

Electricity

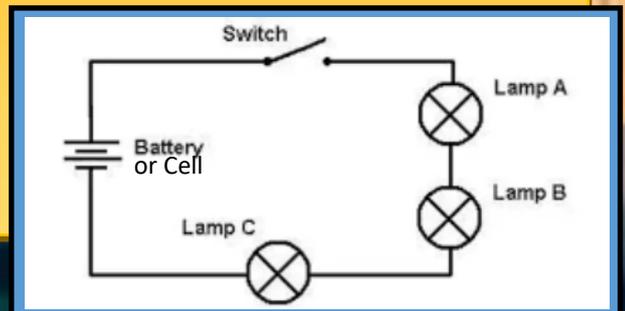
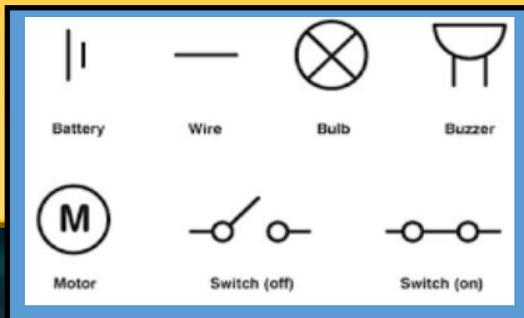
The Big Questions

- What if I add more or bigger batteries?
- How does electricity harm the human body?
- What if all materials conducted electricity?
- How can an electric vehicle work on Mars?

Core Knowledge

Recap: In Year 4, you: learnt about where electricity comes from—renewable and non-renewable sources; learnt about the kinds of appliances that run on electricity ; learnt how to keep yourself safe around electricity; began to construct a simple circuit and name its basic parts; used a metal object as a switch and discovered that some materials, such as metals, are good electrical **conductors**.

- ◆ For an electrical appliance to work, the circuit must be complete
- ◆ The components of the circuit must be in good condition (batteries lose their charge, bulbs get 'burnt out', etc.)
- ◆ Switches are used to temporarily break a circuit
- ◆ The amount of energy in cells (batteries) can be measured in volts
- ◆ The brightness of a lamp or volume of a buzzer will be affected by the number of components (separate parts) in a circuit, the number of cells used and the voltage of these cells
- ◆ Circuit diagrams with recognised symbols are used to show how circuits are set up





Key vocabulary

- Circuit:** a complete path around which electricity can flow
- Current:** the amount of electricity flowing through the circuit
- Components:** the separate parts which make up something (like a circuit)
- Cell:** a device used to generate electricity. A battery is one or more cells, connected
- Buzzer:** a component which can be used in a circuit to make a buzzing noise
- Motor:** a component which converts electrical energy into physical movement
- Bulb:** an electrical component which uses a filament to convert electricity into light
- Filament:** a fine wire (inside a bulb) that lights or heats up when electric current is passed through it
- Series circuit:** A basic circuit, where the electrical current is only able to flow around a single path. The current will flow from a power source, such as a battery, into one or more electrical loads, such as a light bulb, and then back to the power source
- Conductor:** a material which allows energy (in this case, electricity) to pass through it easily

As scientists we will

- ◆ Ask questions about, and explore, what happens when we use different components in a circuit
- ◆ Predict how changes to the circuit will affect our results
- ◆ Predict, from diagrams, which circuits will work
- ◆ Make careful observations of a series of tests, recording our findings using recognised symbols and in a variety of graphs and charts
- ◆ Plan and set up our own Morse Code machine or 'Electric Quiz Game', using all that we have found out
- ◆ Evaluate our electrical machines and consider how to improve the reliability of our results

