

Electricity

LO:

Basic ideas...

Electric current is when electrons start to flow around a circuit. We use an _____ to measure it and it is measured in _____.

Potential difference (also called _____) is how big the push on the electrons is. We use a _____ to measure it and it is measured in _____, a unit named after Volta.

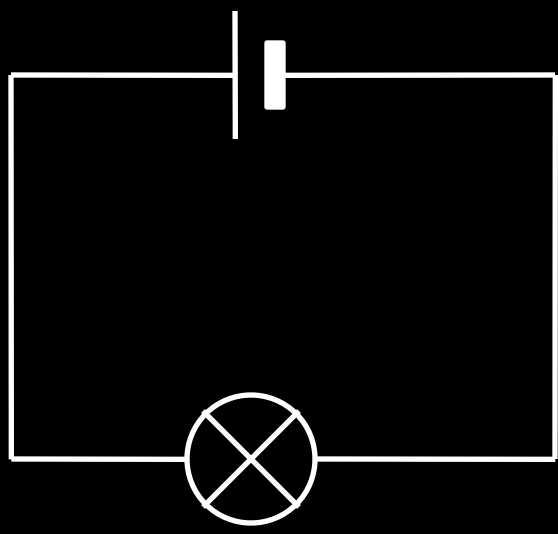


Resistance is anything that resists an electric current. It is measured in _____."

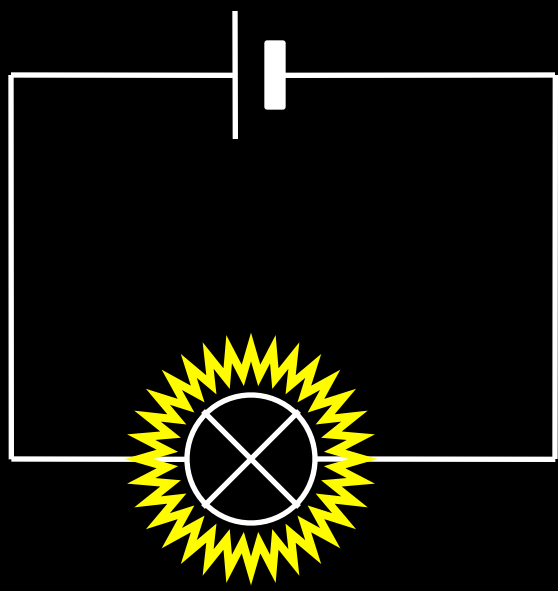
WORDS: volts, amps, ohms, voltage, ammeter, voltmeter

More basic ideas...

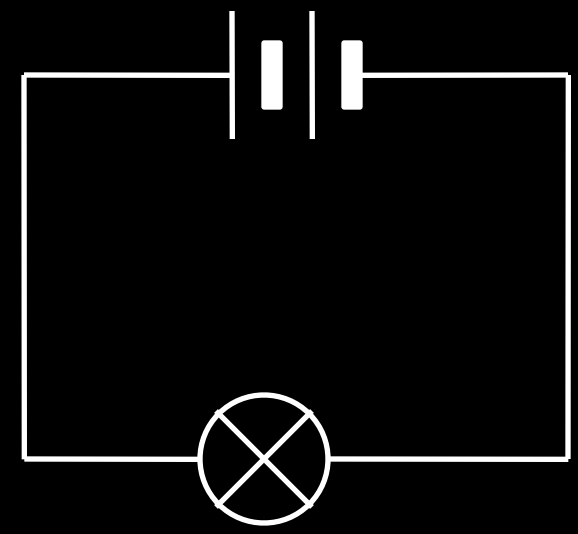
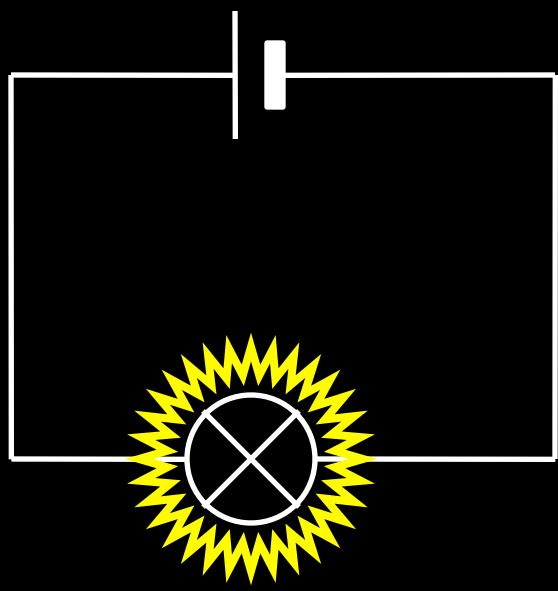
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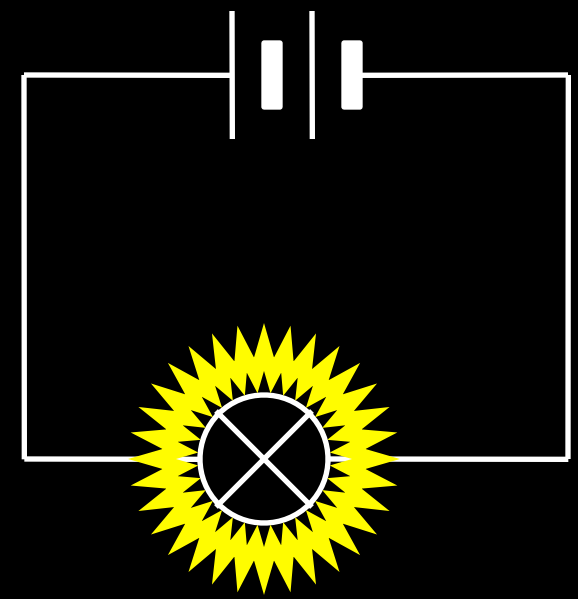
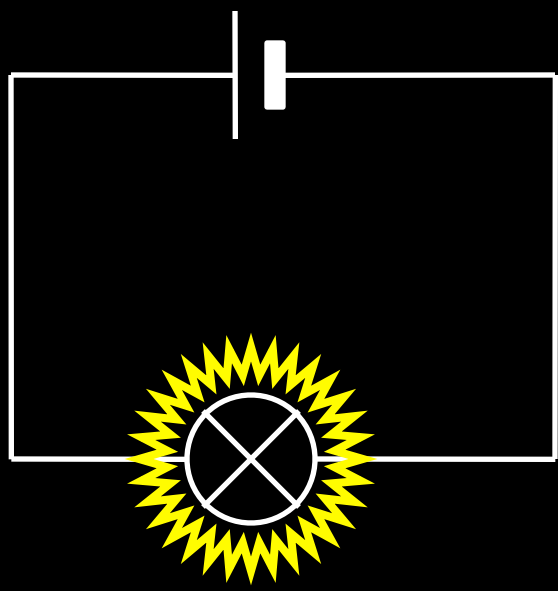
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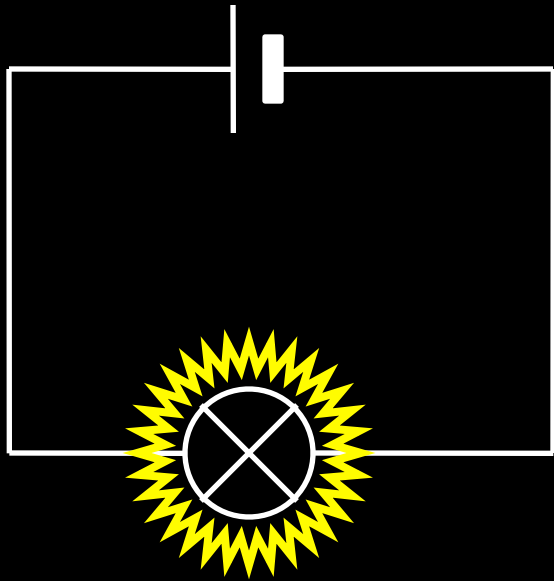
More basic ideas...



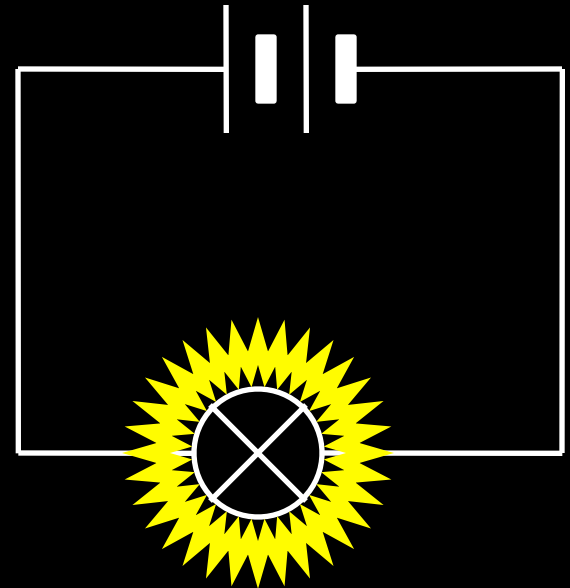
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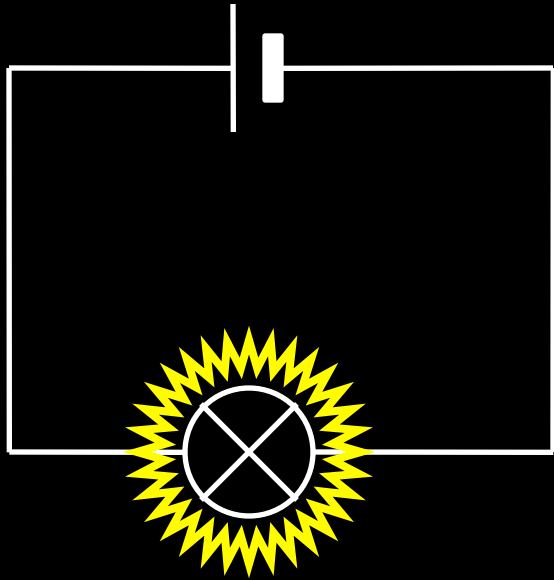
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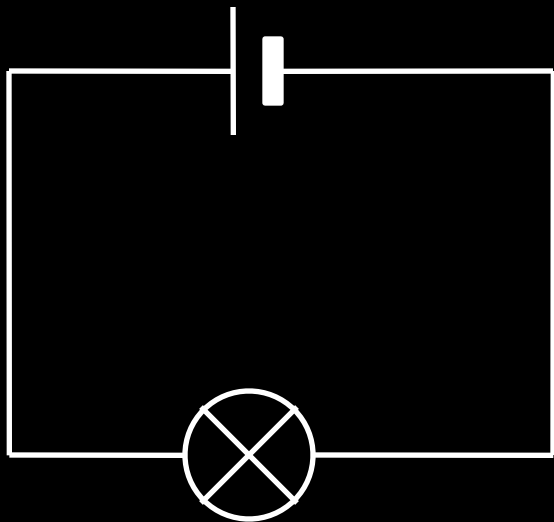
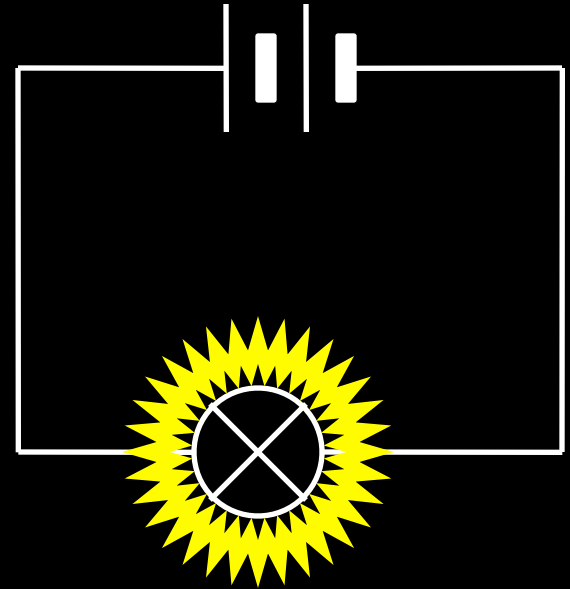
If a battery is added the current will _____ because there is a greater _____ on the electrons



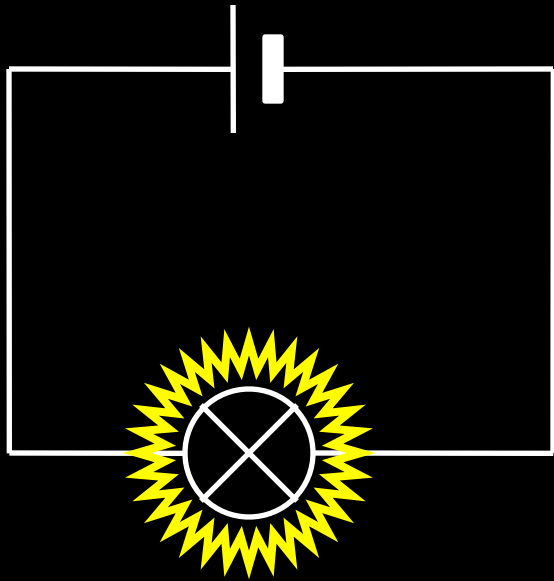
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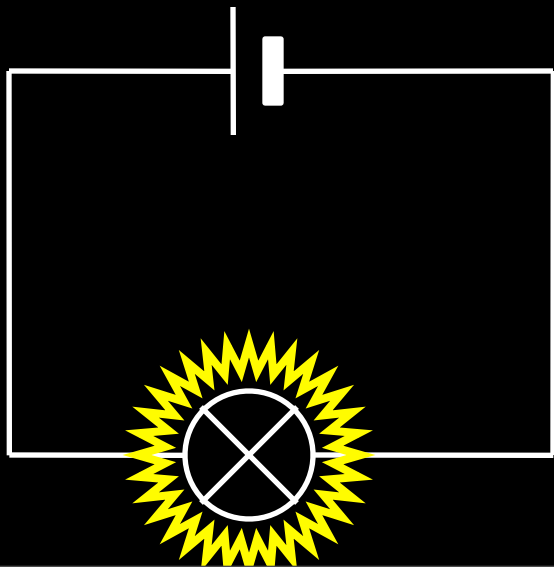
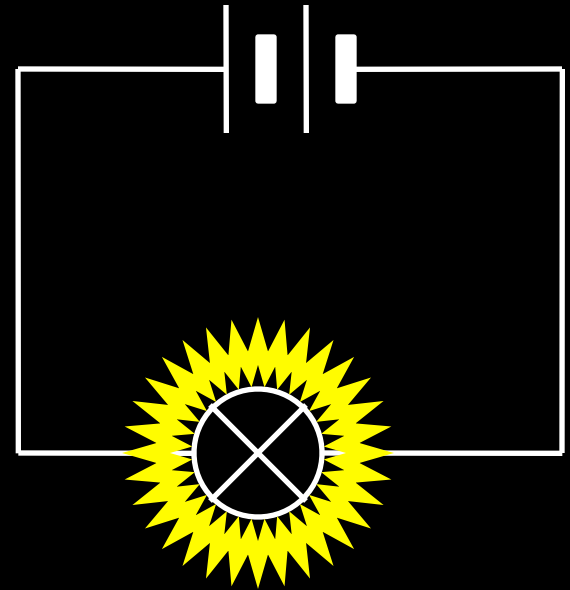
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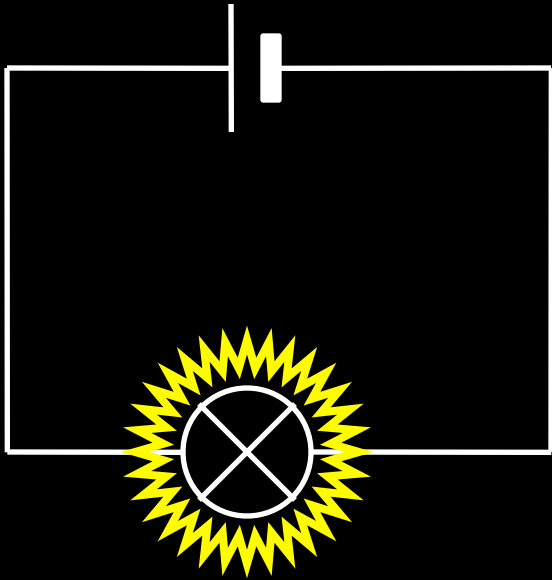
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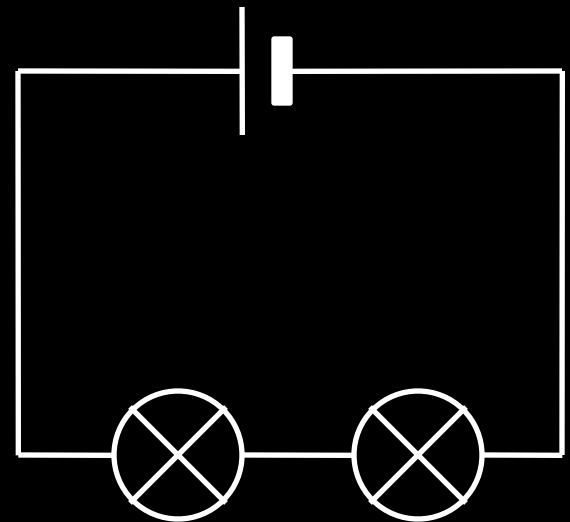
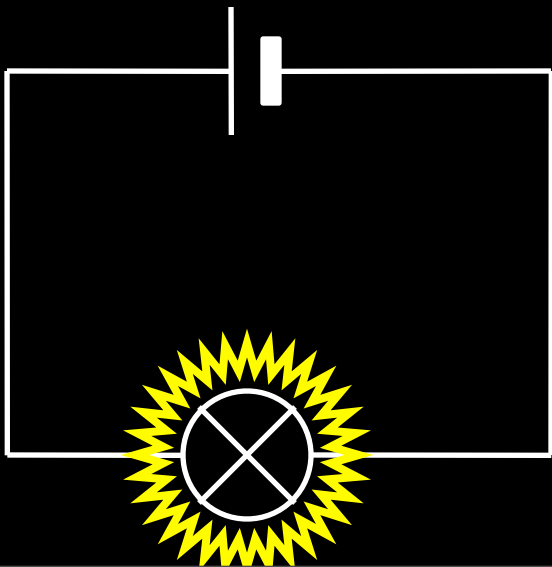
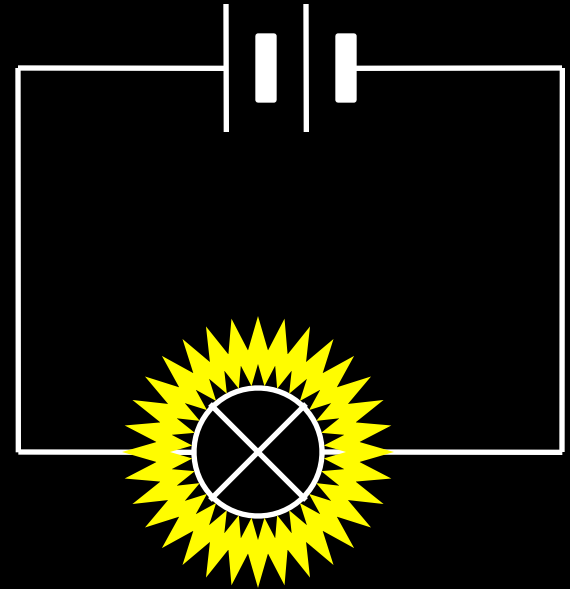
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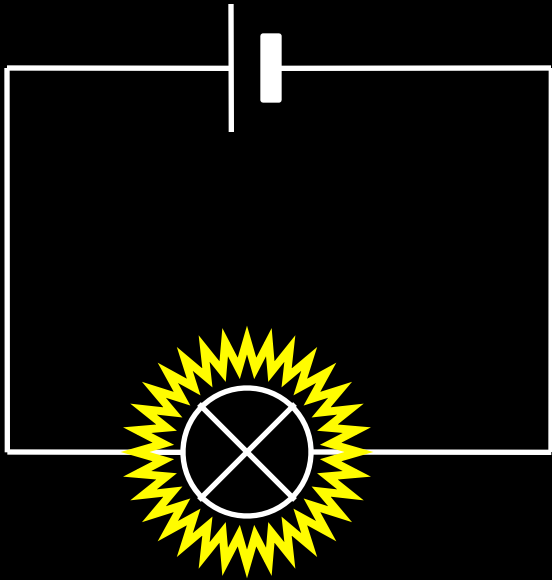
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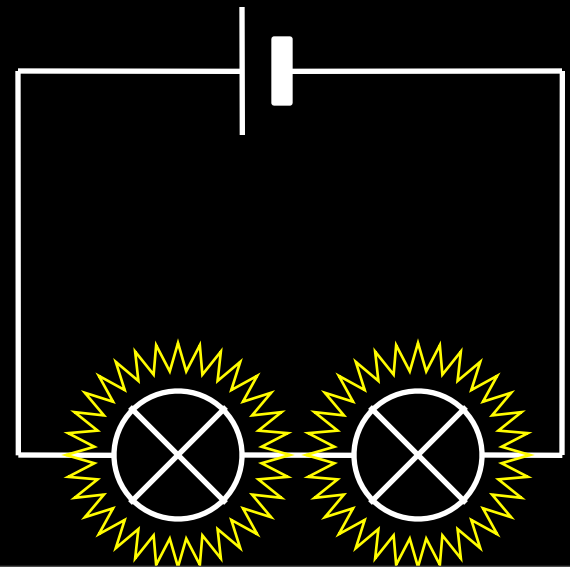
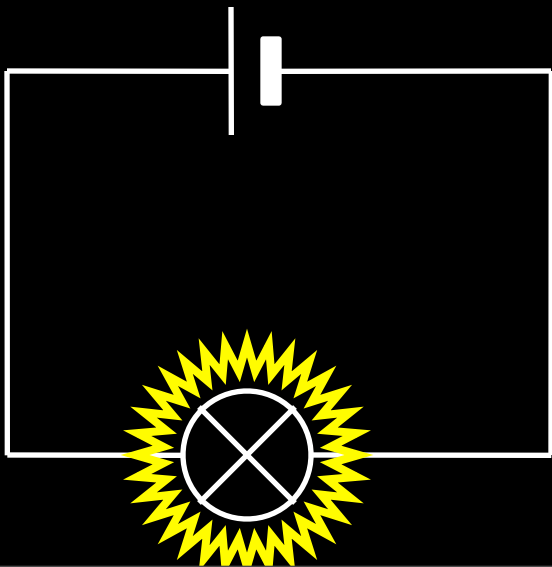
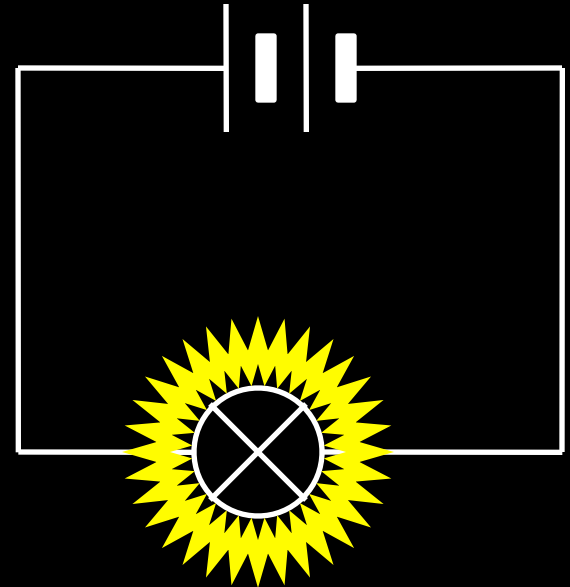
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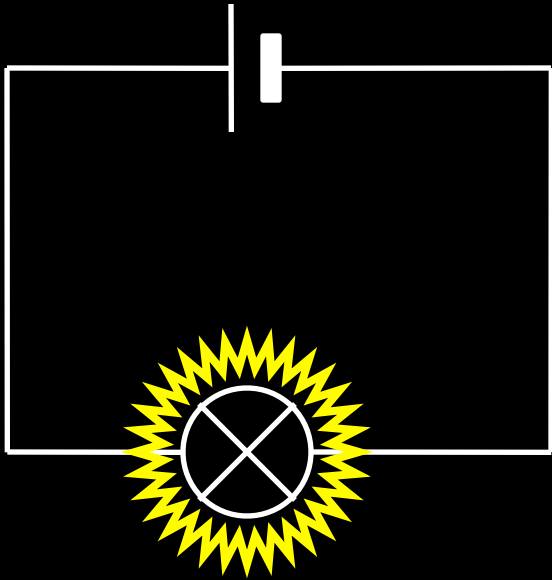
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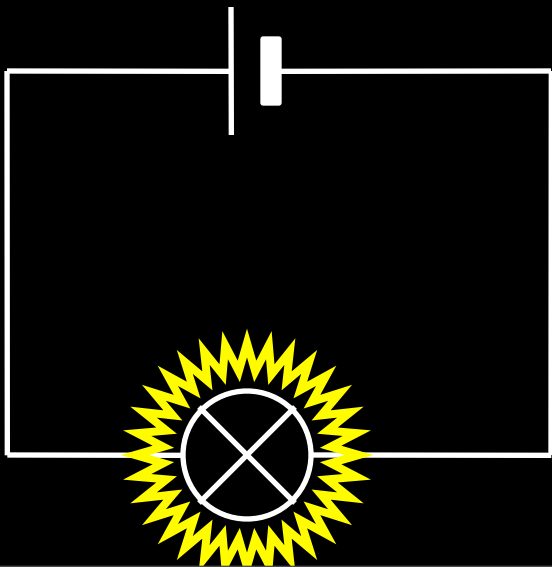
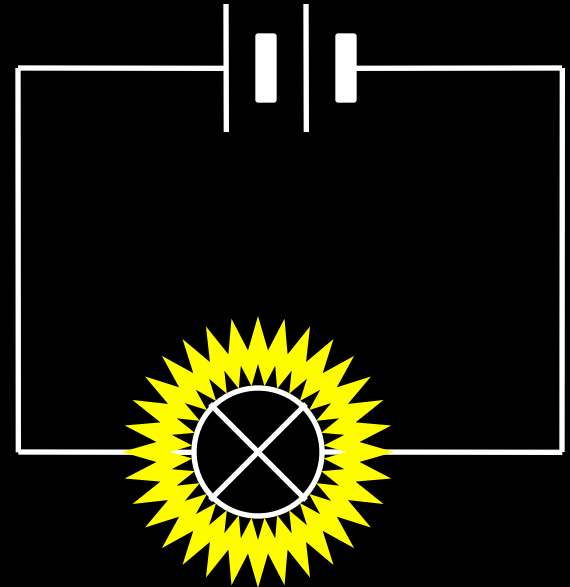
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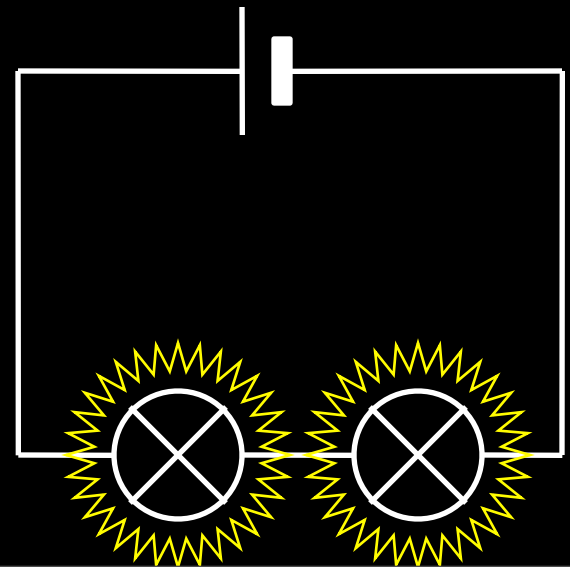
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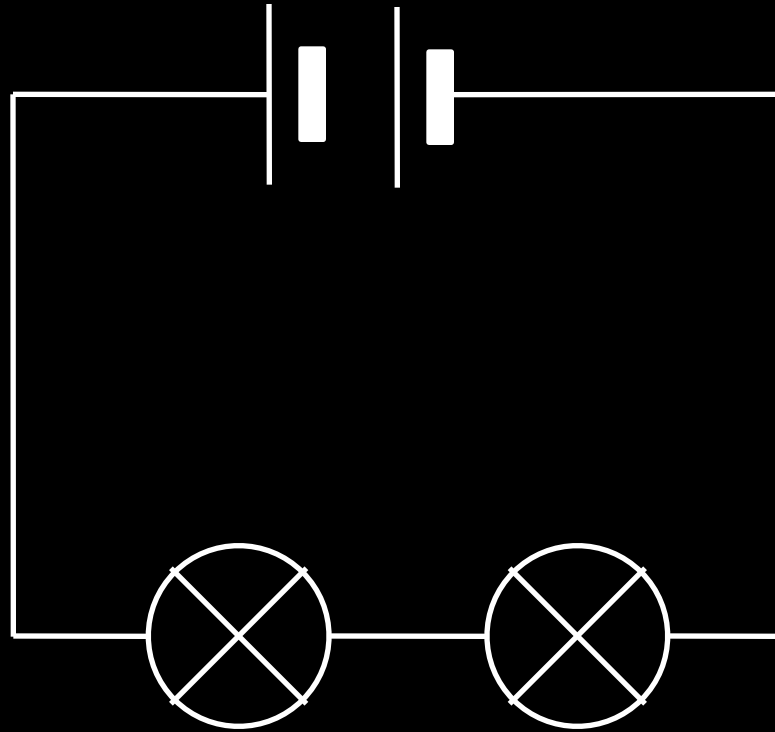
If a battery is added the current will _____ because there is a greater _____ on the electrons



If a bulb is added the current will _____ because there is greater _____ in the circuit

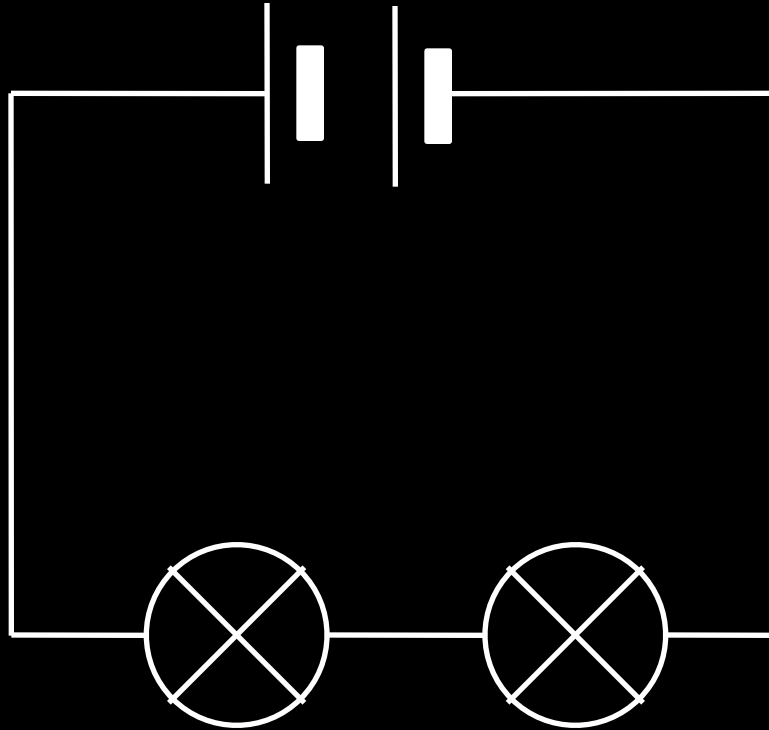


Current in a series circuit



Current in a series circuit

If the current
here is 2
amps...

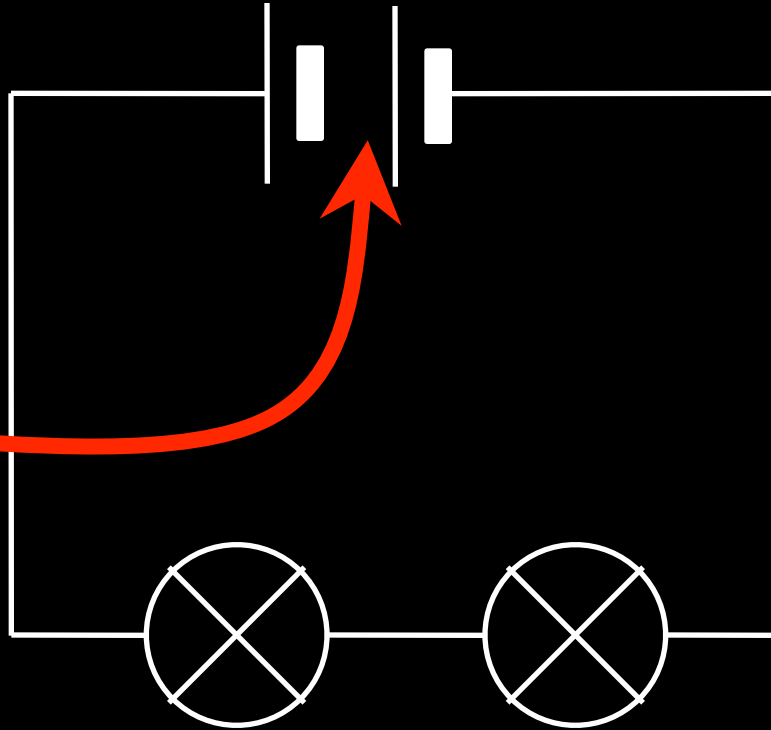
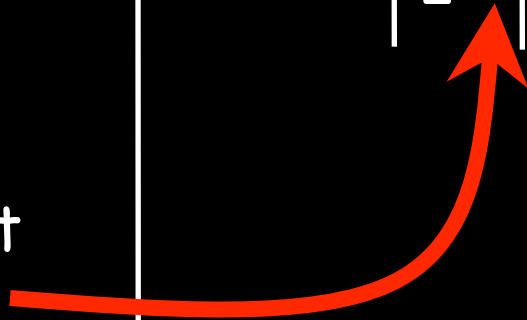


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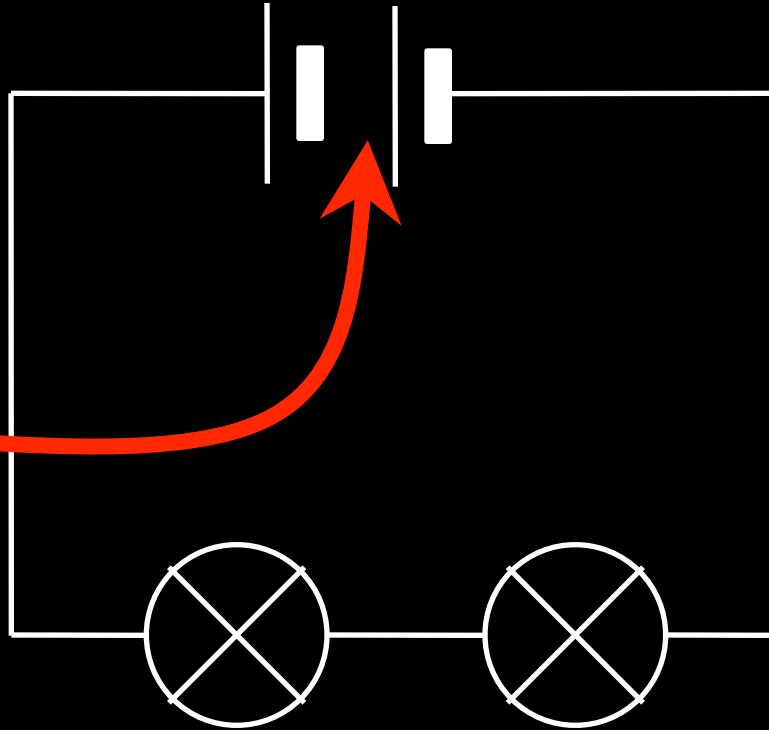


The current
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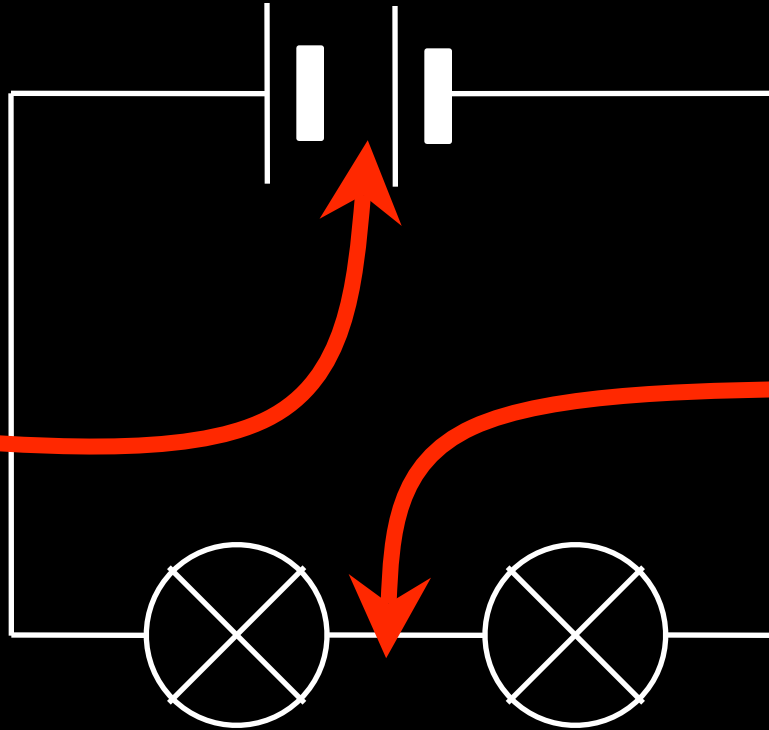


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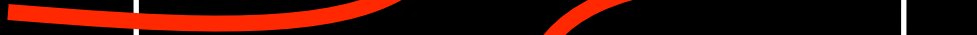
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The current here will be...



And the current here will be...

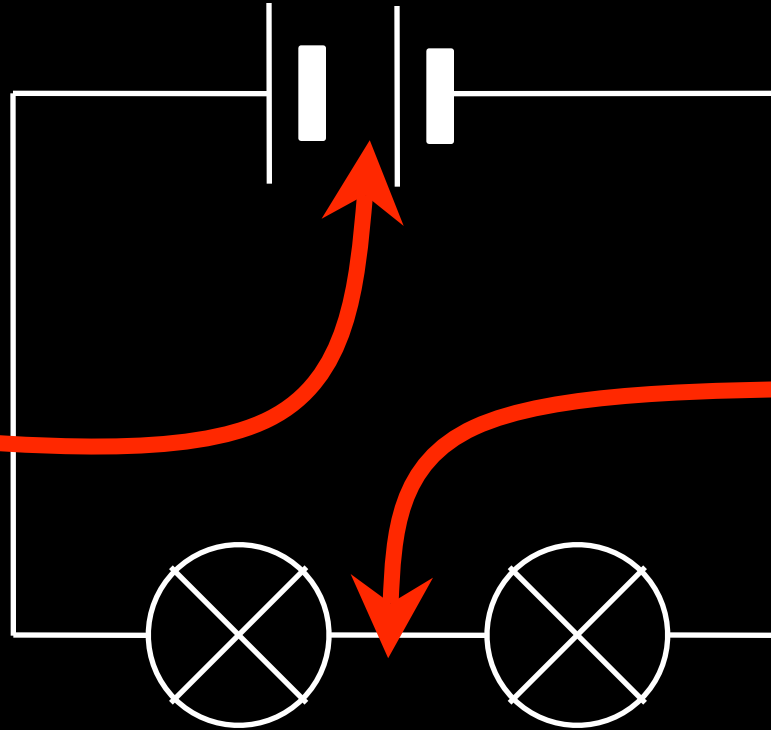
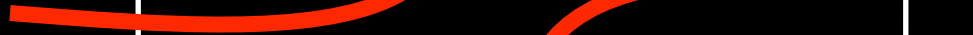


Current in a series circuit

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And the
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In other words, the current in a series circuit is **THE SAME** at any point

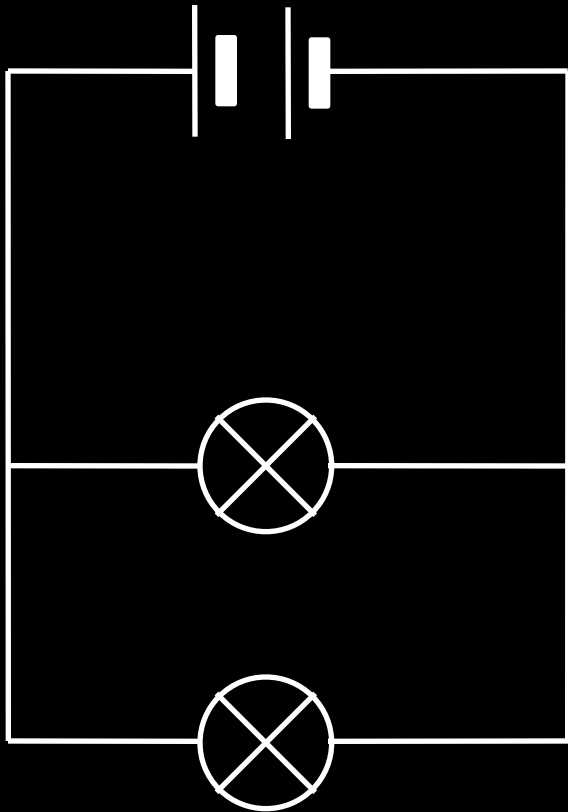
Current in a parallel circuit

Current in a parallel circuit

A PARALLEL circuit is one where the current has a "choice of routes"

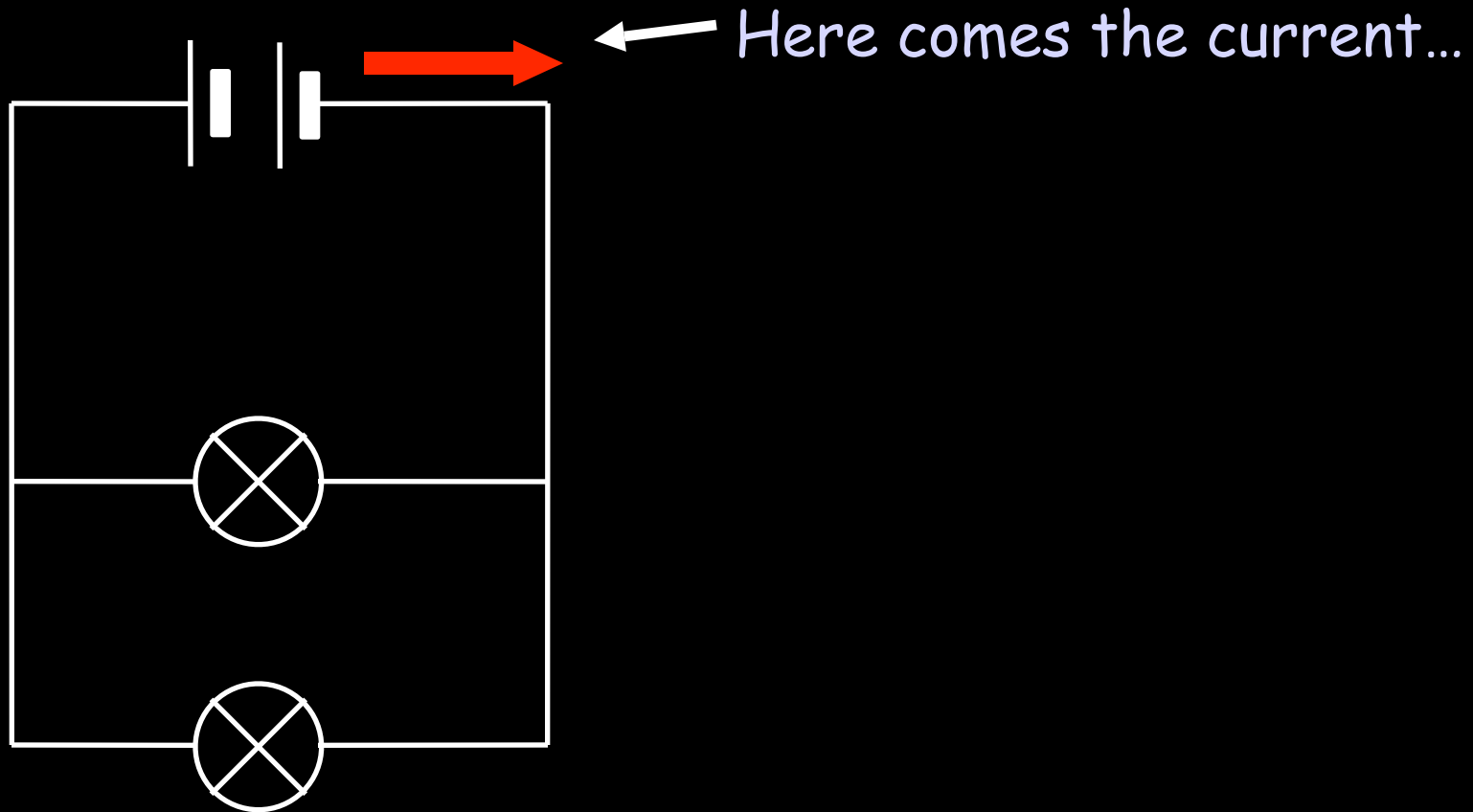
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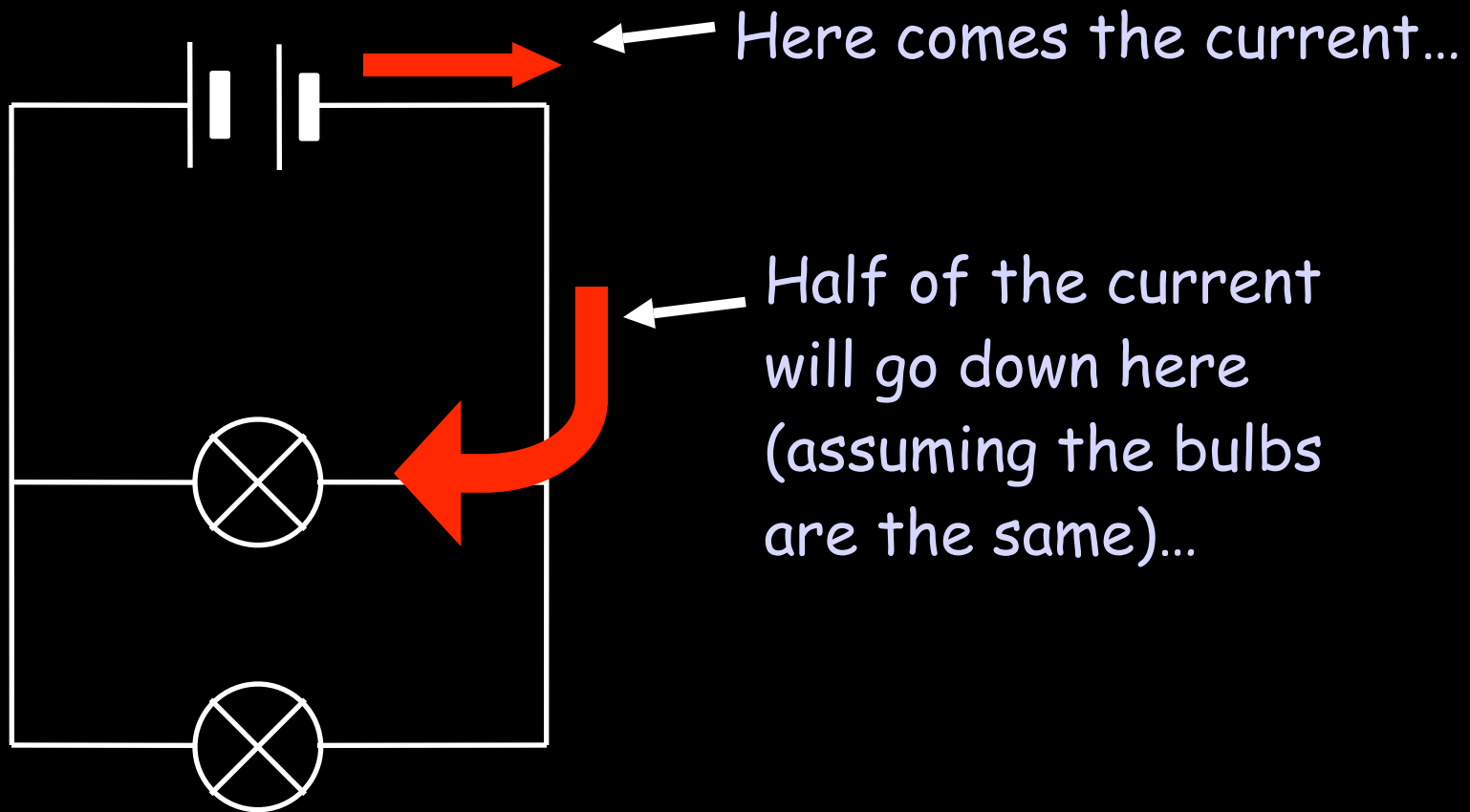
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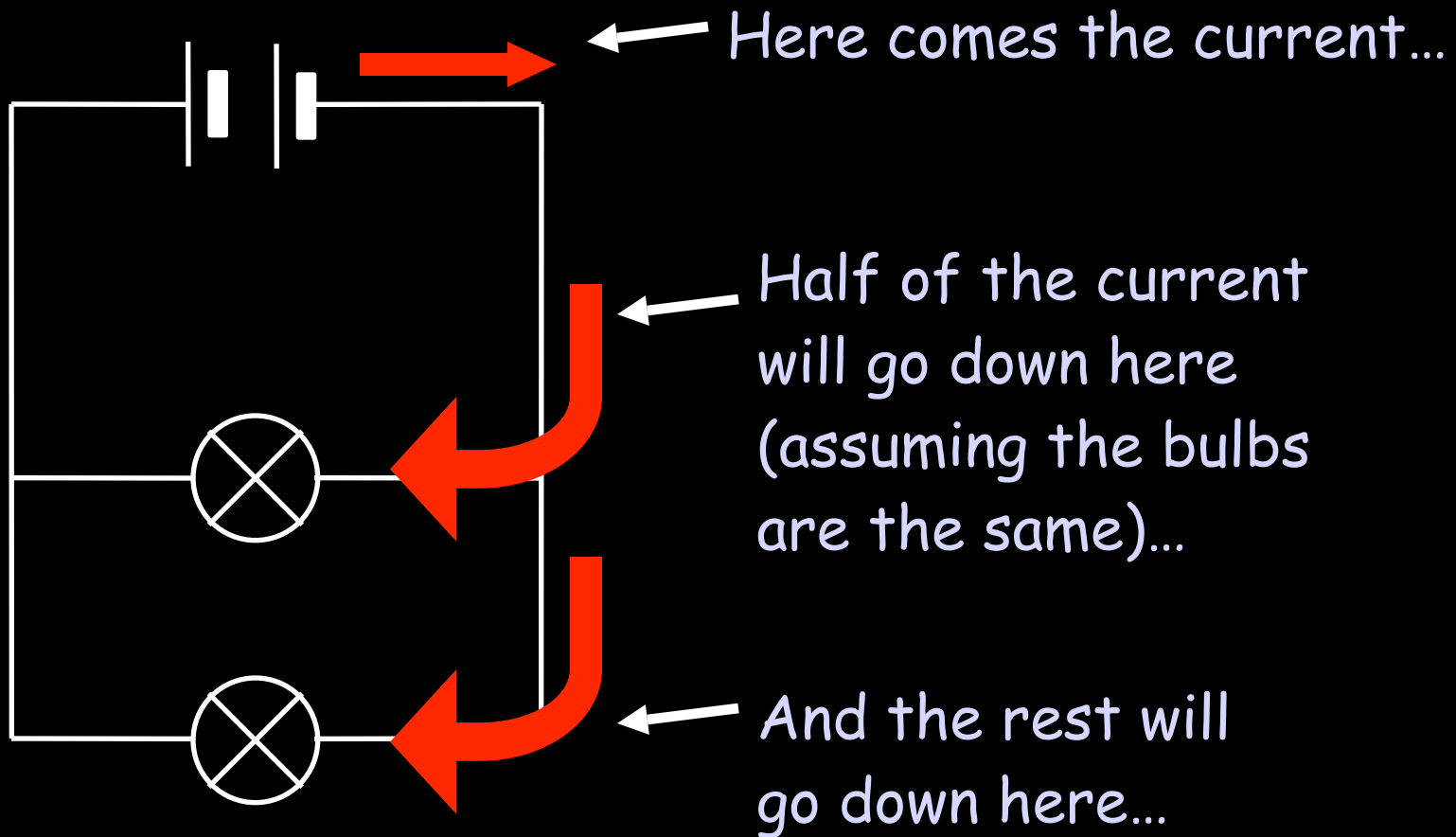
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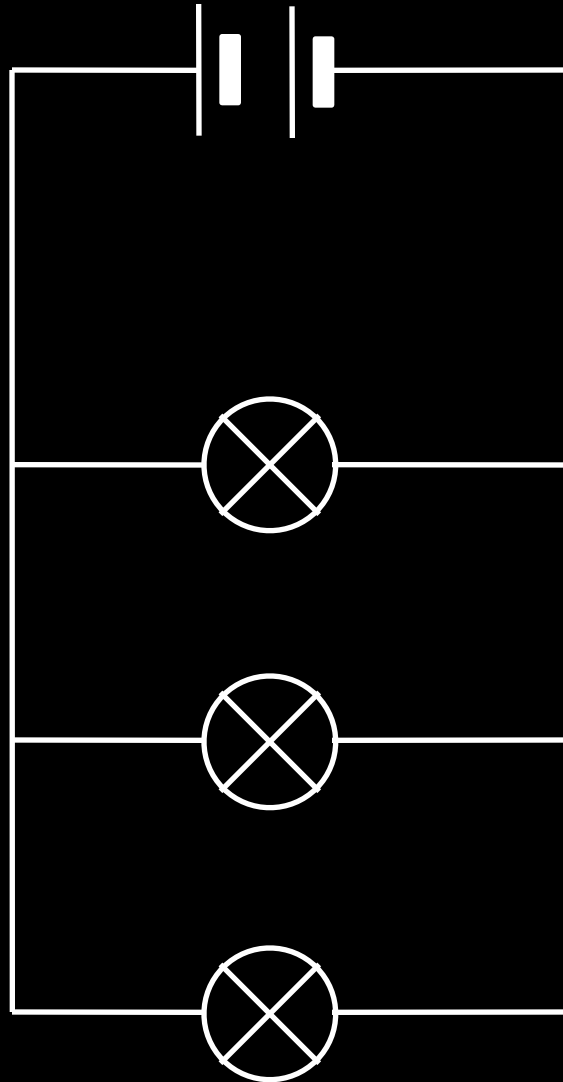
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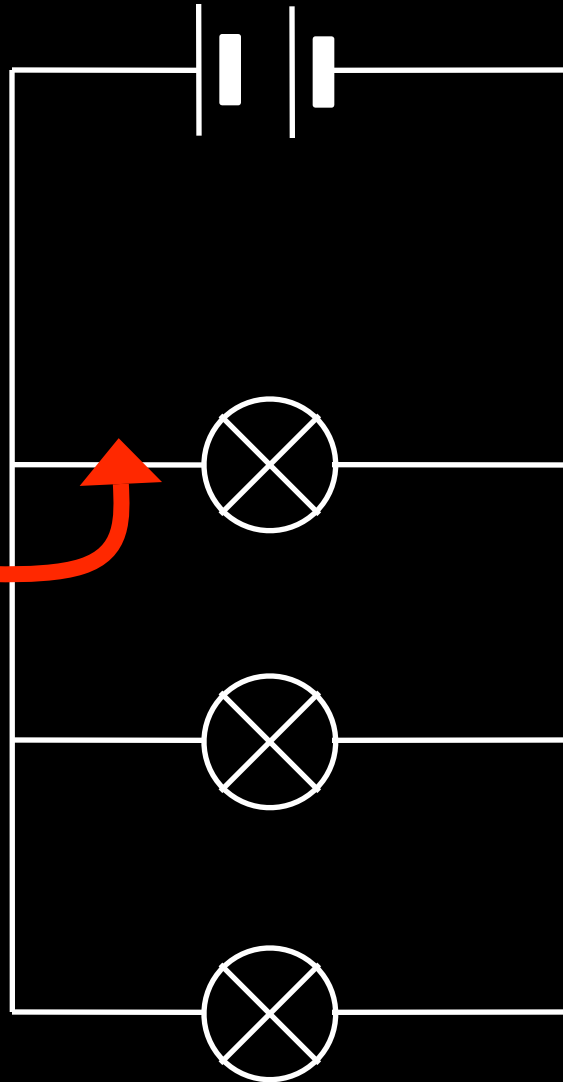
If the
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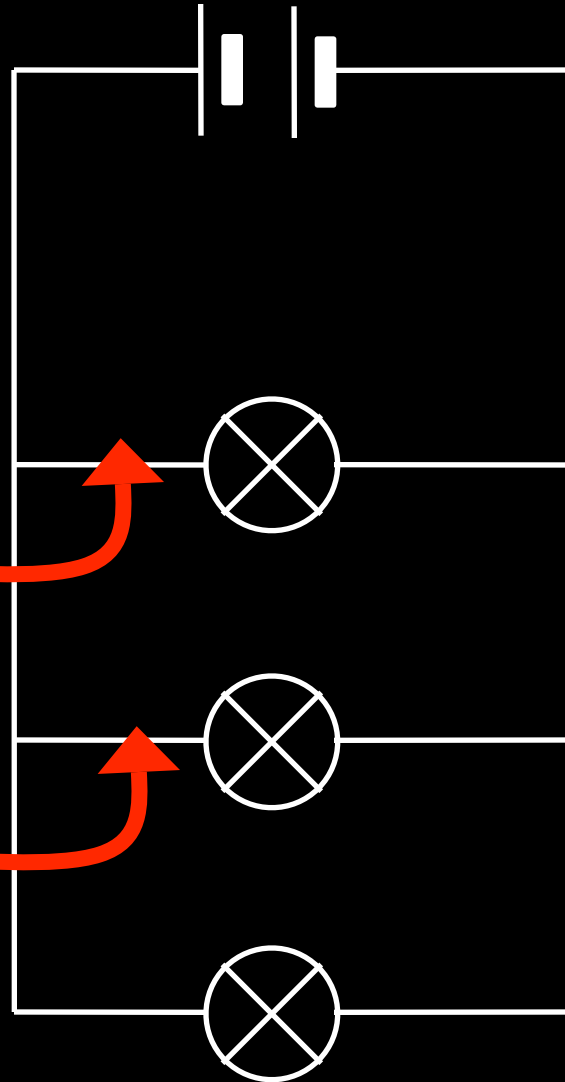


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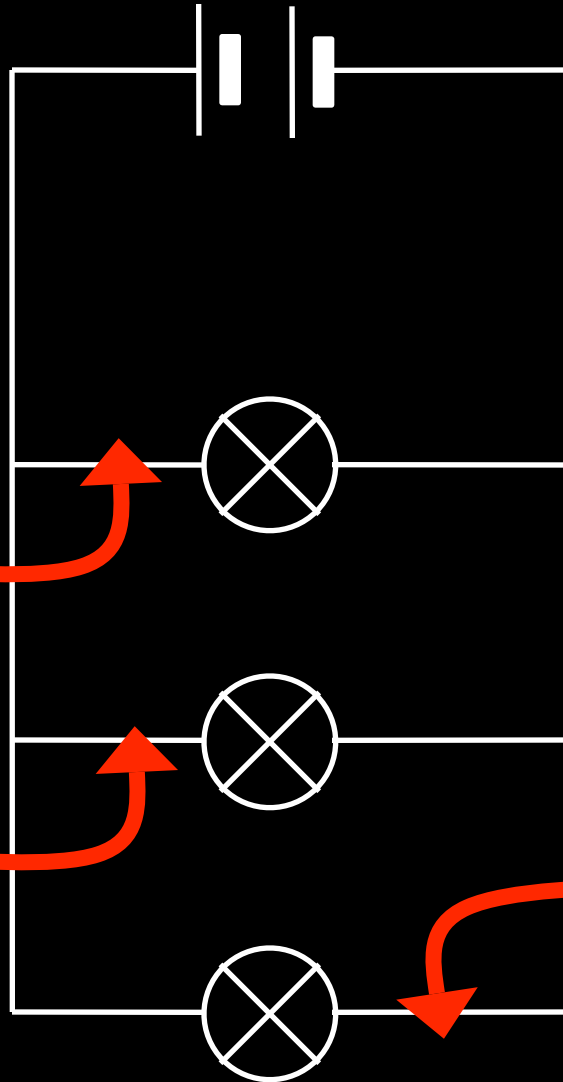


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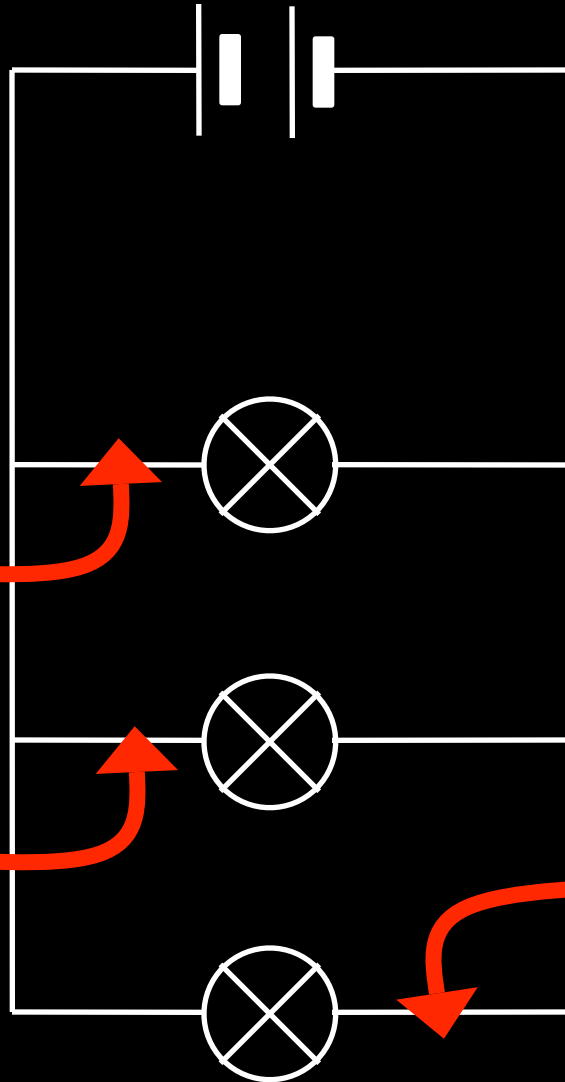
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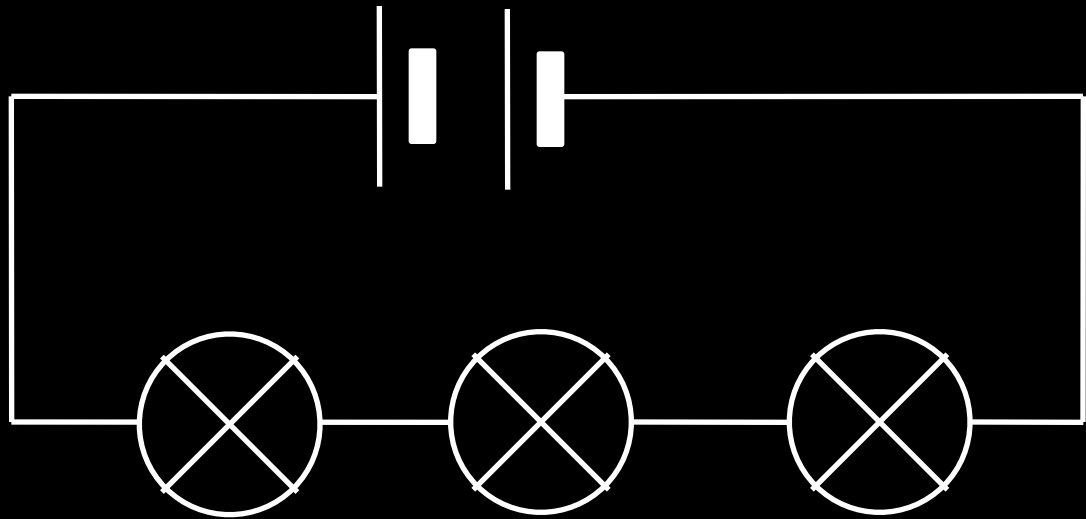
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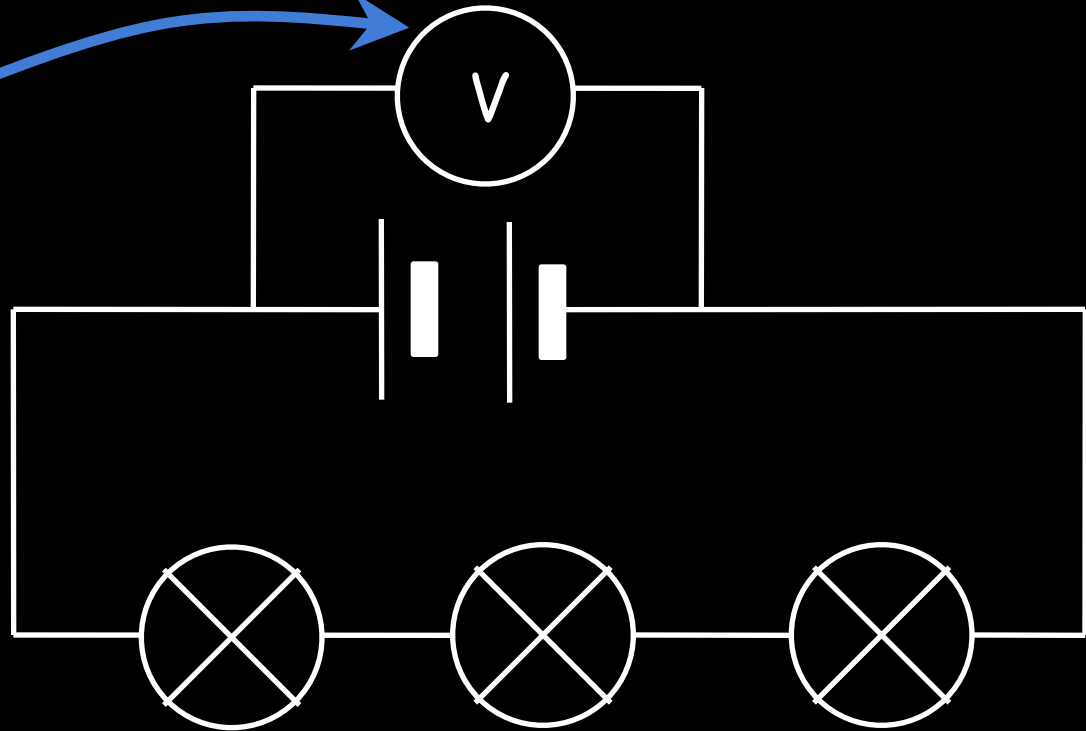


Voltage in a series circuit



Voltage in a series circuit

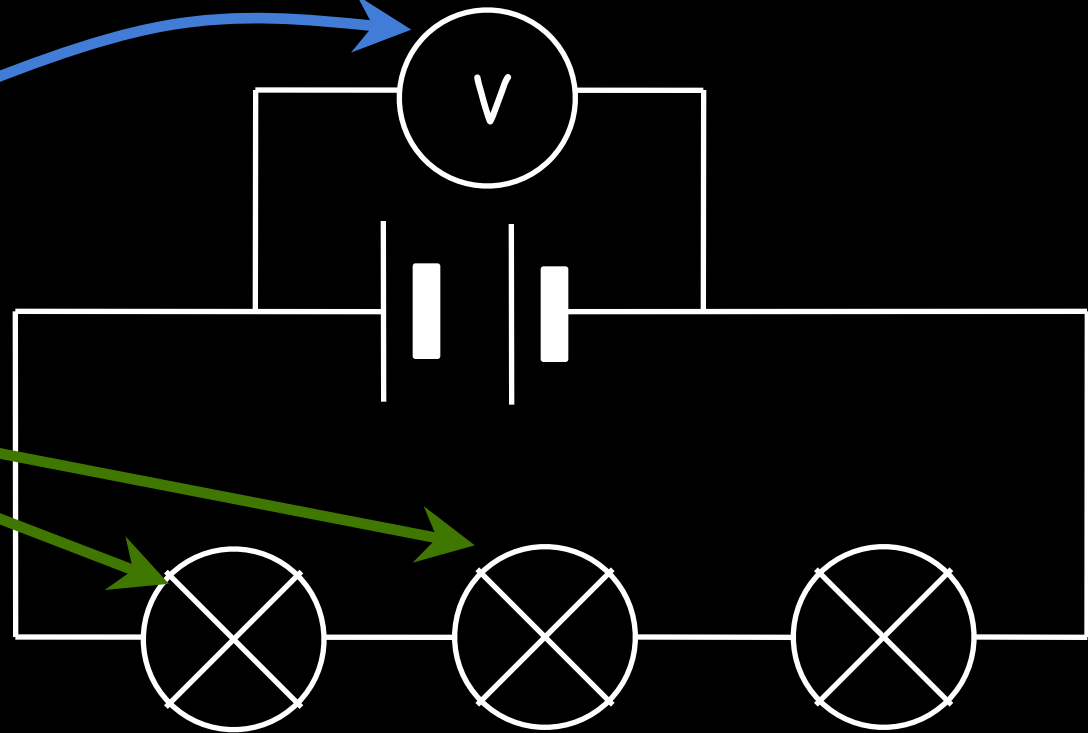
If the voltage across the battery is 6V...



Voltage in a series circuit

If the voltage across the battery is 6V...

...and these bulbs are all identical...

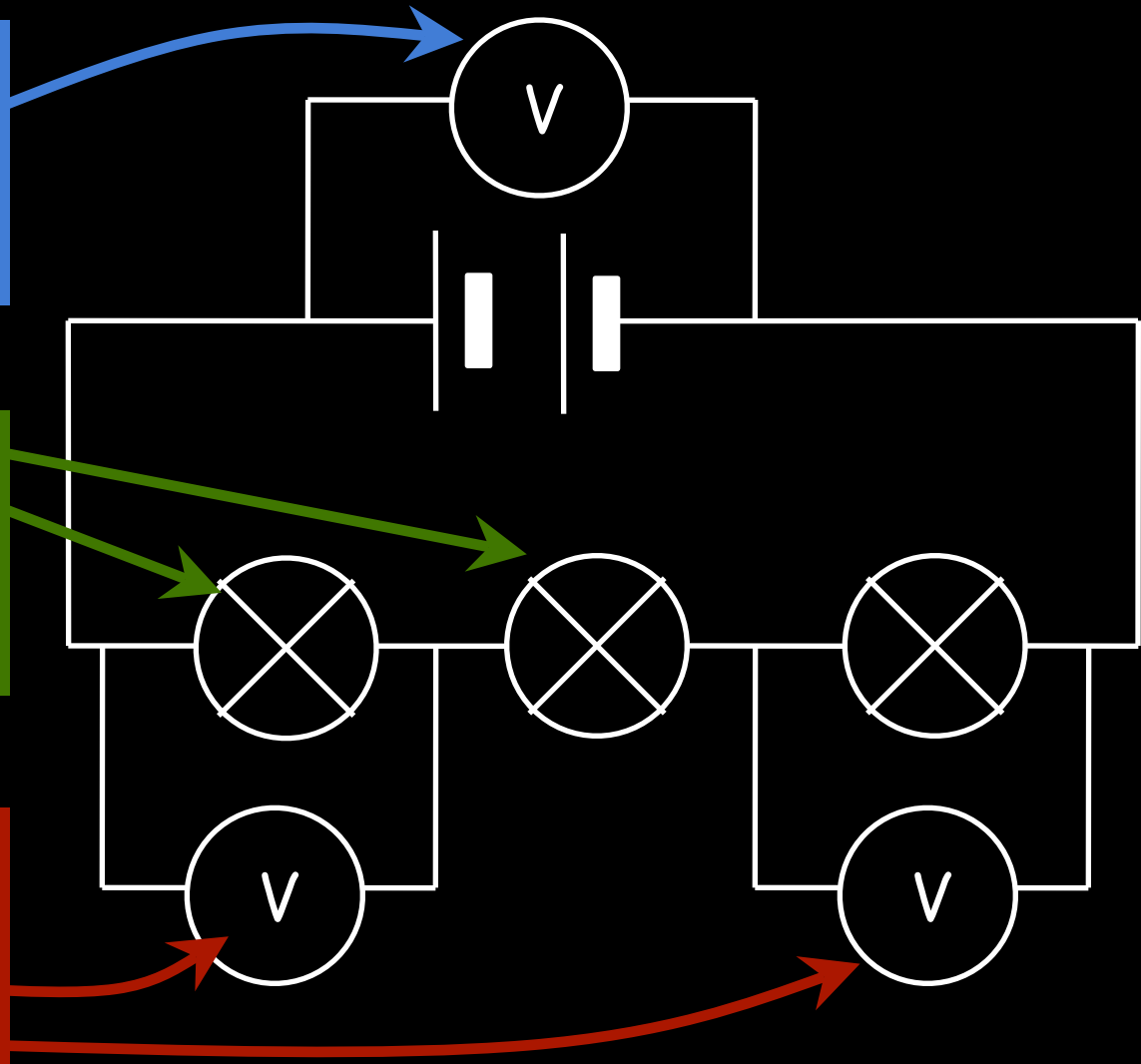


Voltage in a series circuit

If the voltage across the battery is 6V...

...and these bulbs are all identical...

...what will the voltage across each bulb be?

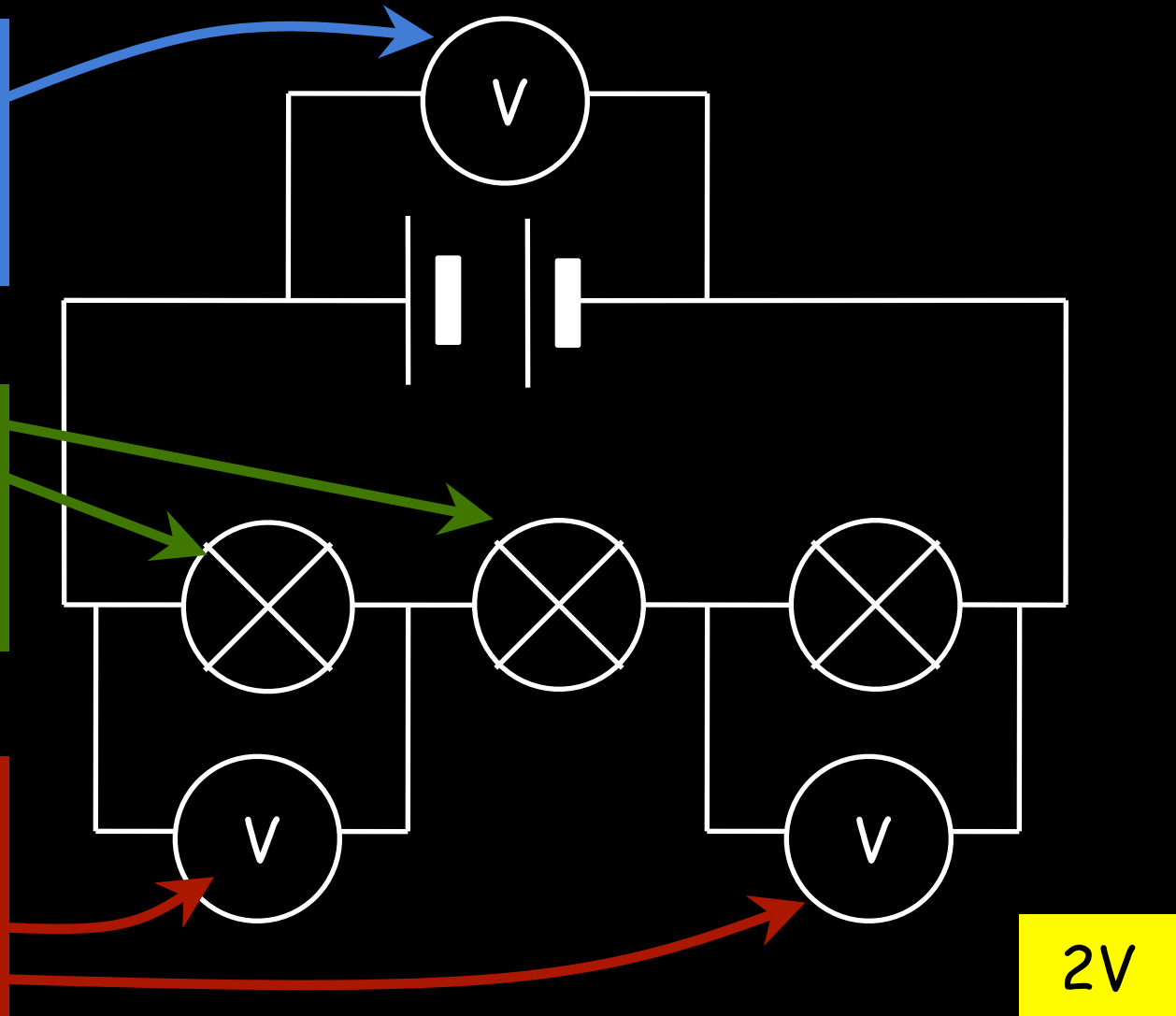


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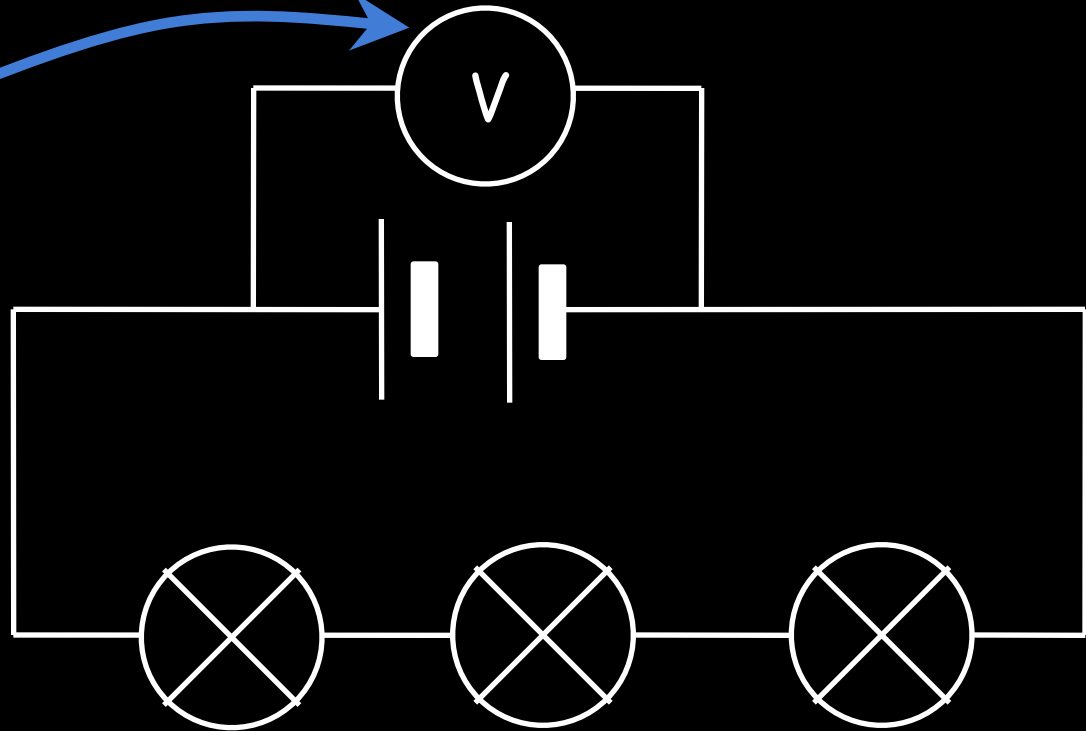
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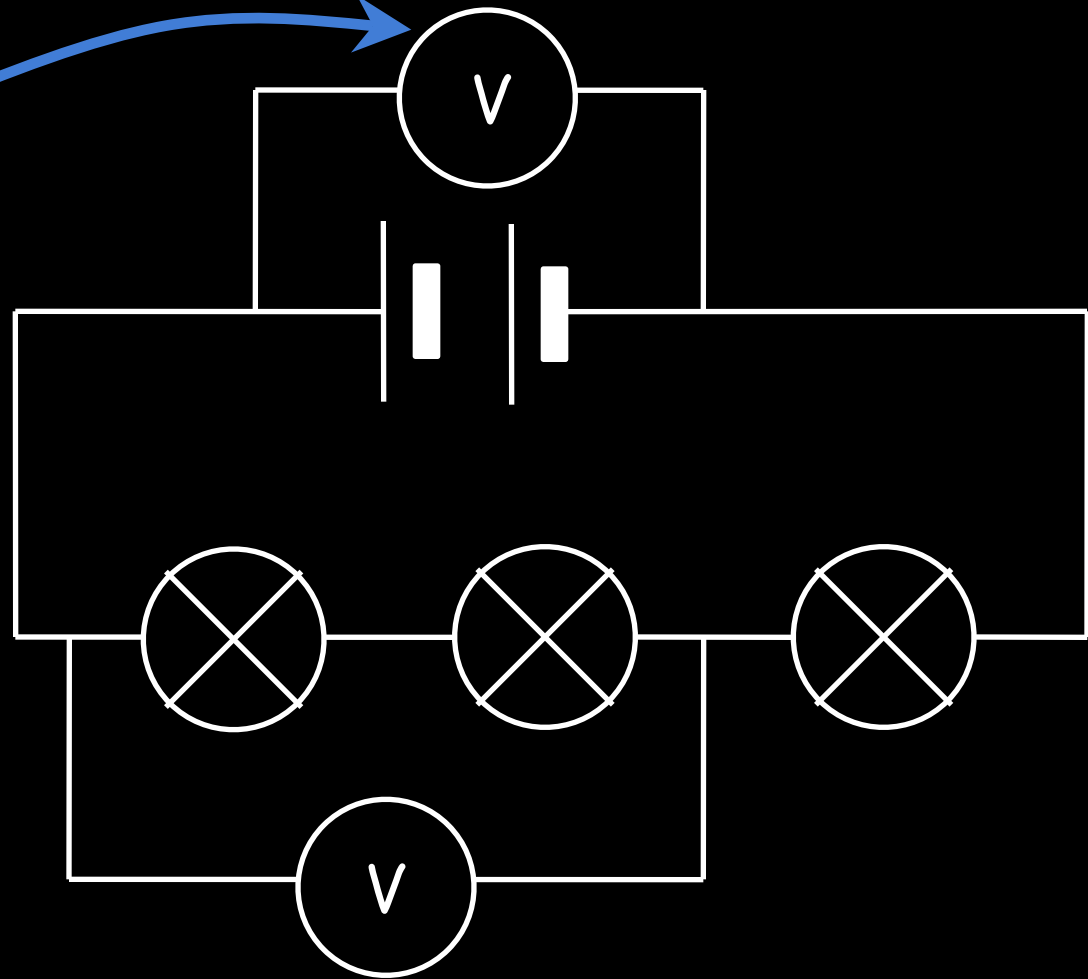
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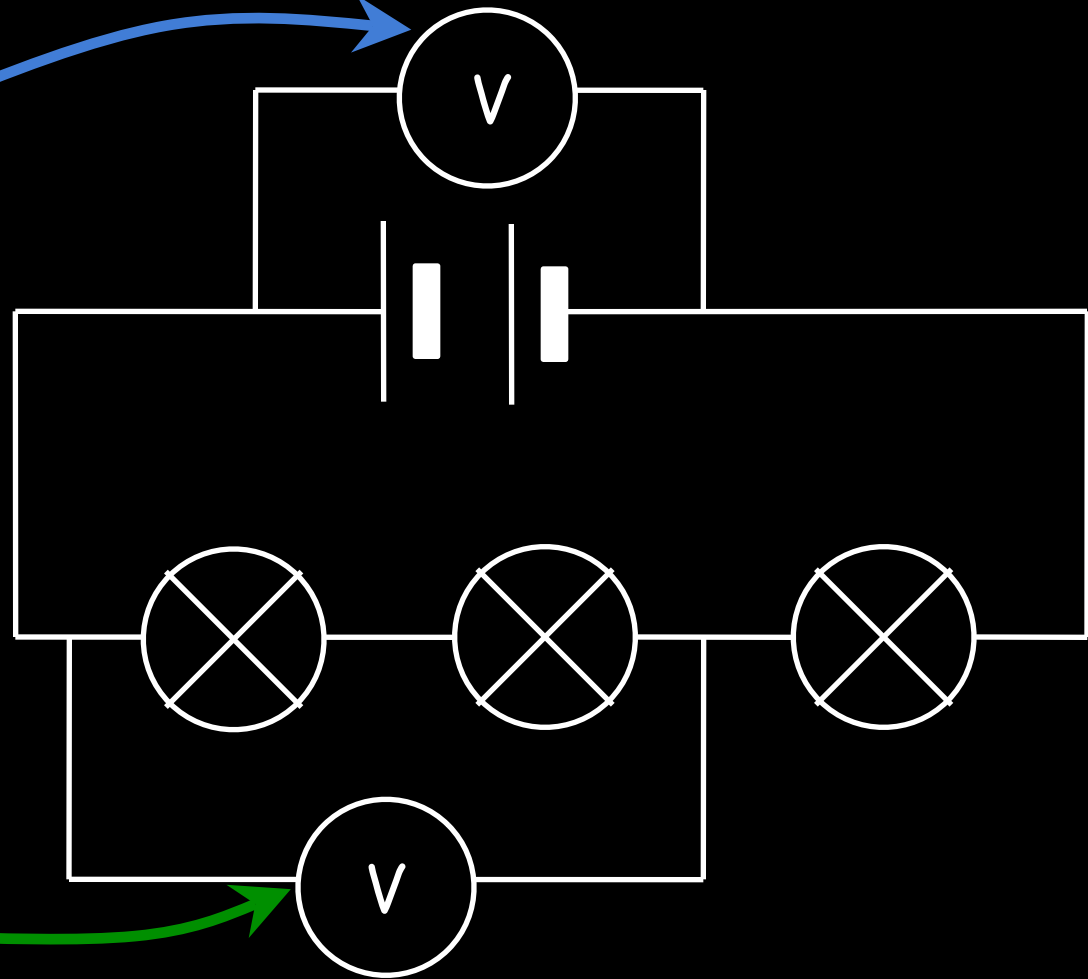
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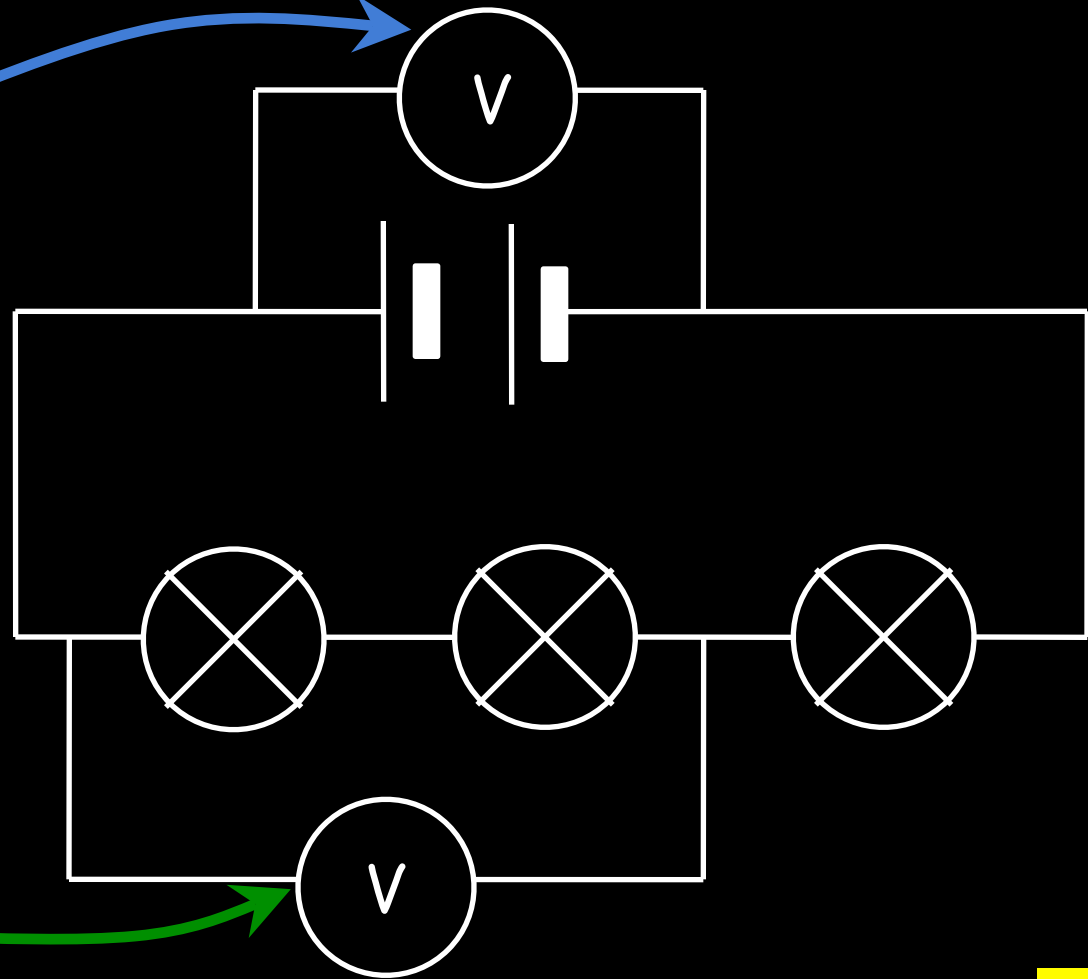
If the voltage across the battery is 6V...



...what will the voltage across two bulbs be?

Voltage in a series circuit

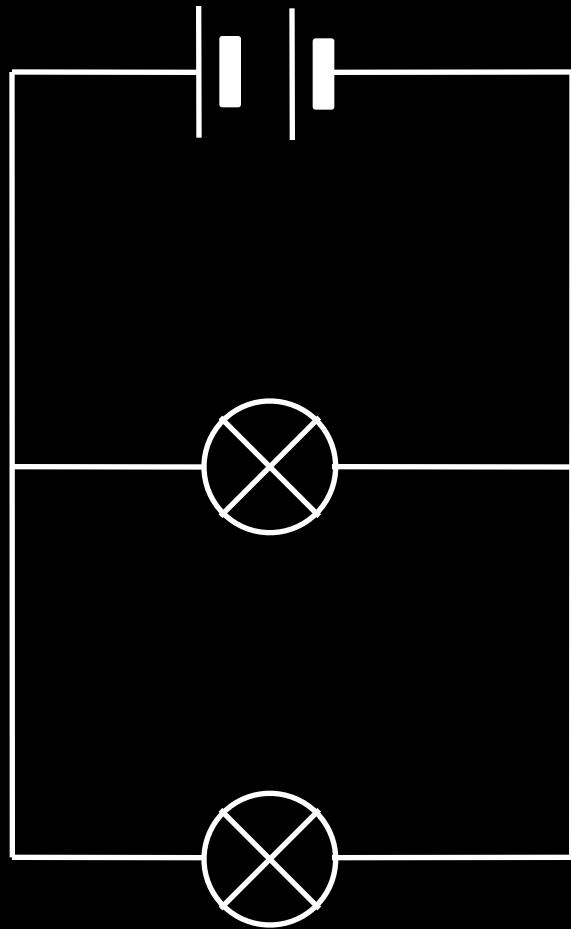
If the voltage across the battery is 6V...



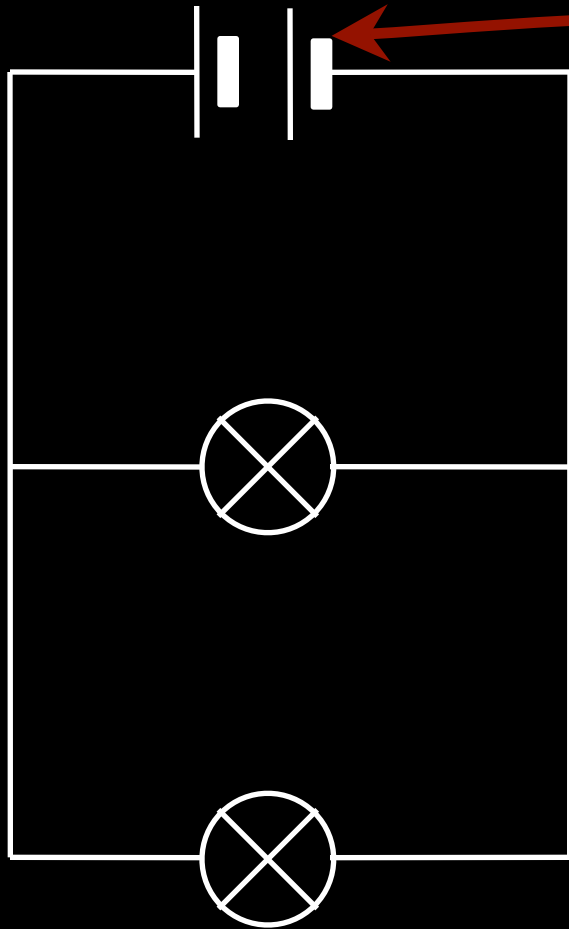
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4V

Voltage in a parallel circuit

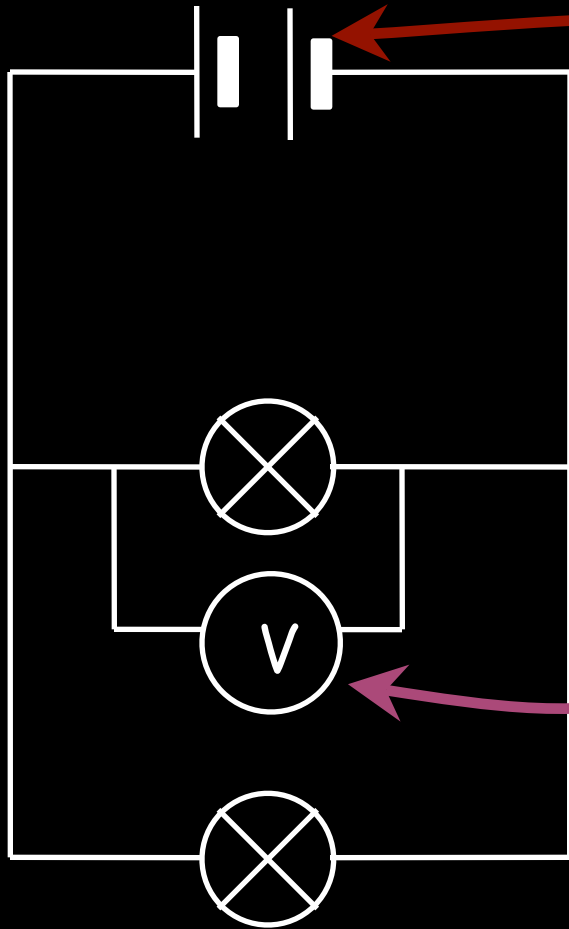


Voltage in a parallel circuit



If the voltage across the batteries is 4V...

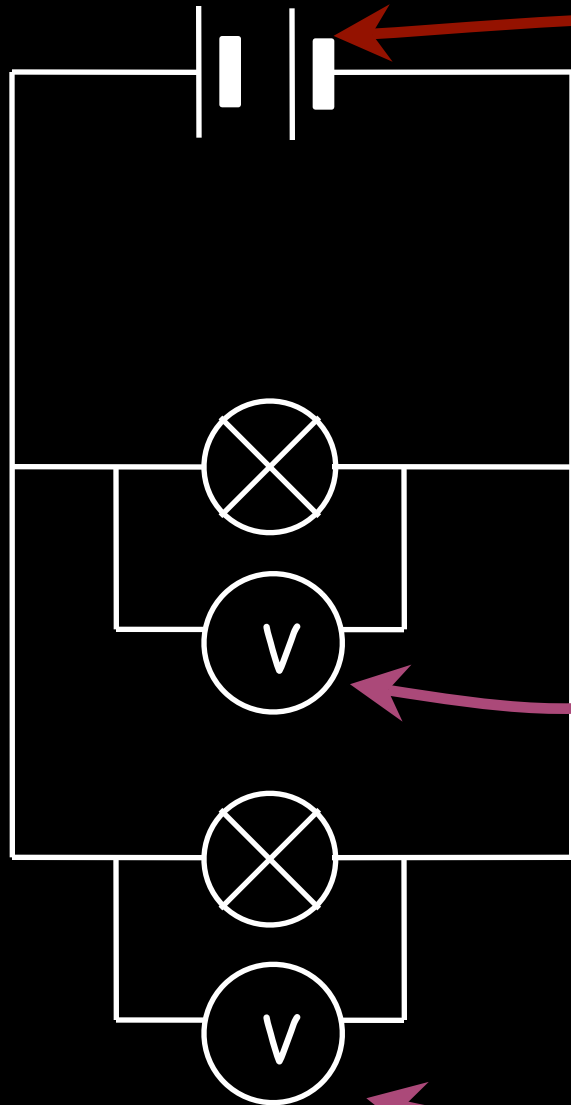
Voltage in a parallel circuit



If the voltage across the batteries is 4V...

What is the voltage here?

Voltage in a parallel circuit

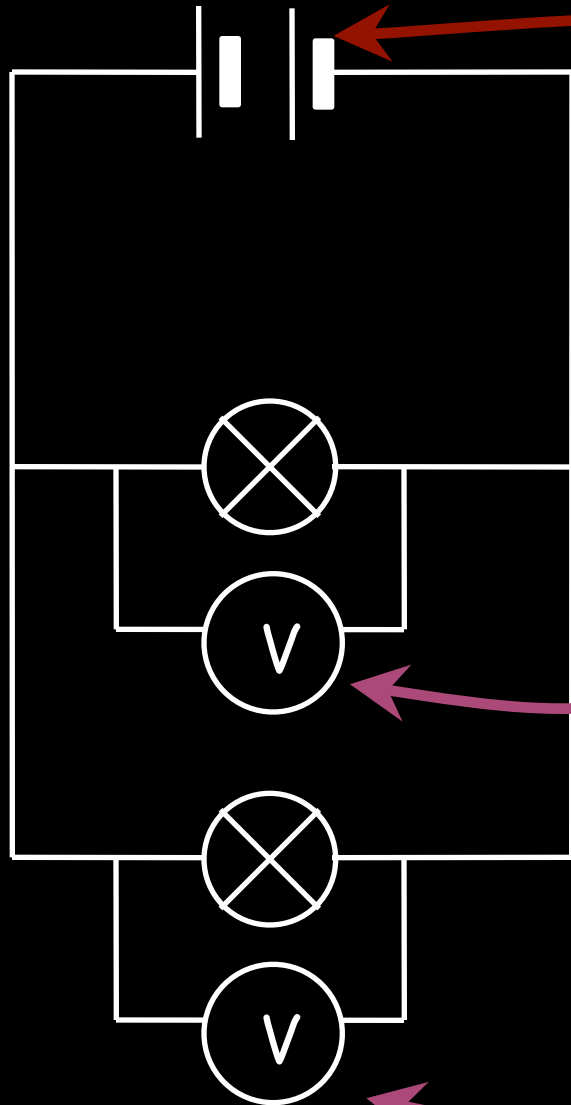


If the voltage across the batteries is 4V...

What is the voltage here?

And here?

Voltage in a parallel circuit



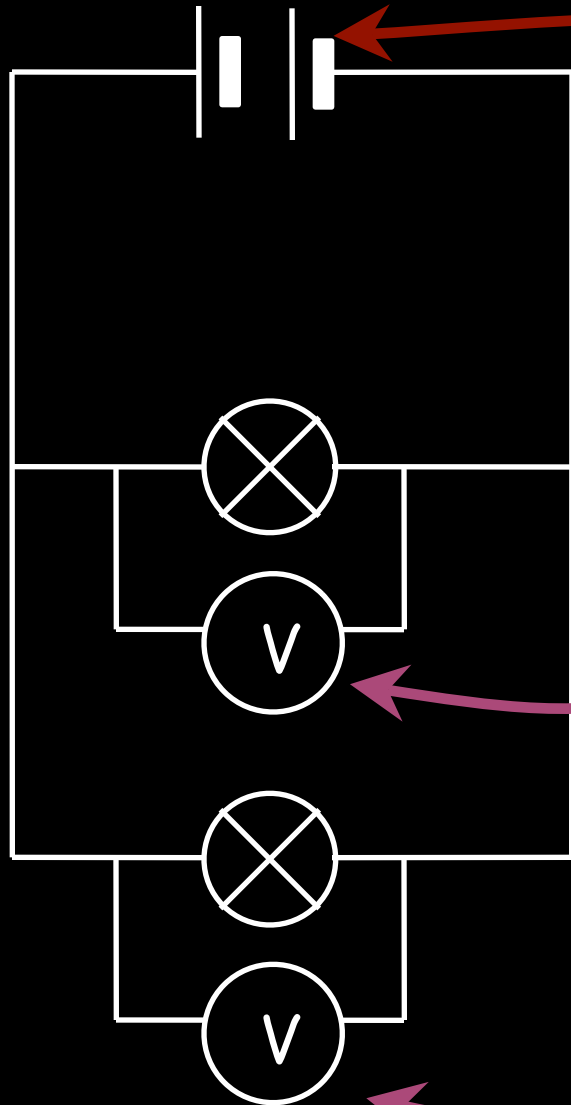
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4V

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Voltage in a parallel circuit



If the voltage across the batteries is 4V...

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4V

Summary

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In a SERIES circuit:

Current is THE SAME at any point

Voltage SPLITS UP over each component

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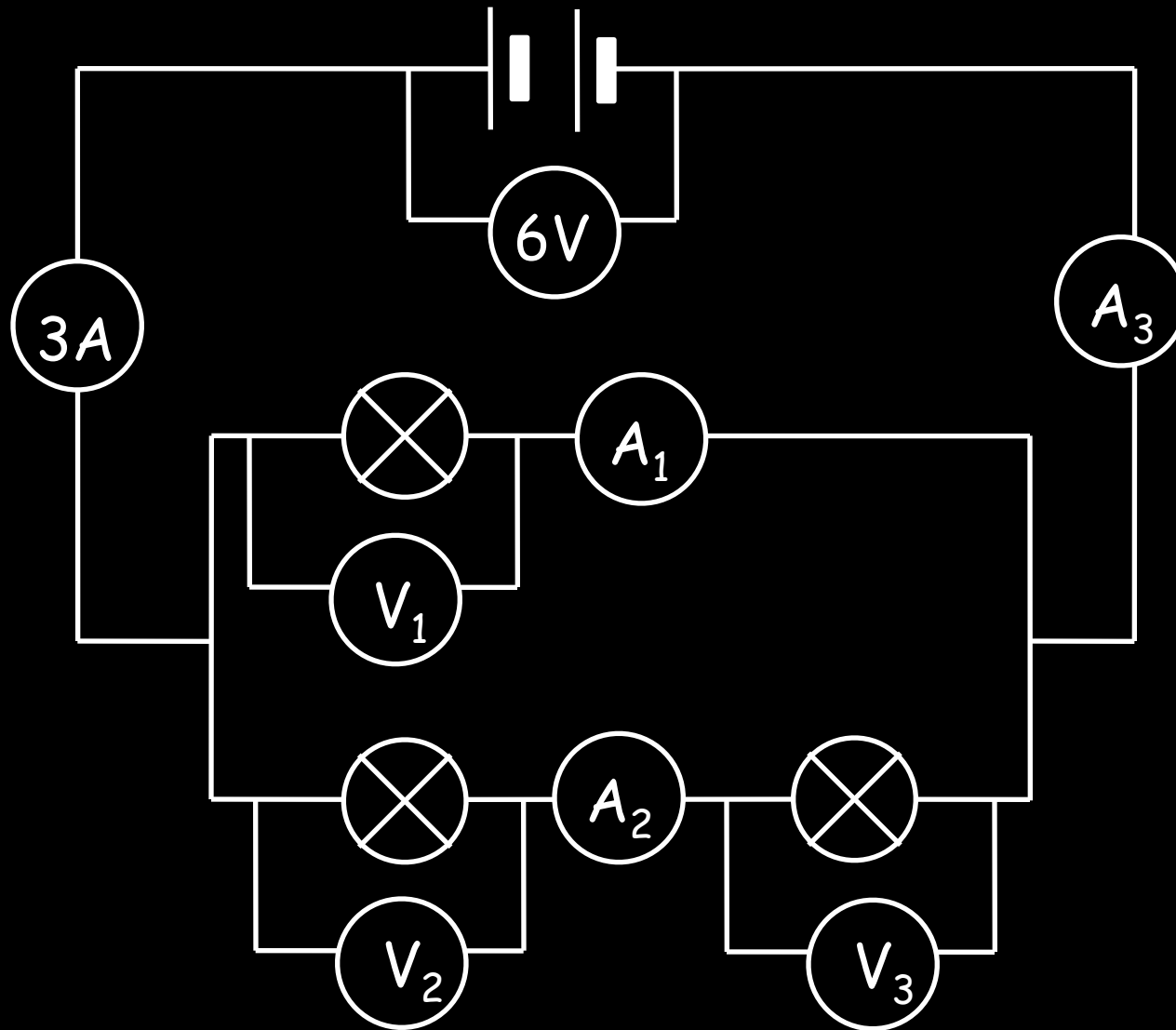
Voltage SPLITS UP over each component

In a PARALLEL circuit:

Current SPLITS UP down each "strand"

Voltage is THE SAME across each "strand"

An example question:



Advantages of parallel circuits...

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There are two main reasons why parallel circuits are used more commonly than series circuits:

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- 1) Extra appliances (like bulbs) can be added without affecting the output of the others

Advantages of parallel circuits...

There are two main reasons why parallel circuits are used more commonly than series circuits:

- 1) Extra appliances (like bulbs) can be added without affecting the output of the others
- 2) If one appliance breaks it won't affect the others either