Electricity - Year 6 - Unit 3

Scientific Enquiry

comparative & fair testing

Comparative testing means testing objects to rank them. **Fair tests** are enquiries that observe or measure the impact of changing one variable when all others are kept the same. We will design and carry out fair tests exploring changes in circuits to measure the brightness of bulbs, the speed of motors and the volume of buzzers.

Working Scientifically

Asking scientific questions
Planning an enquiry
Observing closely
Measuring (taking measurements)
Gathering and **recording** results
Presenting results
Interpreting results
Concluding (drawing conclusions)
Predicting
Evaluating an enquiry

Subject Specific Vocabulary

battery/cell

A **battery** or **cell** is a source of energy. (In Year 4, **cell** was used for one and **battery** for a group of cells. In Year 6 either term can be used). A circuit always starts with a **battery**. A flow of electricity moves from the positive pole to the negative pole of the **battery**.
Adding more **batteries** to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound.

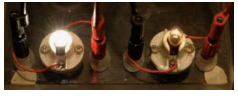
circuit

A **circuit** is a combination of individual electronic components like batteries and bulbs connected together by conductive wires through which electricity can flow.

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.
When adding a buzzer to a **circuit,** the red wire must be on the positive side of the battery and the black wire on the negative.

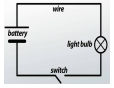
volts/voltage

Voltage (V) is the measurement for the power of a battery. Circuits with lots of components need more batteries.
Adding a battery with a higher **voltage** to a complete circuit will make a bulb brighter, a motor spin faster or a buzzer make a louder sound. The more batteries, the higher the **voltage**.

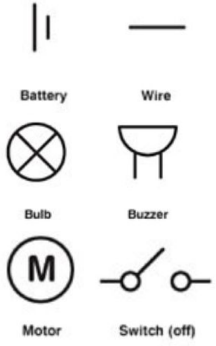


circuit symbol

Circuit symbols are used in circuit diagrams to show how a circuit is connected together.



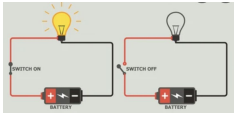
Common symbols:



switch

A **switch** is a device for making, breaking, or changing the connections in an electrical circuit.

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.



Things you learnt in previous topics

In Year 4, you identified common appliances that run on electricity. You constructed a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. You identified 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. You recognised that a switch opens and closes a circuit and associated this with whether or not a lamp lights in a simple series circuit. You recognised some common conductors and insulators and associate metals with being good conductors.

How this connects with future learning

In KS3, you will learn about: electric current, measured in amperes, in circuits; series and parallel circuits; currents add where branches meet and current as flow of charge; potential difference, measured in volts, battery and bulb ratings; resistance, measured in ohms, as the ratio of potential difference (p.d.) to current; differences in resistance between conducting and insulating components (quantitative) and static electricity.