Amblecote Primary School—Knowledge Organisers

Phase: 3/4	**Subject:** Science	**Focus:** Electricity	**Term:** Spring

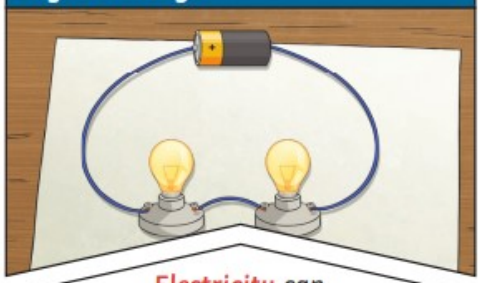
What I should already know?

Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. .
Ask simple questions and recognise that they can be answered in different ways.
Observe closely, using simple equipment.
Perform simple tests.

Vocabulary

Electricity	The flow of an electric current through a material e.g, from a power source through wires to an appliance.
Generate	To make or produce.
Renewable	A source of electricity that will not run out. These include solar, geothermal, hydro and wind.
Non-renewable	This source of energy will eventually run out and so will no longer be able to be used to make electricity. These include fossil fuels—coal, oil and natural gas.
Appliances	A piece of equipment or a device designed to perform a particular job, such as a washing ,machine or mobile phone.
Battery	A device that stores electrical energy as a chemical.
Circuit	A pathway that electricity can flow around. In includes wires and a power supply and may include bulbs, switches or buzzers.

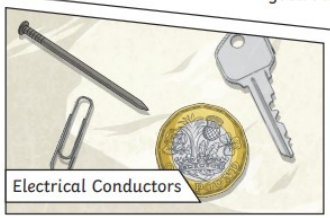
Key Knowledge

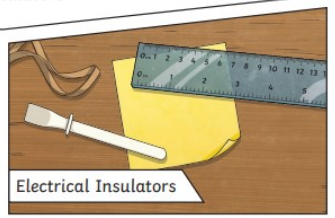


Electricity can only flow around a complete circuit that has no gaps. There must be wires connected to both the positive and negative end of the power supply/battery.

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.

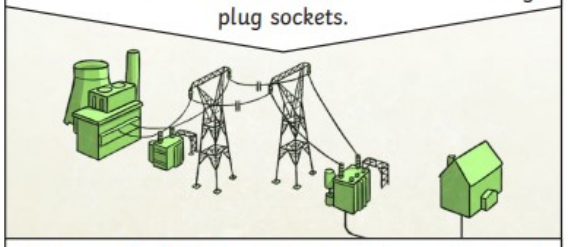
A conductor of electricity is a material that will allow electricity to flow through it. Metals are good conductors. Materials that are electrical insulators do not allow electricity to flow through them. Wood, plastic and glass are good insulators



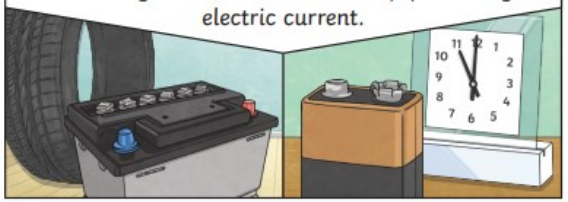


There are two types of electric current.

Mains electricity: power stations send an electric charge through wires to transformers and pylons. Then, underground wires carry the electricity into our homes via wires in the walls and out through plug sockets.

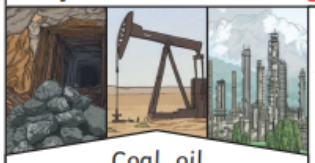


Battery electricity: batteries store chemicals which produce an electric current. Eventually, even rechargeable batteries will stop producing an electric current.



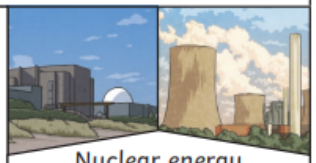
Key Knowledge

Lightning and static electricity are examples of electricity occurring naturally but for us to use electricity to power appliances, we need to make it.



Coal, oil and natural gases are fossil fuels which, when burnt, produce heat which can be used to generate electricity.

Electricity can be generated from wind power used to turn windmills and hydroelectric power from water used in dams. The Sun's rays can be converted into electricity by solar panels.



Nuclear energy is created when atoms are split. This creates heat which can be used to generate electricity. Geothermal energy is heat from the Earth that is converted into electricity.

By the end of the unit I should know...

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 a lamp lights in a simple series circuit.
Recognise some common conductors and insulators, and associate metals with being good conductors.

Question 1— Which of these devices does NOT run on electricity?	Start of Unit	End of Unit
TV		
Spade		
Torch		
Lamp		
Don't know		

Question 2 Which of these powers a circuit?	Start of Unit	End of Unit
Cell		
Bulb		
Buzzer		
Wire		
Don't know		

Question 3 Which of these items would be an electrical conductor?	Start of Unit	End of Unit
Wooden spoon		
Rubber		
Mug		
Paper clip		
Don't know		

Question 4 Which of these items would be an electrical insulator?	Start of Unit	End of Unit
Plastic comb		
Teaspoon		
Key		
Coin		
Don't know		

Question 5— Why is the outside of a wire covered in rubber?	Start of Unit	End of Unit
Because it is a flexible electrical insulator		
Because it is a flexible electrical conductor		
Because it looks good		
Because it can be coloured		
Don't know		

Question 6 What does a switch do?	Start of Unit	End of Unit
It creates a noise		
It creates a light		
It powers a circuit		
It connects and disconnects a circuit		
Don't know		

Question What is a complete circuit?	Start of Unit	End of Unit
A circuit where nothing is connected		
A circuit with no wires		
A circuit with no gaps where electricity can flow uninterrupted		
A circuit where there is no other component except for a cell		
Don't know		