



# How does **ELECTRICITY** affect our lives?



## Pupils will learn

- To sort appliances based on whether they use mains or batteries.
- How a circuit works and how to create a simple series circuit both with and without a switch.
- About the different components that can be used in an electrical circuit.
- How a switch turns the electric current on and off
- About electrical conductors and insulators.
- The effect that electricity has on the climate.

## Important info

### Electricity Key Information:

- Lightning and static electricity are examples of electricity occurring naturally but for us to use electricity to power appliances, we need to make it.
- Many everyday appliances rely on electricity for them to work. Some appliances use mains electricity (are plugged into a socket) and others have a battery to make them work.

### There are two types of electric current:

- **Mains electricity:** power stations send an electric charge through wires to transformers and pylons. Then, underground wires carry the electricity into our homes through wires in the walls and out through plug sockets.
- **Battery electricity:** batteries store chemicals which produce an electric current. Eventually, even rechargeable batteries will stop producing an electric current.

### Circuits:

- Electricity can only flow around a complete circuit that has no gaps. There must be wires connected to both the positive and negative end of the power supply/battery.
- Switches can be used to open or close a circuit. When off, a switch 'breaks' the circuit to stop the flow of electricity. When on, a switch completes' the circuit and allows the electricity to flow.

### Conductors and Insulators:

- A conductor of electricity is a material that will allow electricity to flow through it. Metals are good conductors.
- Materials that are electrical insulators do not allow electricity to flow through them. Wood, plastic and glass are good insulators

## Local links

- Wind Turbines - Sheringham
- Library - Find out more about electricity.

## Home learning ideas

- BBC Bitesize videos on Electricity and Conductors: <https://www.bbc.co.uk/bitesize/topics/z2882hv/resources/1>
- Electrical safety in your home: <https://www.switchedonkids.org.uk/electrical-safety-in-your-home>

## Books to read at home

- Electricity (Science in a Flash) by Georgia Amson-Bradshaw
- The Shocking Story of Electricity by Anna Claybourne
- Charging About: The Story of Electricity by Jacqui Bailey
- You Wouldn't Want to Live Without Electricity! by Ian Graham
- A Beginner's Guide to Electricity and Magnetism by Gill Arbuthnott

## Inquiry Questions

- What is electricity?
- What do we use that is powered by electricity?
- What effect does electricity have on the climate?
- What are the main parts in a simple series circuit?
- What do we need to make working electrical circuits?
- How do switches work?
- Will tinfoil act as an electrical conductor?
- Why is plastic used to coat the metal wires?
- Will the number of batteries affect the brightness of the bulb?
- How does a buzz-wire game work?
- What is static electricity and why do we get static shocks?

## Key Vocabulary

Battery	A group of cells joined together	Insulator	A material or object that stops the flow of electricity
Cell	A device containing electrodes that is used for generating current	Motor	A machine powered by electricity that supplies motive power for a vehicle or other moveable device
Circuit	A complete and closed path around which a circulating electric current can flow	Physics	The science that deals with things like matter, forces and energy
Conductor	A material or device which allows heat or electricity to carry through	Series	electrical components. are connected one after another in a single loop.
Current	A flow of electricity which results from the ordered directional movement of electrically charged particles	Socket	A place to insert a plug and connect an appliance to a power supply
Component	An item that is part of a circuit such as a cell, wire, switch or motor.	Switch	A device for making and breaking the connection in an electric circuit
Electrons	A very small particle in an atom that has a negative electrical charge.	Wire	A conductor in a circuit
Energy	The capacity for doing work. It can be in different forms such as heat, nuclear or electrical.	Volt	A unit that measures the force that electricity pushes through a wire
Estimate	A type of guess that you make about something like its size, quantity or speed for example. It is based on information and not made up.	Sequence	the following of one thing after another;
Potential	a chance or possibility that something will happen or exist in the future	Vary	To be slightly different from another thing.

\* Words in grey are Tier 2 (non-topic specific) vocabulary