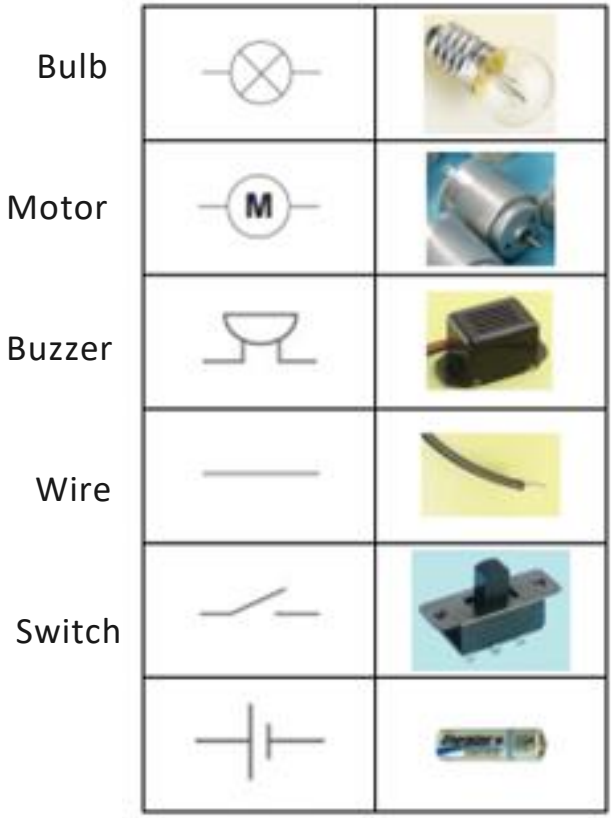
Science Knowledge Organiser Y3/4 – Electricity

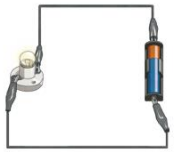
Key Vocabulary	
Appliances	A piece of equipment or a device designed to perform a particular job, such as a washing machine or mobile phone.
Battery	A container consisting of one or more cells where chemical energy is converted into electricity and used as a source of power
Bulb	A glass bulb which provides light by passing an electrical current through a filament
Buzzer	An electrical device that makes a buzzing noise and is used for signalling
Cell	A device containing electrodes that is used for generating current
Circuit	A complete and closed path around which a circulating electric current can flow
Conductor	A material or device which allows heat or electricity to carry through
Current	A flow of electricity which results from the ordered directional movement of electrically charged particles
Electricity	A form of energy resulting from the existence of charged particles
Insulator	Materials that are electrical insulators do not allow electricity to flow through them.
Motor	A machine powered by electricity that supplies motive power for a vehicle or other moveable device
Switch	A device for making and breaking the connection in an electric circuit
Voltage	An electrical force that makes electricity move through a wire, measured in volts
Wires	Used to connect the different components in the circuit together.



Series Circuit

A circuit where the components are connected in a loop. Electricity flows through each component in a single pathway.

Complete Circuit



Electricity can flow. The components will work.

Incomplete Circuit

There is a break in the circuit that prevents the electricity from flowing. The components will not work.

Switches can be used to open or close a circuit. When off, a switch 'breaks' the circuit to stop the flow of electricity. When on, a switch 'completes' the circuit and allows the electricity to flow.

push button switch

slide switch

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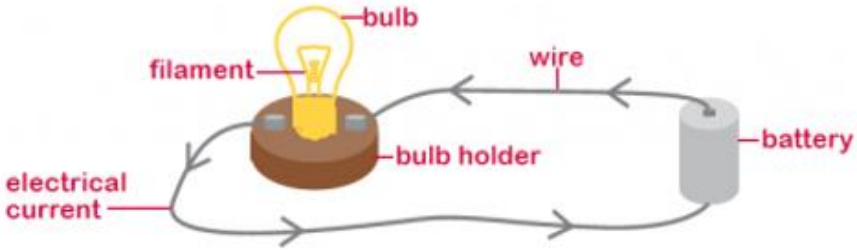
Core knowledge

- 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 the 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.
- Know the difference between a conductor and an insulator, giving examples of each.

Safety when using electricity



Electrical conductors and insulators

A conductor is a material that allows charges to flow easily throughout the material. Metals are often good conductors. Examples include: silver, gold, copper, steel and salt water.

An insulator is a material that does not allow charges to flow easily throughout the material. Examples include: rubber, glass, oil, diamond and dry wood.