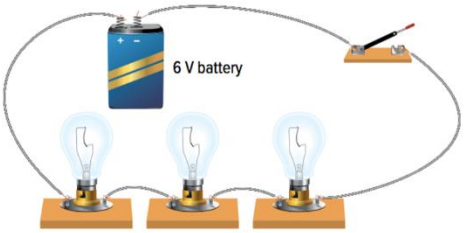
Hemingway Name:

Loads can be connected in series or in parallel in a circuit

There are two main types of circuits:

- _____ **circuit**: A circuit in which current can only flow along _____path
- _____ **circuit**: A circuit that has at least one_____ point where the current splits into two or more pathways

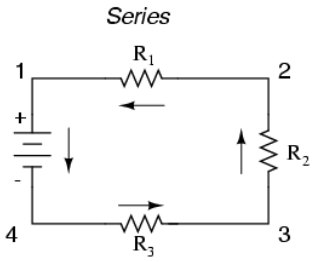
Series Circuit: One Pathway



Series circuit: A circuit in which_____ can only flow along one path

Example: Figure 3.24

- All of the circuit components are connected in _____
- Three light bulbs (loads) are connected in series
- There is only _____ path in which the current can flow through the battery, switch, and loads

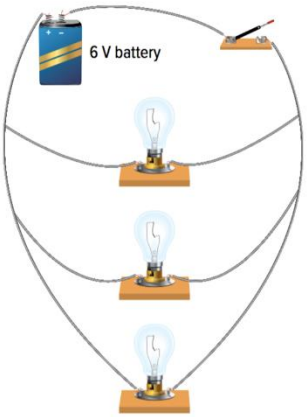


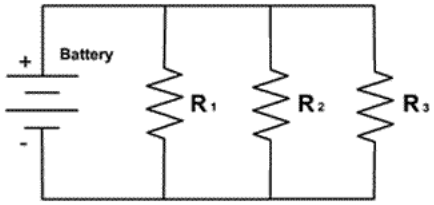
Parallel Circuit: Multiple Pathways

Parallel circuit: A circuit that has at least one branch point where the current splits into two or more pathways

Example: Figure 3.25

- The light bulbs (loads) are connected in _____
- The battery and switch are connected in series
- At the branch point, the current splits into two pathways (the _____of the currents in the branches is the same as the current in the single conductor before the branch point)



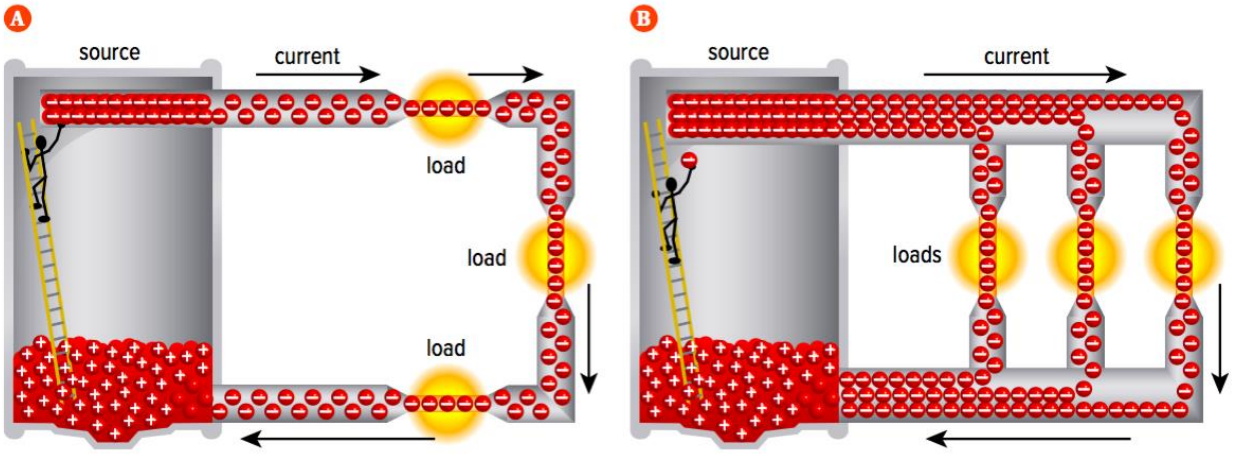


Hemingway Name:

Comparison: Series Circuit and Parallel Circuit

A) Series circuit:_____ pathway for current to flow; current is equal in all parts of the circuit

B) Parallel circuit: Current _____ into three paths; current is reduced in each path



Discussion Questions

1. Use the analogy of two different roads or rivers to compare a series and parallel circuit. Complete page 139 in workbook

Parallel loads are _____ for circuits in the home

Series circuits are _____ for homes.

Example: Loads connected in series in a kitchen

If one load (ceiling lamp) burns out:

- The circuit will be_____
- Charges _____ moving
- No loads (microwave, toaster) in the circuit will work

Hemingway Name:

Parallel Loads: Household Circuits

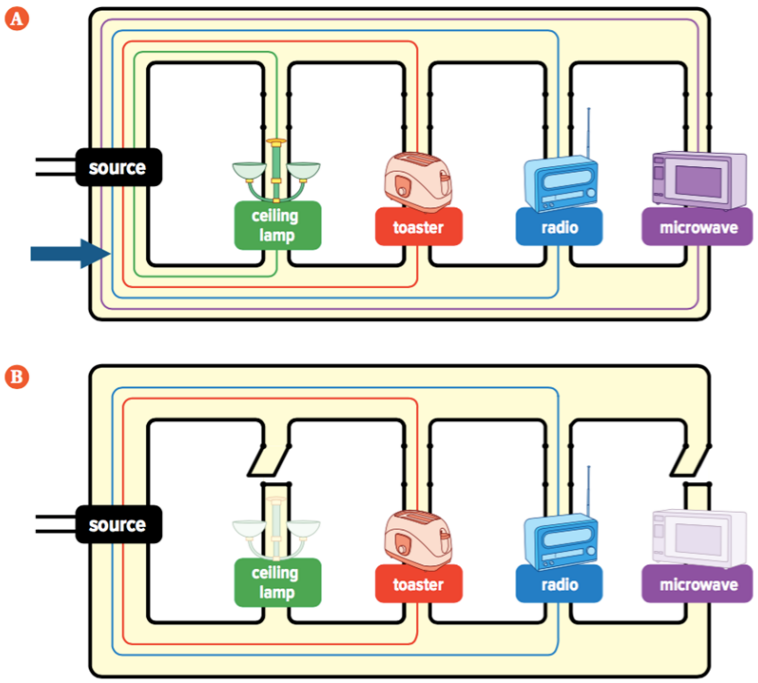
- Parallel circuits are practical because each appliance is controlled by its_____ switch without shutting off others.

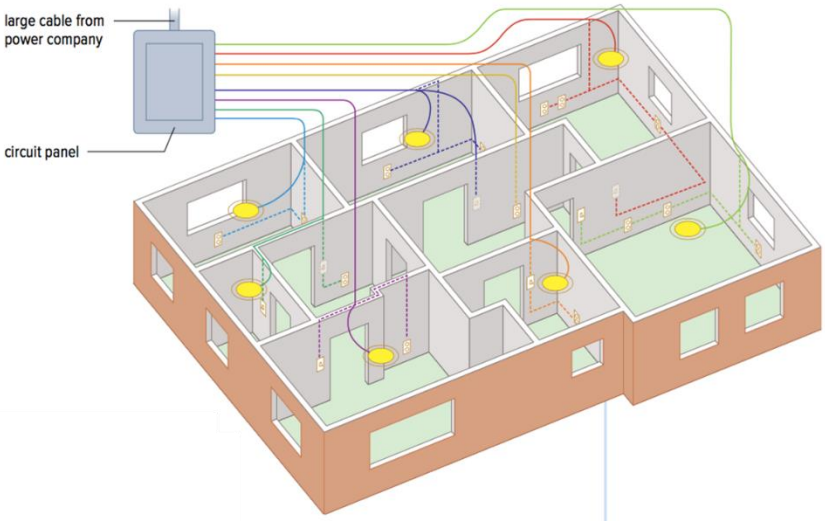
Example: Figure 3.27

A) All of the appliances are running. A large amount of _____is passing through the conductor wire (arrow).

When large amounts of current flow through a wire, it can overheat and start a _____

B) The ceiling lamp and microwave are turned _____, but the toaster and radio are still running





Multiple Circuits Within a Building

Many separate parallel circuits are installed in buildings

- A large electrical cable carrying electrical energy _____ out and is connected to each parallel circuit in a circuit panel

Discussion Questions

1. Explain why it would be impractical to wire a home with a circuit in which all loads were connected in series.

2. Explain why a parallel circuit with too many electrical devices connected to it is not safe.