Guiding Question: What is the relationship between current, resistance, and voltage

Learning Goal: Collect data on circuits you create to find the relationship between current, resistance, and voltage.

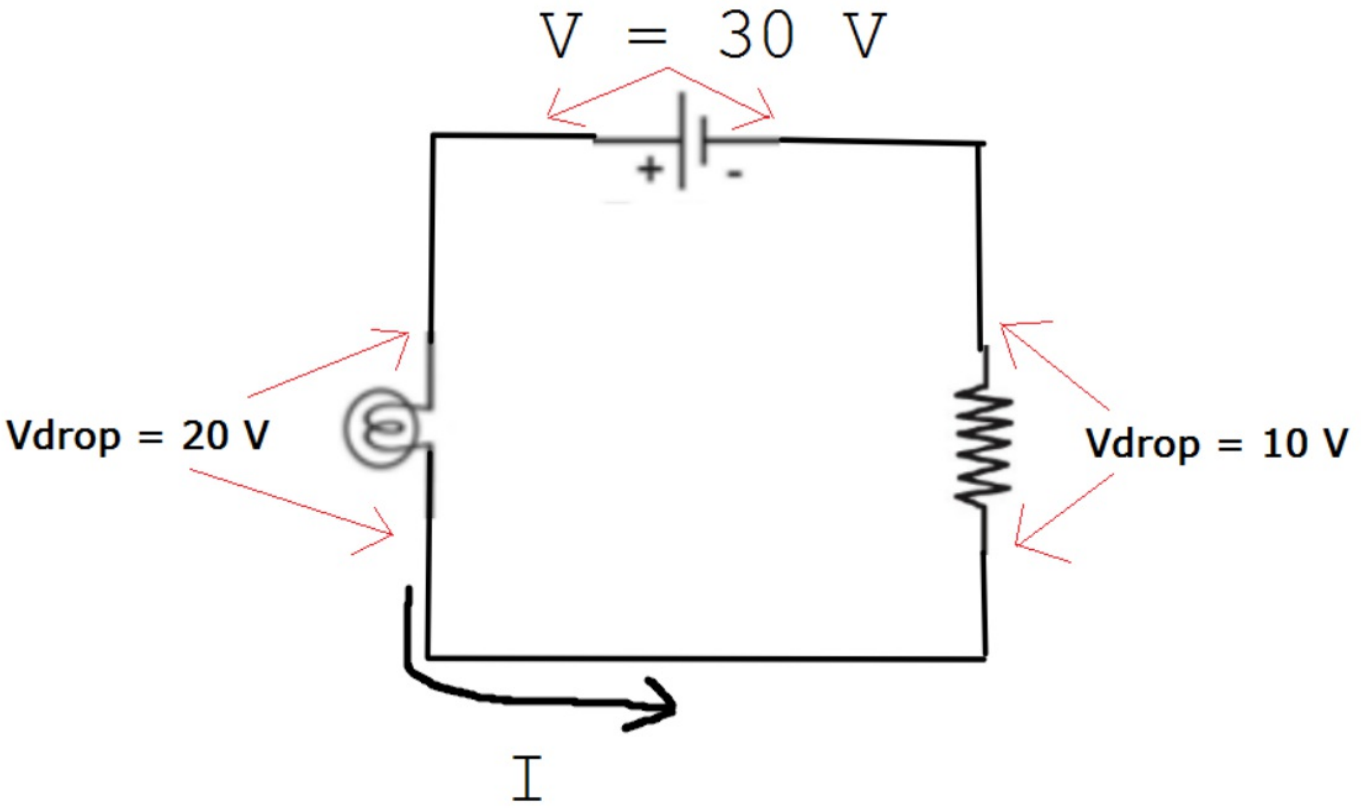
Agenda
1) Daily Science Review
2) Word of the day
3) Finish Measuring Practice
4) Start Ohm's Law Lab-SUMMATIVE
5) Exit Ticket

Word of the day
Voltage drop

WOD

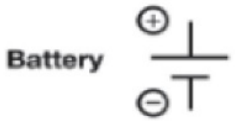
Voltage Drop

A decrease in voltage across a resistor




STOP

Ohm's Law Variables

Word	Variable	Circuit Diagram	Units	Unit Symbol
Current	I		Amps	A
Voltage	V		Volts	V
Resistance	R		Ohms	Ω

Start Studying for the test NOW!

Make flash cards for the following Words of the day in Quizlet

-Everything in the table of Page 88

-Current

-Resistance

-Voltage

-Open Circuit

-Closed Circuit

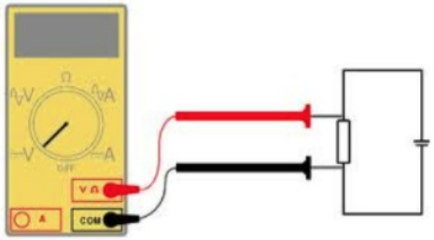
-Parallel Circuit

-Series Circuit

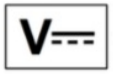
Homework Day 5: Measuring

MEASURING VOLTAGE

VOLTAGE is a difference **between** 2 points in the circuit

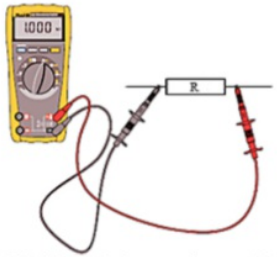


Your dial should be on a symbol that looks like this:



- ☐ The number should be 2 or 20 V
- ☐ The black probe is in the COM spot
- ☐ The red is in the V spot or VΩ spot

MASURING RESISTANCE



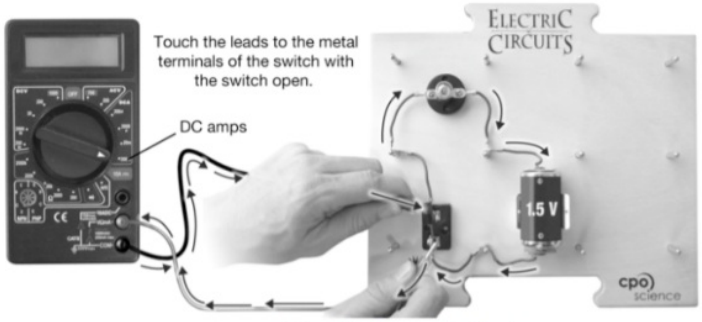
RESISTANCE is how much something slows the flow of electricity.

The dial should look like: 

- ☐ Dial is at 200 Ω or just Ω.
- ☐ The black probe is in the COM spot and the red is in the VΩ spot.
- ☐ Circuit should be open.

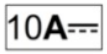
MEASURING CURRENT

CURRENT is the amount of electricity flowing **through** 1 point in the circuit.



The switch is open in this picture

Your dial should be on a symbol that looks like this:

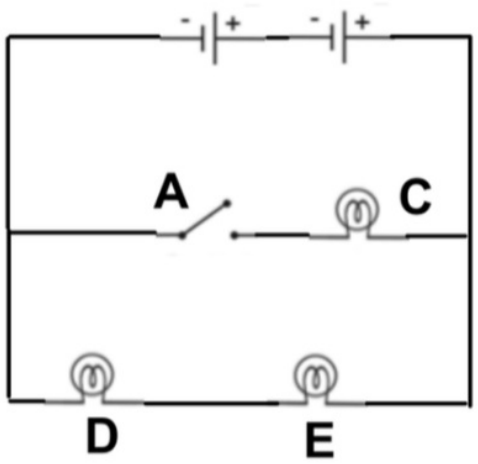


- ☐ **The dial is at 10 Amps or 20 Amps**
- ☐ **The black probe is in the COM spot**
- ☐ **The red is in the A or 10A or 10A DC spot**

Circuit 1: Build a circuit with a battery, a light bulb, and a switch.
Draw the Circuit diagram here, with an OPEN and CLOSED switch

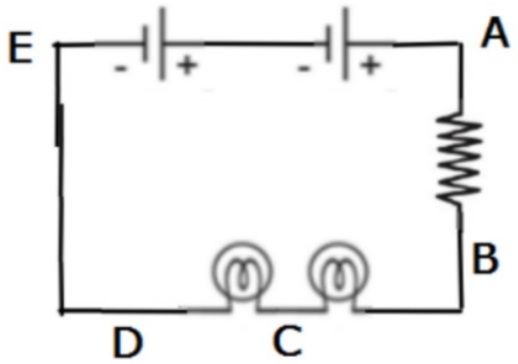
1. **Measure the Voltage of just the battery:** Put the red and black leads on each
the battery before putting it in your circuit_____
2. **PREDICT:** Before lighting the bulb, predict the battery's voltage while the bull
on:_____
3. **Explain** why you made that prediction.
4. Put the battery in the circuit and turn on the light. Measure, what is the actual difference between voltage when the light is on/off?
5. Now **measure** the current with a switch OPEN. The current is _____
6. What is the current if you unscrew the light bulb?_____
7. Measure the resistance of the light bulb. _____

Circuit 2



7. **PREDICT**: Which bulb will have the greatest voltage (C, D, or E)?
8. Close switches A. **Measure** the voltage across light bulb C, write it on your circuit diagram.
9. **Measure** the voltage across bulb D, write it by the bulb in your diagram.
10. **Measure** the voltage across bulb E, write it by the bulb in your diagram.
11. **Measure** the Voltage across bulb C
12. Open Switch A Measure the Voltage for
    Light bulb B:
    Light bulb E

Circuit 3 Make this circuit below Measure the resistance for 3 different resistors. Make observations of the light bulb brightness. Change the resistance and measure the resistance for each of the 3 colors



Red =

Green =

Blue =

Ohm's Law Lab

What can we change in our circuits?

What numbers can we collect?

OHM'S LAW LAB

1. Variables:
   Impendent Variable: Resistance, Voltage
   Dependent variable: Current

2. Experiment Question: Write 2 experiment questions, 1 for each independent variable

3. Hypothesis:

If_____ then_____ because_____.

If_____ then_____ because_____.

Write 2 hypothesis, 1 for each independent variable

4. Materials

List all the materials you need (what's in your box?)

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OHM'S LAW LAB

5. Procedure

1. Make a simple series circuit with 1 switch, 1 resistor, and 1 battery.
2. Draw your circuit diagram
2. Measure the voltage of the battery, the current of the OPEN switch, and the resistance of the resistor.
3. Make a change to the VOLTAGE, Draw the NEW diagram, measure the current, voltage, and resistance.
4. Repeat set 3 2 more times
5. Go back to step #1 circuit, make a change to the Resistor (or add a light bulb).
6. Draw the NEW circuit and measure the Current, Voltage, and Resistance
7. Make a change in the RESISTANCE, draw a new diagram, measure the current, voltage, and resistance.
8. Repeat step 7 2 or more times

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OHM'S LAW LAB

6. Data

6. Data

	Circuit Diagram	What did you change?	Current 	Voltage Battery 	Resistance 
Voltage					
Resistance					

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