

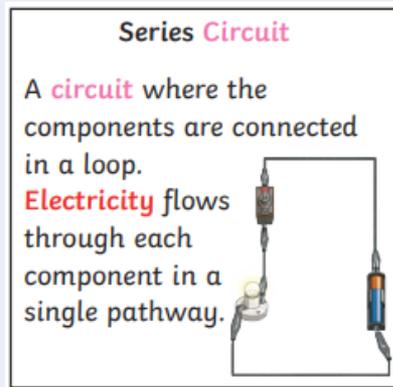
National Curriculum Science - Knowledge

Key Learning

Vocabulary

- 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 the lamp is part of a complete loop with a battery
- recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit
- recognise some common conductors and insulators, and associate metals with being good conductors

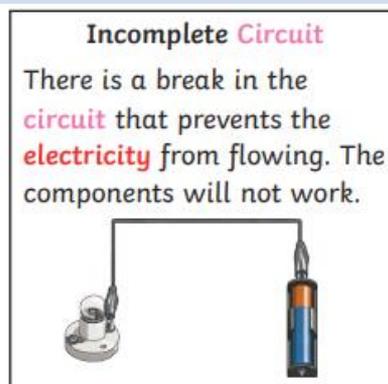
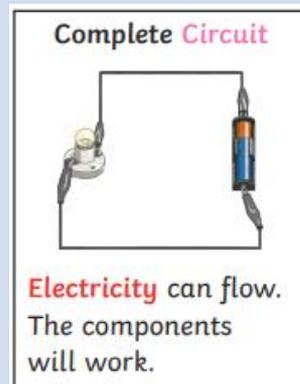
Many everyday appliances rely on electricity for them to work. Some appliances use mains electricity (are plugged into a socket) and others have a battery to make them work.



Create a simple series circuit using the following components: cell (battery), bulb, motor, switch, buzzer and wires.

And, To be able to decide of a simple series circuit will work or not

To be able to design a simple series circuit where a switch is used to change the circuit from incomplete to complete and therefore light the bulb.



Appliance - appliances A piece of equipment or a device designed to perform a particular job, such as a washing machine or mobile phone mains,

Battery - A device that stores electrical energy as a chemical. Two or more cells joined together form a battery.

Electricity- The flow of an electric current through a material, e.g. from a power source through wires to an appliance.

Circuit, - A pathway that electricity can flow around. It is based around wires and a power supply

series circuit – a circuit where the components are connected in a loop.

Components – parts of the circuit that have specific jobs to do. Examples are:

Conductor- A conductor of electricity is a material that will allow electricity to flow through it.

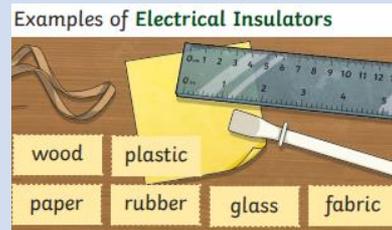
Insulator - Materials that are electrical insulators do not allow electricity to flow through them.

National Curriculum Science – working scientifically

- Asking relevant questions and using different types of scientific enquiries to answer them
- Setting up simple practical enquiries, comparative and fair tests
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers
- Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions
- Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions
- Identifying differences, similarities or changes related to simple scientific ideas and processes
- using straightforward scientific evidence to answer questions or to support their findings.

Key Learning continued...

To Recognise common conductors and insulators



And test these in an electrical circuit to demonstrate conductivity.

To learn how to work safely with electricity in a classroom environment and ways we can help reduce the amount of electricity used around the home.



Scientific investigations

Insulators and conductors –
Set up a comparative test:
Which materials are insulators and which are conductors by testing and comparing materials in a circuit.

Record and present findings

Sequence of learning – Electricity	
1	What is electricity used for? Identifying appliances that use electricity to work. What is the difference between mains and battery electricity? Sort appliances that use mains/battery power in a Venn diagram
2	What is a circuit? Explore the different electrical components, what do they do? Build series circuits using given components, draw and label the circuit diagram.
3	Will it work? Build a selection of complete and incomplete circuits, which ones work and which don't? how could the circuit be changed to make them work if they don't?
4	Conductor or insulator? Look at a variety of objects, what material are they made from (recap from KS1) some of these materials are insulators and some conductors. Why is it useful to have conductors and insulators? Conductor and insulator investigation.
5	Switch it on. Adding switches to simple circuits and identifying their purpose. Explore and make a selection of switches and add them to a circuit to check if they work.
6	Is it safe? How can we work safely with electricity and make posters to show how we can help save electricity to help save the planet and save money.