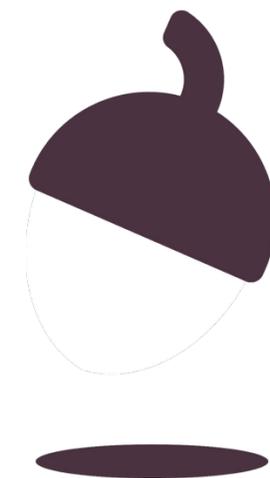


Physics - Key Stage 3

Lesson 1 - Electricity and Magnetism

Circuits - Download

Miss White



OAK
NATIONAL
ACADEMY

Questions from video



Quick Check 1

1. What is the role of the **wires**?

1. What is the role of a **cell**?

1. What is a **battery**?

1. What happens in a **filament lamp** when current flows through it?



Quick Check 1 - Hints

1. What is the role of the **wires**?

The wires _____ the components.

1. What is the role of a **cell**?

The cell has a store of _____ energy so the components can do work.

1. What is a **battery**?

A battery is made up of two or more _____.

1. What happens in a **filament lamp** when current flows through it?

Energy is _____ into the filament lamp so there will be an increase in the _____ store when current flows through it.



Quick Check 2

1. What is the role of the **ammeter**?

1. What is the role of a **voltmeter**?

1. What is a **switch**?

1. A circuit contains 1 cell and 1 filament lamp. What would be the effect on the lamp of adding more cells?



Quick Check 2 - Hints

1. What is the role of the **ammeter**?

The ammeter measures _____.

1. What is the role of a **voltmeter**?

The voltmeter measures _____ _____.

1. What is a **switch**?

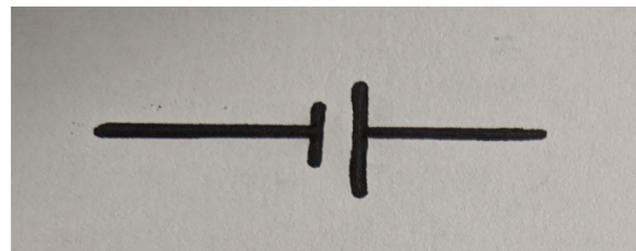
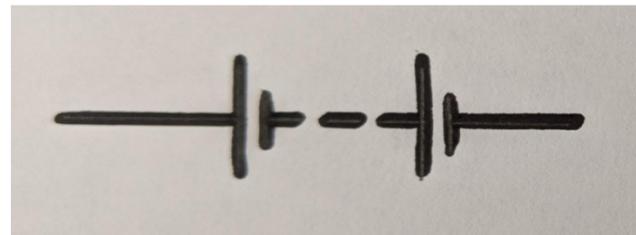
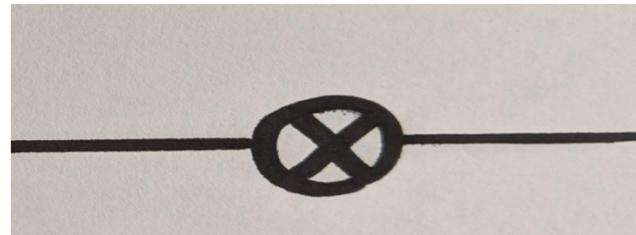
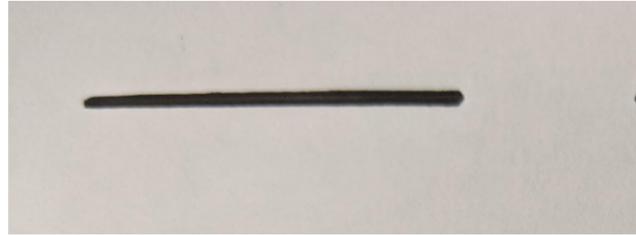
A switch _____ or reconnects a circuit.

1. A circuit contains 1 cell and 1 filament lamp. What would be the effect on the lamp of adding more cells?

If more cells are added the filament lamp will become _____.



Match the symbol to the component

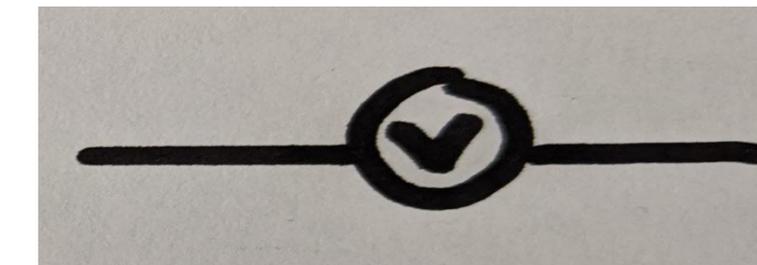
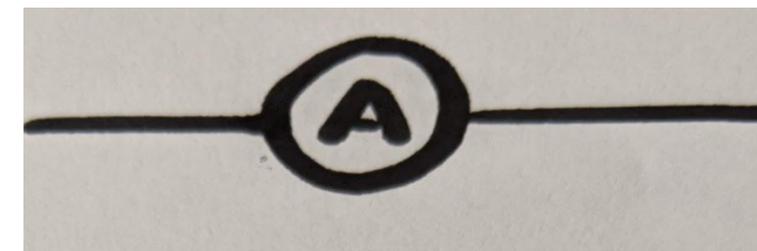
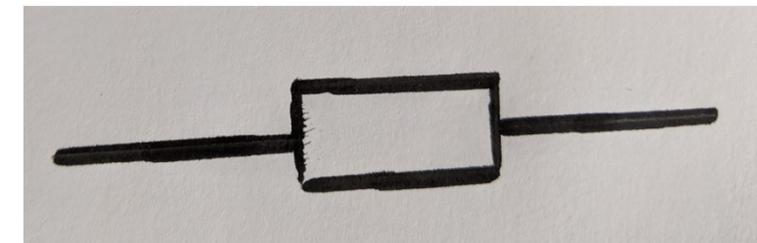
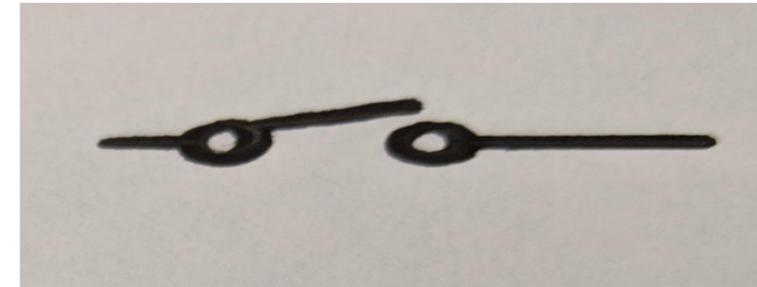


Battery
Open Switch

Wire
Resistor

Cell
Voltmeter

Lamp
Ammeter



Draw series circuits with...

One lamp
One cell

One cell
One lamp
One ammeter

Two lamps
One battery

One lamp
One cell
An open switch



Copy and complete...

Electrical current is the movement of _____.
These are simply _____. The charges transfer
_____ from the _____ to the components
(eg filament lamp).



Independent Task

Use the model to help you **explain** why the filament lamp lights

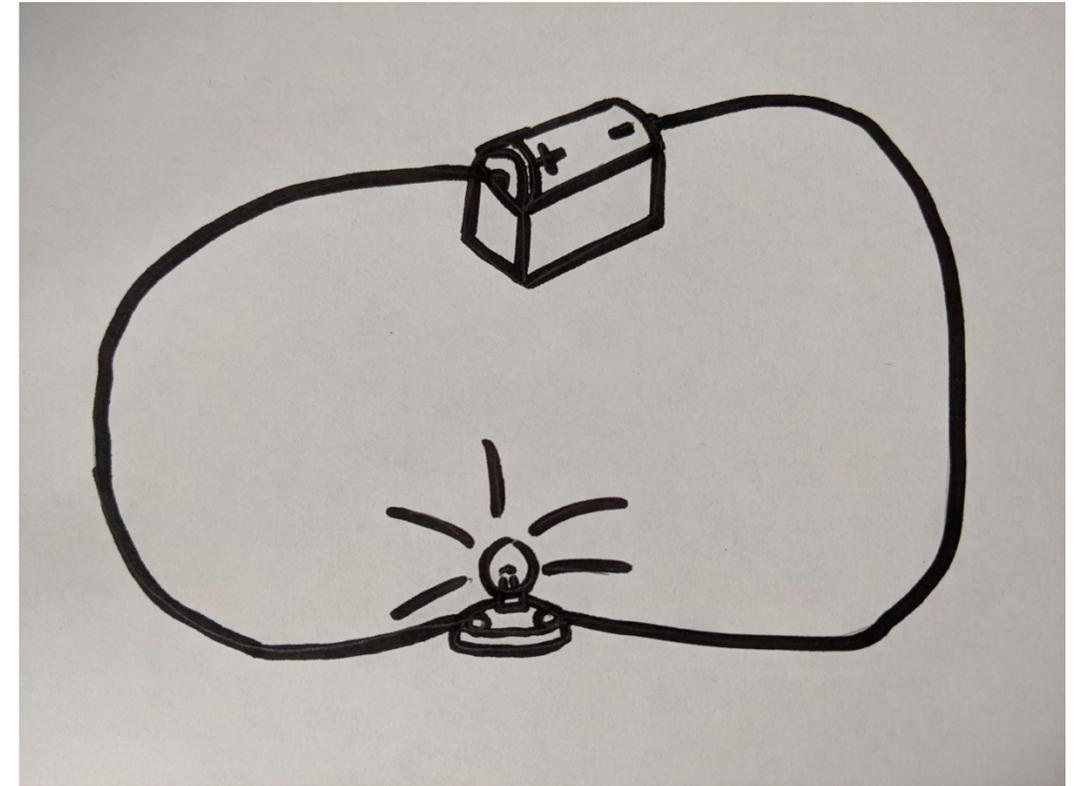
Scaffold:

Describe the role of the cell

State what the charges carry

Say where the charges come from

Describe what is transferred to the lamp (use the idea of energy stores in your answer)

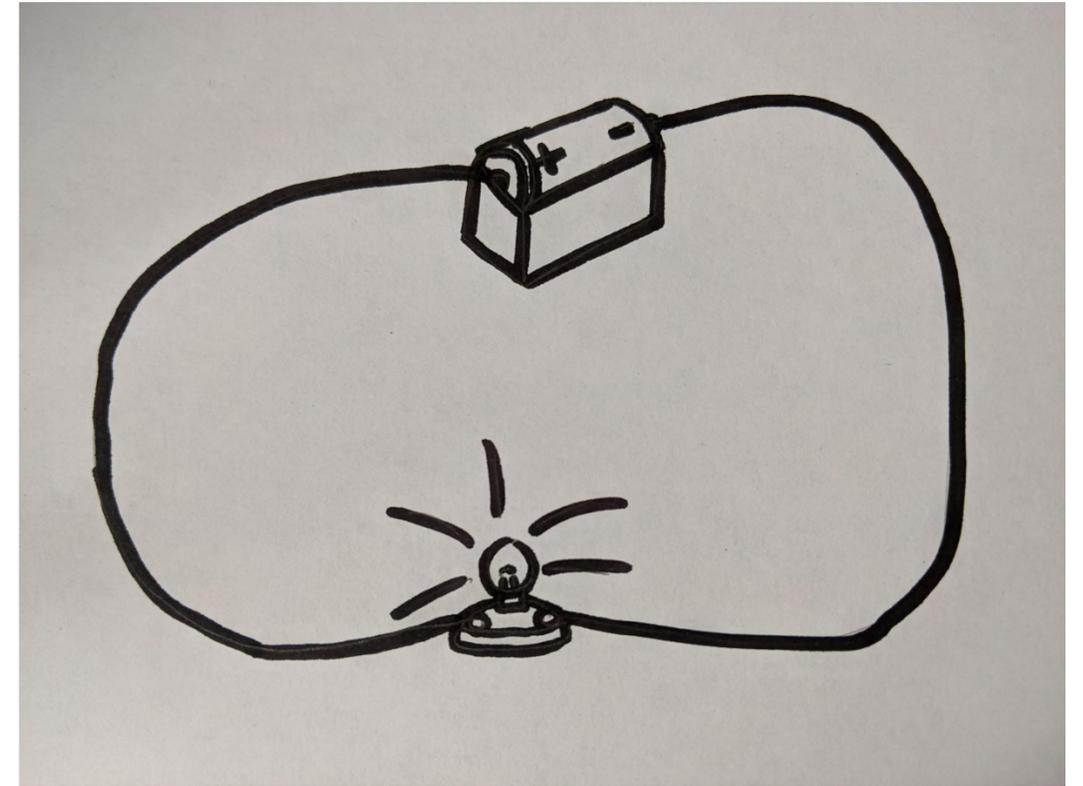


Source: Miss White



Independent Task pt2

1. How could we change the circuit to make the filament lamp brighter?
1. If the circuit is left on, **why** will the battery 'go flat' eventually?



Source: Miss White



Answers



Quick Check 1 - Answers

1. What is the role of the wires?

The wires connect the components.

1. What is the role of a cell?

The cell has a store of chemical energy to transfer to the components.

1. What is a battery?

A battery is made up of two or more cells.

1. What happens in a filament lamp when current flows through it?

Energy is transferred into the filament lamp so there will be an increase in the thermal store when current flows through it.



Quick Check 2 - Answers

1. What is the role of the ammeter?

The ammeter measures current.

1. What is the role of a voltmeter?

The voltmeter measures potential difference.

1. What is a switch?

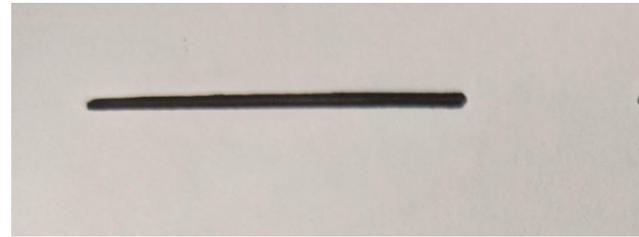
A switch breaks or reconnects a circuit.

1. A circuit contains 1 cell and 1 filament lamp. What would be the effect on the lamp of adding more cells?

If more cells are added the filament lamp will become brighter

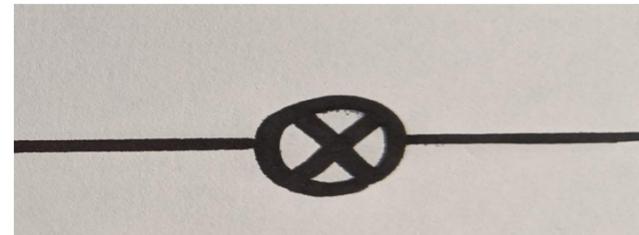
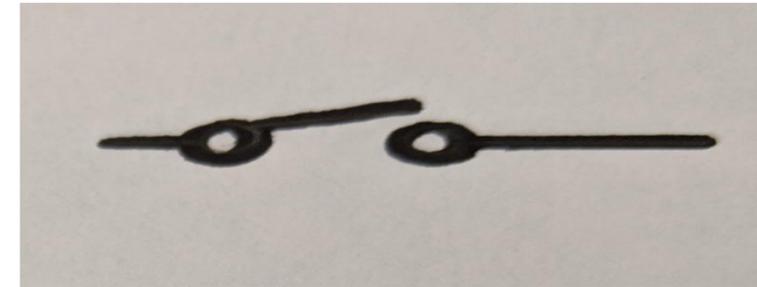


Match the symbol to the component - Answers



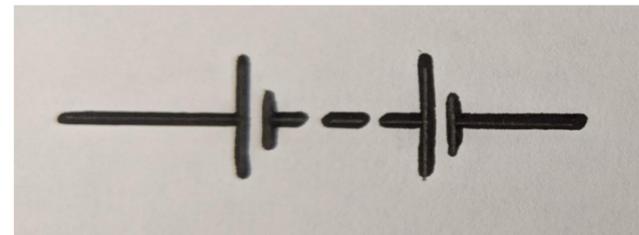
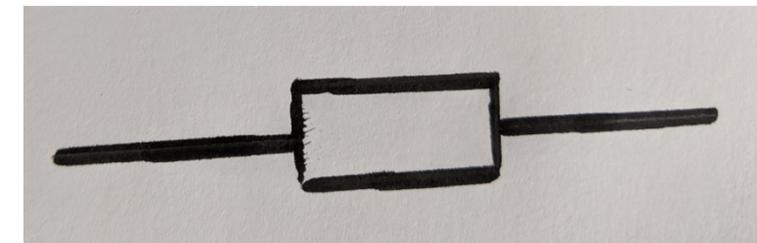
Wire

Open
Switch



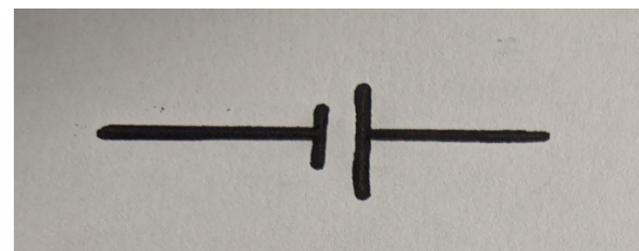
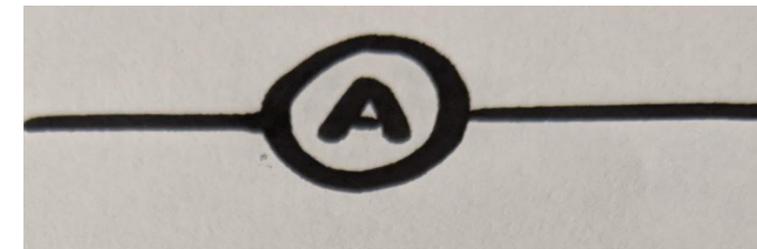
Lamp

Resistor



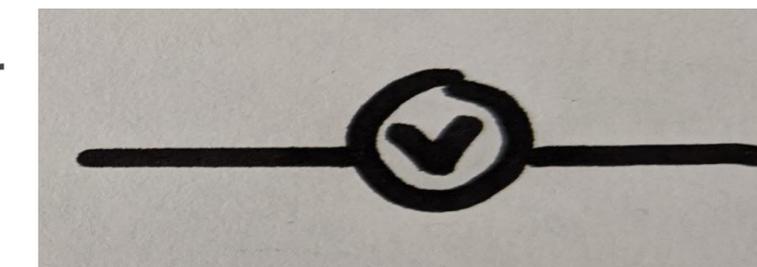
Battery

Ammeter



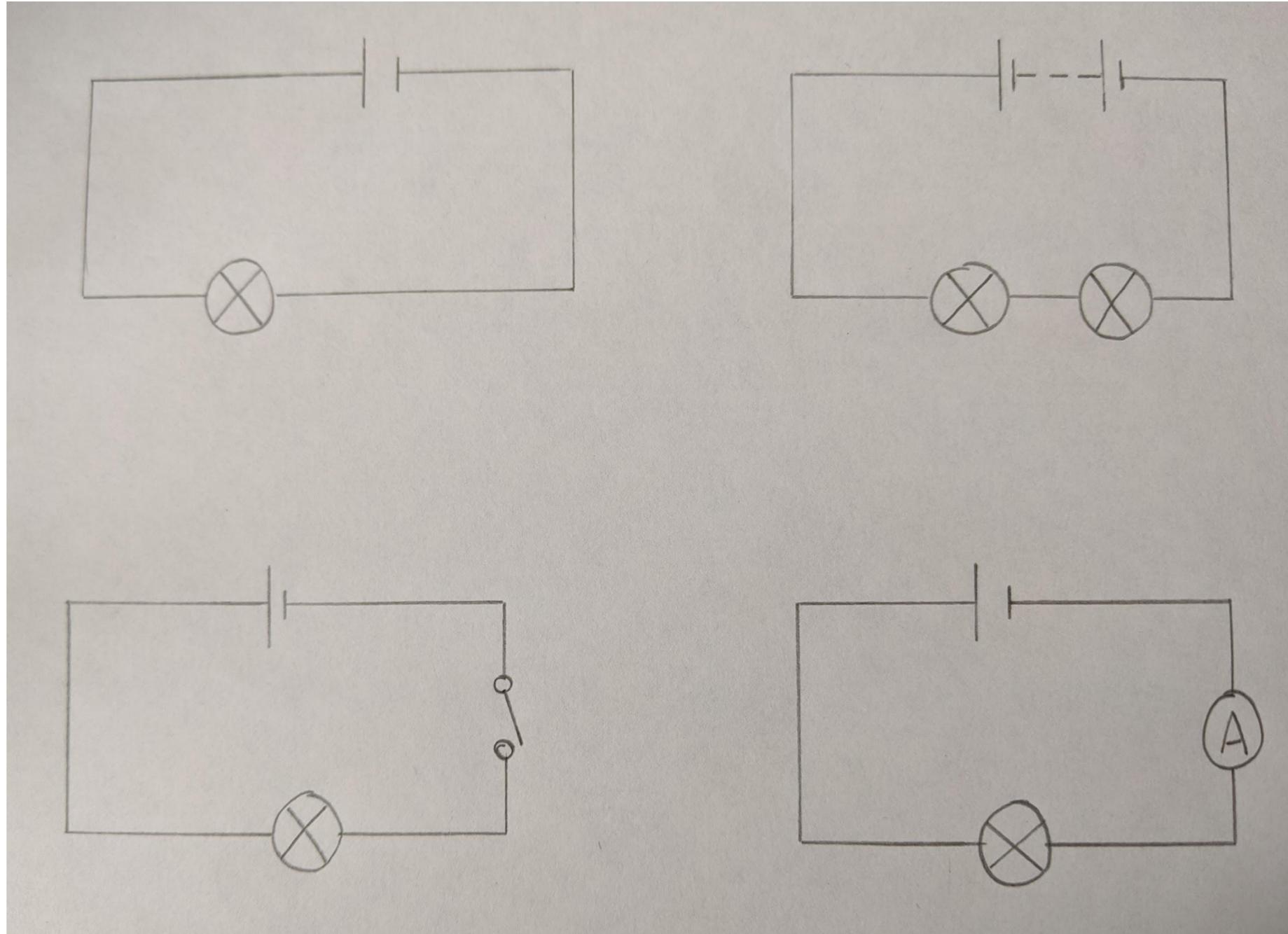
Cell

Voltmeter



Circuit drawing - Answers

- One lamp
- One cell



- Two lamps
- One battery

- One lamp
- One cell
- An open switch

- One cell
- One lamp
- One ammeter

Source: Miss White



Copy and complete - Answers

Electrical current is the movement of charges. These are simply electrons. The charges transfer energy from the cell to the components (eg filament lamp).



Independent task - Answers

•The **cell** transfers **energy** to the **charges** and they move around the circuit. The charges are already in the wires so the filament lamp lights instantly.

As the charges pass through the filament lamp, energy is transferred to the **thermal store of the filament** in the filament lamp.

1. To make the same filament lamp brighter, another cell could be added. This works because more energy is transferred to the charges so they possess more energy for every charge
2. The cell would eventually go flat because the **chemical store** would decrease to zero

