

#1 Electrical Circuits in Physics

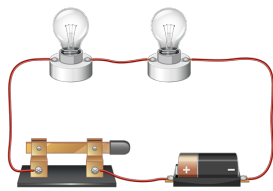


Age: 8 – 11 **12 – 15** 16 – 18

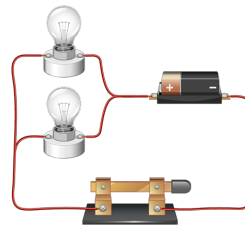
Keywords: Electrical Circuits, Physics, Resistance, Current, Voltage.

Electrical circuits are fundamental concepts with many applications in everyday life. Resistors are one of the most common electronic components, and they can be connected in **series** or **parallel** in an electric circuit.

Series vs. Parallel Circuits



In a series circuit, electricity cannot flow to the next bulb if it burns out. No bulb would work due to the broken circuit.



In a parallel circuit, each component is on a separate loop, so if one breaks, the current can still flow through the other branches.

In a Series Circuit, resistors are connected end-to-end so that the current flows sequentially through each resistor. The series circuit's total resistance is equal to the sum of the resistors' individual resistances. This means that the total resistance of the circuit increases as more resistors are added in series.

In a Parallel Circuit, resistors are connected side-by-side so that current can flow simultaneously through each resistor. The parallel circuit's total resistance is less than the resistance of any individual resistor. This means that the total resistance of the circuit decreases as more resistors are added in parallel.

Parallel Circuits are advantageous when a constant voltage is required, whereas **Series Circuits** are advantageous when a constant current is required.



To view the Augmented Reality (AR) content associated with this case-study, please download the Zappar App on your mobile device (AppStore/ Google Play) and point it toward this flyer. Enjoy and have fun learning!



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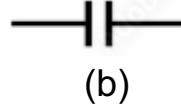
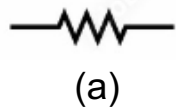
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#1 Test Your Knowledge

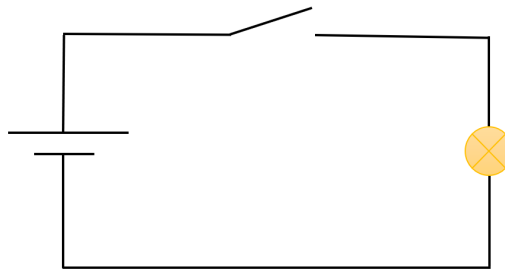


Take the AR-based Quiz below to test your knowledge on electrical circuits.
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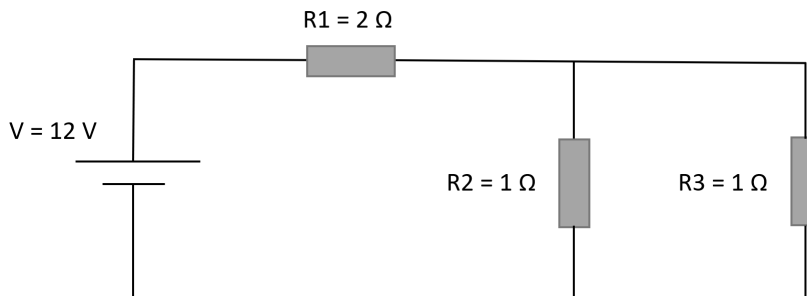
1) Which one is the correct symbol for a resistor in electrical circuits (a) or (b) ?



2) There is something wrong in the following circuit.



3) The total resistance of the circuit below is 2.5 Ohms.



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Take on this challenge and build your own electric circuit!

You can start with a simple circuit using a battery, wires, and a light bulb. Then, try connecting the bulbs in series or parallel and see how it affects the brightness and flow of the current.

By experimenting with circuits, you'll gain a better understanding of how they work, which will help you in your future studies and career. Plus, it's a fun and exciting way to learn.

Tip: Use the Go-Lab electrical circuit lab



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the Zappar app

Go-Lab is an online platform for science education through virtual and remote labs, interactive learning resources, etc.

Go-Lab electrical circuit lab will help you explore and learn about circuits in a fun and interactive way.

Go-Lab electrical circuit lab: <https://tinyurl.com/y8sdflnk>

Take on this task and see what amazing things you can create!

Best of luck and happy circuit building!



STEAM ICONS TO USE

SCIENCE



TECHNOLOGY



ENGINEERING



ARTS



MATHS

