

## Prior Learning

In Year 4 the children carried out a DT unit that involved using simple electronics. They explored switches and circuits and incorporated these into a product.

The children can:

Explore simple products by disassembling them and embarking on research as to what products are currently on the market and they have understood the need to speak to the target audience to understand what the consumer needs.

Create mood boards and simple diagrams such as an exploding diagram. In their previous Year 5 unit they will have experienced cross sectional drawings.

## Switches and circuits in the world



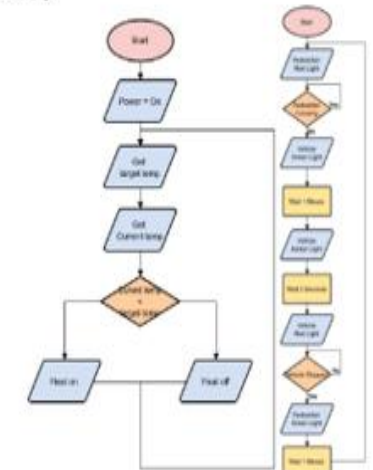
More complex circuits such as a parallel circuit has two or more paths for current to flow through. This means different components can be controlled separately e.g. a light bulb can be off, while a buzzer sounds.

## Control technology

Control technology is used to:

- operate systems, eg traffic lights
- control actions, eg a robot's movement
- create video games
- control manufacturing devices, eg laser cutters

Computers follow instructions or sequences programmed into them. A flowchart can be used to help design a sequence. Actions can be ordered, reordered or removed if no longer necessary.



## Vocabulary

Input

Output

Switch

Buzzer

Circuit

I can design an electrical circuit for a product. For example: an alarm

I can draw an annotated sketch of an electrical circuit and can label it with materials and components.

I can also consider time restraints and the resources required.

I can select from batteries, switches, foil, paper clips, buzzers, bulbs to create their product.

I can name products that use electrical circuits – lights, torches, children's toys.

I can state if my electrical circuit and final product is suitable for the intended user and purpose.

I can offer a way to improve my product.

		<b>Toggle switch</b> A switch operated when a lever is pressed.
		<b>Push-to-make switch</b> When you push, the electricity flows through the circuit, but when you release it the circuit is broken and the switch is off.
		<b>Push-to-break switch</b> The switch is off while the button is pushed, but returns to its 'on' position when button is released.
		<b>Reed switch</b> Activated by a magnet which closes the contacts.
		<b>Tilt switch</b> When tilted at an angle a ball bearing or conductive liquid bridges the contacts inside, completing the circuit.
		<b>Micro-switch</b> A very sensitive switch that can operate as push-to-break switch or a push-to-make switch.
		<b>Light-dependent resistor (LDR)</b> A sensor that operates when light is shined on it.
		<b>Pendulum switch</b> When stationary the switch is on; when it swings it breaks the circuit.

## Series and parallel circuits

