

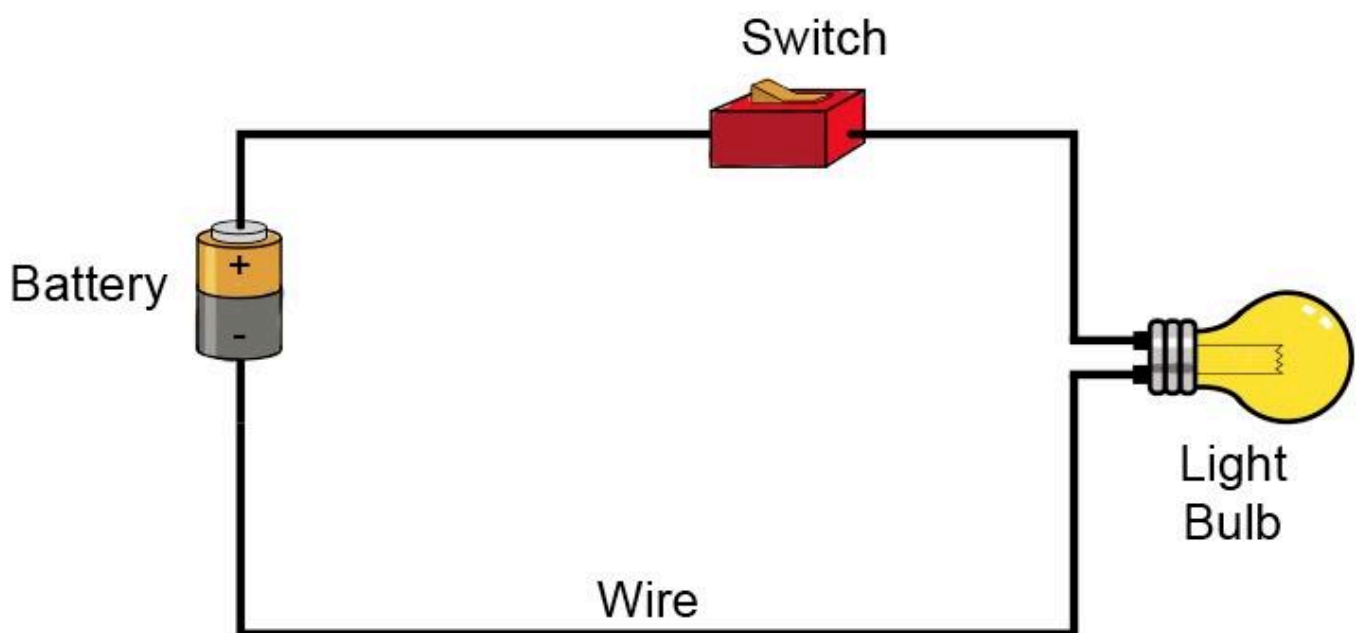
Electrical circuits

Simple electrical circuit

A simple electric circuit is a complete pathway of the current flow from the battery via the switch and load and back to the battery.

An electric circuit consists of :

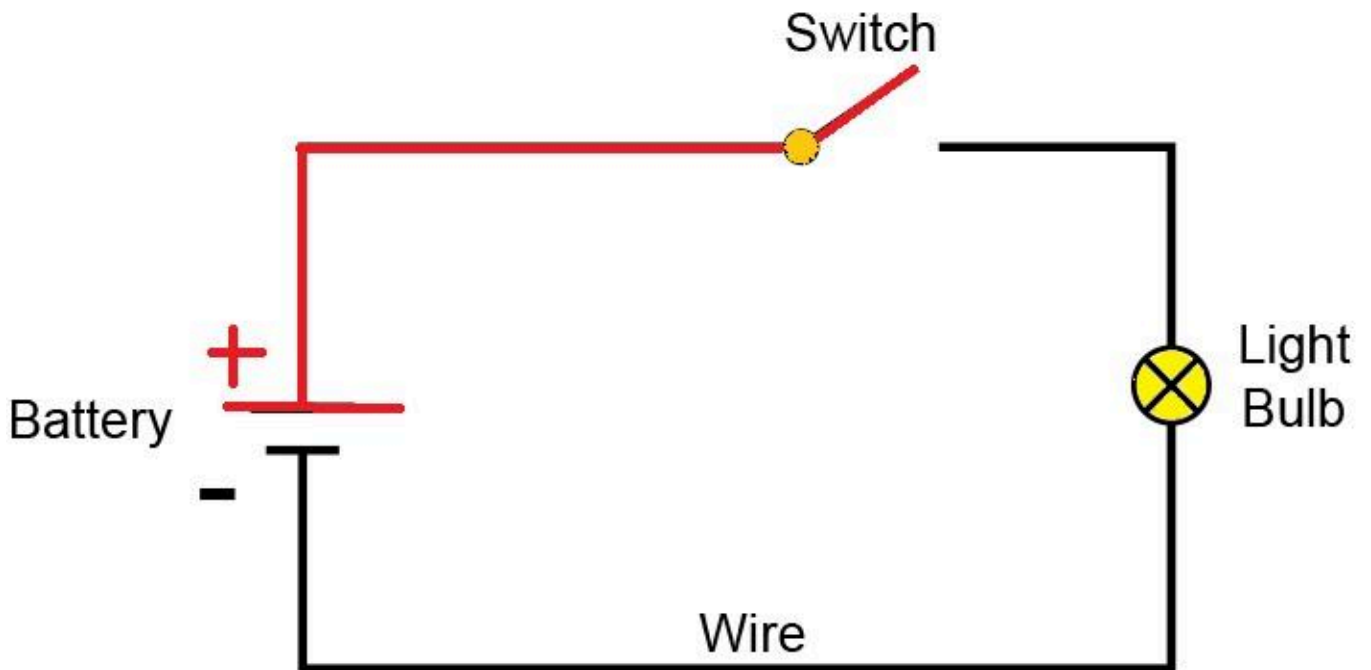
- 1.a voltage source
- 2.Connecting wires (conductors)
- 3.a load (lamp or motor)
- 4.Switch



Open circuit

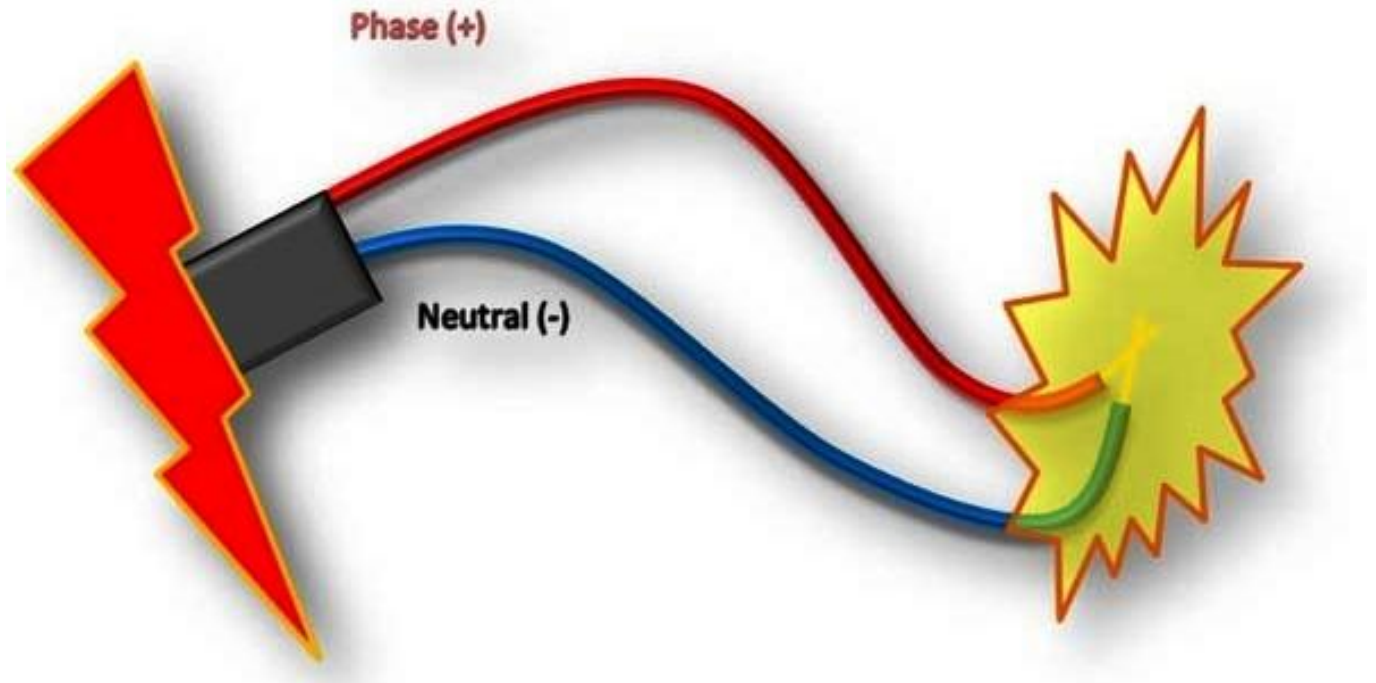
In an open circuit, an infinite resistance is provided, most of the time by the open switch (A).

Therefore no current can flow.



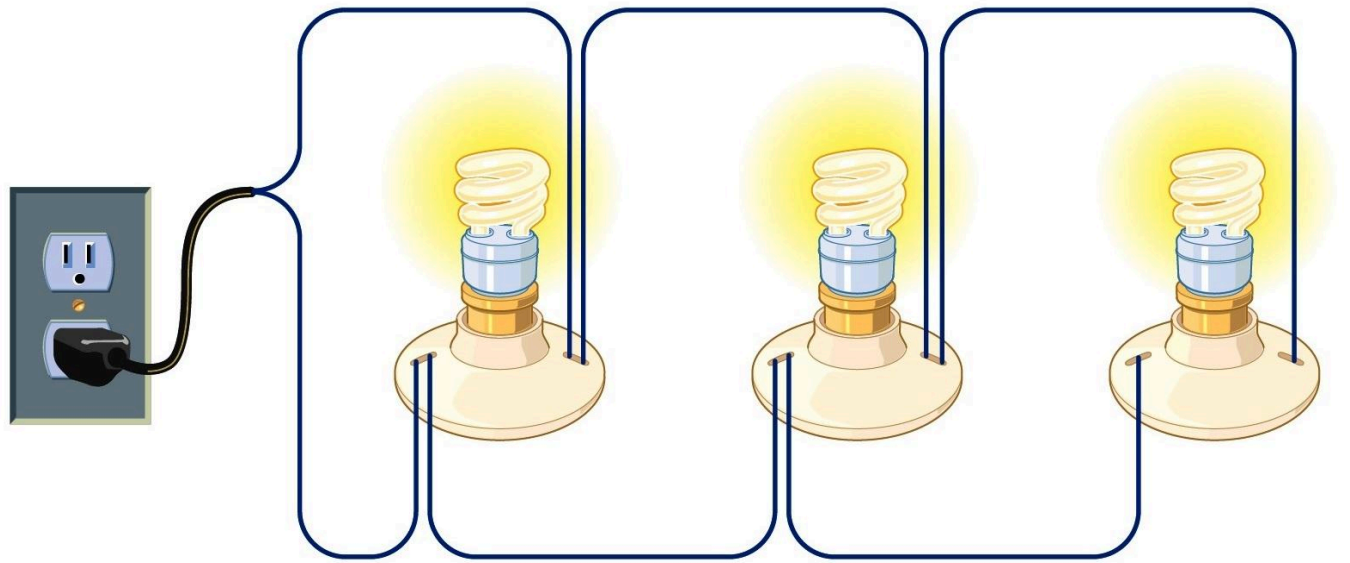
Short circuit :

A short circuit will occur when two terminals of the same circuit touch each other.

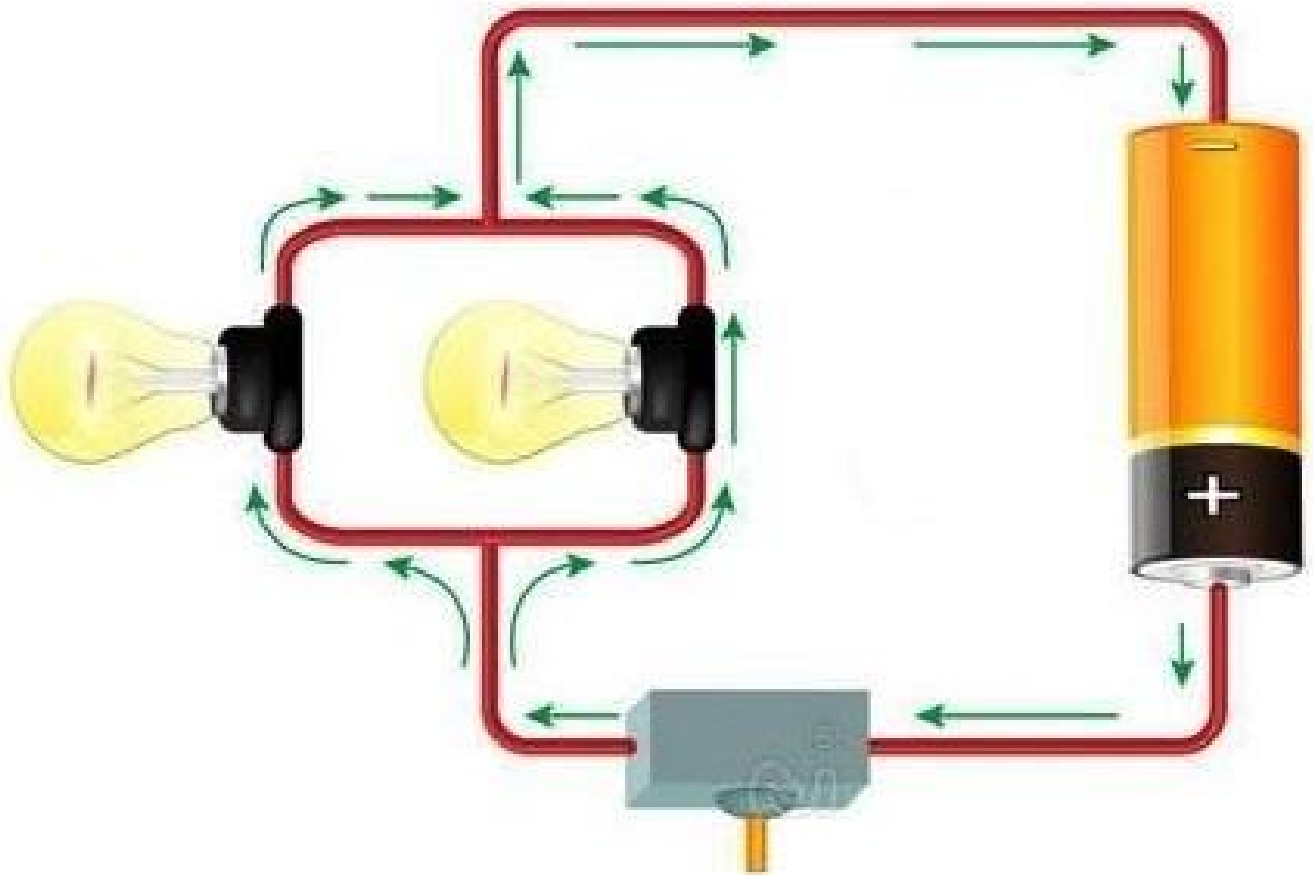


A short circuit may also occur if the insulation between the two cores of the cable are defective. This results in a lower resistance. This causes a large current to flow which can become a hazard.

Parallel circuit



In this circuit, two or more loads are connected.



Each load is provided with its own path to the source of supply.

Example-A pair of head lights is connected in parallel circuit. When wired in parallel the failure of one bulb will not effect the operation of the other bulb. Each load receives full system voltage.

The formula to calculate resistance in a parallel circuit is:

$$1/R=1/R_1+1/R_2+1/R_3$$

where

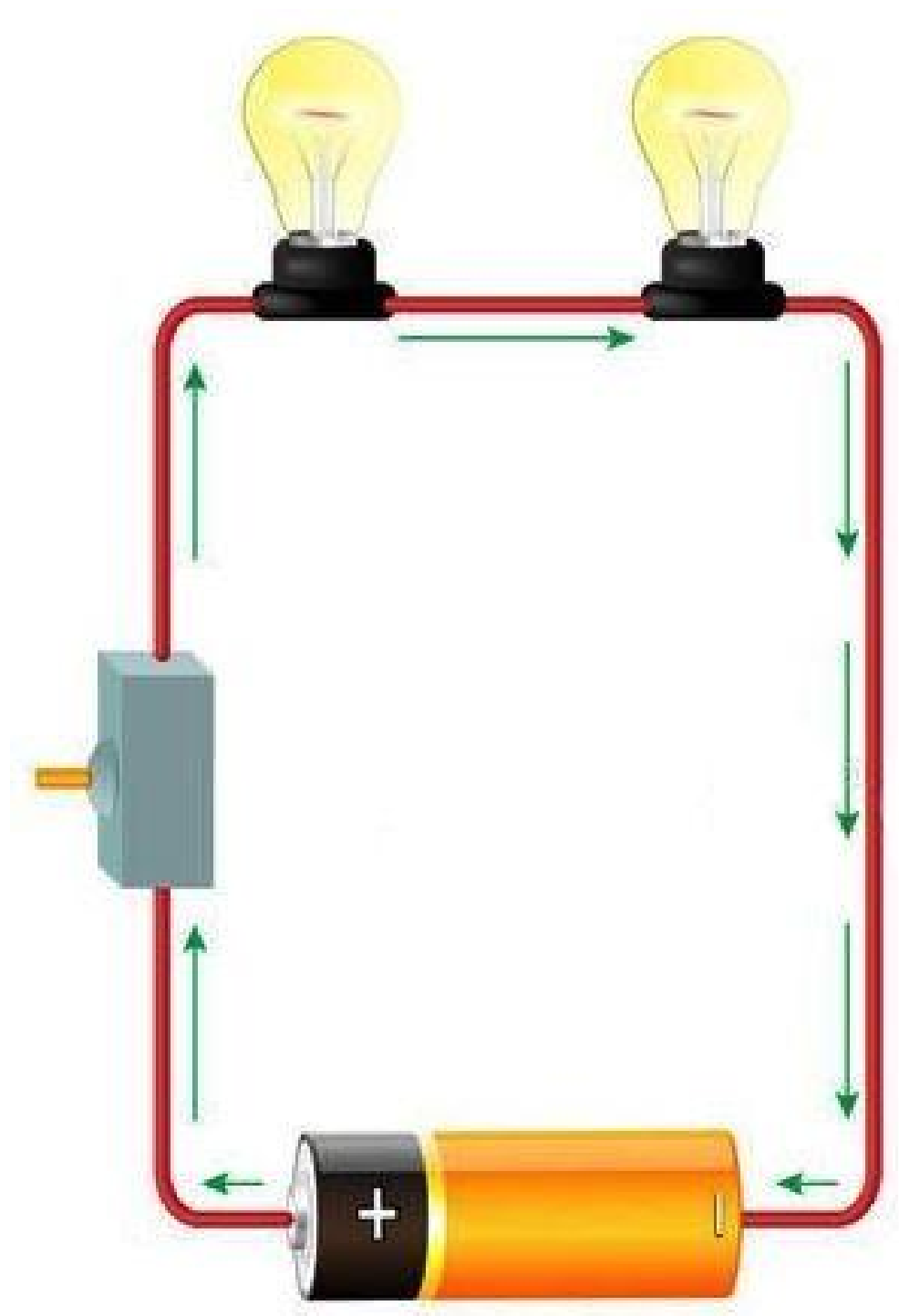
I = current

R = resultant resistance

R₁, R₂, R₃ = resistance of each load.

Series circuit :

This circuit consists of only one load and one source of supply. It has one continuous path for the flow of current.



Hence the current flows through all the load in a sequence in circuit. If any of the parts fails the circuit breaks and the current stops flowing.