

### Previous Knowledge

Identify common appliances that run on electricity. • Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. • 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. • Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. • Recognise some common conductors and insulators, and associate metals with being good conductors.

### Project Hook or 'Wow' memory

What type of fruit makes the best fruity battery? Children to explore with a variety of different fruits.

### Learning Steps

### Key Knowledge (answers)

#### It's Electrifying!

**How electricity has changed over time?**

**Ideas over time/Research**

To focus on the main historical discoveries made in the field of electricity and learn about the difference between alternating and direct current. **Alternating Current (AC)** is a type of electrical **current**, in which the direction of the flow of electrons switches back and forth at regular intervals or cycles. ... **Direct current (DC)** is electrical **current** which flows consistently in one direction. Learn about: Thomas Edison, Nikola Testa, Alessandro Volta or Michael Faraday through a reading comprehension activity.

#### Circuits and Symbols

Use recognised symbols when representing a simple circuit in a diagram. **Identifying and classifying**

To know the scientific symbols for the main parts of a circuit and create circuit diagrams using scientific symbols. To know the symbols for: Bulb, battery, cell, wires, switch, motor, buzzer. Explain that there are different drawings for 'battery' and 'cell' and highlight the differences between them.

#### Volts

**What will make a bulb dimmer / brighter or a buzzer quieter / louder?**

Fewer batteries or a lower voltage give less power to the circuit. More buzzers or bulbs mean the power is shared by more components. Lengthening the wires means the electrons have to travel through more resistance. More batteries or a higher voltage create more power to flow through the circuit. Shortening the

**How would you group electrical components and appliances based on what electricity makes them do? **Identifying and classifying / Observing over time****

Identify common appliances that run on electricity by learning to distinguish between appliances that use and do not use electricity, about the different types of electricity and identifying how to stay safe when using electricity

What type of fruit makes the best fruity battery? Children to explore with a variety of different fruits!  
**Identifying and classifying / Observing over time**

In this activity children will construct a series circuit consisting of four fruit batteries and an LED. They will learn about the main parts of a battery and how fruit can be used to provide enough voltage to light an LED. They will also investigate how the brightness of the LED changes depending on the number of fruit batteries used in the circuit.

### The key skills we want pupils to use during this topic:

**Comparative Testing/Fair Testing**—To measure the amount of batteries, voltage of batteries or length of wire has an impact on brightness of the bulb and loudness of the buzzer.

**Ideas over time/Research**—Children focus on the main historical discoveries made in the field of electricity. Children learn about the difference between alternating and direct current. To research a variety of people including: Thomas Edison, Nikola Testa, Alessandro Volta or Michael Faraday

**Identifying and classifying** — To group electrical components and appliances based on what electricity makes them do.

### Key vocabulary

<b>Resistance</b>	The difficulty that the electric current has when flowing around a circuit
<b>Component</b>	a part used in an electrical circuit
<b>Electricity</b>	A form of energy caused by electrons moving
<b>Cell (Battery)</b>	a stored source of electricity
<b>switch</b>	a switch turns an electrical circuit on or off by completing or breaking the circuit
<b>Conductor</b>	an object that allows electricity to flow through it easily (objects made of metal are good conductors)
<b>Insulator</b>	an object that does not allow electricity to flow through it easily
<b>Voltage</b>	a force that makes electricity flow through a wire (it is measured in volts)
<b>Motor</b>	A machine that turns electrical energy into movement.

### Statutory Requirements

Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit .  
Use recognised symbols when representing a simple circuit in a diagram.

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

