

PLUGS

Electricity powers almost everything in our homes, from lights to washing machines. Getting all this power from the mains supply to the devices that use it would be a dangerous business if it wasn't for the clever way our plugs and sockets work.

1 There are three **WIRES** in the cables that bring mains electricity into our homes in the UK.

3 **NEUTRAL WIRE** (blue) – connects the current back to the power source to complete the circuit.

4 **EARTH WIRE** (green and yellow) – allows the current to flow back to earth and blow the fuse in order to cut off the electricity if something goes wrong.

2 **LIVE WIRE** (brown) – carries the charge from the power source.

5 Without a plug inserted, a **SHUTTER** cuts off the electricity supply inside the socket, so it is completely safe.

6 Most sockets have a **SWITCH** that allows the power to be turned off or on.

12 The earth wire is connected to the metal casing of the device to channel any live current that accidentally touches the metal back to earth. If this happens, there is suddenly much less resistance to the flow of electricity in the circuit, which causes the fuse to blow, or a circuit breaker in the house to trip, breaking the circuit and making it safe.

11 The **ELECTRICAL DEVICE** connected to the wire completes the circuit, and the current of electricity flowing from the live wire to the neutral wire powers it.

10 When a plug is pushed into the **SOCKET**, the longest prong, which connects the earth wires, opens the shutter and allows electricity to flow through from the socket to the plug.

9 A **FUSE** is a very thin wire inside a case that is designed to burn out if too much current passes through it. This breaks the circuit and cuts off the electricity. It is placed so that the live current must run through it to complete the circuit.

8 The first section of the live and neutral prongs are **INSULATED** so even if the plug is half in and half out of the socket, you couldn't get a shock if you touched it.

7 UK plugs have three **PRONGS**, one connected to each wire, which fit inside slots in the socket. In many other countries there are only two prongs as they don't have an earth wire.

