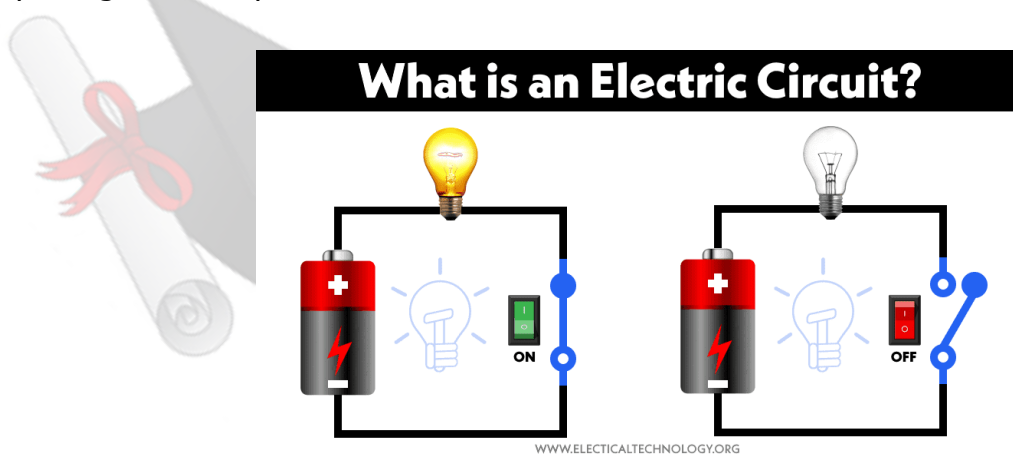


## C3. Circuits

### Circuits

Have you ever wondered how the lights in your home turn on or how your toys and gadgets work? The answer lies in something called circuits. Circuits are like pathways that allow electricity to flow and make things work. Let's learn more about circuits and how they bring electricity to life!



#### What is a Circuit?

A circuit is a closed loop or pathway through which electricity can flow. It is like a road that allows cars to move from one place to another. Electricity needs a complete pathway to flow, just like cars need a complete road to drive on.

#### Parts of a Circuit

A circuit is made up of three main parts: a power source, wires, and a load.

##### 1. Power Source

The power source is where the electricity comes from. It provides the energy needed to make things work. In most everyday circuits, the power source is a battery or a wall outlet.

##### 2. Wires

Wires are like the roads that connect all the parts of a circuit. They carry the electricity from the power source to the load and back to the power source again.

##### 3. Load

The load is the part of the circuit that uses the electricity to do something. It could be a light bulb lighting up, a fan spinning, or a toy making sounds. The load is what we want to work or turn on using electricity.

#### Types of Circuits

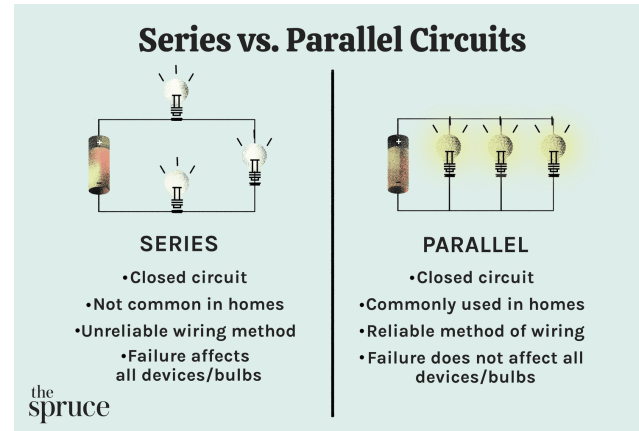
There are two main types of circuits: series circuits and parallel circuits.

## 1. Series Circuits

In a series circuit, all the parts are connected one after the other in a single loop. If one part of a series circuit stops working or gets disconnected, the entire circuit will stop working. It's like a chain; if one link breaks, the whole chain falls apart.

## 2. Parallel Circuits

In a parallel circuit, the parts are connected in multiple separate loops. If one part of a parallel circuit stops working, the other parts will still continue to work. It's like having multiple paths to reach the same destination.



## How Circuits Work

When you turn on a switch or press a button, you complete the circuit, allowing electricity to flow from the power source to the load. When the circuit is complete, the load starts to work. When you turn off the switch or release the button, the circuit opens, and electricity cannot flow anymore, so the load stops working.

## Safety First!

Working with electricity can be dangerous, so it's important to be safe when dealing with circuits. Here are some safety tips:

1. Always ask an adult for help when working with electricity or building circuits.
2. Never touch exposed wires or metal parts of a circuit when it is connected to a power source.
3. Unplug devices when not in use to avoid accidents.
4. Do not overload circuits by connecting too many devices to a single power source.

1. What is a circuit?
  - A) A type of car
  - B) A closed loop for electricity to flow
  - C) A type of food
  - D) A musical instrument
2. What are the three main parts of a circuit?
  - A) Power source, wires, and load
  - B) Battery, wire, and switch
  - C) Light bulb, battery, and motor
  - D) Power source, load, and switch
3. What is the power source in most everyday circuits?
  - A) A wall outlet

- B) A light bulb
  - C) A toy
  - D) A book
4. What do wires do in a circuit?
- A) They carry electricity from the load to the power source
  - B) They carry electricity from the power source to the load and back
  - C) They carry electricity from one circuit to another
  - D) They carry water to the load
5. What is the load in a circuit?
- A) The power source
  - B) The wires
  - C) The switch
  - D) The part of the circuit that uses electricity to do something
6. What happens when a circuit is open?
- A) Electricity flows through it
  - B) Electricity does not flow through it
  - C) The circuit is broken
  - D) The circuit works faster
7. What happens in a series circuit if one part stops working?
- A) The entire circuit stops working
  - B) Only the broken part stops working
  - C) The circuit works better
  - D) Another part takes over
8. What happens in a parallel circuit if one part stops working?
- A) The entire circuit stops working
  - B) Only the broken part stops working
  - C) The circuit works better
  - D) Another part takes over
9. How do you complete a circuit to make a load work?
- A) Press a button
  - B) Connect a wire
  - C) Ask for help
  - D) Turn on a switch
10. Why is it important to be safe when working with circuits?
- A) It's fun to be safe
  - B) It's dangerous to work with circuits
  - C) It's unnecessary to be safe
  - D) It's a rule for building circuits

## ANSWERS & EXPLANATIONS

1. B - A closed loop for electricity to flow.
  - A circuit is a closed loop or pathway through which electricity can flow.
2. A - Power source, wires, and load.
  - The three main parts of a circuit are the power source, wires, and load.
3. A - A wall outlet.
  - In most everyday circuits, the power source is a battery or a wall outlet.
4. B - They carry electricity from the power source to the load and back.
  - Wires carry electricity from the power source to the load and back to the power source again.
5. D - The part of the circuit that uses electricity to do something.
  - The load is the part of the circuit that uses the electricity to do something, such as lighting up a light bulb or spinning a fan.
6. B - Electricity does not flow through it.
  - When a circuit is open, electricity cannot flow through it, so the load does not work.
7. A - The entire circuit stops working.
  - In a series circuit, if one part stops working or gets disconnected, the entire circuit will stop working.
8. B - Only the broken part stops working.
  - In a parallel circuit, if one part stops working, the other parts will still continue to work.
9. D - Turn on a switch.
  - To complete a circuit and make a load work, you need to turn on a switch or press a button to allow electricity to flow.
10. B - It's dangerous to work with circuits.
  - It's important to be safe when working with circuits because working with electricity can be dangerous.