the lesson, the children are to solve the circuit clues provided in order to discover the final code at the end of the task. Review as a class at the end of the lesson.</p>  | <p>symbol, circuits, materials, insulators, electrical components, buzzer, electrons, current, amps, volts</p>                        |