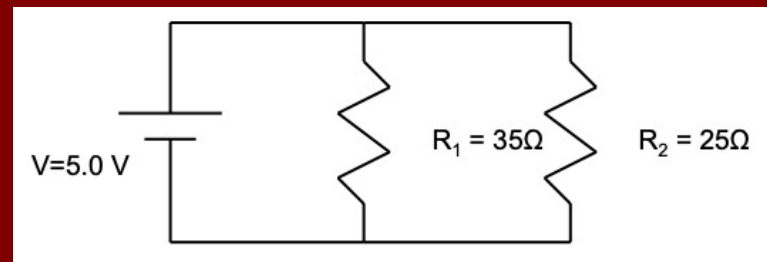
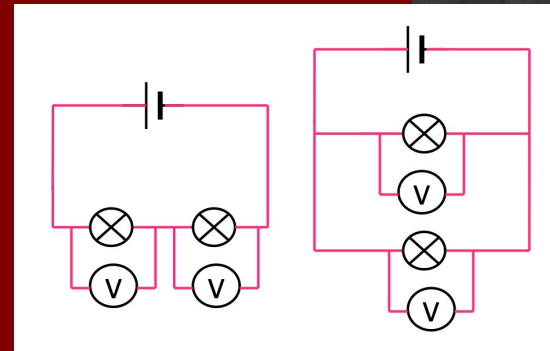
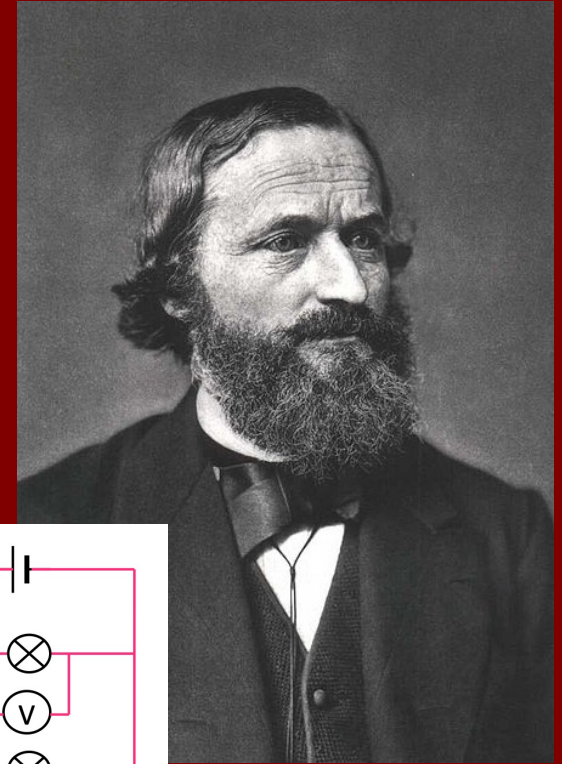


Circuits – Current, Voltage, and Resistance

- Circuits
 - Series and Parallel
 - Circuit Symbols
- Kirchhoff's laws
- Ohm's Law
- Solving Circuit Diagrams



SAMPLE FILE

Thank you for your interest in my lesson.

The following slides will give you a good idea of how this lesson is structured although, much of the information has been removed.

For instance, when you see, that represent text that has been removed.

Note: This sample was created from the student version of the PowerPoint therefore, you will see _____ which are placeholders for the teacher version text which your students will fill in. Furthermore, the videos have also been removed.

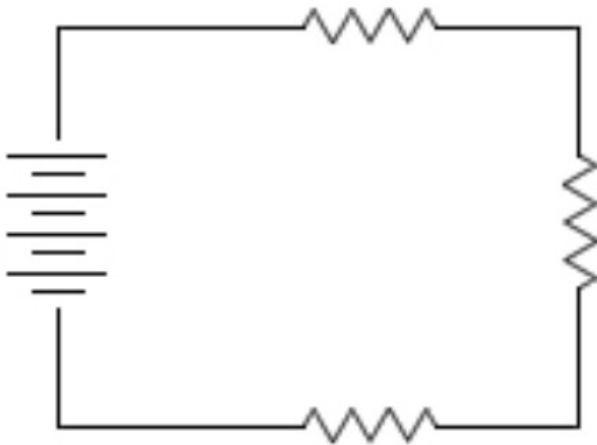
If you have any questions, please send me an email – devon@teachwithfergy.com

Circuit Types

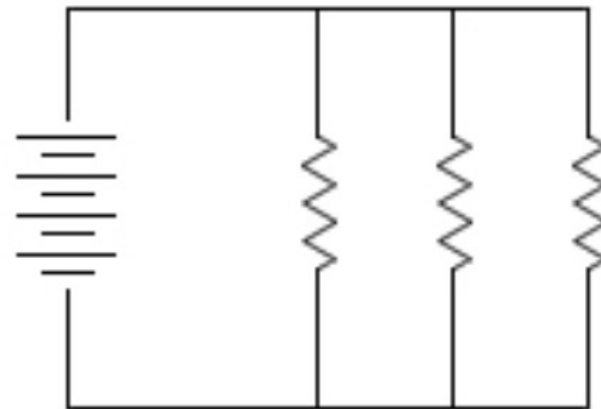
There are two types of circuits

1. _____

2. _____

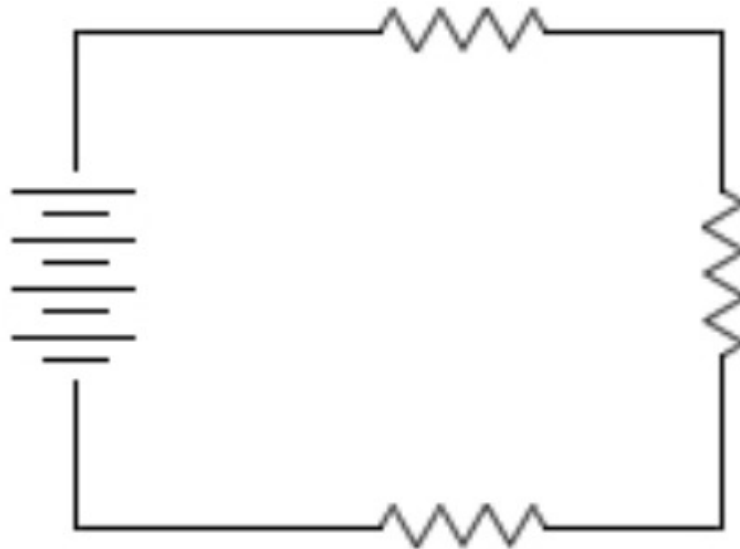


Series Circuit



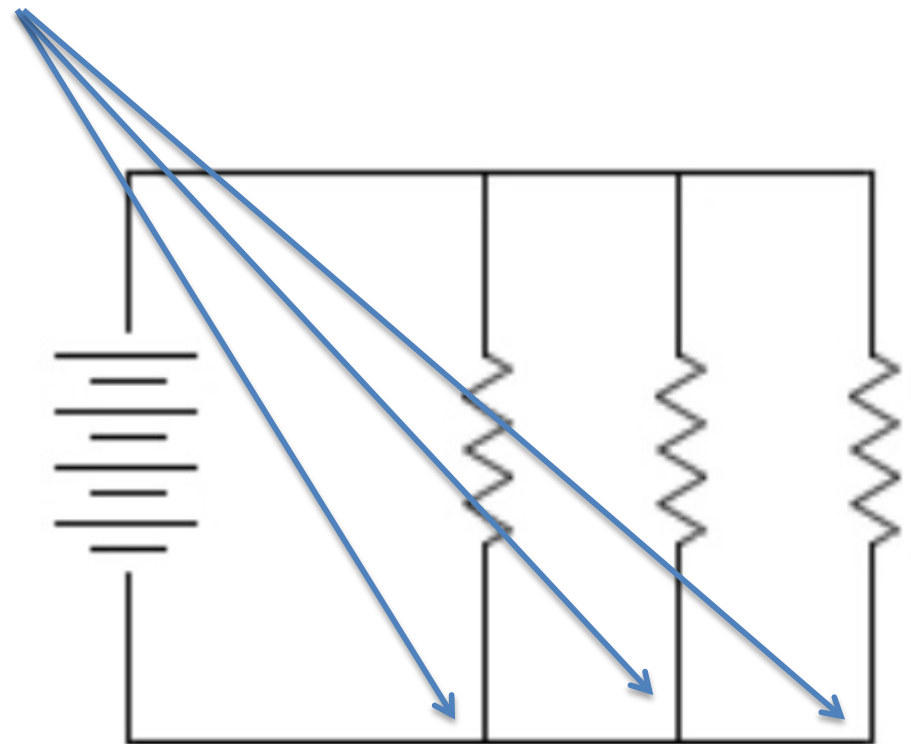
Parallel Circuit

Series Circuits



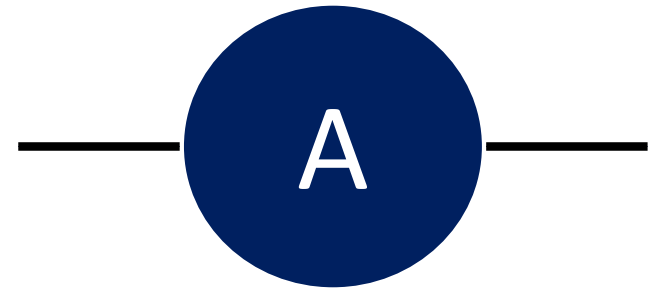
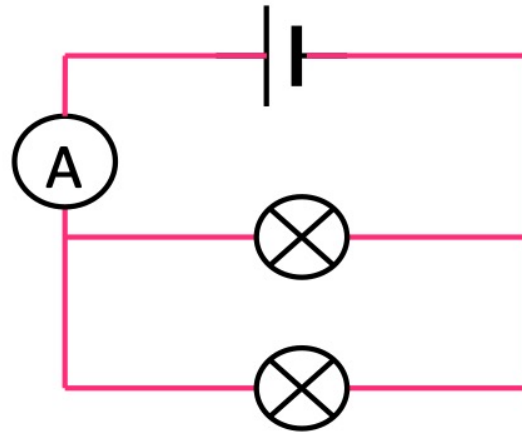
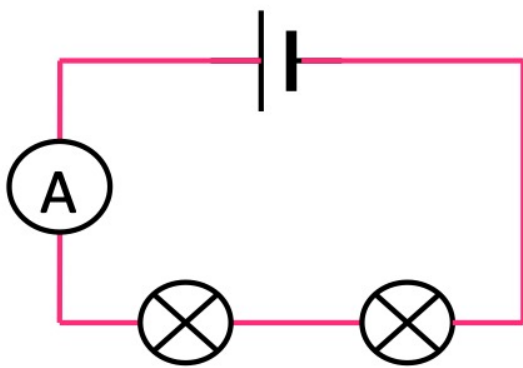
Parallel Circuits

In a parallel circuit, there are more than 1 path for the electrons to travel. _____



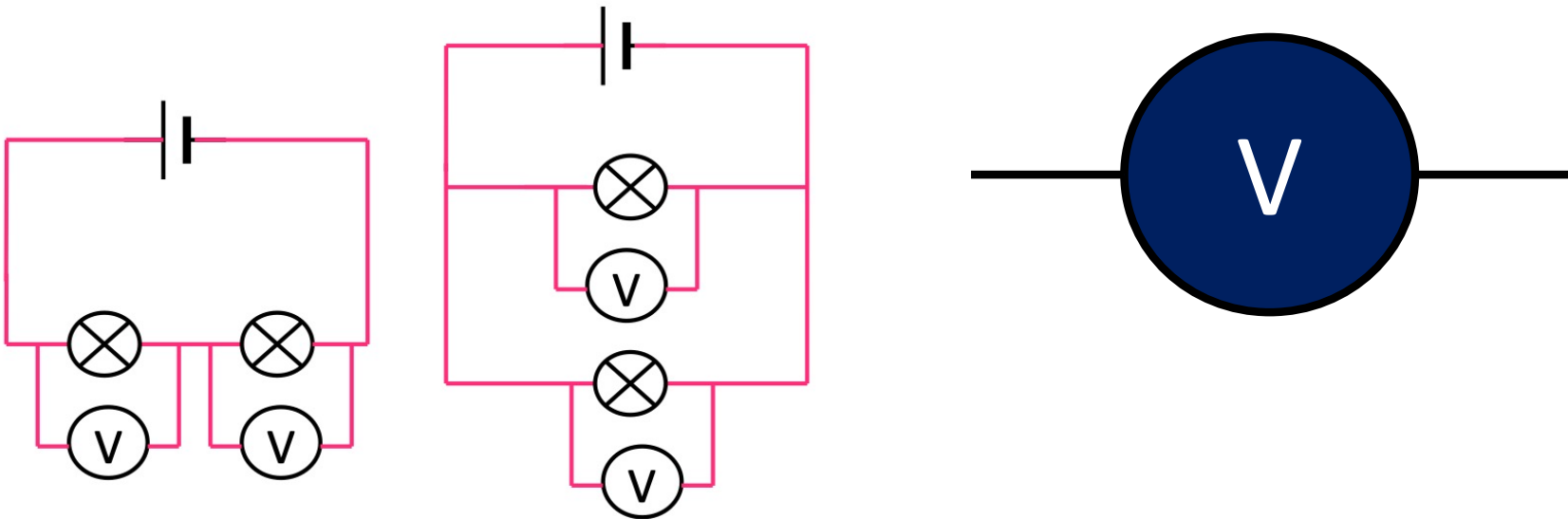
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Measuring Current

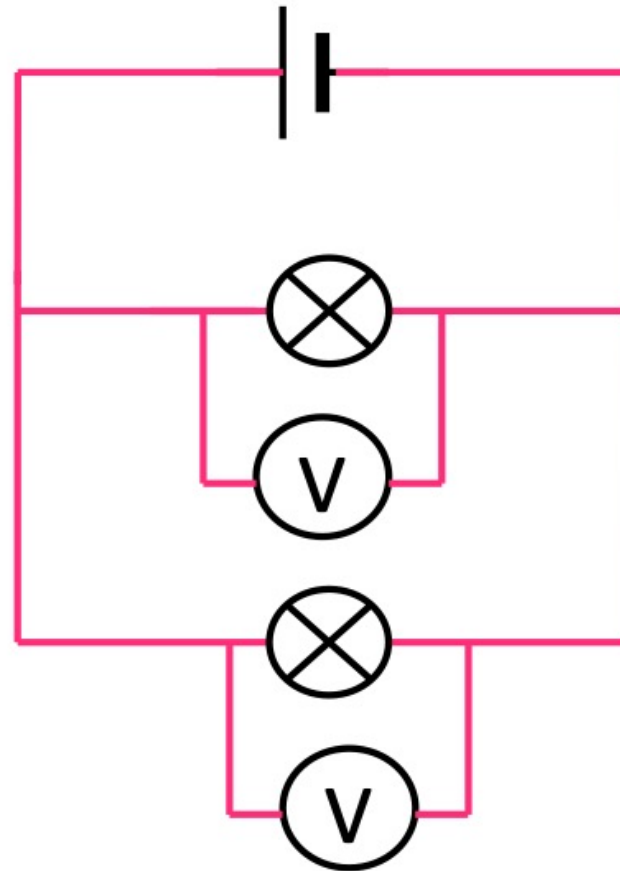
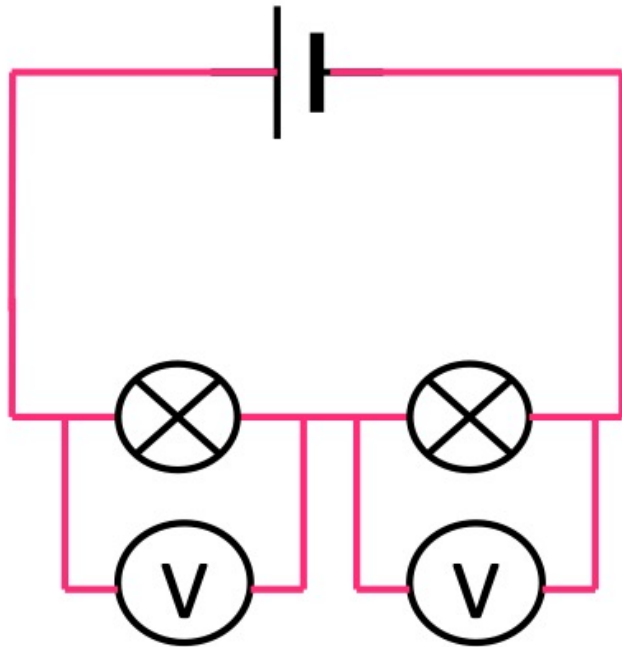


Measuring Voltage

Electric voltage (potential difference) is measured in **volts (V)** _____

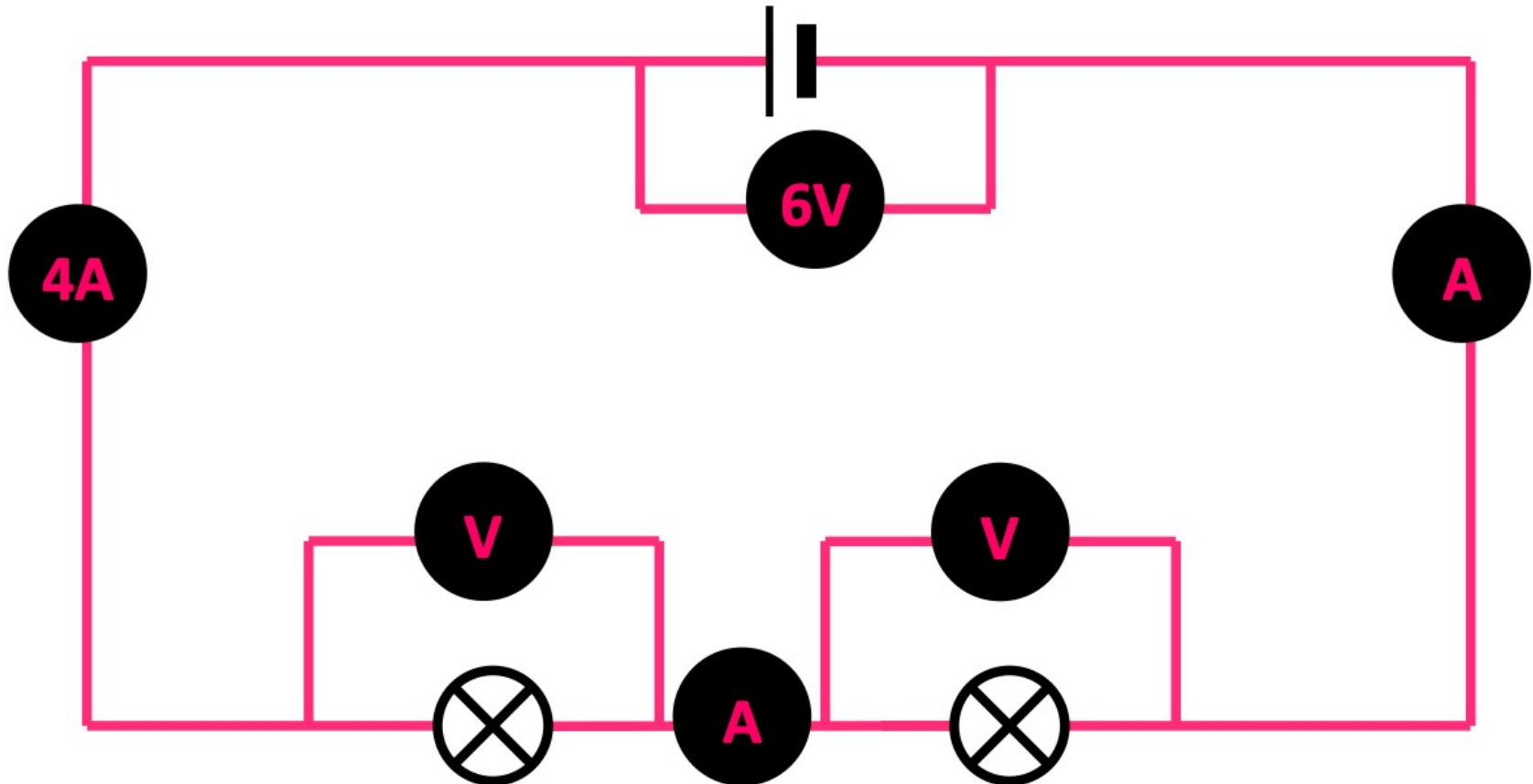


Measuring Voltage Overview



Check Your Understanding

Solve for all missing values



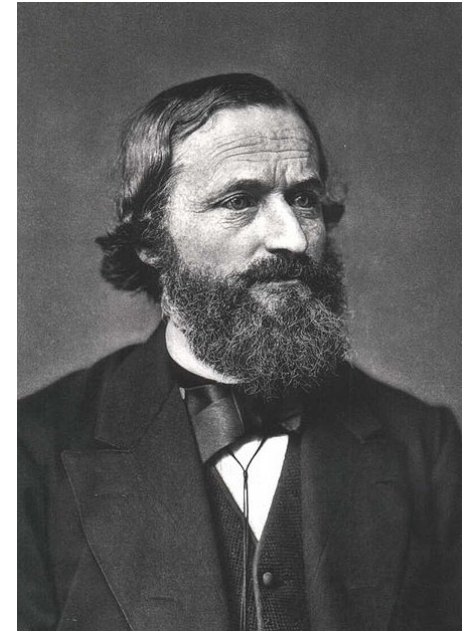
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Kirchhoff's Voltage Law

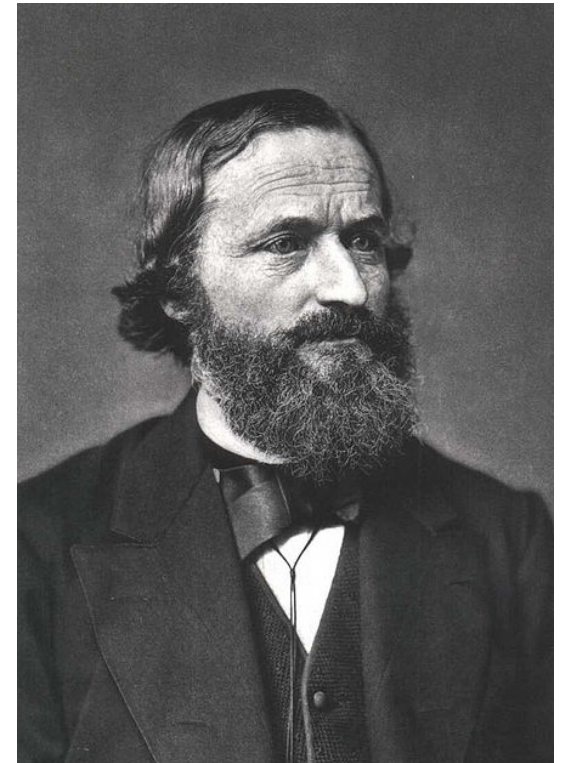
Recall Voltage (Electric Potential)

- _____
 - _____
- This electromotive force is acquired by electrons at a power source
 - _____
- The greater the voltage of the power source, the more voltage each electron will receive that passes through it
 - More “push”



Kirchhoff's Voltage Law

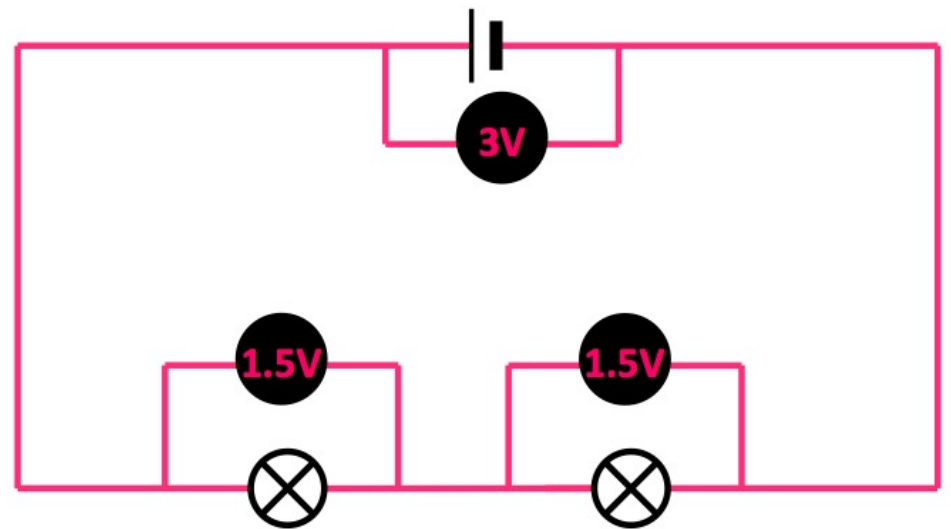
- _____
- In other words, the voltage gained at the power source must be used completely throughout the circuit



In a Series Circuit...

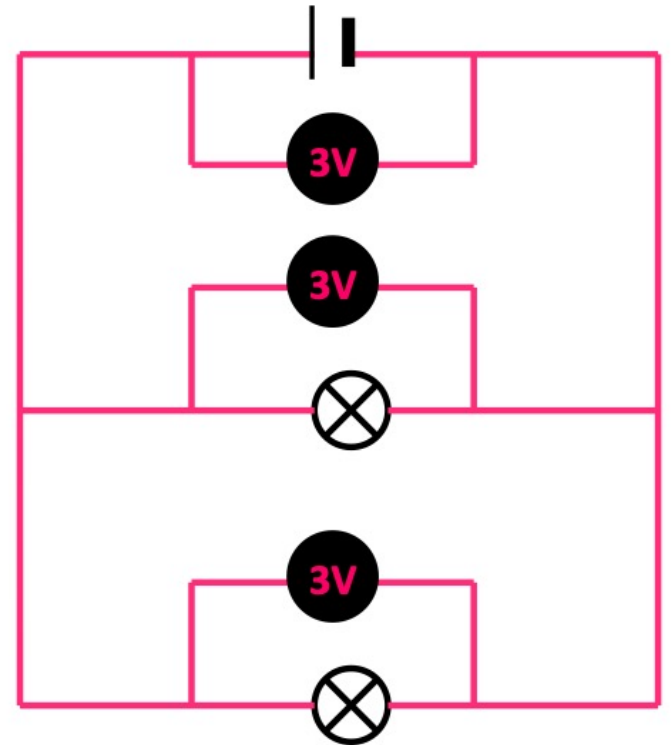
- Series circuits only have a single path for electrons to travel around
- _____

$$V_{\text{series}} = V_1 + V_2 + V_3 + \dots$$



In a Parallel Circuit...

- Parallel circuits have more than one path
- Since the electrons travel around one branch OR the other, _____



$$V_{\text{parallel}} = V_1 = V_2 = V_3 = \dots$$

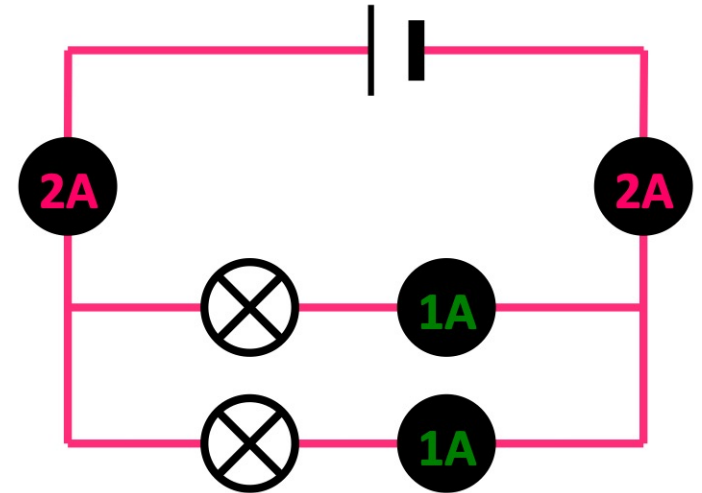
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In a Parallel Circuit...

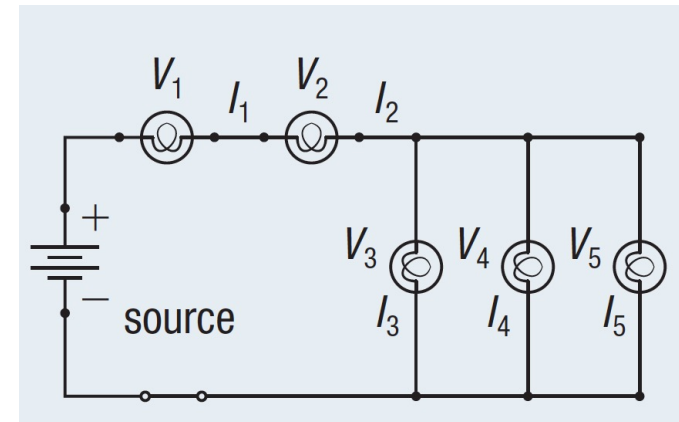
- Since parallel circuits contain more than one path, the number of electrons in the circuit must be shared
- Since the electrons travel around one branch OR the other, _____



$$I_{\text{series}} = I_1 + I_2 + I_3 + \dots$$

Check Your Understanding

For the following circuit, $V_{\text{source}} = 60.0 \text{ V}$, $V_1 = 20.0 \text{ V}$,
and $V_3 = \dots\dots\dots$



Recall: Ohm's Law

Ohm's law connects Current, Voltage, and Resistance and allows us to solve circuit problems

-
- R = resistance measured in ohms Ω
 - V = electric potential difference or voltage measured in volts (V)
 - I = electric current measured in amperes (A)

Check Your Understanding

An electric toaster has a resistance of $10\ \Omega$.

What current will it draw from a 240 V supply?

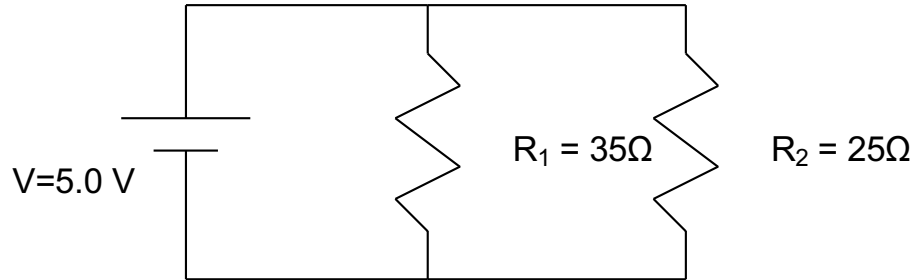
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Calculating Resistance in a Circuit

$$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \dots$$

Check Your Understanding

Determine the current and voltage for each resistor. Also, determine the total current coming from the battery.



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