

## Circuits – Making Torches

*To use knowledge and understanding of electric circuits to design and make a torch.*

*The children will complete this unit in conjunction with their science topic on Electricity.*

### Background information - Let me introduce you to Thomas Edison:

Thomas Edison was an American inventor who transformed the world with inventions including the lightbulb. In January 1869 Edison resigned from his job, intending to devote himself full time to inventing things. In 1879, after considerable experimentation and based on 70 years work of several other inventors, Edison invented a carbon filament that would burn for 40 hours—the first practical lightbulb. In the early 1900's some homes began to use household electrical items, such as washing machines, kettles and sewing machines. How would life be different for you today without electrical items in your home and at school?

### Knowledge and Understanding

In this unit pupils will learn...

- how electrical systems work
- to identify the features of a torch and know how a torch works;
- to discuss the positives and negatives of different torches;
- what electrical conductors and insulators are;
- that a battery contains stored electricity and can be used to power products;
- to make a torch with a working electrical circuit and switch;
- to select and use appropriate equipment to cut, assemble and attach materials;
- how to create a labelled design, showing the individual design features;
- to explore, test and evaluate existing torches through questioning, exploration, disassembling, handling, looking and drawing upon existing knowledge of torches.

### Enquiry skills and Key concepts

- Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as switches, levers, winding mechanisms, pulleys and gears)
- To design with purpose by identifying opportunities to design
- Make products by working efficiently and carefully selecting materials
- To refine work and techniques as work progresses, continually evaluating the product design

### Key Vocabulary:

- **Material** – the matter from which something is made, e.g. wood, metal, fabric
- **Property** – a quality or characteristic of something
- **Electrical** an item that uses electricity to work
- **Conductor** - a material that allows electricity to flow through it, e.g. metal
- **Insulator** - a material that does not allow electricity to flow through it, e.g. plastic
- **Battery** - a cell that provides electrical energy to power a circuit
- **Bulb** – part of the circuit, made from plastic or glass, that gives out light when electricity passes through it
- **Switch** - part of the circuit that can be opened or closed to allow electricity flow
- **series circuit**- a circuit where the electricity flows along one path

