# Science Knowledge Organiser

| Topic: Electricity | Year 4: Spring Term | Strand: Physics |
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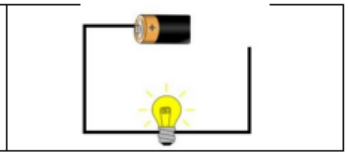
**What should I already know?**

- That electricity is used within homes and buildings
- Batteries hold electricity
- Items with plugs use electricity

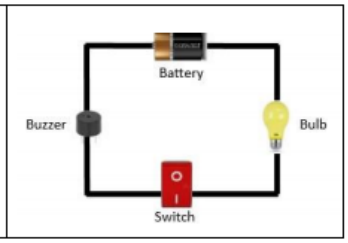
**What do I need to know?**

- 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.

This circuit will not work as it is not complete.



This circuit is complete so the buzzer will sound and the bulb will light.




## Key Vocabulary

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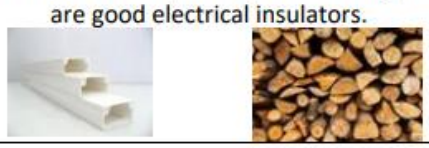
|---|---|
| **Electricity** | A form of energy used for lighting, heating, making sounds and making machines work. |
| **Electrical appliance** | A machine or device which runs on electricity. |
| **Mains** | The electricity supplied to homes, schools and businesses from power stations. |
| **Electrical circuit** | This consists of a cell or battery being connected to a component by wires. The electricity travels from the cell, around the wires and through the components and then back to the cell or battery. It must be a complete circuit to work. |
| **Cell and battery** | A cell is a single unit and a battery is a group of cells. They supply a source of electricity. |
| **Electrical component** | A part that combines with others to form a circuit. E.g. bulb, motor and buzzer |
| **Switch** | Can be added to a circuit to turn the circuit on or off. It allows the electricity to flow if closed or stop is the switch is open. |
| **Conductor** | Material which allows electricity to flow through it. |
| **Insulator** | Material which does not allow electricity to flow through it. |
| **Source** | Where electricity comes from. It can be stored in a cell or battery which is a common source of electricity. Another source is mains electricity which is sent along wires from power stations into buildings. |

**Conductors**

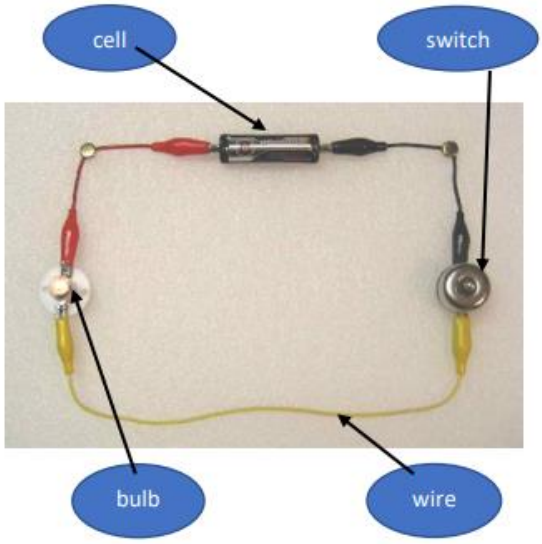
Some materials let electricity pass through them easily. These are known as electrical conductors. Many metals are good electrical conductors, such as iron, copper and steel.

**Insulators**

Some materials do not allow electricity to pass through them. They are known as insulators. Plastic, wood, rubber and glass are good electrical insulators.



**Electrical circuit with a bulb**




**Appliances that run on electricity**

Some plug into the mains and others run on batteries.

The switch opens and closes. The bulb is lit in this circuit because the switch is turned on (closed).