

**DT Knowledge Organiser:
Year 3/4
Electrical Systems:
Torches**

Project: Design and make a torch – who is it for and what features does it need?

This half term you will learn:

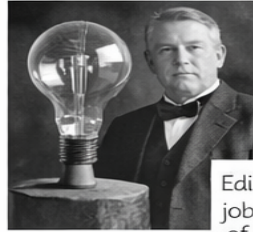
- basic circuits
- electrical components
- torch designs
- writing design criteria
- making a simple torch
- evaluating your ownwork.
- investigating and analysing designs of existing torches.

This half term you will learn:

- How could you make your torch easy to hold?
- How can you design a torch that is sturdy, lightweight, portable, durable, adjustable or?
- What materials might be suitable for making the casing of your
- How might the circuit inside your torch be connected?

Let Me Introduce You To...

Thomas Edison



Thomas Edison was an American inventor who is credited with inventing the lightbulb.

Edison resigned from his job, sitting the equivalent of three years full-time Considerable experimentation. Edison had over 70 mechanical patents. In January 1879 Edison made a lightbulb that glowed for 40 hours – the first **practical lightbulb**.

Key Knowledge

How many **electrical items** do you have in your home?

Which items need to be plugged into the electricity?

Which items use **battery power**?



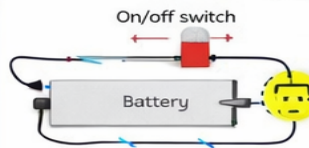
Which items use **battery power**?



In the early 1900's some homes did not use household devices such as lightbulbs, toasters and washing machines. How would life be different for you at home and without electrical items in your home and at school?

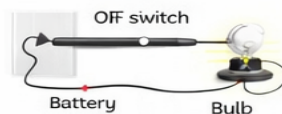


Technical Knowledge



Some materials let electricity pass through them. These are called **electrical conductors**. Metals such as copper, steel, or aluminium do not allow electricity flow.

This is a **series circuit**, electricity travels in a **complete** loop from the battery, to the switch which operates the bulb then back to the battery.



Electrical Insulators do not allow electricity to flow through, them. These include materials such as rubber, plastic, glass or wood. Practical objects that let electricity flow through them are called **conductors**.

Key Vocabulary

Word	Definition
<i>electrical</i>	an item that uses electricity to work
<i>conductor</i>	a material that allows electricity to flow through it
<i>insulator</i>	a material that does not allow electricity to flow through it
<i>battery</i>	a cell that provides electrical energy to power a circuit.
<i>bulb</i>	a device that lights up when electricity passes through it
<i>switch</i>	a component that opens or closes to allow electricity to flow when pressed.
<i>series circuit</i>	a circuit where the electricity flows along one path