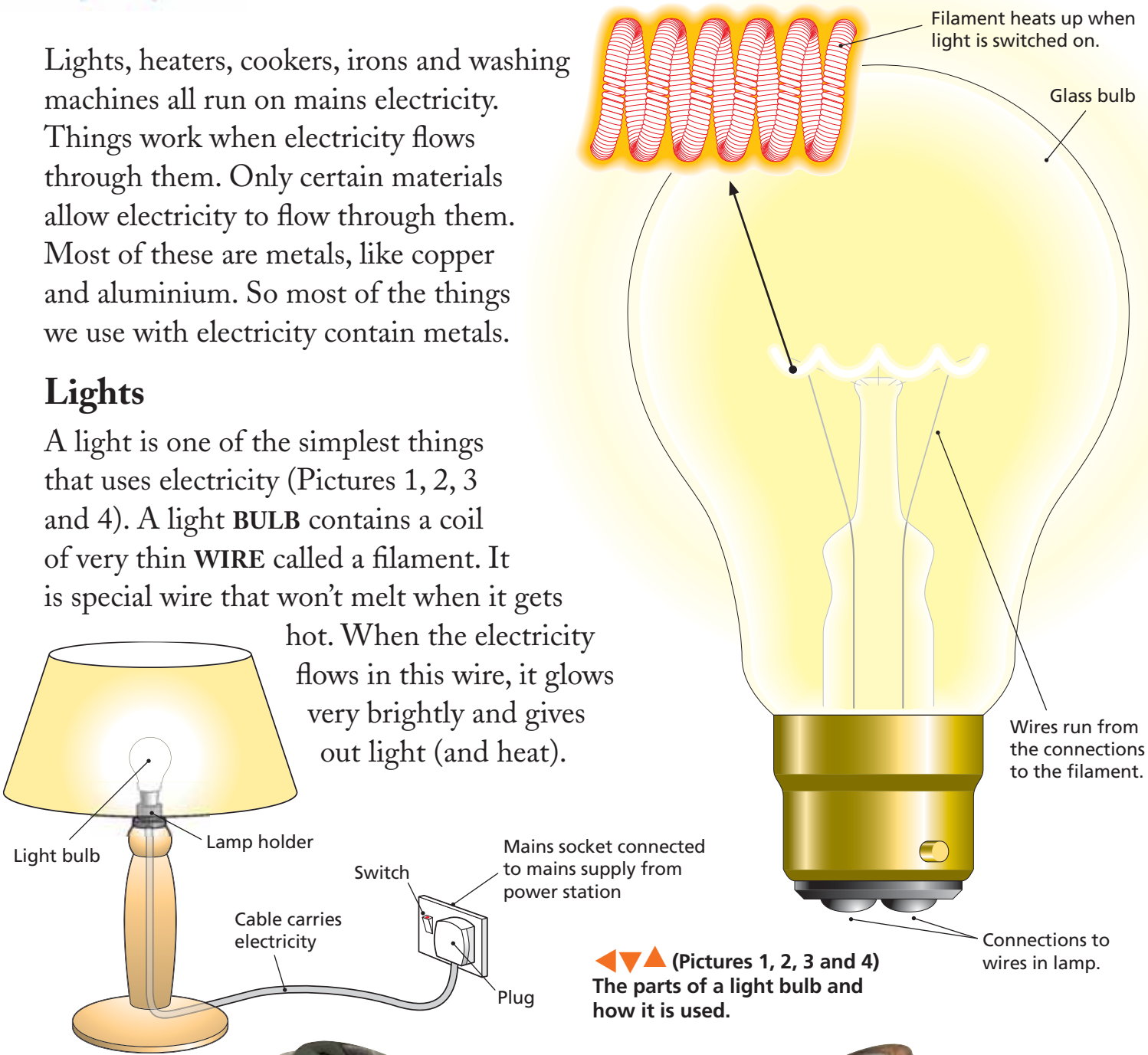
2 Lighting and heating

We use mains power for things that need lots of electricity and which don't have to be moved about too much.

Lights, heaters, cookers, irons and washing machines all run on mains electricity. Things work when electricity flows through them. Only certain materials allow electricity to flow through them. Most of these are metals, like copper and aluminium. So most of the things we use with electricity contain metals.

Lights

A light is one of the simplest things that uses electricity (Pictures 1, 2, 3 and 4). A light **BULB** contains a coil of very thin **WIRE** called a filament. It is special wire that won't melt when it gets hot. When the electricity flows in this wire, it glows very brightly and gives out light (and heat).

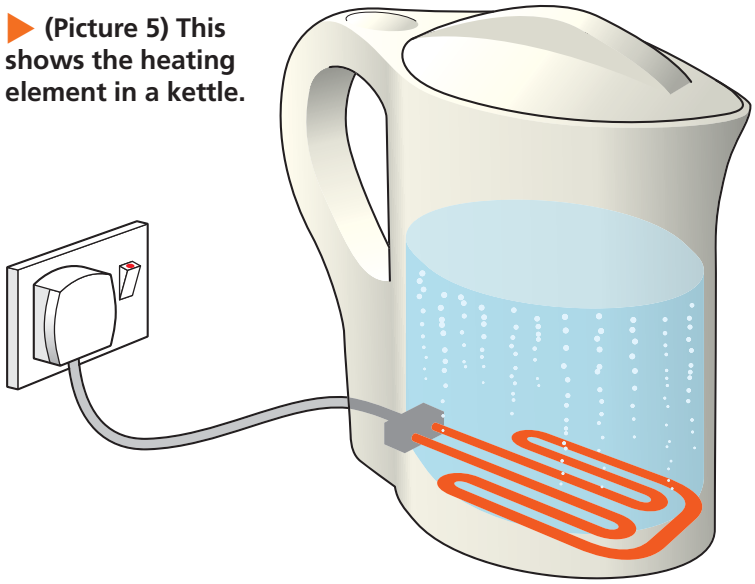


(Pictures 1, 2, 3 and 4) The parts of a light bulb and how it is used.

The cap on a light bulb has either a bayonet (left) or screw fitting (right). This secures the bulb in the lamp holder so that the connections are pressed in contact with the wires carrying the mains supply.

Heaters

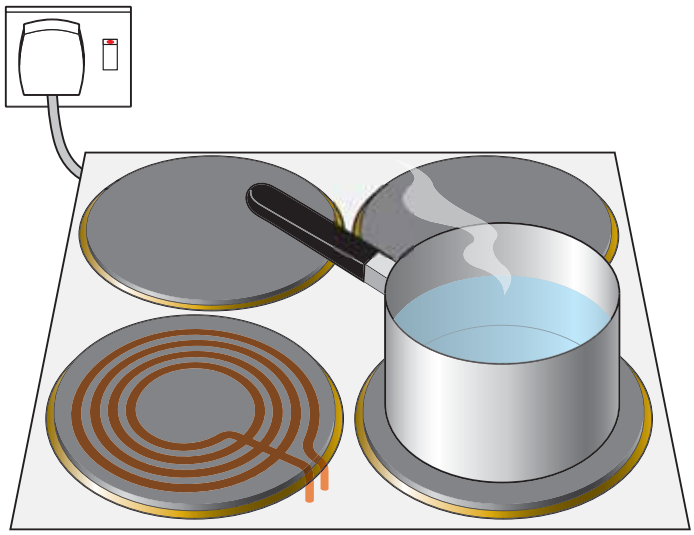
We use many kinds of heaters in the home (Pictures 5, 6 and 7). There are heaters in irons, in electric fires, in toasters, in electric showers and in electric kettles. They all work in the same way as a light bulb. Inside, there is a strip of wire called the element that gets hot when electricity flows through it. In a heater, the wire is thicker, because it takes more electrical **POWER** to heat things up quickly.



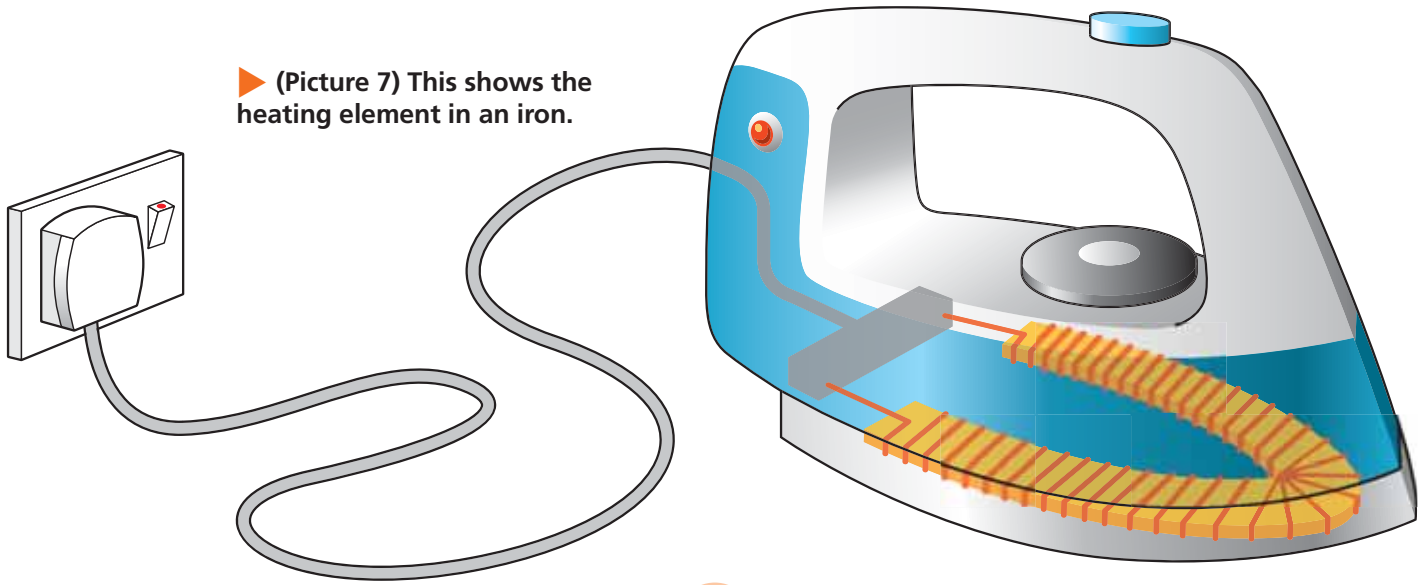
(Picture 5) This shows the heating element in a kettle.

Summary

- **Electricity can be used to produce light and heat.**



(Picture 6) This is an element from a cooker. Because you need to stand heavy pans on a cooker, the heating wire is inside a strong metal tube. The wire is also insulated from the tube, so that there is no chance of an electric shock.



(Picture 7) This shows the heating element in an iron.