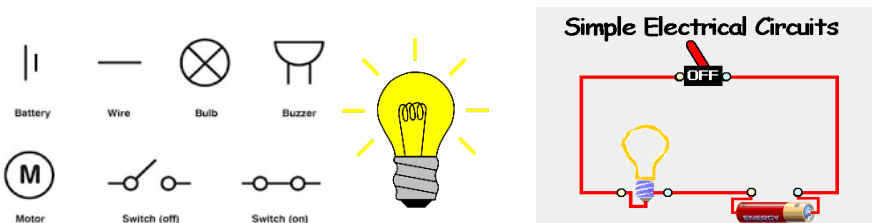


Year 6 Knowledge Organiser- How do I brighten a bulb?

What will I learn?

In this topic we will learn to:

- Use recognised symbols when representing a simple circuit in a diagram.
- Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.
- Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary
- Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit
- Know how more complex electrical circuits and components can be used to create functional products.



Previous learning

Y4- How do simple circuits work?

Which materials conduct electricity?

You should already know:

- construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers
- recognise some common conductors and insulators, and associate metals with being good conductors.

Vocabulary Dozen

Cell	A device containing electrodes that is used for generating current.
Electricity	A form of energy resulting from the existence of charged particles.
Motor	A machine powered by electricity that supplies motive power for a vehicle or other moveable device. A machine powered by electricity that supplies motive power for a vehicle or other moveable device.
Circuit	A complete and closed path around which a circulating electric current can flow.
Switch	A device for making and breaking the connection in an electric circuit
Conductor	A material or device which allows heat or electricity to carry through.
Component	A device (such as a bulb) that fulfils the function of the circuit.
Current	A flow of electricity which results from the ordered directional movement of electrically charged particles.
Bulb	A glass bulb which provides light by passing an electrical current through a filament.
Insulator	A material or an object that does not readily allow electricity to flow through it.
Wire	A long thin piece of metal that carries an electrical current often covered in plastic for safety.
Voltage	An electrical force that makes electricity move through a wire, measured in volts.

Key Knowledge

How can we make a bulb brighter or dimmer?

1. Add more batteries - this would supply more energy to the circuit by increasing the voltage. It would make any bulbs brighter, any buzzers louder and any motors move faster

2. Add more bulbs, buzzers or motors - If you kept the number of batteries the same they would be dimmer, quieter or slower.

3. Use batteries with a higher voltage - The higher the voltage the more energy they supply so it would make any bulbs, buzzers or motors brighter, louder or faster.

By changing the components in a circuit we can vary:



The brightness of a bulb
(brighter / dimmer)



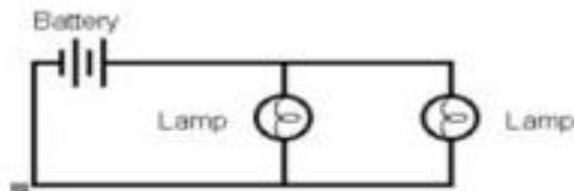
The volume of a buzzer
(louder / quieter)

What is a switch and how does it work in a circuit?

Electrical products work by using circuits and switches. Circuits allow electricity to flow through - and so power - bulbs, motors and buzzers. Switches are used to control circuits. They can break a circuit - and so switch bulbs, motors and buzzers off - or complete a circuit - and so switch them on again. Many products work by using electricity. How many items in your house work by using electricity? Probably more than you think. Count them and see.

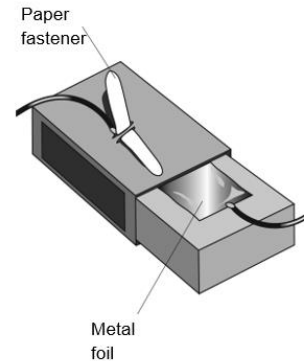
Parallel circuits.

- In a parallel circuit the current is divided into separate paths with each path receiving the same voltage.



The different types of switches to use in a circuit.

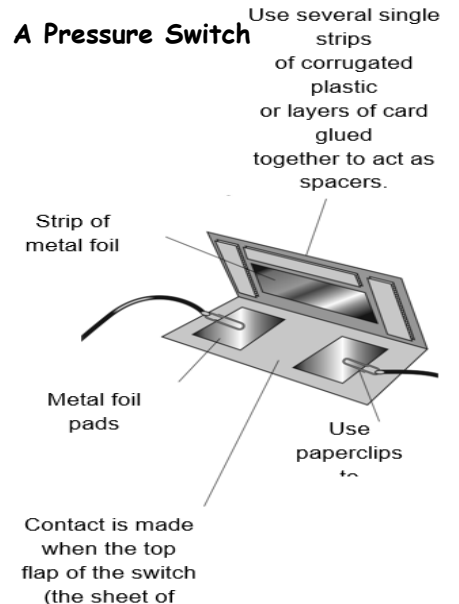
A Slide Switch



A Tilt Switch.



A Pressure Switch



Useful Weblinks

<https://www.bbc.co.uk/bitesize/topics/zj44jxs>



<https://classroom.thenational.academy/units/electrical-circuits-06f7>

