The Discovery of Electricity

Electricity is a kind of energy that powers lights, TVs, computers and many other things. The electricity we use in our homes flows through wires as electric current.
WARNING: ELECTRIC CURRENT CAN BE VERY POWERFUL AND DANGEROUS. NEVER PLAY WITH MAINS ELECTRICITY!
Current can flow only if a wire makes a complete loop called a circuit. If a gap is made in the circuit, the current stops flowing. Switches are simple devices which open and close a gap in a circuit.

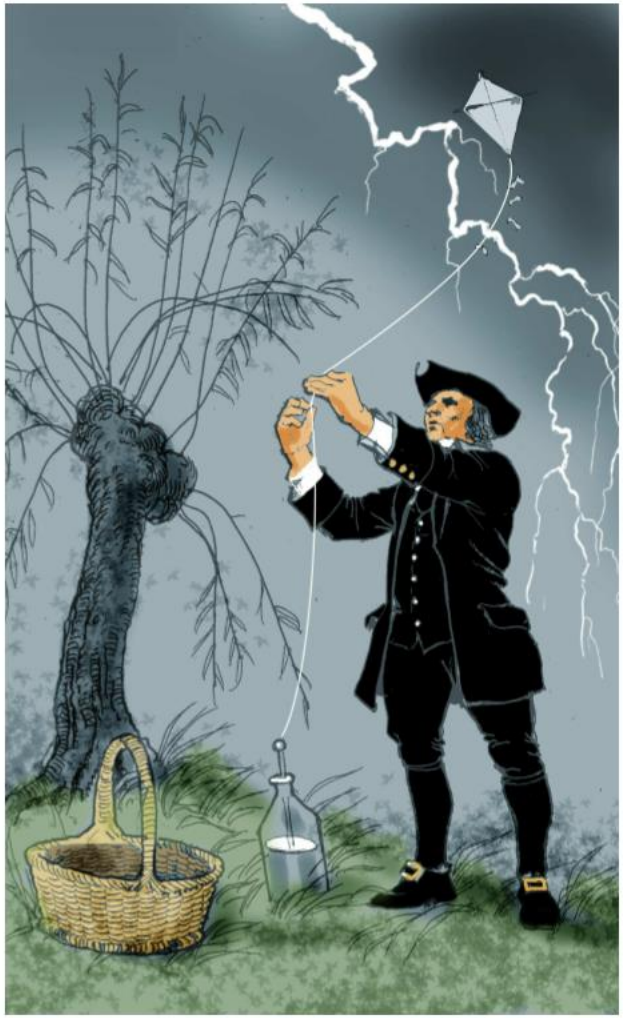
In about the year 600 BC a Greek called Thales of Miletus found that a piece of amber rubbed with fur would pick up tiny pieces of straw or feathers. (You can try picking up small pieces of tissue after rubbing a plastic pen with a woollen jumper or silk cloth.) This creates static electricity, but it is not very useful because it does not create a current which flows.

In 1752, the American scientist Benjamin Franklin wondered whether lightning and thunder were caused by electricity. During a thunderstorm he flew a kite with a metal tip joined to a silk string. He attached a key to the string at a point near the ground. When he touched the key there was a spark! He was lucky not to have been killed! Again, this discovery was not very useful.

The first person to find a way of obtaining a steady flow of electricity was the Italian scientist Alessandro Volta who, in 1800, invented the electric battery. This was made of plates of different metals with acid liquid between them.

In 1831 the English scientist Michael Faraday showed that if a magnet is moved near a coil of wire it caused an electric current to flow in the wire. He went on to invent the electric generator which makes electricity when coils of wire are made to rotate betwen powerful magnets.

Nowadays, powerstations use giant generators to produce enough electricity for all of our homes.



The Discovery of Electricity

Section A

Choose the best word or group of words to fit the passage and put a ring around your choice.

Electricity is a kind of energy that powers

1 **lights** **cheese** **glass** **wood**

and many other things. Electric current flows through a wire in a complete loop called a

2 **circle.** **current.** **circuit.** **circus.**

A Greek called Thales of Miletus discovered

3 **standing** **stationery** **static** **stationary**

electricity but it was not very useful. In

4 **1725** **1572** **1257** **1752**

Benjamin Franklin flew a kite in an electric thunderstorm. Alessandro Volta invented the

5 **bulb** **wire** **battery** **switch**

in 1800. In 1831 Michael Faraday invented the electric

6 **generator** **general** **giant** **gentleman**

which makes electricity using magnets.

Section B

1 What is electricity?

2 Which type of electricity must you 'never play with'?

3 What did Michael Faraday show in 1831?

4 What did Michael Faraday go 'on to invent'?

5 What do we use 'giant generators' for?

6 Why was the discovery of static electricity 'not very useful'?

7 Why do you think Benjamin Franklin's experiment was extremely dangerous?

8 How do you think Benjamin Franklin felt immediately after carrying out his experiment?

Section C

Make a list of everything in your house which uses electricity.

Where Does Our Electricity Come From?

Electricity is usually made by spinning a generator in power stations. It is sent to your house along huge wires stretched across tall metal pylons.

Coal, Gas and Oil Power Stations

Some power stations run on coal, gas or oil. The fuel is used to create flames to produce heat. This is used to boil water to make steam. The steam is sent into a turbine (a sort of motor), which spins very quickly. This is connected to the generator, which makes electricity.

Hydro Electricity

Water running down a mountain can be used to make a turbine spin to make electricity.

Other Ways of Making Electricity

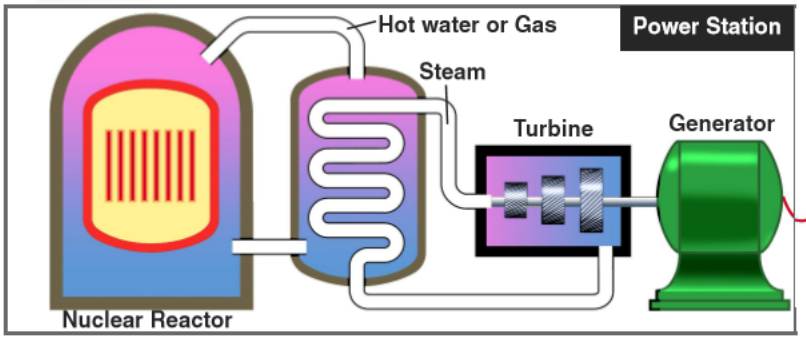
Solar panels can be used to collect energy from the sun to make a small amount of electricity. A battery uses a chemical reaction to make a small amount of electricity.

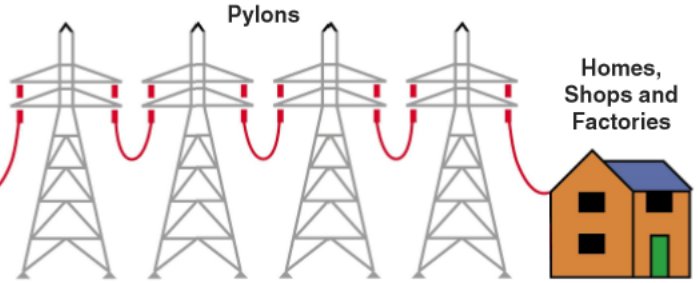
Nuclear Energy

Splitting atoms (tiny particles) in a material called Uranium produces large amounts of heat. This heat is used to make steam to power a turbine to make electricity.

Windmills

When the wind blows the blades on a windmill they spin round. If the axle is connected to a generator, electricity can be made.





Theme 6 Electricity | Information Text

Where Does Our Electricity Come From?

Section A

Choose the best word or group of words to fit the passage and put a ring around your choice.

Electricity is usually made in a

1 **train** **bus** **power** **airport**

station. It travels along wires held up by

2 **pythons.** **pyramids.** **pyjamas.** **pylons.**

Coal, gas and oil are used to heat water to make steam. The steam is used to turn a

3 **wheel** **spinner** **pulley** **turbine**

which is connected to a generator. Water running down a mountain can be used to make a turbine

4 **spin.** **stop.** **start.** **settle.**

Generators are sometimes turned by a

5 **kite.** **windmill.** **handle.** **cloud.**

Energy from the sun can be collected by

6 **windmills.** **solar panels.** **waterfalls.**

Section B

1 How is electricity usually made?

2 Which fuels are used to heat water to make steam?

3 What is the steam used for?

4 What is a turbine?

5 How can water be used to make electricity?

6 What do you think happens to windmills when there is no wind?

7 Why is this a problem?

8 Do you think electricity is important? Give a reason for your answer.

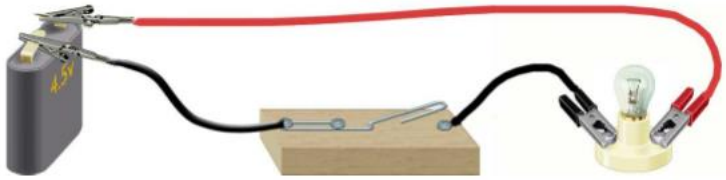
Section C

Imagine the power is cut off from your house. Write about the things you could not do and how you would feel about it.

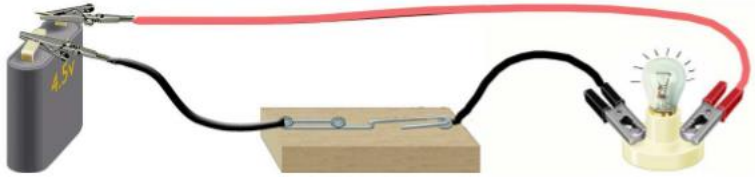
How to Make a Simple Circuit

If a battery is connected to a bulb using two wires to make a circuit, the bulb lights up. If we add a switch the bulb can be turned on and off.

A switch makes a gap in the circuit. When the gap is open, the electric current cannot flow round the circuit. The electricity cannot jump across the gap.



When the gap is closed the electricity flows and the light comes on.



Switches can be used for many jobs such as controlling lights, radios and TV sets. In an emergency, they can be used to get help using Morse Code.

A·–	B–···	C–·–·	D–··	E·
F··–·	G––·	H····	I··	J·–––
K–·–	L·–··	M––	N–·	O–––
P·––·	Q––·–	R·–·	S···	T–
U··–	V···–	W·––	X–··–	Y–·––
Z––··				

Switches come in different shapes and sizes. A wall switch can be used for putting on the light inside a house. A push switch can be used to ring a door bell. Secret pressure pad switches can be used to detect burglars walking across a carpet. Most electrical goods have a switch to turn them on or off.

How to Make a Simple Circuit

Section A

Choose the best word or group of words to fit the passage and put a ring around your choice.

To make a simple circuit you need two wires, a bulb and a

1 **switch.** **buzzer.** **motor.** **battery.**

If you have a gap in a circuit the

2 **light** **electricity** **sound** **water**

will not flow. If you have no gaps the

3 **light** **electricity** **sound** **water**

will come on. Switches can be used for controlling lights, radios and

4 **TVs.** **ADs.** **BCs.** **BBCs.**

In an emergency, switches can be used to get help using

5 **Inspector Code.** **Morse Code.** **Secret Code.**

A push switch can be used

6 **to ring a door bell.** **detect burglars.**
put on the light. **as a secret pressure pad.**

Section B

1 Fill in the table:

Morse Code	
F =	
	.. —
W =	

2 How do you make a simple circuit?

3 What does a switch do?

4 When can electricity not flow round a circuit?

5 What can switches be used for?

6 Why do you think switches come in different shapes and sizes?

7 Why do you think most electrical items have a switch?

8 Why would you want to detect a burglar walking across a carpet?

Section C

Write a short story in which a burglar is caught by a burglar alarm.