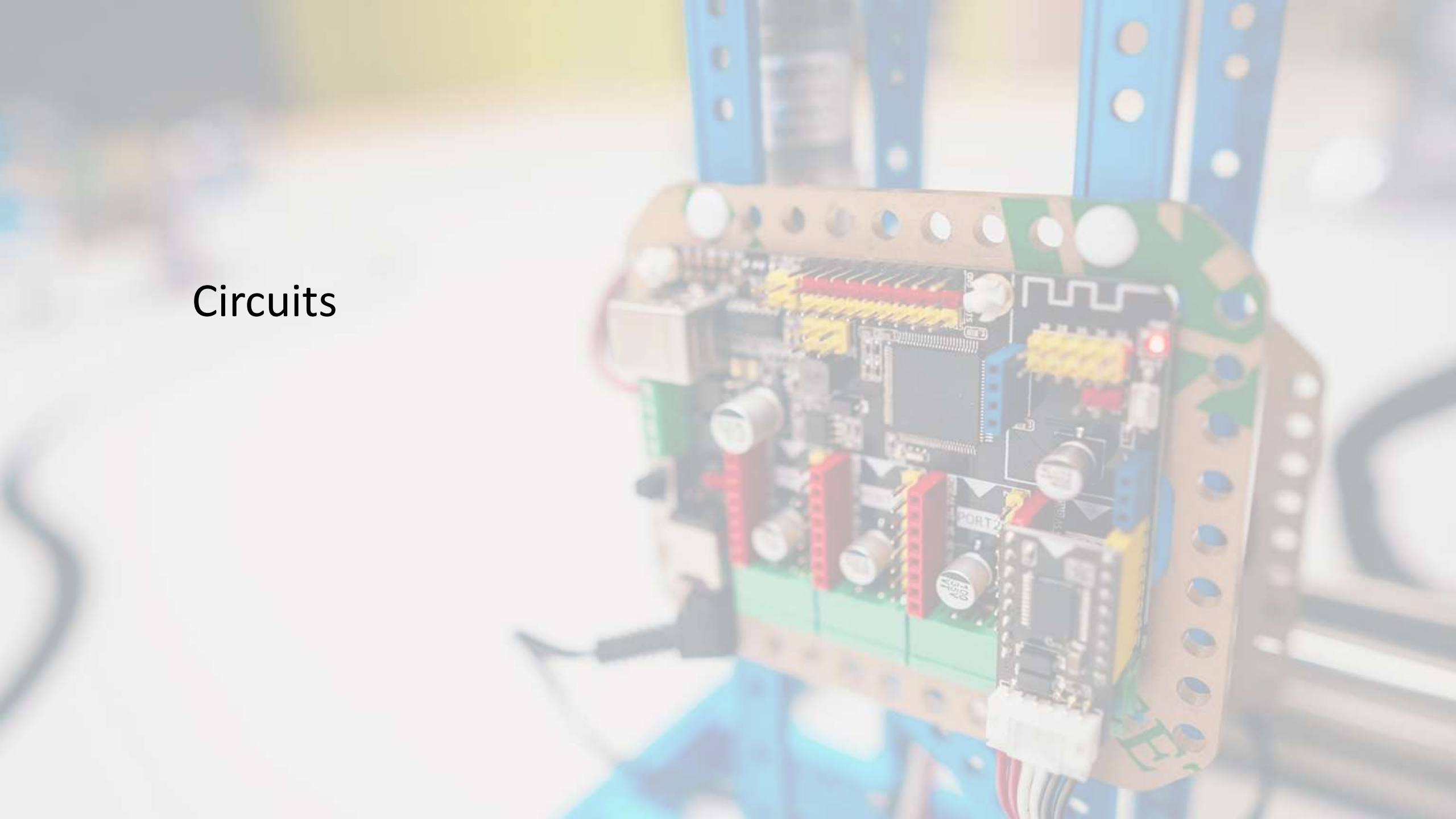
Circuits

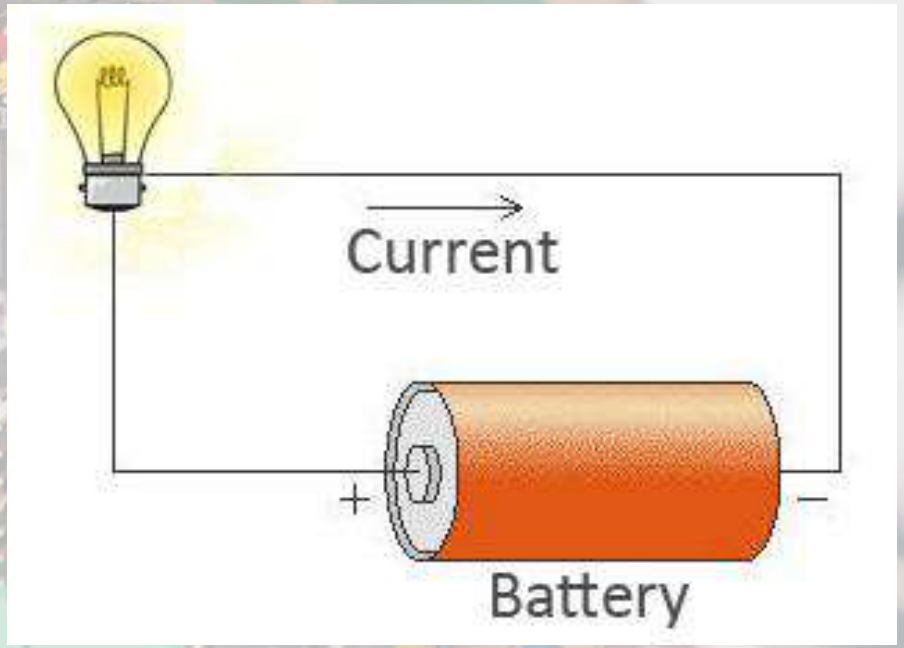


What is an electrical circuit?

Electrical circuit is a closed path in which an electric current can flow.

An electrical circuit consists of simple basic components:

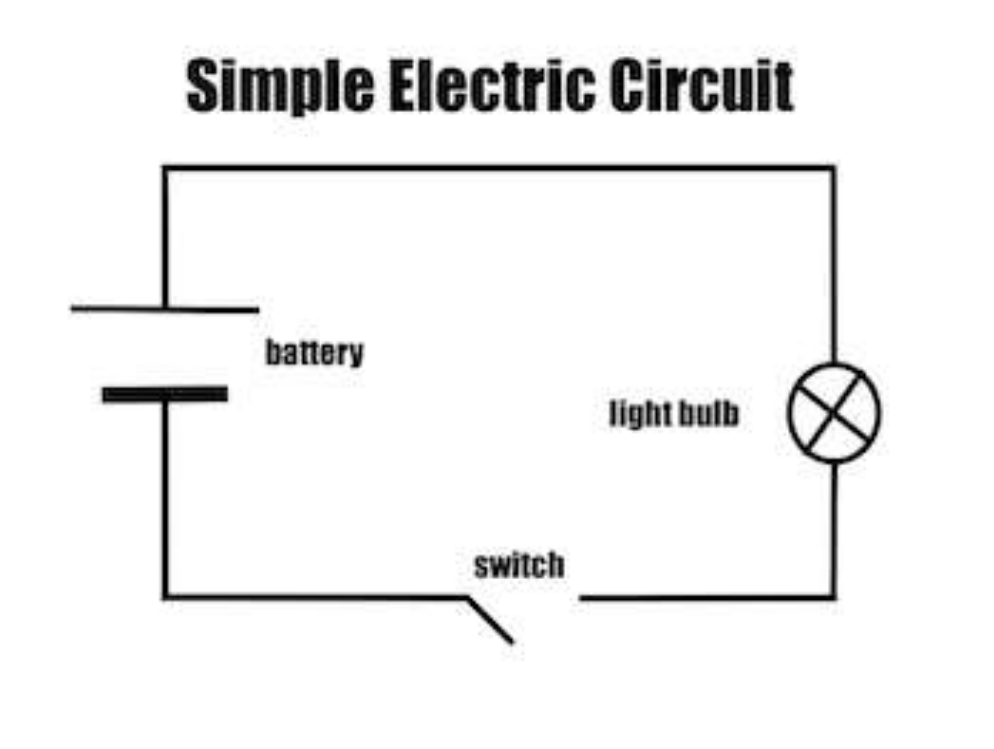
1. Batteries.
2. Wires
3. Bulb /motor /buzzer.
4. Switches (optional)

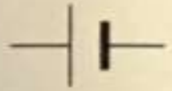
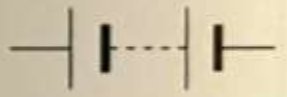
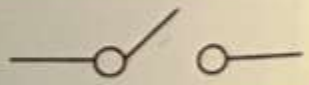


What is a circuit diagram?

A circuit diagram uses symbols to show how the components in a circuit are connected to one another.

It is a model that can help us understand the path of electricity in a circuit.

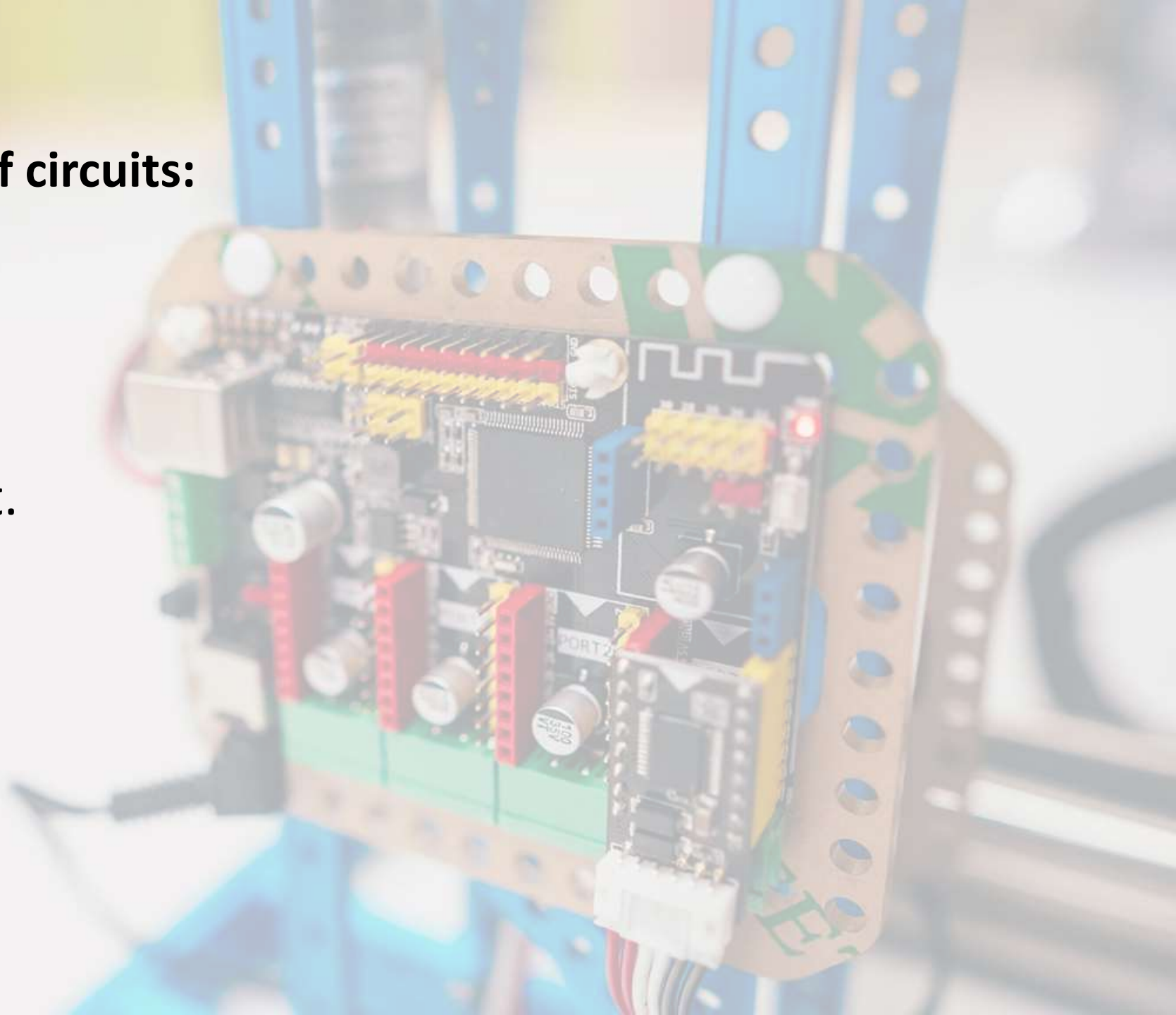


	Component	Symbol
Wire		
Cell The longer line is the positive end (+) and the shorter line is the negative end (−) of the cell.		
Battery of cells		
Lamp		
Buzzer		
Open switch		
Closed switch		

There are two types of circuits:

1- Series circuit.

2- Parallel circuit.

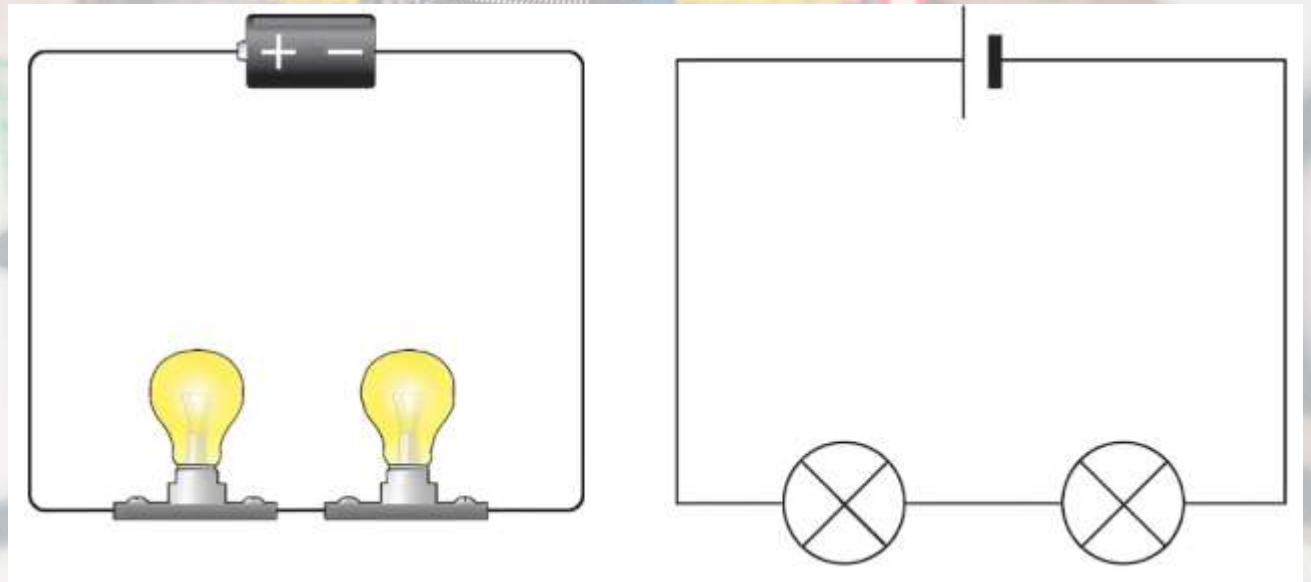


Series Circuits:

In a series circuit, all the components are connected in a **single path**.

Electricity flows from the cell to the first lamp then to the second lamp and then back to the cell.

As electricity flows in a single path, a break in any part of the circuit will open the circuit. When this happens none of the lamps in the series circuit will light up.

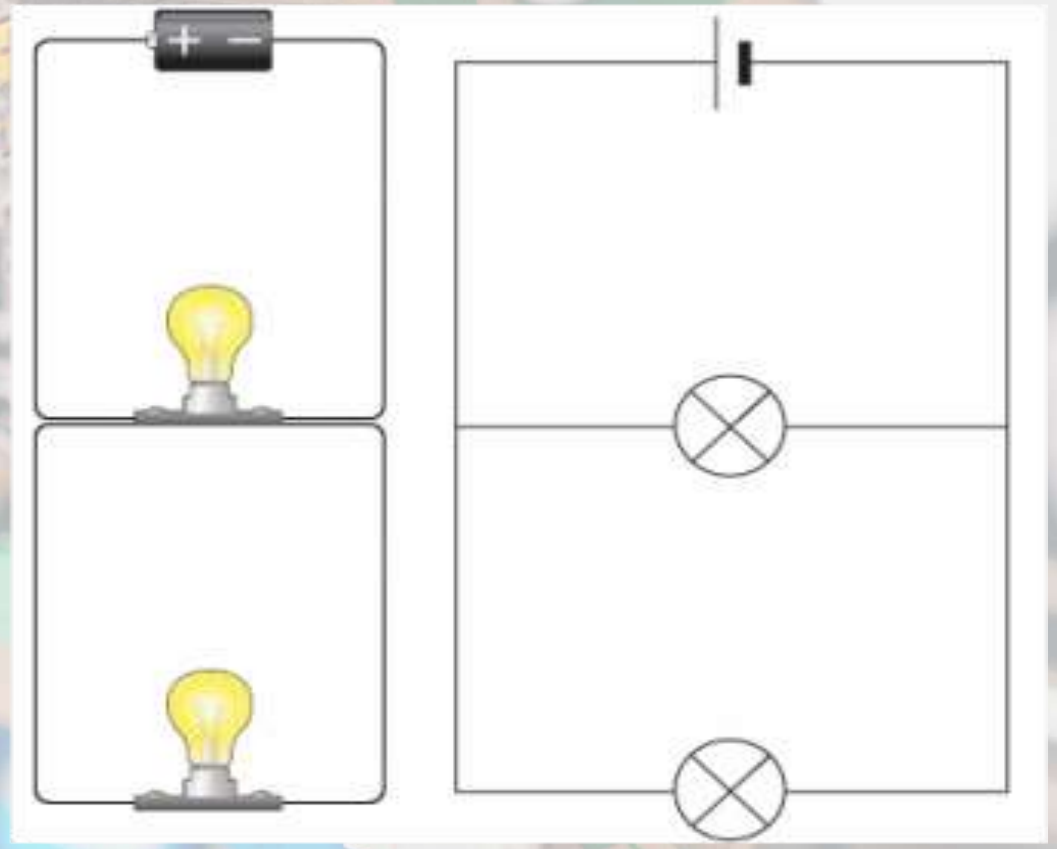


A Series Circuit

Parallel circuits:

In a parallel circuit, electricity flows through **different paths** before returning to the cell.

Electricity flows in each path separately.
Then, a break in one path will not
open the whole circuit.



A Parallel Circuit

In which circuit are lamps brighter?

In a series circuit, the voltage is equally distributed among all of the lamps.

In a parallel circuit, the voltage for each bulb is the same as the voltage in the circuit.

So, for the same number of cells and lamps, **the lamps in the parallel circuit will be brighter than the lamps of a series circuit**.