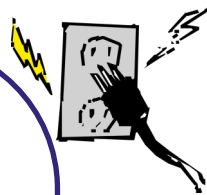


All children – regardless of gender, starting point or background – will have the opportunity to engage with a high-quality science education. They will be equipped with the knowledge, skills and vocabulary to understand how science can be used to explain what is occurring, predict how things will behave and analyse caused. We intend to inspire a sense of enjoyment and curiosity about science.

Electricity



Autumn 2

Prior Knowledge

- Electricity is useful because it provides power for many devices and appliances e.g. lights, televisions, ovens, computers. Some plug in to the mains and others run on batteries.
- Electricity can be stored in a cell. Two cells together are called a battery.
- During the global pandemic electrical appliances such as laptops and Chromebooks meant that children could learn remotely online.
- An electrical circuit consists of a cell or battery connected to a component using wires.
- A complete circuit is needed for electricity to flow and devices to work. If there is a break in the circuit, a loose connection or a short circuit, the component will not work
- A switch can be added to the circuit to turn the component on and off by creating a break in the circuit to stop the electricity from flowing.
- Electrical conductors are materials that allow electricity to flow easily.
- Metals are good conductors so they can be used as wires in a circuit.
- An electrical insulator is a material that doesn't allow electricity to flow through it.
- Non-metallic solids are insulators except for graphite (pencil lead).
- Insulators are important because they can protect us from electricity.
- Water, if not completely pure, also conducts electricity.

Key Vocabulary:

- Circuit
- Complete circuit
- Circuit diagram
- Circuit symbol
- Cell
- Battery
- Bulb
- Buzzer
- Motor
- Switch
- Positive
- Negative
- Symbol
- Amperes
- Volts
- Voltage

New Knowledge:

- An electrical current is the steady flow of electrons in a circuit.
- You can use recognised circuit symbols to draw simple circuit diagrams. The symbols used are universal.
- Adding more cells to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound.
- If you use a battery with a higher voltage, the same thing happens.
- Adding more bulbs to a circuit will make each bulb less bright.
- Using more motors or buzzers, each motor will spin more slowly and each buzzer will be quieter.
- Turning a switch off (open) breaks a circuit so the circuit is not complete and electricity cannot flow. Any bulbs, motors or buzzers will then turn off as well.
- Electric cars are an integral part of the UK's plan to reduce net carbon emissions by 2050 to alleviate the climate crisis.