



# KNOWLEDGE ORGANISER

SCIENCE: SWITCHED ON

YEAR FOUR

## KEY KNOWLEDGE:

QUESTION 1: What does a circuit need to work?

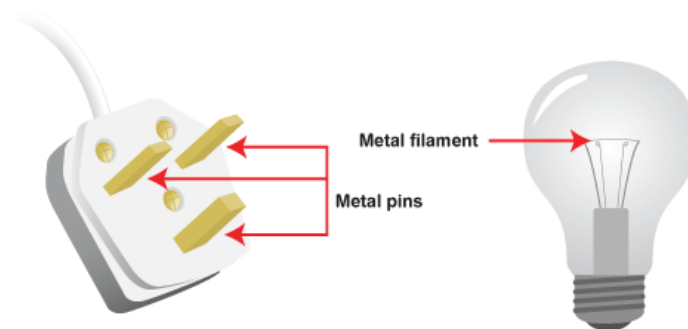
### ANSWER

- A circuit always needs a power source, such as a **battery**, with wires connected to both the **positive (+)** and **negative (-)** ends. A battery is also known as a **cell**.
- A circuit can also contain other electrical **components**, such as bulbs, buzzers or motors, which allow electricity to pass through.
- Electricity will only travel around a circuit that is **complete**. That means it has no gaps.
- When a switch is open (off), there is a gap in the circuit. Electricity **cannot** travel around the circuit.
- When a switch is closed (on), it makes the circuit complete. Electricity **can** travel around the circuit.

QUESTION 2: What are good electrical conductors?

### ANSWER

- Some materials let electricity pass through them easily. These materials are known as electrical **conductors**.
- Many **metals**, such as copper, iron and steel, are good electrical conductors. That is why the parts of electrical objects that need to let electricity pass through are always made of metal



- Metal is used in plugs to allow electricity to transfer from the wall socket, through the plug, and into a device such as a radio or TV.
- In a light bulb, the metal filament conducts electricity and causes the light bulb to light up.

QUESTION 3: What are good electrical insulators?

### ANSWER

- Some materials do not allow electricity to pass through them. These materials are known as electrical insulators.
- Plastic, wood, glass and rubber are good electrical insulators. That is why they are used to cover materials that carry electricity.
- The plastic covering that surrounds wires is an electrical insulator. It stops you from getting an electrical shock.

