






<p>Programme of Study Statements Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</p> <ul style="list-style-type: none"> • 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. 					<p>Key Vocabulary Circuit, complete circuit, circuit diagram, circuit symbol, cell, battery, bulb, buzzer, motor, switch, voltage</p> <p>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.</p>
<p>Investigations and Skills for thinking like a Scientist</p> <div style="display: flex; justify-content: space-around; align-items: center;">      </div>					<p>Sticky Knowledge:</p> <p>Batteries are a store of energy. This energy pushes electricity round the circuit. When the battery's energy is gone it stops pushing. Voltage measures the 'push.'</p> <ul style="list-style-type: none"> • The greater the current flowing through a device the harder it works. • Current is how much electricity is flowing round a circuit. • When current flows through wires heat is released. The greater the current, the more heat is released.
<p>Comparative Tests</p> <p>How does the voltage of the batteries in a circuit affect the brightness of the lamp?</p> <p>How does the voltage of the batteries in a circuit affect the volume of the buzzer?</p> <p>Which make of battery lasts the longest? Which type of fruit makes the best fruity battery?</p>	<p>Identify & Classify</p> <p>How would you group electrical components and appliances based on what electricity makes them do?</p>	<p>Observation over time</p> <p>How does brightness of bulb change as the battery runs out?</p> <p>How can we measure how quickly a battery is used up?</p>	<p>Pattern seeking</p> <p>Does the temperature of a light bulb go up the longer it is on?</p>	<p>Research</p> <p>How has our understanding of electricity changed over time</p>	<p>Prior Knowledge:</p> <ul style="list-style-type: none"> • Identify common appliances that run on electricity. (Y4 - Electricity) • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. (Y4 - Electricity) • 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. (Y4 - Electricity) • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. (Y4 - Electricity) • Recognise some common conductors and insulators, and associate metals with being good conductors. (Y4 - Electricity)

<ul style="list-style-type: none"> • Potential Evidence to support our Scientists (I can..): • Can make electric circuits and demonstrate how variation in the working of particular components, such as the brightness of bulbs, can be changed by increasing or decreasing the number of cells or using cells of different voltages • Can draw circuit diagrams of a range of simple series circuits using recognised symbols <p>Big Question: Can we vary the effects of electricity?</p>	<p>Future Knowledge:</p> <ul style="list-style-type: none"> • Electric current, measured in amperes, in circuits, series and parallel circuits, currents add where branches meet and current as flow of charge. (KS3) • Potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current. (KS3) • Differences in resistance between conducting and insulating components (quantitative). (KS3) • Static electricity. (KS3)
---	--

<p>Cultural Capital</p>		
<p>Visits and visitors We the Curious (Bristol) STEMworks activity day Electrical controllable devices</p>	<p>Experiences and events STEMworks activity day Electrical controllable devices</p>	<p>Key texts</p> <p>Goodnight Mister Tom (Michelle Magorian) Blackout (John Rocco) Hitler's Canary (Sandi Toksvig)</p>
<p>Community events and links</p> <p>D/T Links Energy sources in the community – wind turbine</p>	<p>Global issues</p> <p>Global energy needs, renewable, current affairs e.g gas prices.</p>	<p>Famous people/ Key Scientists</p> <p>Alessandro Volta (Electrical Battery) Nicola Tesla (Alternating Currents)</p>
<p>Life Skills Curiosity Creativity Team work Resilience Making Links</p>	<p>Key places</p>	