

# Science Knowledge Organiser



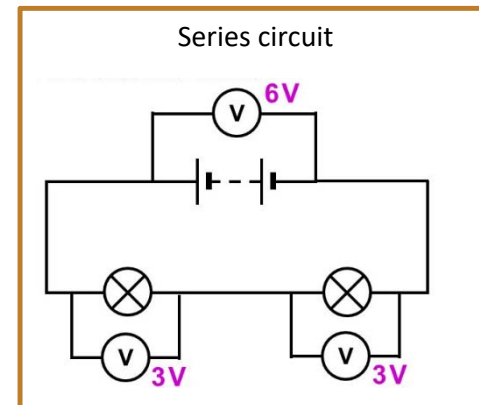
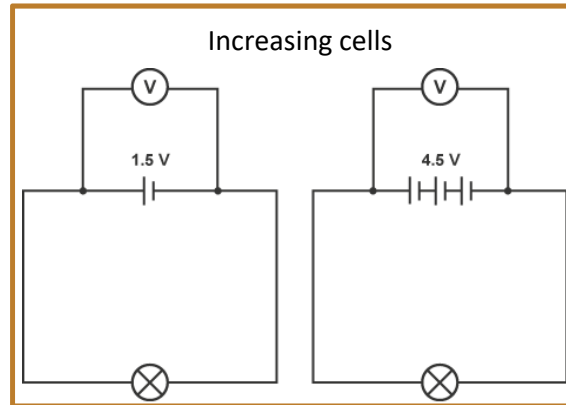
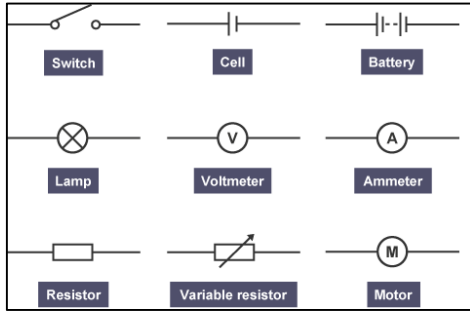
## Y8 Electromagnets: Voltage and Resistance

### Key equation

$$\text{Resistance } (\Omega) = \text{potential difference (V)} \div \text{current (I)}$$

### Key words

Current	Flow of electric charge, in amperes (A).
Electrical conductor	A material that allows current to flow through it easily, and has a low resistance.
Electrical insulator	A material that does not allow current to flow easily, and has a high resistance.
Potential difference	The amount of energy shifted from the battery to the moving charge, or from the charge to circuit components, in volts (V).
Resistance	A property of a component, making it difficult for charge to pass through, in ohms ( $\Omega$ ).



Cell provides

Components provide

Flows

Quantity	Symbol	Unit of Measurement	Unit Abbreviation
Current	I	Ampere (Amp)	A
Voltage	V or E	Volt	V
Resistance	R	Ohm	$\Omega$

### THE WATER HEATER MODEL

The radiator represents the bulb in this circuit.

The pipes represent the wires.

The hot water pump represents the battery in this circuit.

In this model, the water in the pipes represent the charge.

### THE ROPE MODEL

James is pulling the rope around in a circle. He is like the battery.

Isabella is holding on to the rope and slowing it down. She is like the bulb.

The rope is like the electrons in a wire

