

**Lent 1**  
**Science Year 6: Electricity (Physics)**

**Scripture Link: Ephesians 1:19**

**National Curriculum Objective**

**Enquiry Question: How can we effect electrical circuits?**

	Lesson 1	Lesson 2	Lesson 3
<b>Learning intention for each lesson</b>	To compare, and give reasons for, variations in how components function.  (eg. the brightness of a lamp and the volume of a buzzer with the voltage being applied)	To know how to draw a circuit diagram using recognised component symbols.	To compare, and give reasons for, variations in how components function.  (making batteries from fruit)
<b>Recall and Retrieval</b>	know that an 'electrical appliance' is a tool or apparatus that we use in our day-to-day life with the assistance of electricity. can name some everyday electrical appliances: TV, kettle, cooker, iron, computer Can name the parts of a simple circuit.	know how to change the brightness of a bulb in my circuit. know the problems caused by 'overloading' a circuit by adding more bulbs (diminished power due to dispersal). know that for a circuit to be complete, there must be wires connected to both the positive and negative ends of the power supply. can name some of the hazards associated with electricity.	know the different, recognised symbols, for these components of a circuit: Bulb Battery, Wire, Buzzer, Motor, Push Switch, Cell (battery is 2 cells). know that electricity will only travel around a circuit that is complete. know how to make a switch and add it to my circuit.
<b>Sequence of substantive knowledge throughout the lesson</b>	I know how to change the brightness of a bulb in my circuit.  I know the problems caused by 'overloading' a circuit by adding more bulbs (diminished power due to dispersal).  I know how to make a switch and add it to my circuit.  I can name some of the hazards associated with electricity.	I know that a diagram refers to a drawing, image, or sketch that is used to help the reader visualize what is being described.  I know the different, recognised symbols, for these components of a circuit: Bulb Battery, Wire, Buzzer, Motor, Push Switch, Cell (battery is 2 cells).  I know the components of a circuit.  I know what a data logger is.	I know what a battery is and how it works: a sort of container that stores energy until it is needed.  I know some different sources of energy that can power a circuit.
<b>Key Skills/disciplinary knowledge</b>	<ul style="list-style-type: none"> <li>planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary;</li> </ul>	<ul style="list-style-type: none"> <li>recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs;</li> </ul>	<ul style="list-style-type: none"> <li>reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a</li> </ul>

	<ul style="list-style-type: none"> <li>• taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate;</li> <li>• recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs;</li> <li>• using test results to make predictions to set up further comparative and fair tests;</li> <li>• reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations;</li> <li>• identifying differences, similarities or changes related to simple scientific ideas and processes;</li> <li>• identifying scientific evidence that has been used to support or refute ideas or arguments</li> </ul>	<ul style="list-style-type: none"> <li>• reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations;</li> <li>• identifying differences, similarities or changes related to simple scientific ideas and processes;</li> </ul>	<p>degree of trust in results, in oral and written forms such as displays and other presentations;</p> <ul style="list-style-type: none"> <li>• identifying differences, similarities or changes related to simple scientific ideas and processes;</li> </ul>
<b>Key Vocabulary</b>	Bulb, cell, battery, wire, buzzer, motor, conduct, switch, circuit, insulate, bright, conductor, insulator, dim, lamp, voltage, components, loudness, noise, diagram, symbol	Bulb, cell, battery, wire, buzzer, motor, conduct, switch, circuit, insulate, bright, conductor, insulator, dim, lamp, voltage, components, loudness, noise, diagram, symbol	Bulb, cell, battery, wire, buzzer, motor, conduct, switch, circuit, conductor, Anode, cathode, electrolyte.
<b>Main teaching activity</b> <i>If the school has another short term planning format, this does not need to be included.</i>			
<b>Scaffolding</b>	Children to use the components to see if they can make a simple circuit. (recap Yr 4 learning)	Symbol diagram crib sheet  Word banks	Teacher to model writing predictions.
<b>Challenge</b>	Small mixed ability groups.	Mixed ability groups Children to cut out the symbols and match the picture with the symbol with the explanation and stick into books neatly. Teacher may want to model expectations.	Children can create their own recording sheet

		This can be done as a group and displayed if pushed for time.	
<b>Diversity Links</b>			
<b>Catholic Social Teaching Principles</b>			
<b>British Values</b>			
<b>Wider links</b>			

**Lent 1**  
**Science Year 6: Electricity (Physics)**

	Lesson 4	Lesson 5	Lesson 6
<b>Learning intention for each lesson</b>	To know the effect of the number and the voltage of the cells on a circuit.	Know what 'series' and 'parallel' mean in relation to circuits.	
<b>Recall and Retrieval</b>	<p>know what a battery is and how it works.</p> <p>know that electricity is a form of energy that can give things the ability to move and work</p> <p>know some different sources of energy that can power a circuit</p>	<p>know that voltage refers to a measure of how strong the current is in a circuit</p> <p>know that a circuit is a device made of other, smaller electrical devices that can move the flow of electricity through itself to power larger devices</p> <p>know what conductors and insulators are</p>	
<b>Sequence of substantive knowledge throughout the lesson</b>	<p>I know that voltage refers to a measure of how strong the current is in a circuit</p> <p>I know how to conduct a fair test.</p> <p>I know how to record my results accurately.</p>	<p>I know that a series circuit: A series circuit is a circuit in which the current follows one path.</p> <p>I know that a parallel circuit: The current is divided into several paths. One of the components, such as a bulb, can be switched on or off without affecting the others in a parallel circuit.</p> <p>I know how to build simple series and parallel circuits to solve problems</p>	
<b>Key Skills/disciplinary knowledge</b>	<ul style="list-style-type: none"> <li>planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary;</li> <li>recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs;</li> <li>using test results to make predictions to set up further comparative and fair tests;</li> <li>reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations;</li> </ul>	<ul style="list-style-type: none"> <li>planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary;</li> <li>taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate;</li> <li>recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs;</li> <li>using test results to make predictions to set up further comparative and fair tests;</li> <li>reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral</li> </ul>	

	<ul style="list-style-type: none"> <li>identifying differences, similarities or changes related to simple scientific ideas and processes;</li> </ul>	<p>and written forms such as displays and other presentations;</p> <ul style="list-style-type: none"> <li>identifying differences, similarities or changes related to simple scientific ideas and processes;</li> </ul> <p>identifying scientific evidence that has been used to support or refute ideas or arguments</p>	
<b>Key Vocabulary</b>	Bulb, cell, battery, wire, buzzer, motor, conduct, switch, circuit, insulate, bright, conductor, insulator, dim, lamp, voltage, components, loudness, noise, diagram, symbol	Bulb, cell, battery, wire, buzzer, motor, conduct, switch, circuit, insulate, bright, conductor, insulator, dim, lamp, voltage, components, loudness, noise, diagram, symbol	
<b>Main teaching activity</b> <i>If the school has another short term planning format, this does not need to be included.</i>			
<b>Scaffolding</b>	Children to make their circuits in partners or small groups.		
<b>Challenge</b>			
<b>Diversity Links</b>			
<b>Catholic Social Teaching Principles</b>			
<b>British Values</b>			
<b>Wider curriculum links</b>			