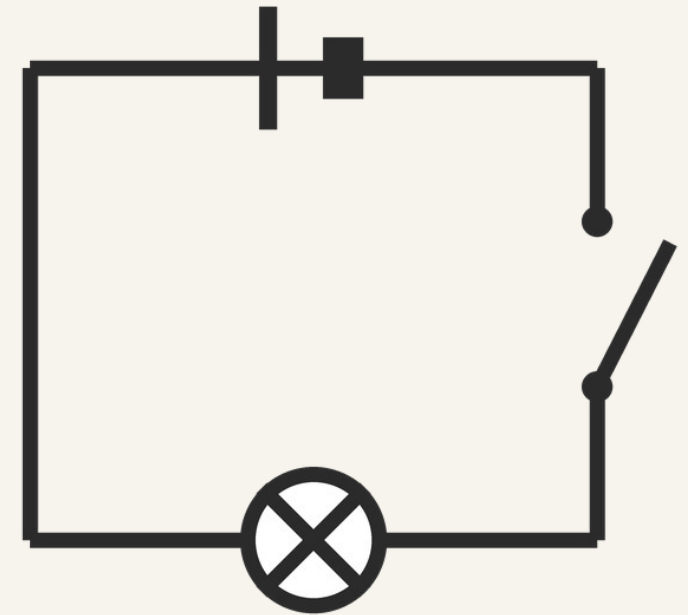


Circuit Symbols

One drawing everybody reads the same way.



Daily Review

From S1 and S2 — what do you already know?

- 1 Name two things a battery does in a circuit.
- 2 What is a switch for?
- 3 What has to be true for a bulb to light?
- 4 Name one danger of mains electricity.
- 5 Draw any circuit you remember from S1 or S2.

PART 1

Circuit Symbols

Ten components, ten symbols, and what each one is for.

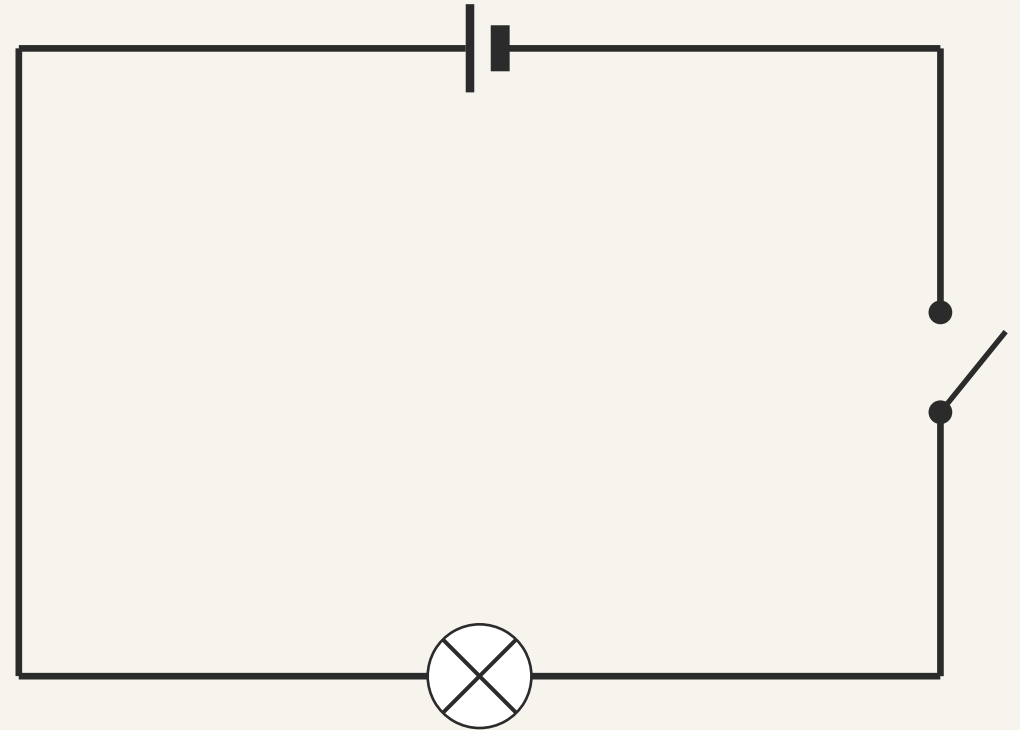
By the end of this part...

- 1 I can draw the circuit symbol for each of the ten components
- 2 I can say what each component does in a circuit
- 3 I can give one place each component is used

Why symbols?

Booklet p.2

- Everybody draws the same thing.
- It works whatever language you speak.
- It shows what is connected, not what it looks like.



Symbols 1 – the supply and the basics

Booklet p.2, Task 1



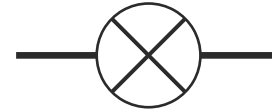
Cell

Supplies
energy to the
circuit



Battery

Two or more
cells joined
together



Lamp

Converts
electrical
energy to
light energy

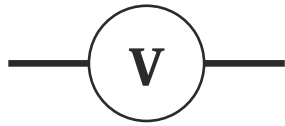


Switch

Opens and
closes the
circuit

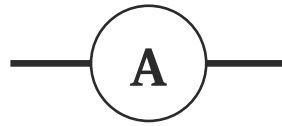
Symbols 2 – the meters and the motor

Booklet p.2, Task 1



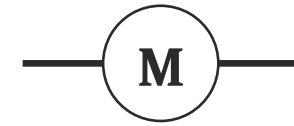
Voltmeter

Measures the
voltage across a
component



Ammeter

Measures the
current through a
component



Motor

Converts electrical
energy to kinetic
energy

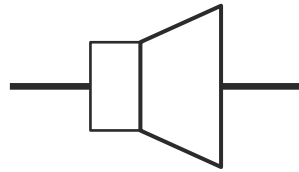
Symbols 3 – sound, light and the fuse

Booklet p.2, Task 1



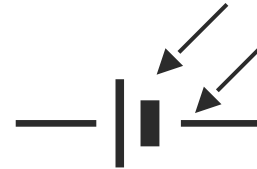
Microphone

Converts
sound energy
to electrical
energy



Loudspeaker

Converts
electrical
energy to
sound energy



PV cell

Converts light
energy to
electrical
energy



Fuse

Breaks the
circuit if the
current gets
too high

Watch out

THE MISTAKE

- Drawing one cell and calling it a battery
- Swapping the A and V circles
- Drawing the switch closed

THE CORRECT ANSWER

- A battery is two or more cells
- A goes in the circuit, V goes across a component
- Draw it open unless you are told otherwise

Watch out – the two rectangles

THE MISTAKE

- Calling every rectangle a resistor
- Drawing a fuse as a plain box
- Drawing a resistor as a zig-zag

THE CORRECT ANSWER

- A plain rectangle is a resistor
- A rectangle with a line through it is a fuse
- The zig-zag is American – we draw a box

Task 1 – complete the table

Booklet p.2

Fill in the symbol and function for each one.
Four functions are already given to you.

Booklet p.2, Task 1

Task 1 – Answers: the symbols

ANSWERS

Booklet p.2 (+ the fuse)



Cell



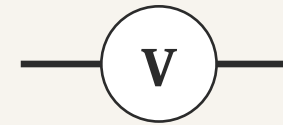
Battery



Lamp



Switch



Voltmeter



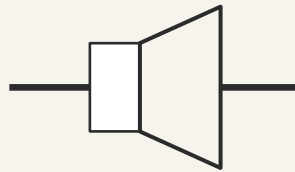
Ammeter



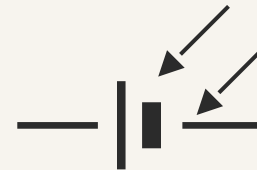
Motor



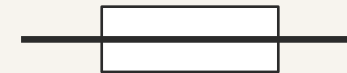
Microphone



Loudspeaker



PV cell



Fuse

Task 1 – Answers: the functions

ANSWERS

Booklet p.2 – components 1 to 6

Component	What it does
Cell	Supplies energy to the circuit
Battery	Two or more cells joined together
Lamp	Converts electrical energy to light energy
Switch	Opens and closes the circuit
Voltmeter	Measures the voltage across a component
Ammeter	Measures the current through a component

Task 1 – Answers: the functions

ANSWERS

Booklet p.2 – components 7 to 11

Component	What it does
Motor	Converts electrical energy to kinetic energy
Microphone	Converts sound energy to electrical energy
Loudspeaker	Converts electrical energy to sound energy
PV cell	Converts light energy to electrical energy
Fuse	Breaks the circuit if the current gets too high

Show me — draw the symbol for...

SHOW ME BOARDS

- 1 a battery
- 2 an ammeter
- 3 a motor
- 4 a switch
- 5 a photovoltaic cell

Show me – draw the symbol for...

SHOW ME BOARDS

EXTRA PRACTICE

1

a cell

2

a voltmeter

3

a lamp

4

a loudspeaker

5

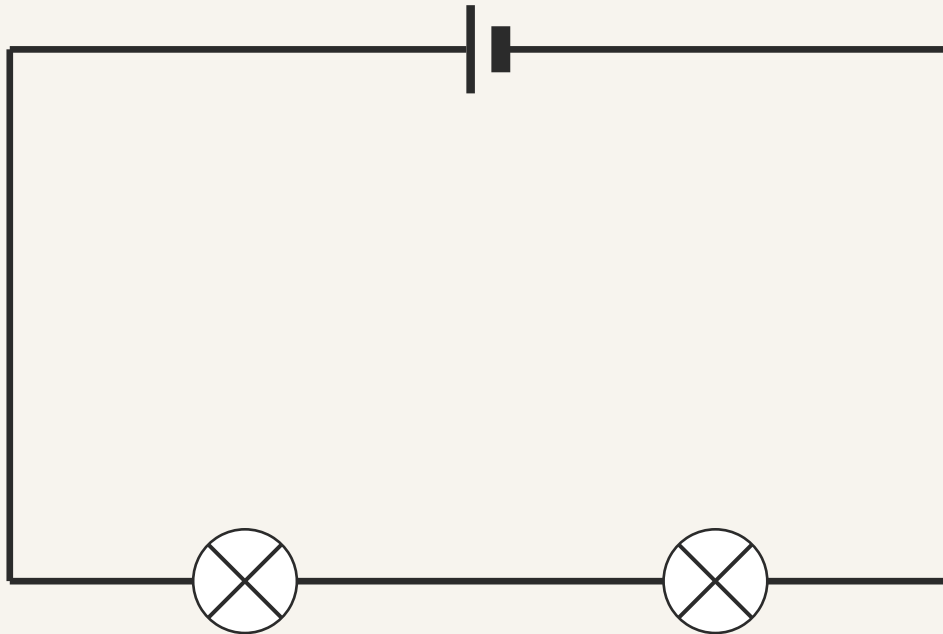
a microphone

6

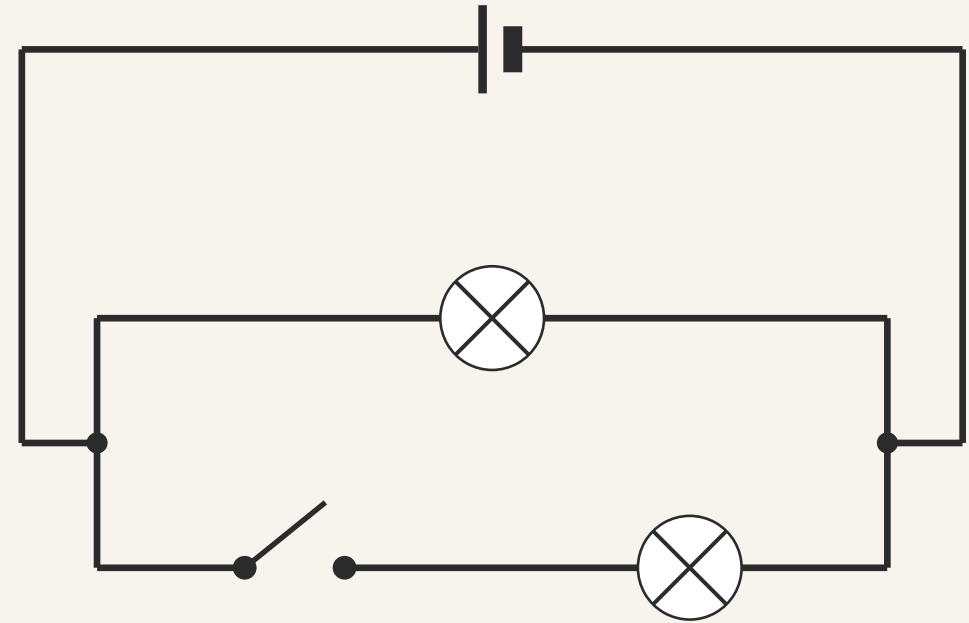
a fuse

Series and parallel, by eye

Booklet p.2



one path – series



branching paths – parallel

Draw it, then build it

Circuit design

A series circuit with two lamps and a switch.
A parallel circuit, switch on one lamp only.
Then any circuit you like from the bench.

Draw each one first, then build it

Tasks 2 and 3 – learn them

Booklet p.2-3

Make a flashcard for every symbol.
Then quiz each other in pairs.

Booklet p.2, Task 2

Booklet p.3, Task 3

Checkpoint

- 1 Draw the symbol for a battery and say how it differs from a cell.
- 2 Which component converts electrical energy to sound energy?
- 3 Which two symbols are easiest to confuse, and why does that matter?

LOOKING AHEAD

Current and Voltage

What is actually going round the circuit, and how do we measure it?

Plenary

- 1 Draw the symbol for a lamp.
- 2 What does a voltmeter measure?
- 3 Name the component that converts light energy to electrical energy.
- 4 What does a switch do?
- 5 Name one place a motor is used.

Plenary

EXTRA PRACTICE

- 1 Draw the symbol for a switch.
- 2 What does an ammeter measure?
- 3 Which component converts sound energy to electrical energy?
- 4 How many cells are in a battery?
- 5 Name one place a loudspeaker is used.

Extension

- 1 Name a component that turns electrical energy into sound, and one that does the reverse.
- 2 Why does the photovoltaic cell symbol look like a cell with arrows?
- 3 A circuit diagram has no lengths or shapes in it. Why is that useful?

Extension

EXTRA PRACTICE

- 1 Draw a circuit with a cell, a switch and two lamps that stay lit if one lamp breaks.
- 2 Why is the switch symbol drawn open rather than closed?
- 3 Which of the ten components would you find in a mobile phone?

Practice

Booklet p.2-3

Work the circuit-symbol questions in the
Yellow Book.
Then try the symbols quiz your teacher gives
out.

Yellow Books p.40-41