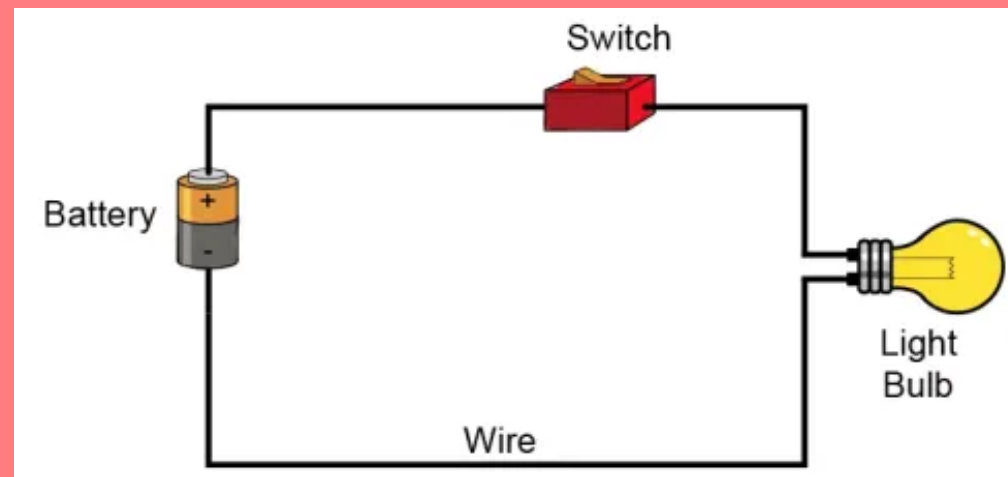


# Science

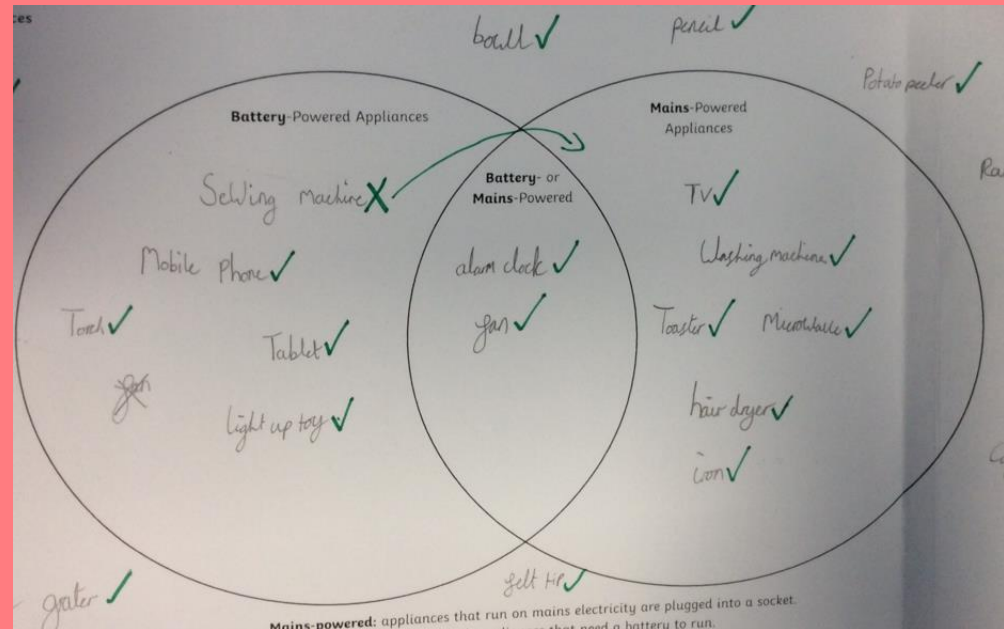
Why do we need a complete circuit for an appliance to work?



Class Tamar

Spring 2 2024

We began our lesson sorting appliances into groups of whether they used batteries or mains electricity. We then used a Venn diagram to classify different appliances.



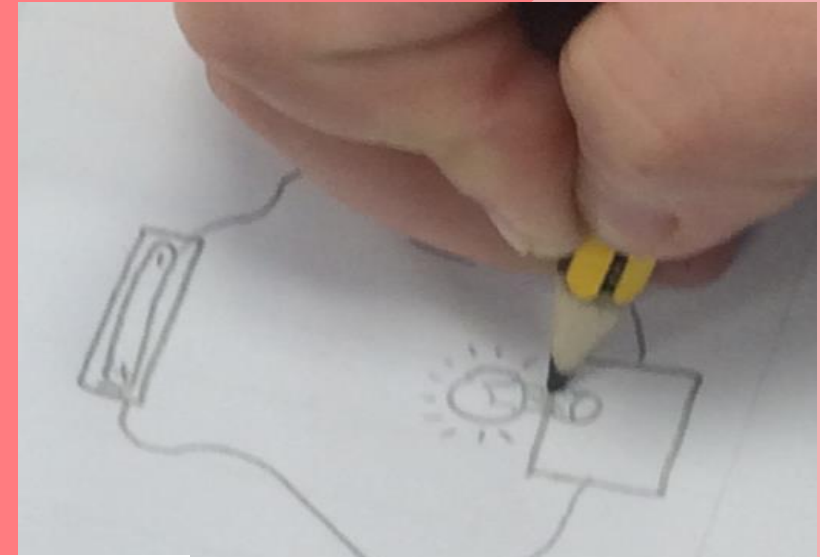
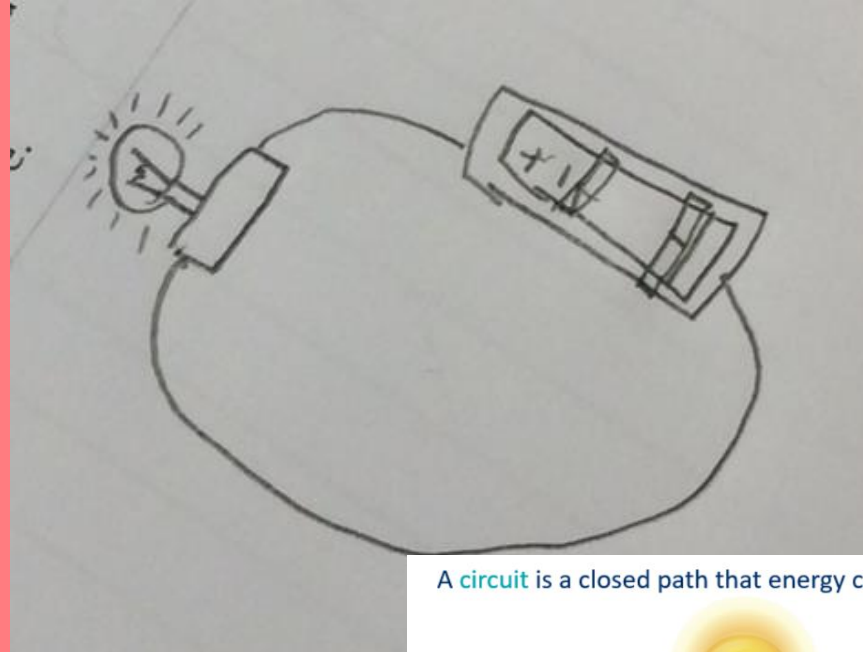
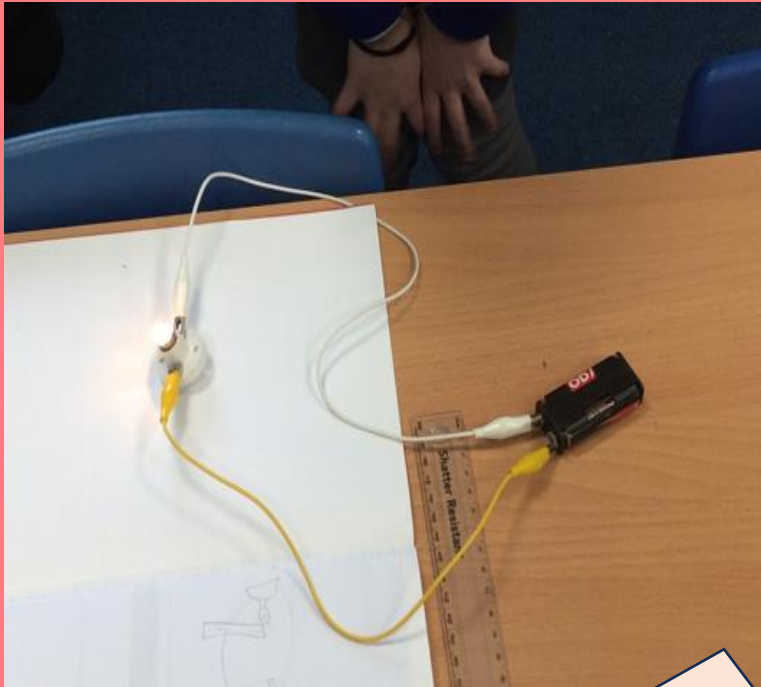
A hairdryer uses mains electricity in order for it to work.

A remote control needs batteries for it to do its job.

A tin opener is an appliance as it has a job but it doesn't use any electricity.

A light up toy gets its energy from batteries.

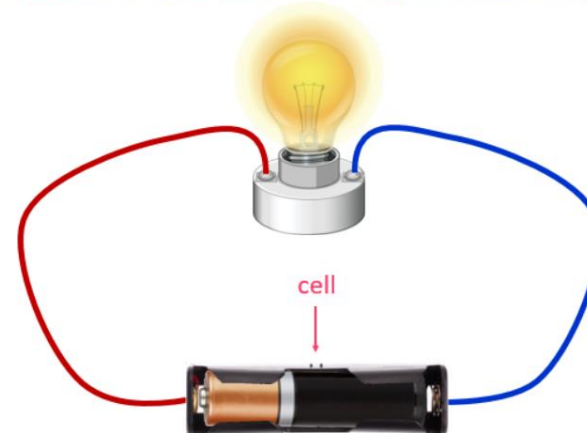
We were introduced to what an electrical circuit is and how we would draw this. We were all able to identify the different components in a complete circuit. We then made some simple circuits and drew these into our books.



The cell provides the energy that travels around the circuit so that the bulb can light up.

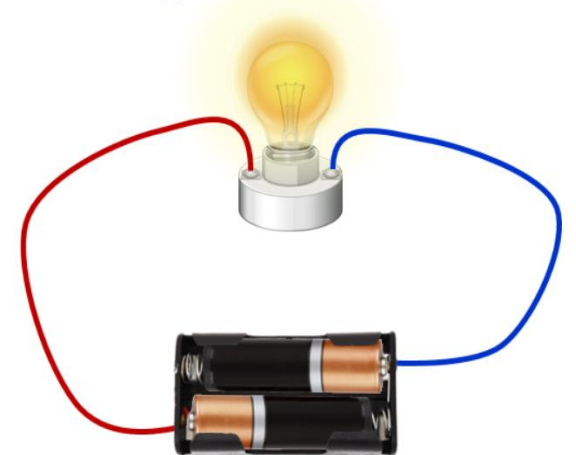
The wires allow the electricity to flow through the circuit.

A **circuit** is a closed path that energy can flow through.



Where does the **circuit** get its energy from?  
A circuit's energy comes from cells.

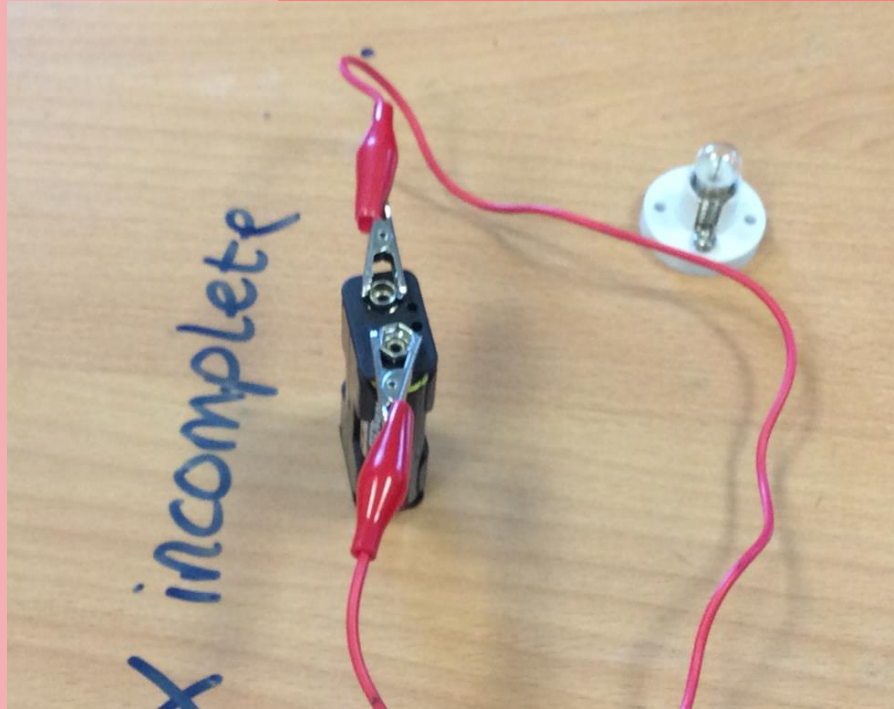
What will happen to the bulb if we add more **cells**?



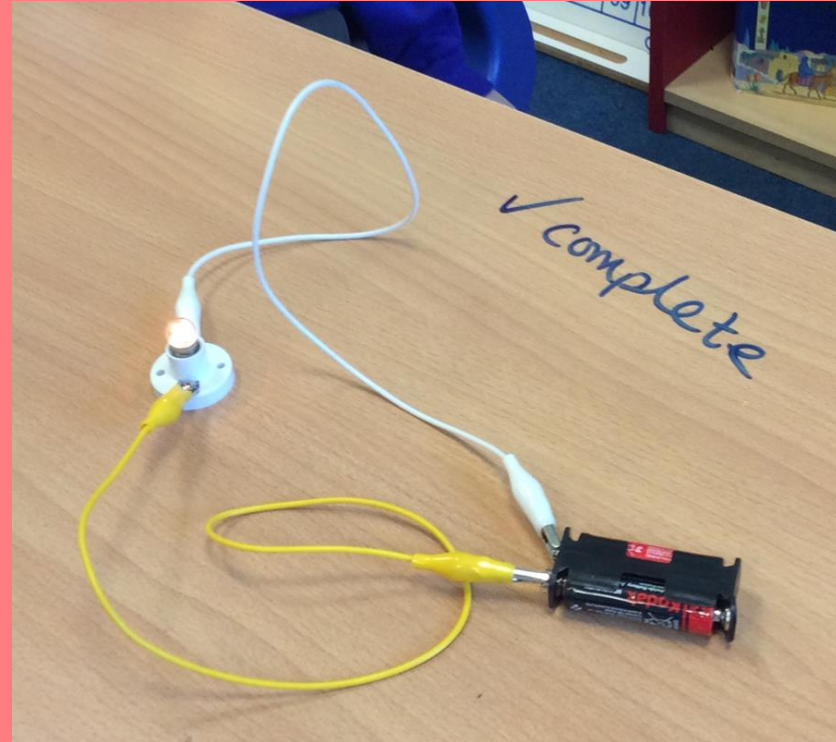
It gets brighter.



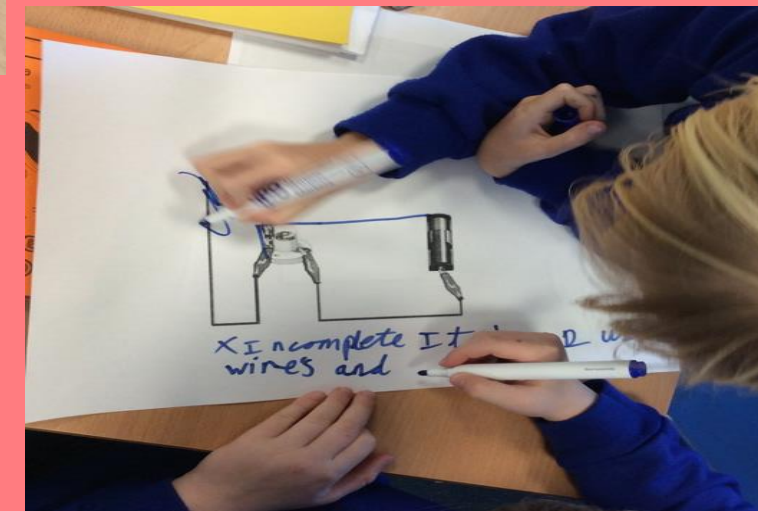
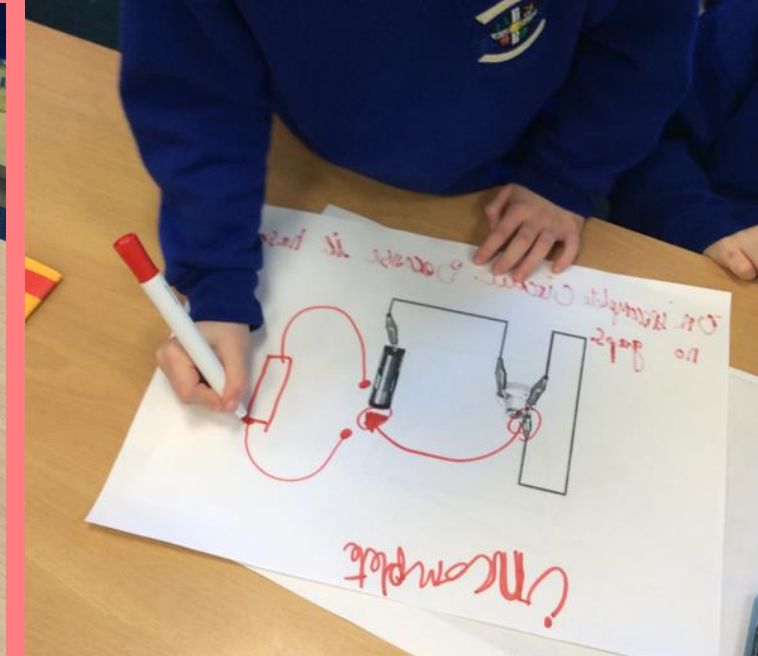
We learnt the difference between a complete and incomplete circuit. We were given different pictures of circuits and had to problem solve together to work out whether they were complete or incomplete and why. We then had a go at testing our answers by making each circuit.



This is an incomplete circuit because the bulb is not attached to the wires – electricity can't jump through air to light up the bulb!



This is a complete circuit because there is no gap – electricity can flow all the way around.

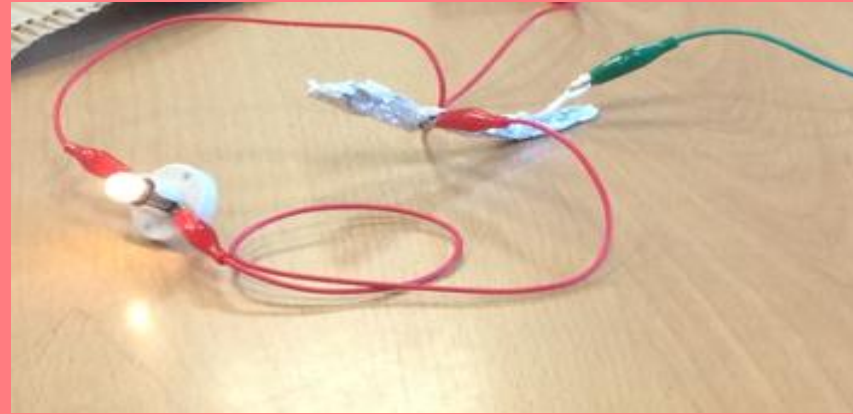




We learnt the difference between conductors and insulators. A conductor will allow electricity to pass through a circuit. An insulator will not allow electricity to pass. We tested and sorted different materials to see whether they were conductors or insulators.



An insulator is a material that allows electricity to pass through it. The bulb lights up when we use it.



A conductor is a material that doesn't allow electricity to pass through it. The bulb doesn't light up when we use it.





We went on a class trip to a wind turbine and solar farm. We had a fantastic time learning about renewable energy and why energy is important for our homes and community.



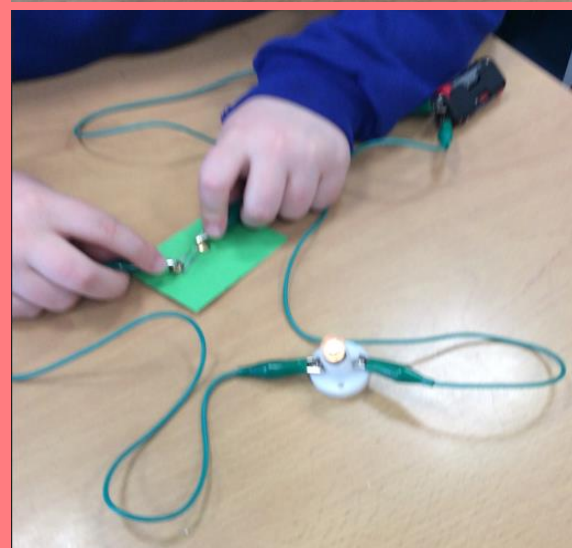
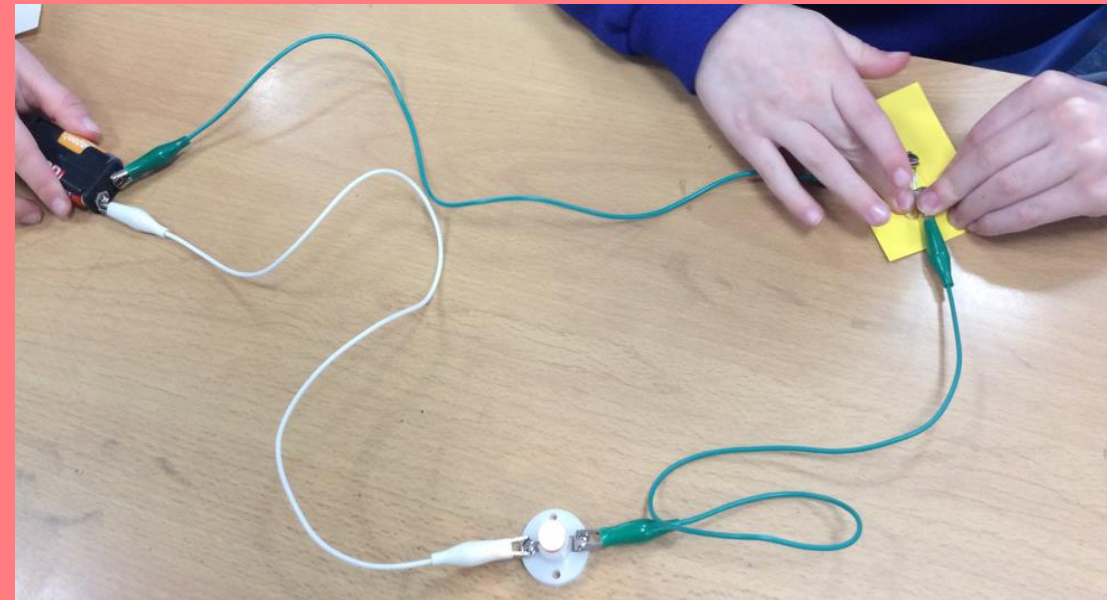
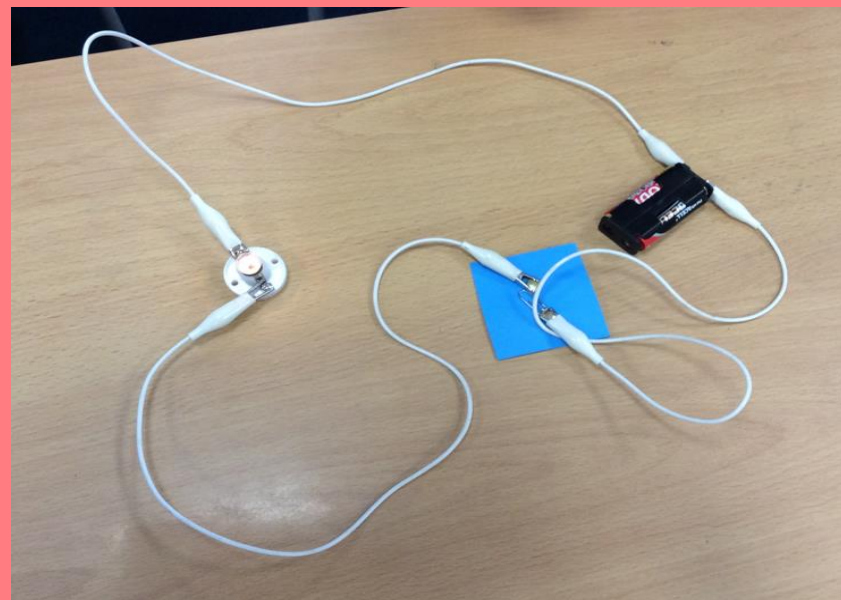
It's amazing that the solar farm can give energy to thousands of houses nearby.

These signs mean that there is risk of danger because of the amount of electricity there.





We finished the unit by making our own switches. We used our switches to show that we can make the lightbulb work by creating a complete circuit. We were able to demonstrate how to make and break the circuit by turning the light on and off just by using our switches.



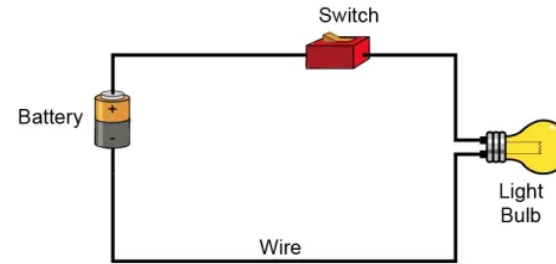
The switch works because the paperclip is a conductor.

When the switch is open the circuit is broken so the bulb won't light up.

# Science FLE Y3/4 Why do we need a complete circuit for an appliance to work?

## What I have learnt before:

- We have discussed properties of materials and why some things are suited to a purpose.



## Forever Facts

Appliances that need electricity are either battery powered or mains powered.

The components in a simple series circuit include cells, wires, bulbs, switches and buzzers.

For an electrical circuit to work, there must be no breaks.

A *conductor* will allow electricity to pass through a circuit. An *insulator* will not allow electricity to pass.

## Skills

Construct a series circuit.

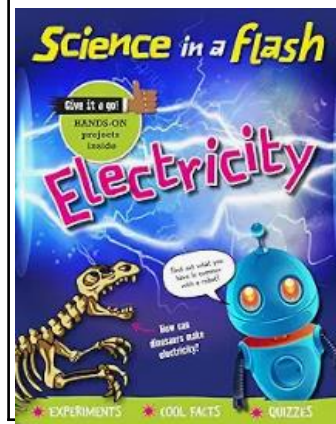
Recognise the function of a switch within a simple series circuit.

Recognise that metals tend to be conductors of electricity.

## Personal development:

Develop an awareness of the world around them. Jobs you could do: working within science, education and engineering.

## Exciting Books



## Our Endpoint

I can make something work by creating a complete circuit.

## Subject Specific Vocabulary

appliance

A device or machine in your home that you use to do a job such as cleaning or cooking.

circuit

Something made of electrical devices with no breaks that allows electricity to flow through it.

conductor

A material that allows electricity to pass through it easily.

insulator

A material that does not allow electricity to pass through it.

battery

A sort of container that stores energy until it is needed.

cell

A unit of device that converts chemical energy into electrical energy.

switch

Something that can make or break an electrical circuit.