



Student worksheet

Name: _____ Date: _____

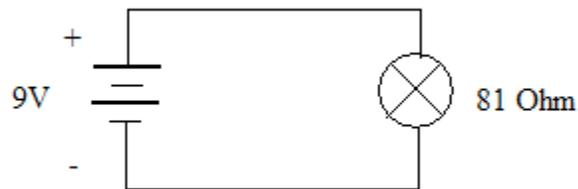
Partner's Name: _____

Ohm's Law and Series Circuits

Challenges

1. Build the following circuit using a 9V Battery, 2 wires, and a 1 Watt light bulb.

When attached to a 9V battery, a 1 Watt light bulb gives about 81 Ohms of resistance.



What is the current running through the circuit? _____

What does this number tell you about the size of 1 Amp?
Compared to the current running through the circuit that you just built, is one amp a lot or a little?

If you add another lamp in series to the circuit, will the lamp get brighter or dimmer? Why, and how much brighter or dimmer?

2. Calculate the current in the circuit below.





Use these steps to calculate the current in the circuit.

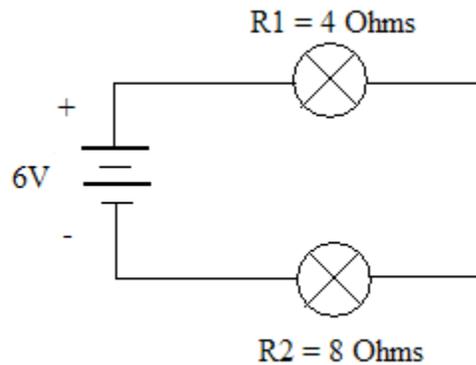
A. Voltage = _____ Volts

B. Resistance = _____ Ohms

C. Voltage / Resistance = Current

_____ / _____ = _____ Amps

3. Calculate the current in the circuit below



A. Voltage = _____ Volts

B. When two resistors come right after each other without anything in between them, their resistances add to each other.

Resistance = (R1) _____ + (R2) _____ = _____ Ohms

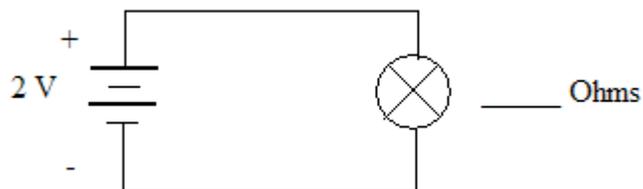
C. . Voltage / Resistance = Current

_____ / _____ = _____ Amps





4. The circuit below will be used to turn on a light bulb in a kitchen. Because the house is old, the fire marshal told you that if the current in the circuit is greater than .25 Amps, then the kitchen might catch on fire. When you go to buy a light bulb for the kitchen, what is the smallest resistance that you should look for to make sure that the current in the circuit doesn't go above .25 amps?



Discussion

Is it possible to put so much resistance into a circuit that it has a current of 0? Why or why not?

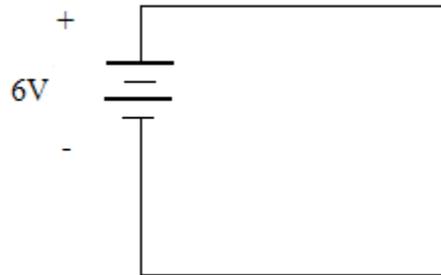
Extensions

5. Design a circuit of your choice on the back of this sheet, using whatever size battery and resistors you want. Calculate the Voltage, Resistance and Current in your circuit and write them below.





6. What is the current in the circuit below?



3. Your teacher will show you a circuit that she or she has built. Draw a circuit diagram representing it in the space below.

