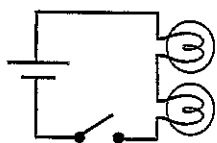


Name: _____
 Period: _____

Types of Circuits and Ohm's Law

Types of Circuits

Series circuits have _____ path for the electricity to flow.

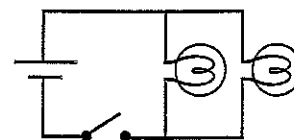


Two lightbulbs in _____
 Each light is _____ on the other.

If any part of a series circuit is _____, the circuit _____. If either light is _____, both lights will turn off.

The branches (paths) of a parallel circuit are _____. If either light is _____, the other will remain _____.

Parallel circuits have _____ paths for the electricity to flow.



Two lightbulbs in _____
 Each light is _____ of each other.

Your house is wired in _____ so that each light and appliance can be turned on and off _____.

Ohm's Law

$$I = \frac{V}{R}$$

Current (in amps) → ← Voltage (in volts)
← Resistance (in ohms)

Current equals the voltage divided by the resistance.

Also, $V = IR$ and $R = V/I$

Abbreviations:
 A - Amps - current
 v - volts - voltage
 Ω - ohms - resistance

- Increasing voltage
- Increasing resistance
- Decreasing voltage
- Decreasing resistance

Ex. How much current does a 12 v battery push through a 3 Ω resistor?

V = 12 v	
R = 3 Ω	
I = ?	

Ex. How strong a battery produces 2 A through a 3 Ω resistor?

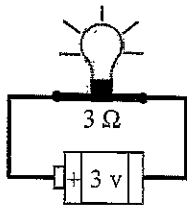
V = ? v	
R = 3 Ω	
I = 2 A	

Current

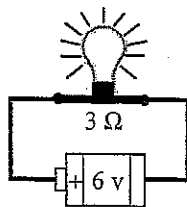
Current is moving _____ moving charge.

_____ current causes _____ electricity to move through a device.

Increasing electricity through a device causes it to work _____ (in a motor) or be _____ (in a lightbulb).



Using Ohm's Law: $I = V/R$



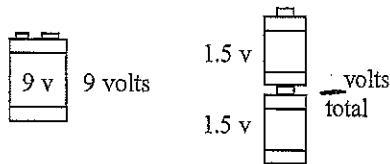
More current = _____ light.

Voltage

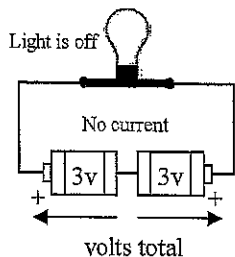
Voltage is electrical potential: how much work a battery can do.

Voltage is linked to energy:
 1 volt of voltage = _____ of energy per _____ of charge

To increase voltage you could use a _____ battery OR _____ batteries.



More voltage is like a _____ giving more _____ and more _____.



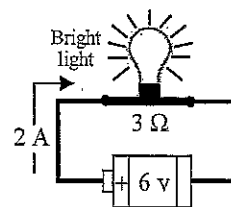
The lightbulb doesn't light here, because the two batteries are _____.

To add together, batteries must be facing the _____ direction.

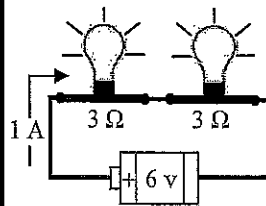
Resistance

Resistance _____ down current. Think of resistance like a dam holding back water.

Adding devices in a circuit _____ resistance.



$I = V/R$
 =
 The light is _____ because the _____ volts only have _____ light to run.

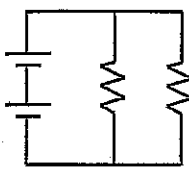
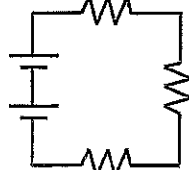
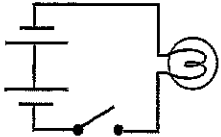
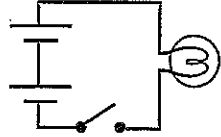


$I = V/R$
 =
 Both lights are _____ because the _____ volts have _____ lights to run.

More resistance = _____ current
 Less current = _____ light

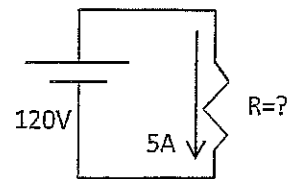
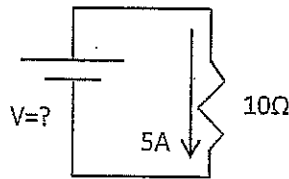
Name: _____

Period: _____

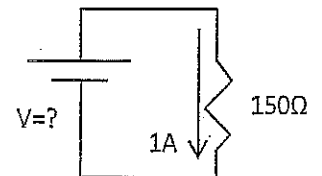
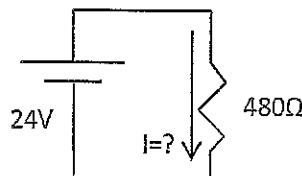
1. I = _____ 2. V = _____ 3. R = _____ 4. E = _____ 5. P = _____ 6. F = _____	4 newtons 4 amps 4 joules 4 watts 4 ohms (Ω) 4 volts	Label the diagrams as parallel or series circuits. <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  A. _____ </div> <div style="text-align: center;">  B. _____ </div> </div>
The units for current is _____; the abbreviation is _____. The units of voltage is _____; the abbreviation is _____. The units of resistance is _____; the abbreviation is _____.		Series or Parallel Circuits?
If you increase voltage, the current will increase or decrease? If you decrease resistance, the current will increase or decrease? If the current increases, the resistance increased or decreased? If voltage is decreased, the current will increase or decrease? If the current decreases, the voltage increased or decreased? If there is more current will a light bulb be brighter or dimmer?		<input type="checkbox"/> Only one path for the electricity. <input type="checkbox"/> Dependent paths. <input type="checkbox"/> How your house is wired. <input type="checkbox"/> Independent current paths.
Will the lights turn on or not? And why? <div style="display: flex; justify-content: space-around; align-items: center;">   </div>		<input type="checkbox"/> Can turn off one light without others turning off. <input type="checkbox"/> If you turn off one light, all the lights turn off. <input type="checkbox"/> More than one path for the electricity to flow.
		How much current goes through a circuit with a 12 v battery and a 3 Ω resistor? Find the current in circuit with 6 v battery and 2 resistor: How much voltage gives 5 amps of current through a 3 Ω light bulb?

Solve for the unknown in each of these circuits

A subwoofer needs a household voltage of 110 V to push a current of 5.5 A through its coil. What is the resistance of the subwoofer?



A walkman uses a standard 1.5 V battery. How much resistance is in the circuit if it uses a current of 0.01A?



How much voltage would be necessary to generate 10 amps of current in a circuit that has 5 ohms of resistance?