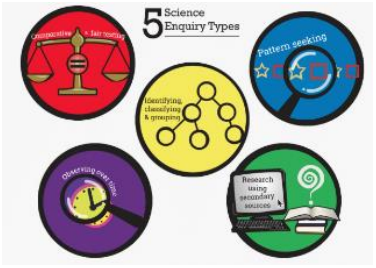
Year 6 Spring Term

Electricity



Prior knowledge learned in year 4

identify common appliances that run on electricity, construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers, identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery, recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit, recognise some common conductors and insulators, and associate metals with being good conductors

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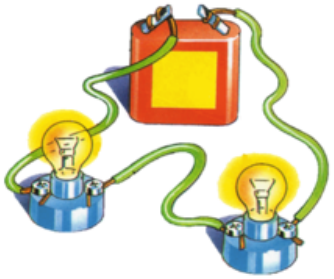
associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit, compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches, use recognised symbols when representing a simple circuit in a diagram.

ELECTRICITY KNOWLEDGE ORGANISER

What you should already know...



-Electricity is a type of energy.

-It is used to power lots of different things, including many items that we use in everyday life.

-Electricity can flow through wires and cables, and can be stored in batteries (sometimes called cells).

-Electricity can flow in simple series electrical circuits.

-Some materials conduct electricity, and others do not (insulators).

Electricity Safety

If electricity is not used safely, it can be highly dangerous. When using electricity, make sure that you:

-Make sure that wires are placed in safe locations, where people cannot trip over them;

-Never stick your fingers or objects into a plug socket;

-Never use frayed wires – don't pull wires;

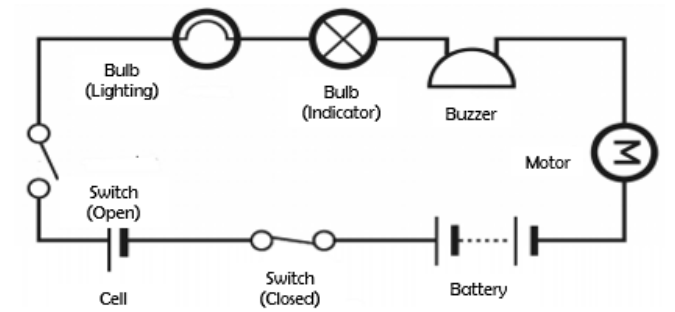
-Ensure that your hands are dry when you are near sockets/ electrical equipment;

-Do not overload a plug socket;

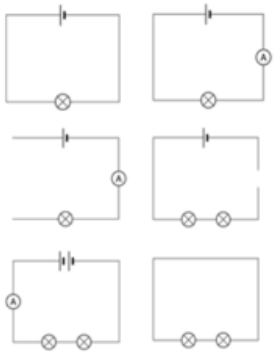
-Always get broken appliances and plugs fixed.

Circuit Diagrams

When drawing electrical circuits, you should use the standard symbols to show the different components.



Variation of Components



When changes are made to circuits, components can function differently:

-When switches are open or wires are removed from a circuit (so that it is no longer a closed circuit), bulbs and buzzers will turn off. You can use crocodile clips to investigate adding and removing wires.

-When more batteries or cells are added (or batteries or cells are included with a higher voltage) the brightness of bulbs and the volume of buzzers will increase.

-When more bulbs are added to a simple circuit, they will be dimmer than if there were one bulb. This is because the electricity is shared between the two bulbs. More voltage would be needed to make them brighter.

You should be able to look at circuits like those on the left, and work out what would happen.

Key vocabulary

Amps, Volts, Cells, Wires, Bulbs, Switches, Buzzers, Battery, Circuit, Series, Conductors, Insulators,

Suggested texts

Foxton – Electricity

Scientists

Nikola Telsa -AC electric system, Alessandro Volta- Electrical Battery, Nicola Tesla- Alternating Currents, Edith Clarke -Electrical engineer

What effect does the voltage of cells have on a buzzer / bulb?

Can you identify symbols within a circuit?

Explain the reasons for variations in component function.

What safety measures should we take when using electricity?