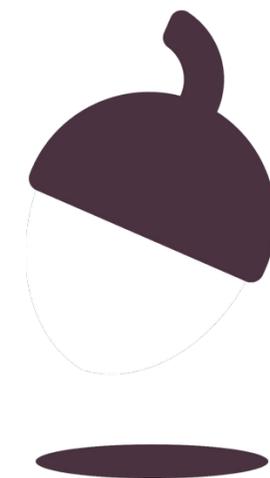


Physics - Key Stage 3

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**?

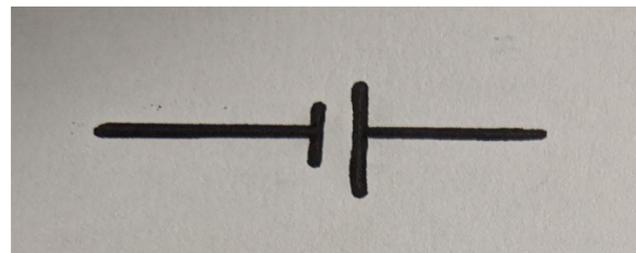
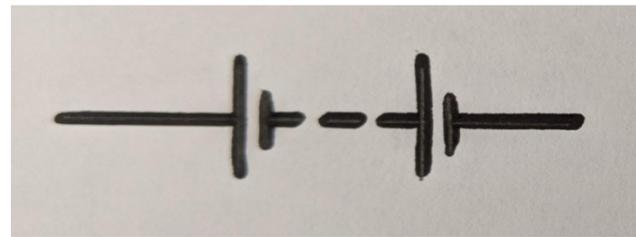
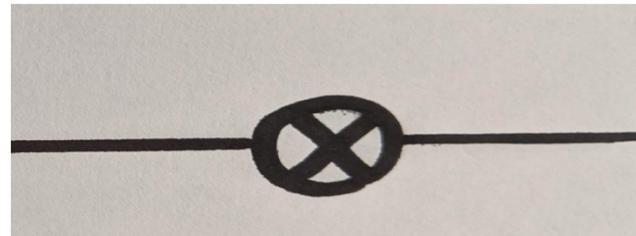
**A switch \_\_\_\_\_ or reconnects a circuit.**

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

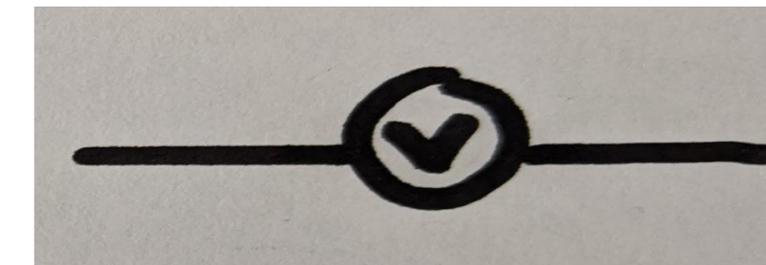
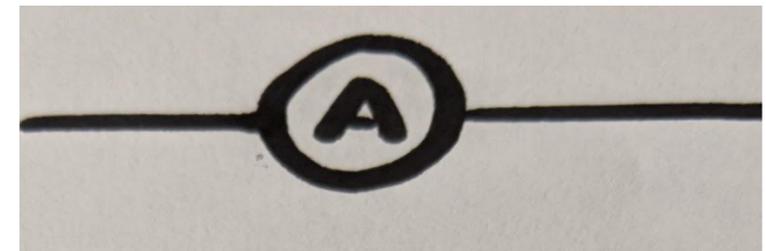
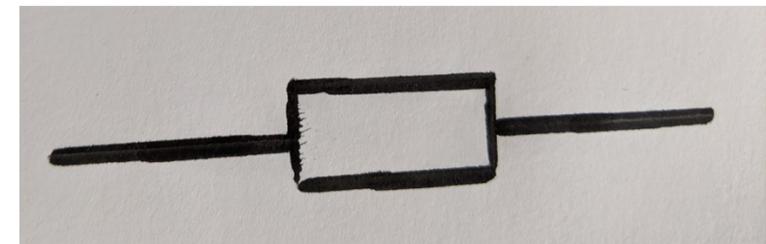
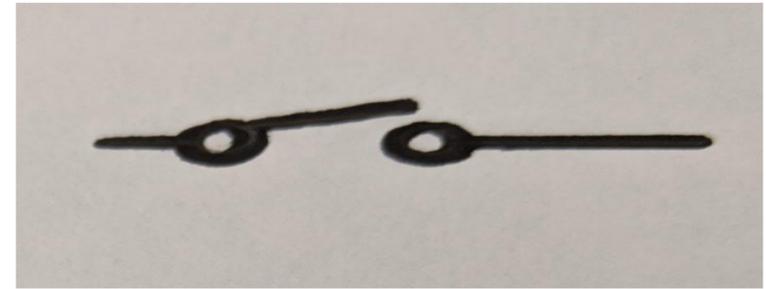


Battery  
Open Switch

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

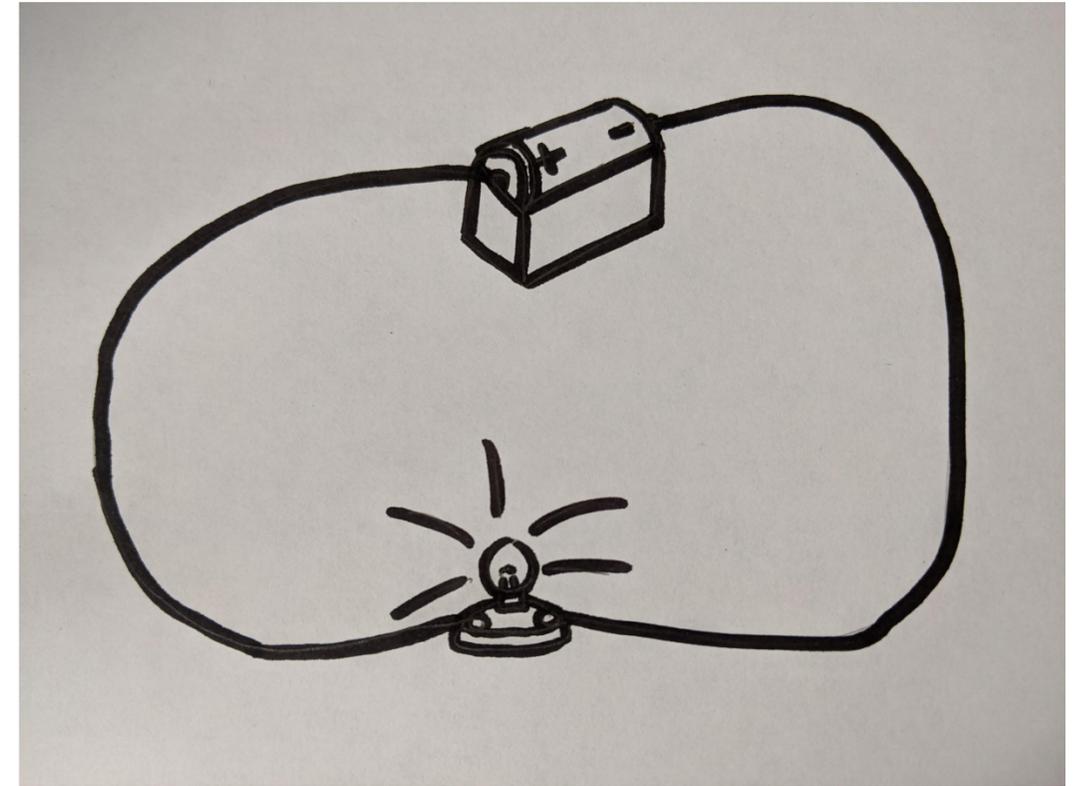
## Scaffold:

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)

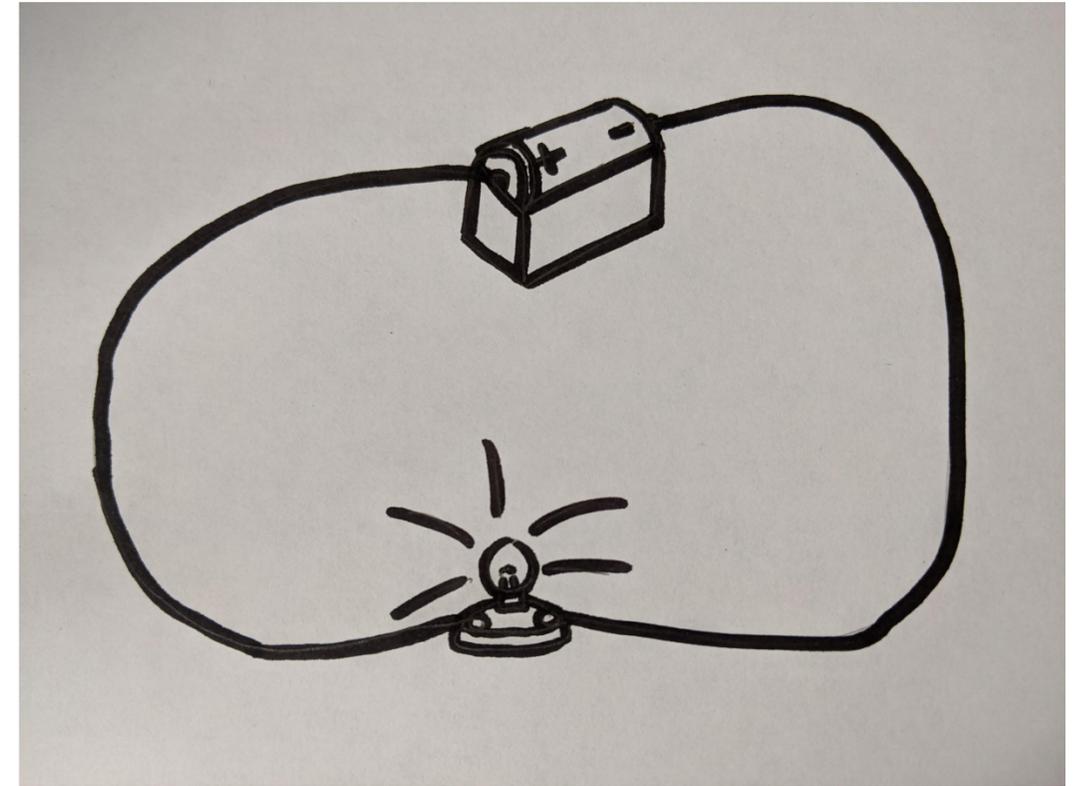


Source: Miss White



# 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?

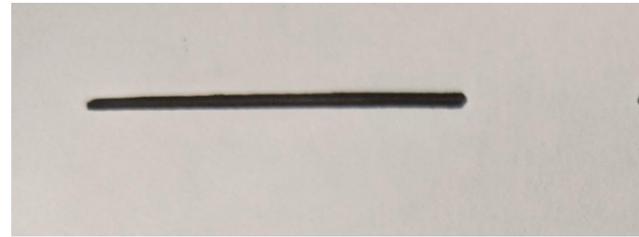
**A switch breaks or reconnects a circuit.**

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**

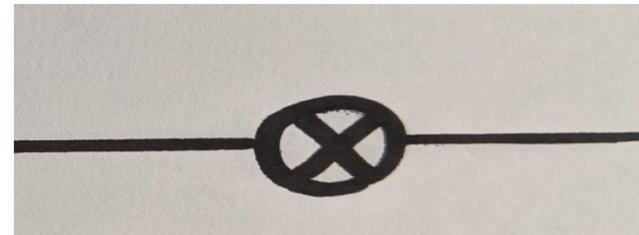
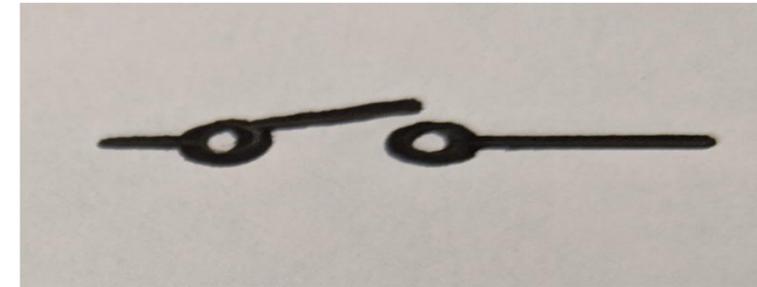


# Match the symbol to the component - Answers



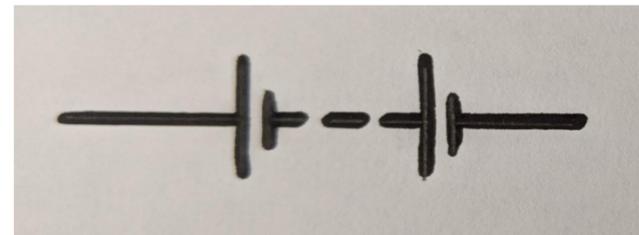
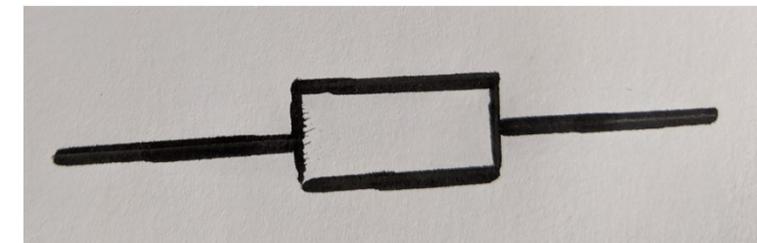
Wire

Open  
Switch



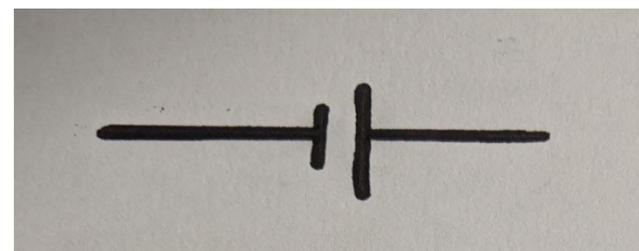
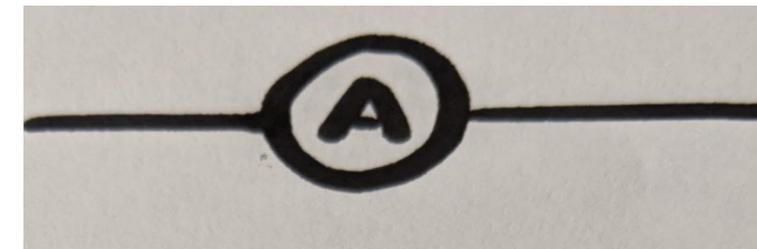
Lamp

Resistor



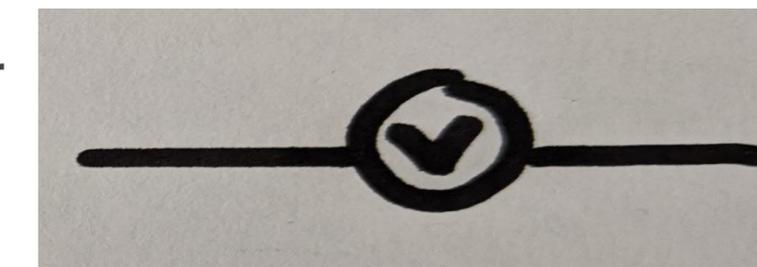
Battery

Ammeter



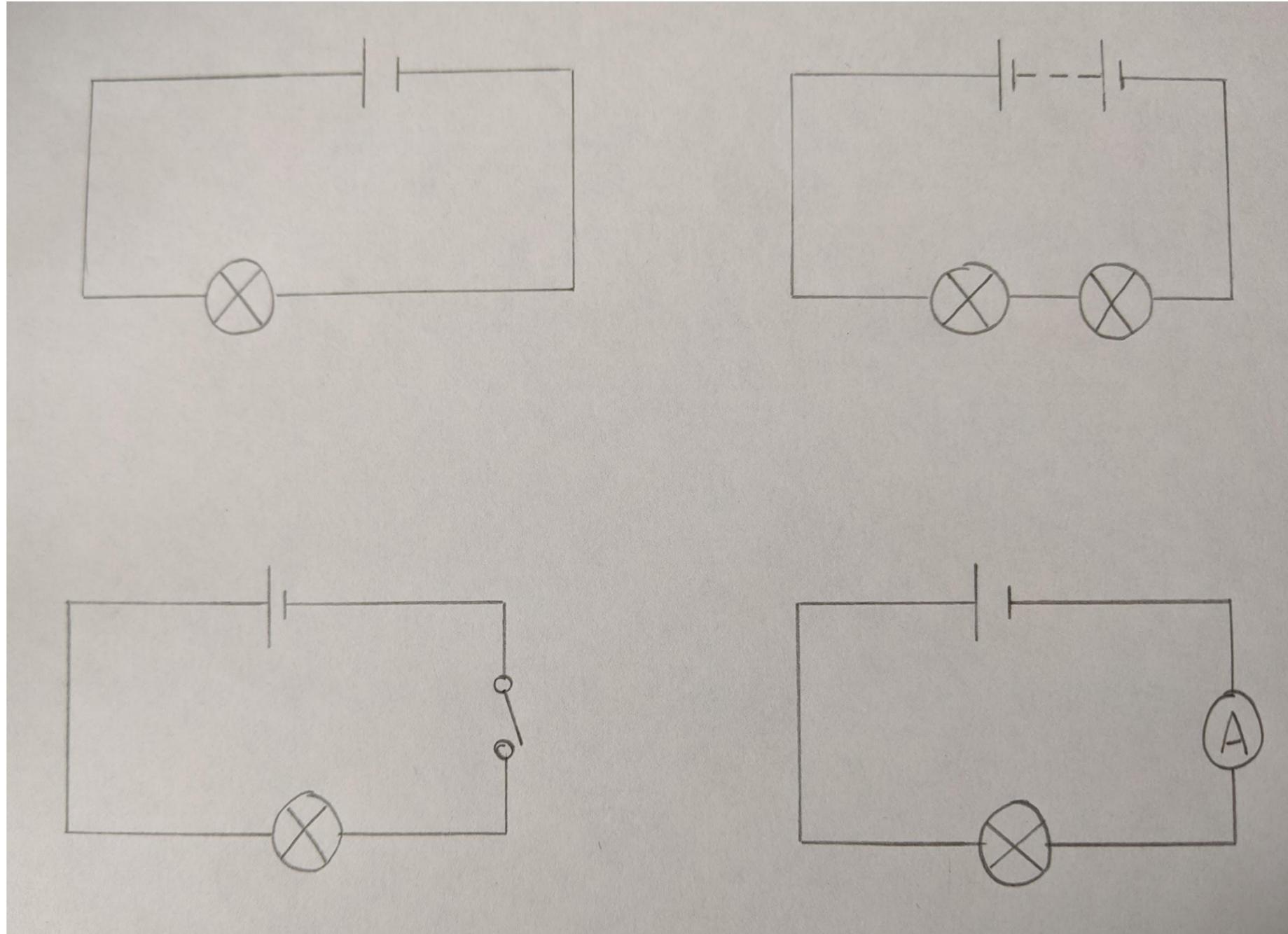
Cell

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

