1 Circuit diagrams

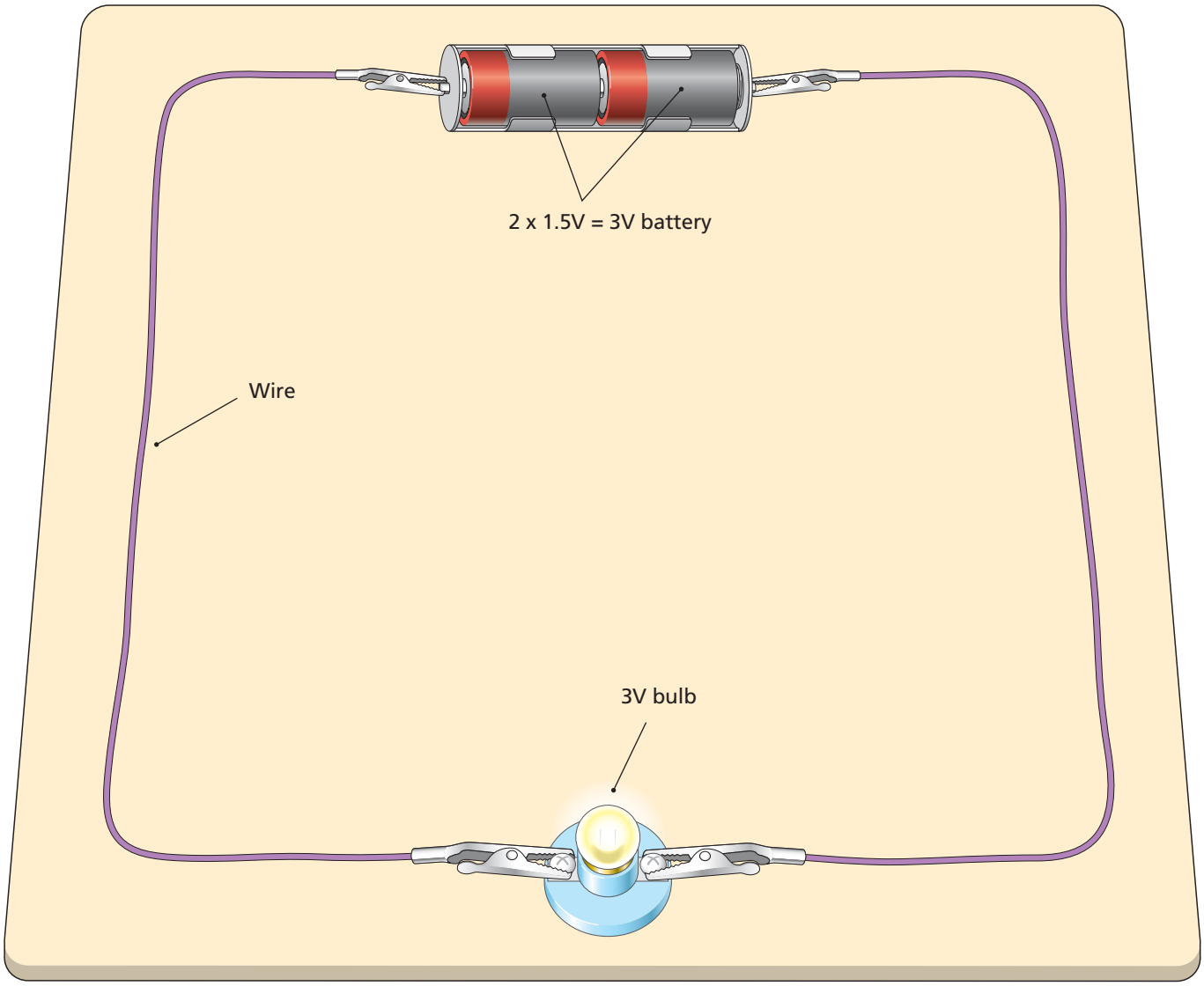
CIRCUIT DIAGRAMS are a way of showing what is happening in a circuit. They are like an electrician's route map.

If we want to use **ELECTRICITY**, we must make a **CIRCUIT**.

To make a circuit, one end of a power supply, such as a battery, must be connected by wires to make a loop that passes through, for example, a light bulb. The loop must end at the *other* end of the power supply.

The simplest kind of circuit connects just two things – for example, a battery and a single light bulb (Picture 1).

▼ (Picture 1) This is an electrical circuit connecting a battery to a light bulb with two wires. Notice that the combined voltage of the batteries matches the voltage needed by the bulb.



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A circuit diagram

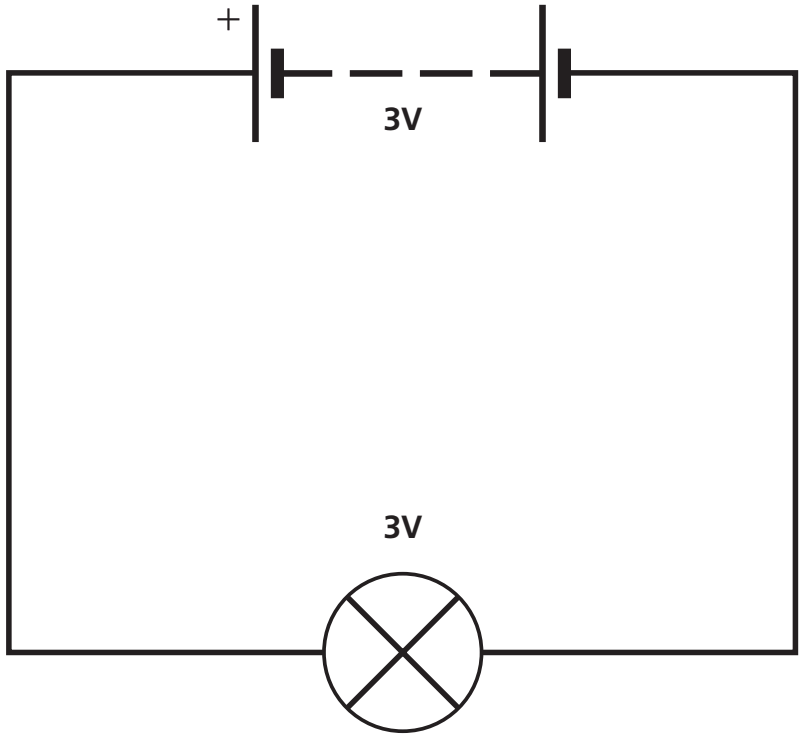
It is useful to be able to draw a diagram of how the wires, the batteries and the bulb are connected up. However, not all batteries and light bulbs look the same, so the circuit diagram uses simple symbols instead of pictures (Pictures 2, 3 and 4).

In Picture 5, symbols are used to make a circuit diagram that matches Picture 1.

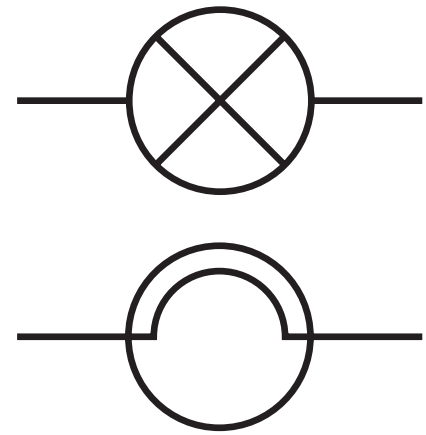
Notice that the wires in a circuit diagram are always drawn as straight lines with right angle bends. This just makes it easier to follow the path of electricity.

Summary

- A circuit is a loop from a power supply through all of the components and back to the power supply.
- A circuit can be drawn using symbols.
- Symbols are faster to draw and easier to understand than making drawings of the real components.



▲ (Picture 2) This line is the symbol for a wire.



▲ (Picture 3) There are two symbols commonly used for a light bulb. In this book we will use the top one.

▲ (Picture 4) This is a symbol for two or more batteries connected in a line. All batteries have two connectors, called TERMINALS. The POSITIVE TERMINAL is marked with a + sign.

◀ (Picture 5) This is a circuit diagram. It shows each of the components in Picture 1 as symbols.