

Key Knowledge

Many household devices and appliances run on electricity. Some plug in to the mains and others run on batteries.

An electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit, the component will not work. A switch can be added to the circuit to turn the component on and off.

Metals are good conductors so they can be used as wires in a circuit. Non-metallic solids are insulators except for graphite (pencil lead). Water, if not completely pure, also conducts electricity.

Application of knowledge in the classroom using scientific enquiry and activities.

Construct a range of circuits.

- Explore which materials can be used instead of wires to make a circuit.
- Classify the materials that were suitable/not suitable for wires.
- Explore how to connect a range of different switches and investigate how they function in different ways.
- Choose switches to add to circuits to solve particular problems
- Make circuits that can be controlled as part of a DT project.

Vocabulary - Tier 3 vocabulary

Battery - a portable electricity supply

Bulb - part of a circuit that gives out light

Buzzer - an electrical device that makes a buzzing sound

Cell - a device used to generate electricity, the scientific name for a battery

Circuit - the path followed by an electric current. Electricity must flow in a circuit to do useful work

Components - the items that make up a circuit

Mains - the electricity that comes from a socket

Electrons - carry energy around the circuit

Electrical Conductor - a material/device which allows electricity to pass through

Electrical Insulator - a material/device which does not allow electricity to pass through.

Motor - a device that makes movement

Rechargeable - a battery that we can put 'electricity' back into

Switch - a component that can turn the electrical device on or off.

Terminals - the ends of the battery. One is negative and one is positive

Wire - a long, thin piece of metal that carries electrical current used to connect components together

Diagrams - Key Knowledge**What are electrical conductors and insulators?**

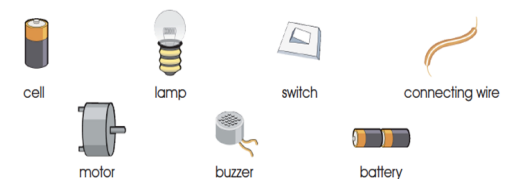
An electrical conductor lets electricity pass through it.



An insulator doesn't let electricity pass through it, e.g., wood, leather, and plastic.

How does a circuit work?

In a series circuit all the components are joined together, and the electricity can only flow in one direction



Which electrical appliances are mains operated and which are battery operated?



