

Year 4



Knowledge Organiser: D&T – Electrical Systems

Project ideas; *Light up sign, toy with siren, headlamp*

Key Vocabulary

Simple circuit	Switch	Current
Short circuit	Battery	Cell
Input/ Output Device	Conductor	Insulator

Key Learning

Understand and use electrical systems in their products linked to science coverage.

Apply their understanding of simple circuits and switches/ computing to program and control their products.

Know and use technical vocabulary relevant to the project.

Skills

Design

Generate and clarify ideas through discussion with peers to develop design criteria to inform the design of products that are fit for purpose, aimed at particular individuals or groups.

Use annotated sketches and appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.

Generate, develop, model and communicate realistic ideas through discussion and, as appropriate, annotated sketches, cross-sectional and exploded diagrams.

Make

Order the main stages of making.

Select and use appropriate tools to measure, mark out, cut, score, shape and combine with some accuracy related to their products.

Explain their choice of materials according to functional properties.

Select from and use materials and components, including construction and electrical components according to their function and properties.

Evaluate

Investigate and evaluate a range of products including the ingredients, materials, components and techniques that are used.

Test and evaluate their own products against design criteria and the intended user and purpose.

Evaluate their ideas and products against their own design criteria and identify the strengths and areas for improvement in their work.

What you may already know...

- Constructed a simple series electrical circuit in science, using bulbs, switches and buzzers.
- Cut and joined a variety of construction materials, such as wood, card, plastic, reclaimed materials and glue.

Overview – Simple Circuits

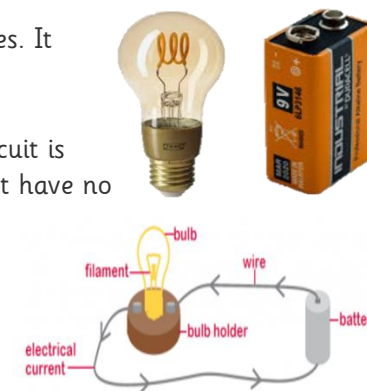
Electricity is a type of energy. It is used to power lots of things

Electricity can flow through wires and cables. It can also be stored in batteries or cells.

Electricity can flow through circuits. A circuit is the path the electric current follows. It must have no breaks in it (a closed circuit) for electricity to flow.

The electricity flowing through a circuit is known as the current. The current can be deliberately allowed to flow or broken using a switch.

Some materials conduct electricity (conductors), whilst others do not (insulators).



A simple circuit is...

A simple circuit includes...

My circuit worked/ didn't work because...

Next time I need to...

