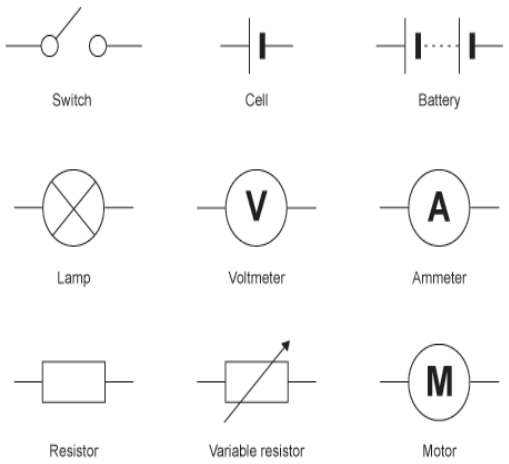
Electricity and electromagnets Year 8

End points 2,3 and 4: Use understanding of circuits to build a model of a useful circuit. Explain current, voltage and resistance
Understand the way current and voltage behaves in both series and parallel circuits

Some particles carry an electric charge. In electric wires these particles are electrons. We get an electric current when these charged particles move from place to place.

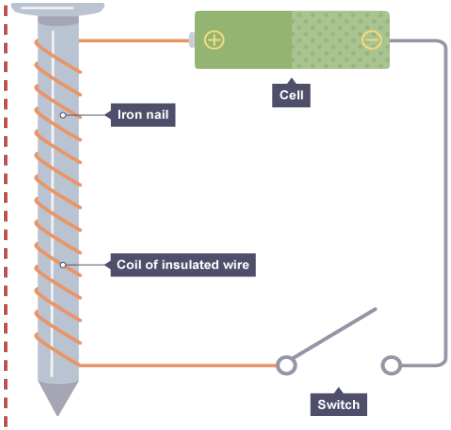
An electric current is a flow of charge, and in a wire this will be a flow of electrons. We need two things for an electric current to flow:

something to transfer energy to the electrons, such as a battery or power pack a complete path for the electrons to flow through (an electric circuit)



End point 6: Explain electromagnets

When an electric current flows in a wire, it creates a magnetic field around the wire. This effect can be used to make an electromagnet. A simple electromagnet comprises a length of wire turned into a coil and connected to a battery or power supply. You can make an electromagnet stronger by doing these things: wrapping the coil around a piece of iron (such as an iron nail) adding more turns to the coil, increasing the current flowing through the coil.



Current in series circuits

Current is measured in amperes. The symbol for ampere is A. The current is the same everywhere in a series circuit. It does not matter where you put the ammeter, it will give you the same reading.

Current in parallel circuits

Potential difference is measured in volts. The symbol for volts is V. When two components are connected in parallel, the current is shared between the components. The current is shared when it reaches the branches, then adds again where the branches meet.

End point 5: Calculate resistance of a wire using data collected in an investigation

The unit of resistance is the ohm, and it has the symbol Ω (an uppercase Greek letter omega). To find the resistance of a component, you need to measure: the potential difference across it and the current flowing through it.. We use this equation to calculate resistance:

resistance = potential difference ÷ current