Year 6: What happens when I flick a switch?

Electricity Knowledge Mat (Physics)

Subject Specific Vocabulary

conductor	Some materials let electricity pass through them easily. These materials are known as electrical conductors.
insulator	Plastic, wood, glass and rubber are good electrical insulators.
socket	A socket is a safe device to plug your electrical items into at home. Almost every room at home will have at least one socket.
series circuits	A series circuit is one that has more than one resistor, but only one path through which the electricity (electrons) flows.
cells	An electrical cell is a device that is used to generate electricity, or one that is used to make chemical reactions possible by applying electricity.
volts	Voltage is an electrical potential difference, the difference in electric potential between two places.
generator	A machine that converts energy into electricity.
turbine	A machine that creates continuous power in which a wheel, or something similar, moves round and round by fast moving water, steam, gas or air.
fuses	These are safety devices. A fuse is a strip of wire that melts and breaks an electric circuit if it goes over a safe level.
Thomas Edison	He was a great inventor that came up with a way of making the electric light bulb accessible for homes, industry and outside in the streets.

Electrical symbols

Component	Symbol	Purpose
Cell (Battery)		Provides electrical energy
Power supply		Alternative to using cells
Wire		Allows current to travel
Bulb/light		Converts electrical energy into heat and light
Motor		Converts electrical energy into movement energy
Buzzer		Converts electrical energy into sound energy
Switch		Allows circuit to be opened or closed

Sticky Knowledge:

- **Know how the number and voltage of cells in a circuit links to the brightness of a lamp or the volume of a buzzer.**
- **Compare and give reasons why components work and do not work in a circuit.**
- **Use recognised symbols when representing and drawing a simple circuit in a diagram.**
- **Construct simple series circuits.**
- **Be able to answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors.**

Interesting & important facts

- ❑ Electricity travels at the speed of light. That's more than 186,000 miles per second!
- ❑ Electricity comes from the power station, the wind, the sun, water and even an animal's faeces!
- ❑ Electricity is a type of energy that build up in one place (static), or flow from one place to another (current electricity).
- ❑ Coal is the biggest source of energy for producing electricity. Coal is burned in furnaces that boils water and creates steam.
- ❑ A popular way of generating electricity is through hydropower. This is a process where electricity is made by water which spins turbines attached to generators.
- ❑ A bolt of lightning can measure up to 3,000,000 volts, and it lasts less than one second!
- ❑ Electric fields work in a similar way to gravity. Whereas gravity always attracts, electric fields can either attract or repulse.