

In this unit: Pupils will learn about complete circuits and the components, which make them up. They will identify circuits that will work and explain why others do not. Pupils will explore materials, which conduct and insulate. They will create a burglar alarm for the crown jewels in the Tower of London.

Children should already know:

- that electricity is a form of energy that can be carried by wires.
- that electricity is used for light, heat and to provide power for different appliances.

At the end of this unit, children will know:

- that electricity is generated using energy from natural fuel sources.
- that some batteries and appliances use mains electricity.
- that batteries come in different sizes.
- that common appliances use electricity to work.
- that a complete circuit is a loop that allows electricity to flow through wires.
- that a complete circuit contains a cell, wires and an appliance.
- that a switch can break or reconnect a circuit.
- that some objects (insulators) do not allow electricity to flow through them.
- that electrical conductors allow electricity to pass through them easily.
- the precautions required for working safely with electricity.

Pupils could investigate:

- the names of the basic parts and appliances in circuits.
- the materials that are electrical conductors and insulators.
- a variety of circuits and explore which will work and which won't.
- the effect of different types of switches in circuits and how they work.

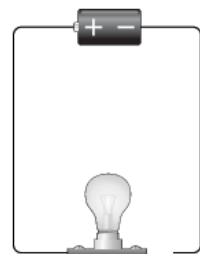


Key Vocabulary

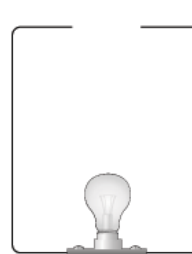
appliance	a device or machine that uses electricity to do a job
bulb	an electrical device that creates light
buzzer	an electrical device that creates a noise
cell	a single battery on its own
complete circuit	a complete loop with electricity flowing the way it's supposed to flow: from the battery to the component, and back to the battery again
component	a part of a circuit
conductor	a material that allows electricity to flow through easily
current	a flow of electricity through a wire or a circuit
electricity	a form of energy that can flow through wires and be used to work appliances
insulator	a material that does not allow electricity to flow through
motor	an electrical device that creates a movement
power	energy produced by electricity
precaution	a measure taken in advance to prevent something dangerous happening
series circuit	a complete, single route that that an electrical current can flow around
switch	a control for an electrical device that turns it on or off
wire	a piece of metal that is a conductor and allows an electrical current to flow through

Key Questions:

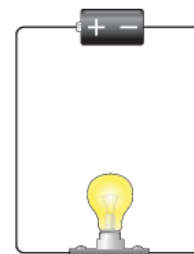
- where does electricity come from?
- what appliances use electricity to work?
- how does a toaster work?
- what is a circuit?
- how does circuits work?
- why will this circuit not work?
- what is an electrical conductor or insulator?



Incomplete circuit



No battery



Complete circuit