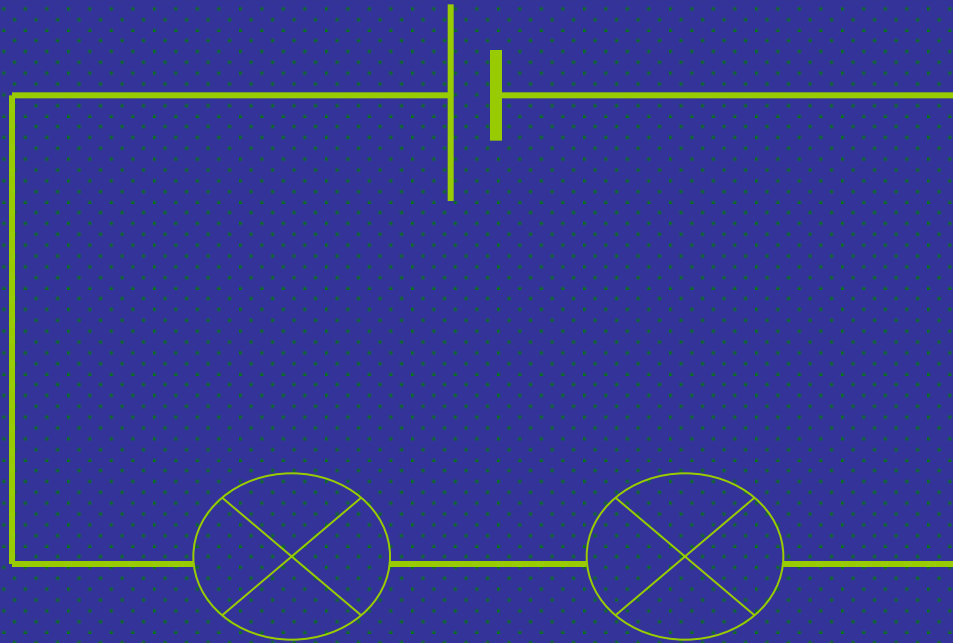
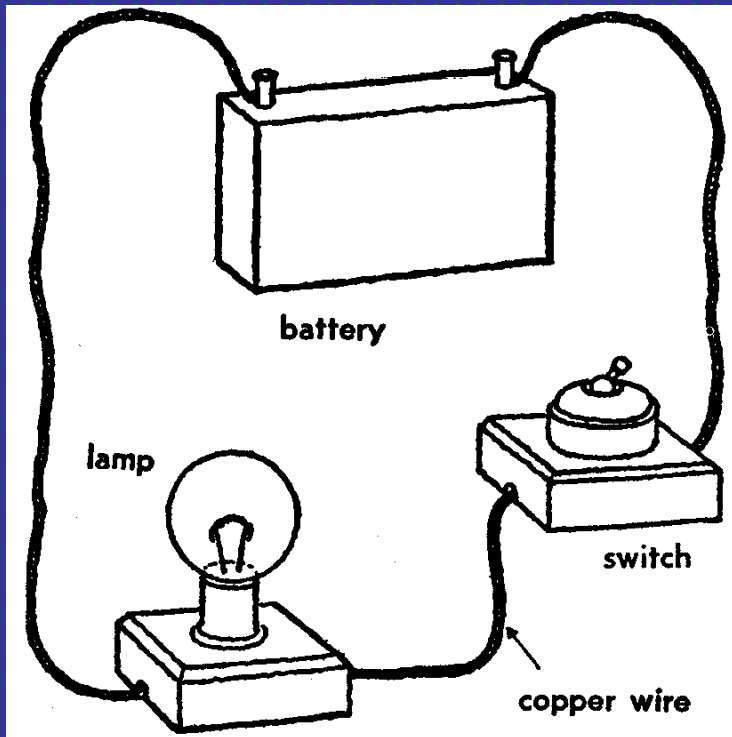


ELECTRICAL CIRCUITS



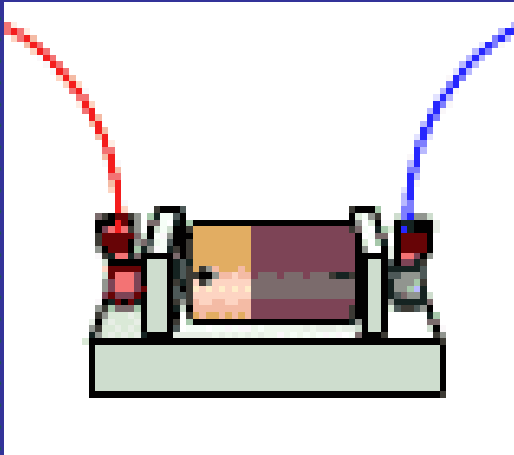
Circuits

Circuits are paths for which small particles flow through to provide us with electricity for lights, appliances, and other devices.



Cell

The cell stores **chemical energy** and transfers it to **electrical energy** when a circuit is connected.

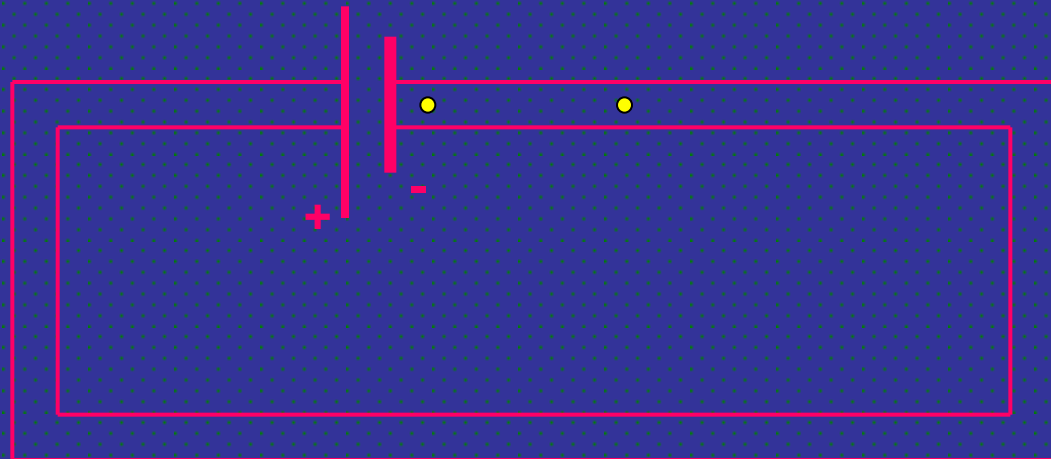


When two or more cells are connected together we call this a **battery**.

The cells chemical energy is used up by pushing a electrons around a circuit.

What is an electric current?

An electric current is a flow of microscopic particles called **electrons** flowing through wires and components.

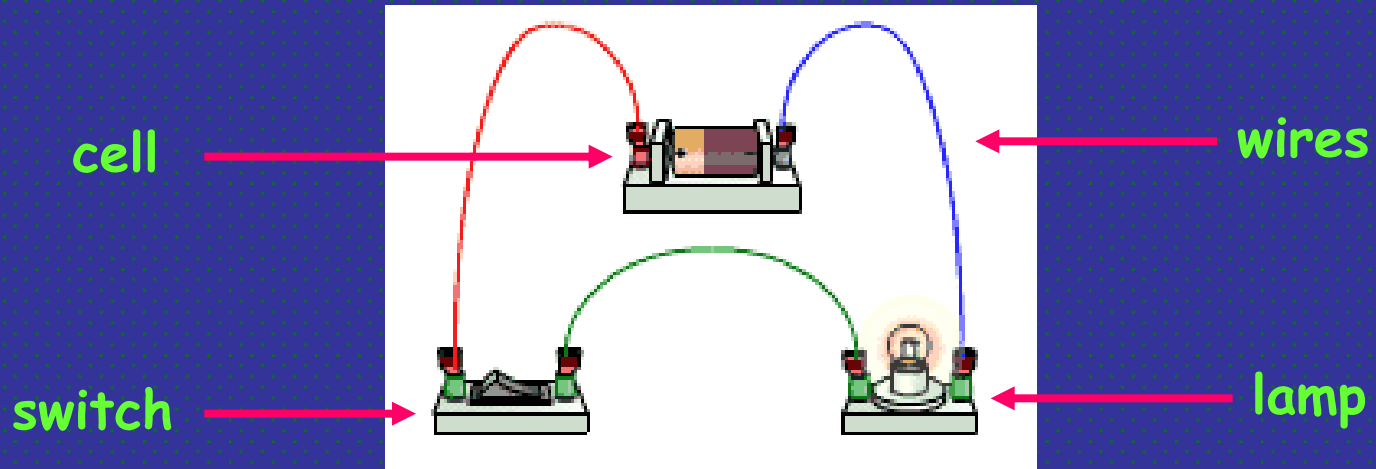


In which direction does the current flow?

from the **negative** terminal to the **positive** terminal of a cell.

Simple Circuits

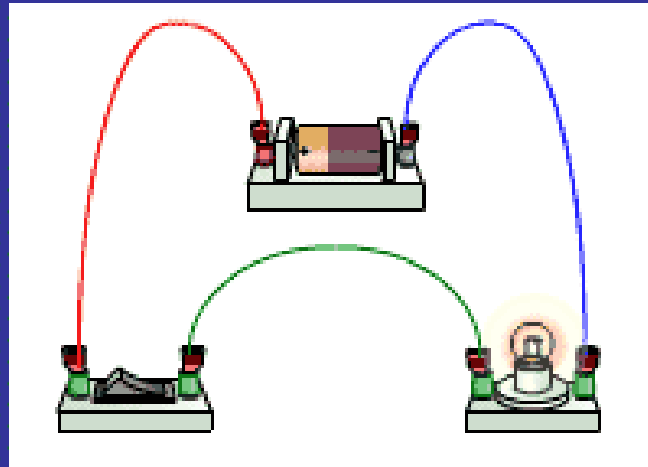
Here is a simple electric circuit. It has a cell, a lamp and a switch.



To make the circuit, these components are connected together with metal connecting wires.

Simple Circuits

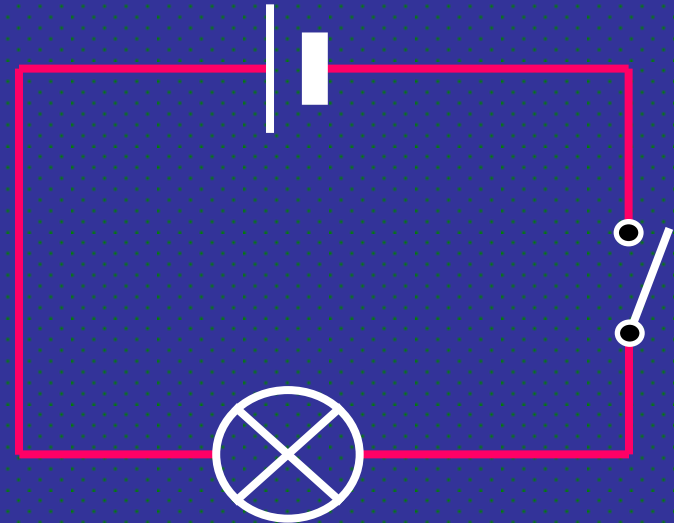
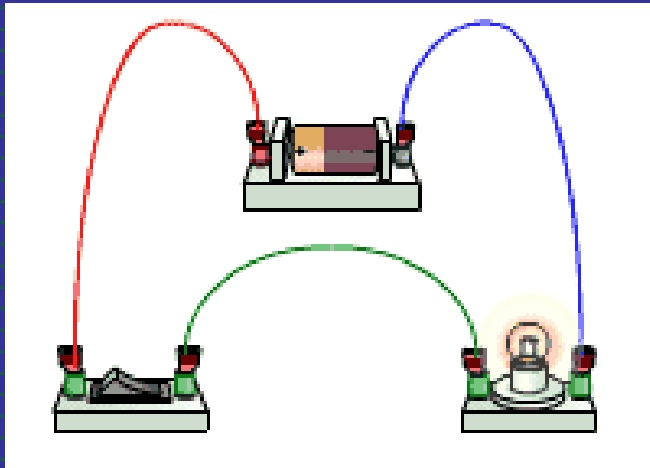
When the switch is closed, the lamp lights up. This is because there is a continuous path of metal for the electric current to flow around.



If there were any breaks in the circuit, the current could not flow.

Circuit Diagram

Scientists usually draw electric circuits using symbols;



cell



lamp



switch

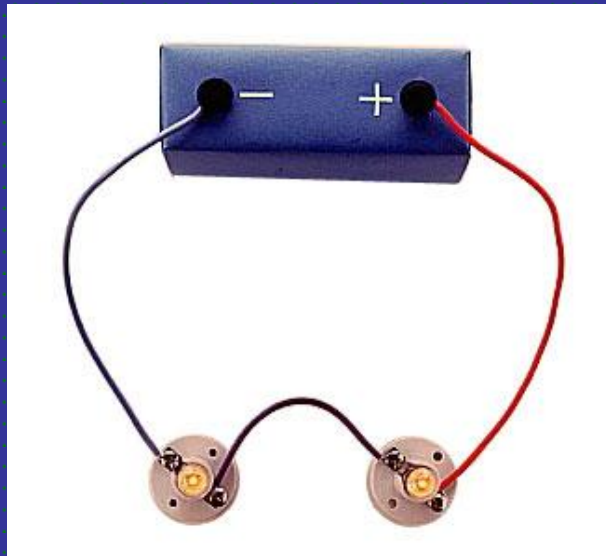


wires

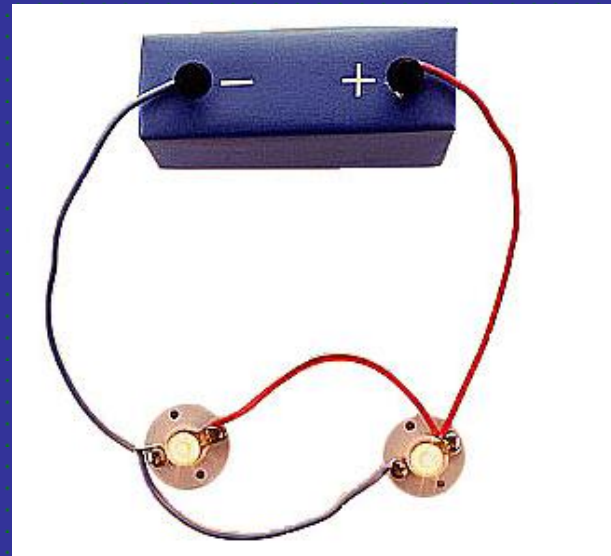
Types of Circuits

There are two types of electrical circuits;

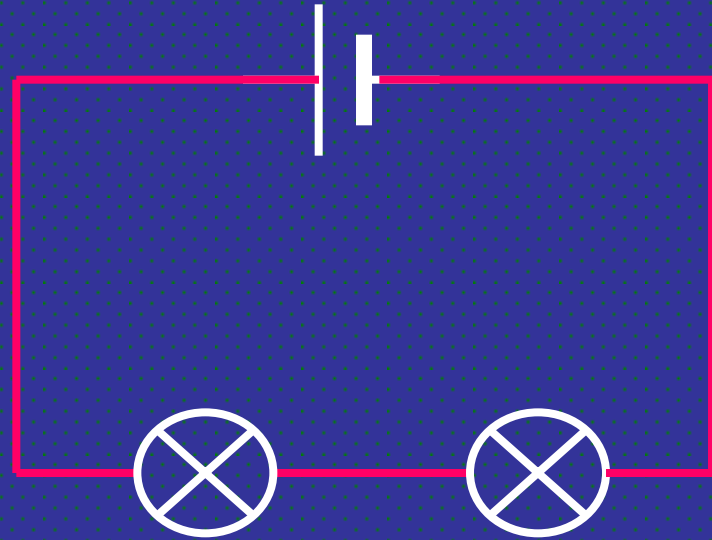
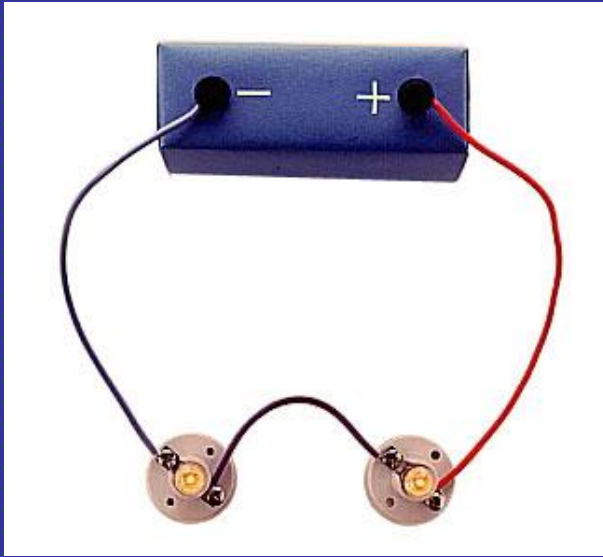
SERIES CIRCUITS



PARALLEL CIRCUITS



Series Circuits

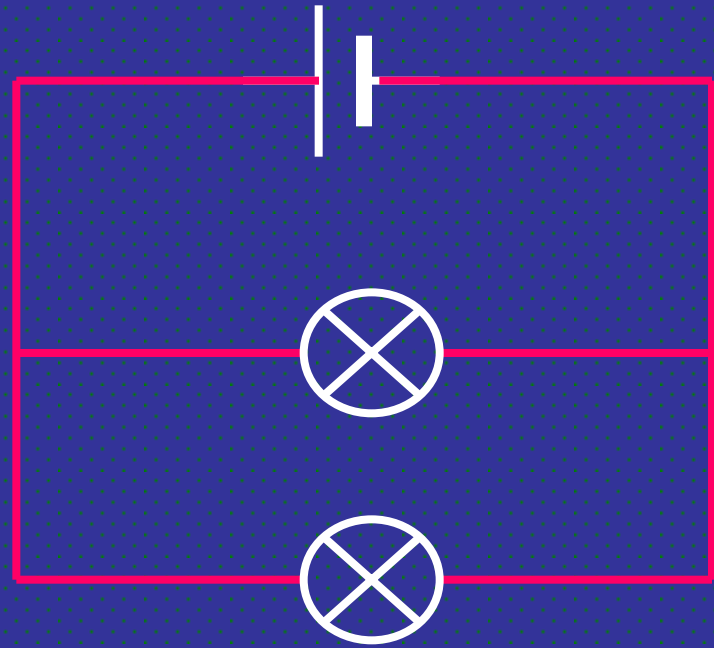
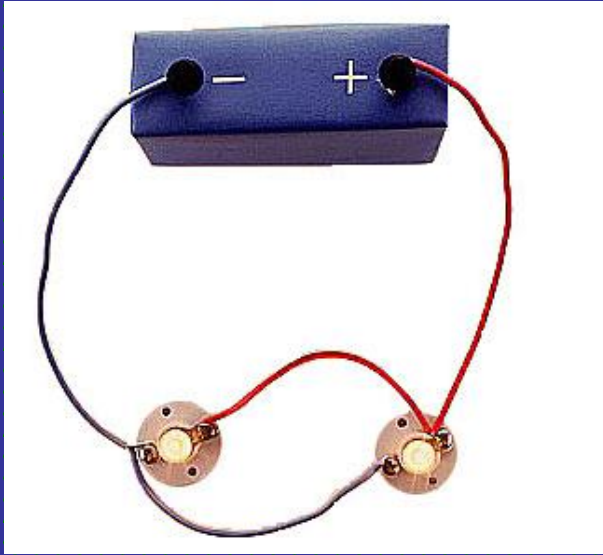


The components are connected end-to-end, one after the other.

They make a simple loop for the current to flow round.

If one bulb 'blows' it breaks the whole circuit and all the bulbs go out.

Parallel Circuits

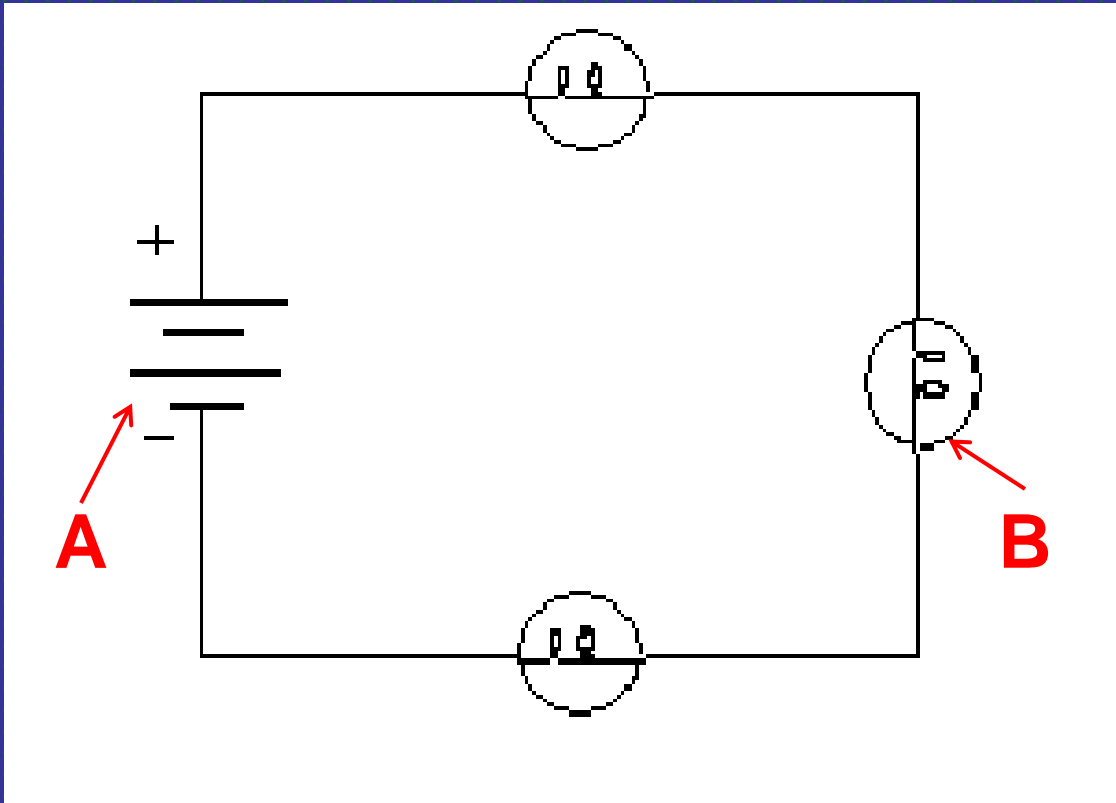


The components are connected side by side.

The current has a choice of routes.

If one bulb 'blows' there is still be a complete circuit to the other bulb so it stays alight.

Practice



Sketch the circuit on the left onto your paper. Answer the following:

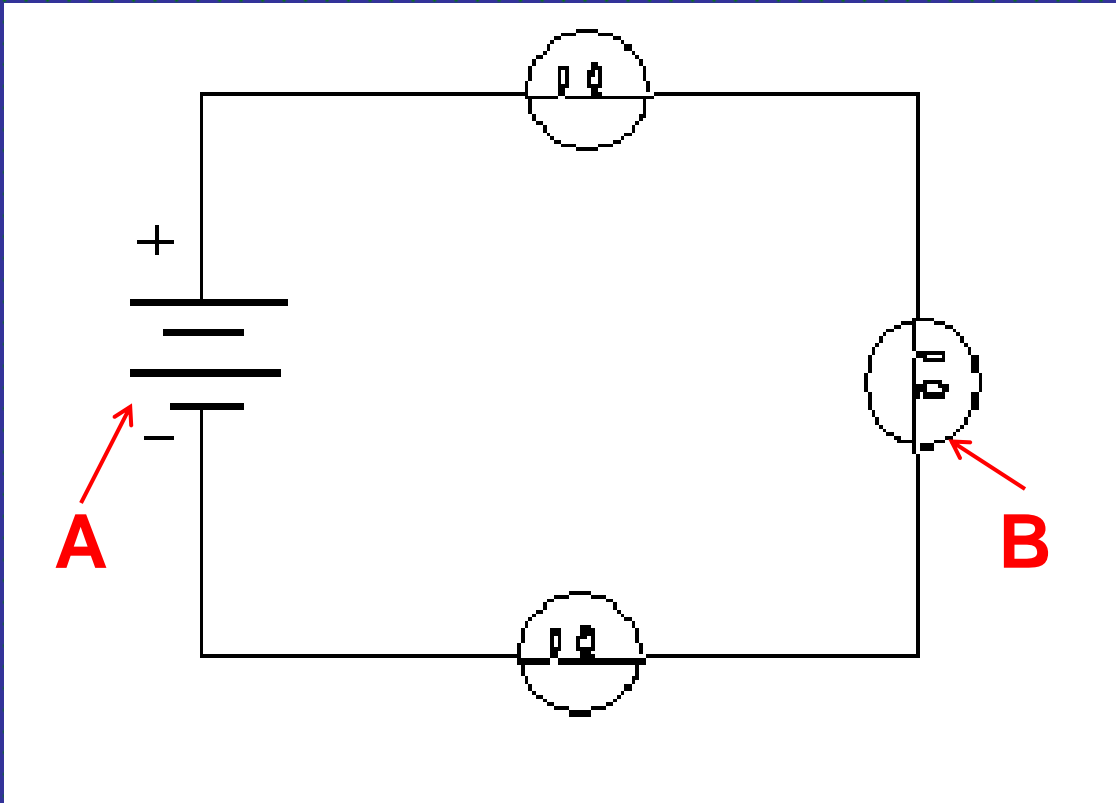
What does the symbol at point A represent?

What does the symbol at point B represent?

How many bulbs are in this circuit?

Is this a series or parallel circuit?

Practice - Answers



Sketch the circuit on the left onto your paper. Answer the following:

What does the symbol at point A represent?

Cell or Battery

What does the symbol at point B represent?

Bulb

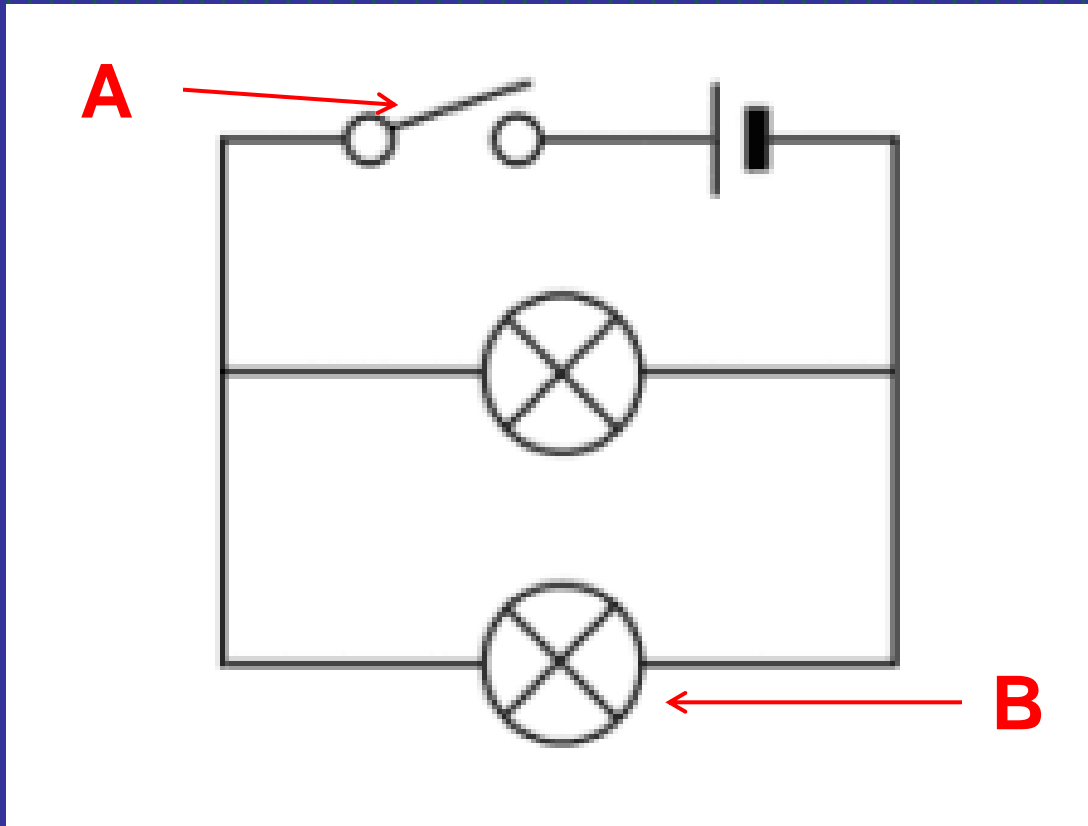
How many bulbs are in this circuit?

3

Is this a series or parallel circuit?

Series

Practice



Sketch the circuit on the left onto your paper.
Answer the following:

What does the symbol at point A represent?

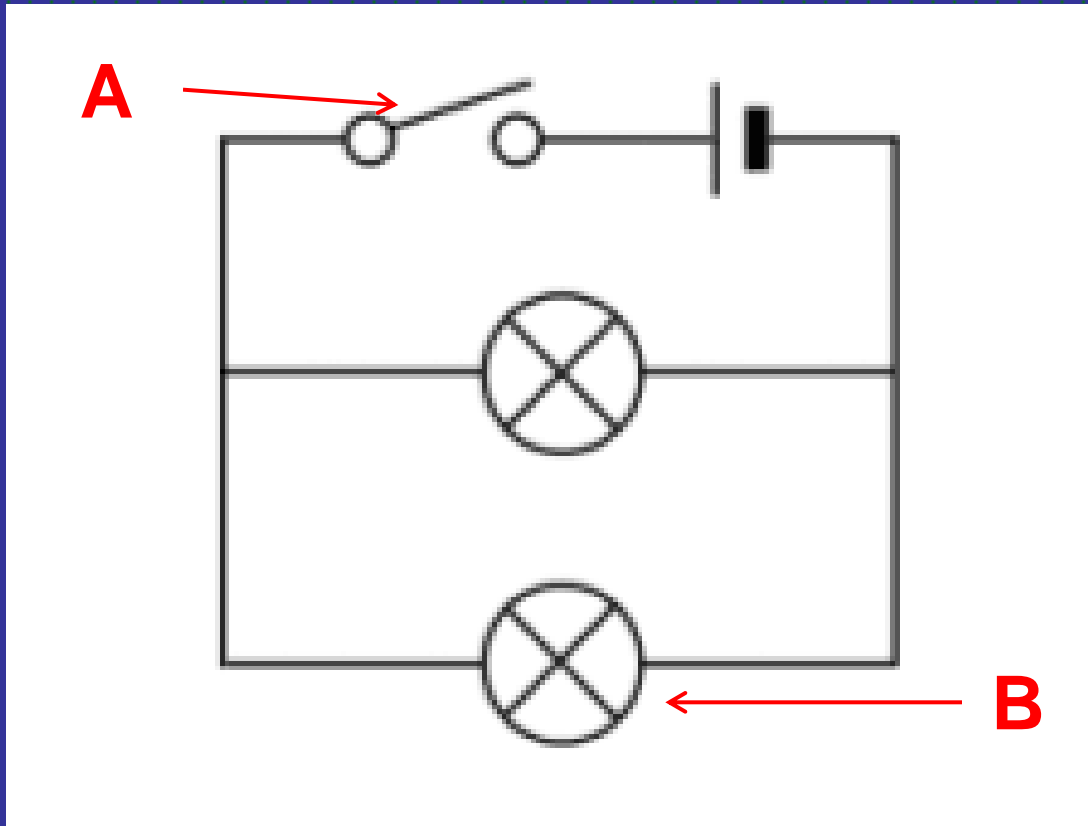
How many bulbs are in this circuit?

Is this a series or parallel circuit?

Are the lights on or off?

What would happen to the other bulb if the bulb at point B blew out?

Practice



Sketch the circuit on the left onto your paper. Answer the following:

What does the symbol at point A represent?

Switch

How many bulbs are in this circuit?

2

Is this a series or parallel circuit?

Parallel

Are the lights on or off?

Off – the switch is open.

What would happen to the other bulb if the bulb at point B blew out?

The other light would stay on, it has its own path of electrons from the battery.