



Design and Technology Knowledge Organiser

Year 3: Spring Term – Electrical Systems

Simple Circuits and Switches

Design, make and evaluate a torch for younger children for hobbies and interests.



Key Knowledge

Learn this information

Electrical Appliances:

Many everyday appliances rely on electricity for them to work.

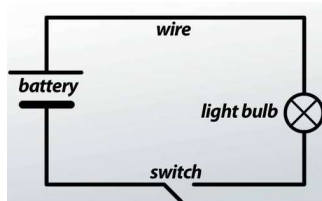


Thomas Edison:

Edison was an American inventor who has had a large influence on modern life. His most famous invention was the light bulb.

Simple Circuit:

A simple circuit comprises of a power sources (such as a battery), a switch and an output device (such as a light bulb or buzzer). These components are connected by wires.



Commercial Switches: There are a range of different switches which can be used in a simple circuit:



Push-to-break switch

The switch is off while the button is pushed, but returns to its 'on' position when button is released.



Push-to-make switch

When you push, the electricity flows through the circuit, but when you release it the circuit is broken and the switch is off.



Reed switch

Activated by a magnet – this closes the contacts and completes the circuit.

Toggle switch

Simple on/off switch



Key Skills

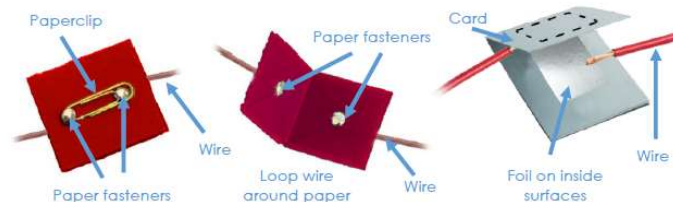
Practise and perform these skills

Make Secure Connections:



Handmade Switches:

Make a variety of switches using available materials.



Design and Create the Housing for the Torch:

Use recycled materials to make the body of the torch (for example, plastic bottles, packaging and cardboard). Then use a reflective material such as foil for the 'reflector' at the top of the torch.

Key Vocabulary

Understand these key words

Vocabulary	Definition
Circuit	The path through which electricity passes.
Conductor	A material which allows an electric current to pass through it.
Input Devices	Components that are used to control an electrical circuit e.g. switches.
Insulator	A material which does not easily allow electric current to pass through it.
Output Devices	Components that produce an outcome e.g. bulbs and buzzers.
Prototype	A model made to test whether a design will work.
Push-to-break Switch	A switch turned off by pressing it.
Push-to-make Switch	A switch turned on by pressing it.
Reed Switch	A switch operated by a magnet.
Toggle Switch	A switch operated when a lever is pressed.
System	A set of related parts or components that achieve a desired outcome.