IEEE's Hands on Practical Electronics (HOPE)

Week 2: Voltage, Current, Resistance

Objective:

Learn to use the Digital Multimeter (DMM)

Warnings:

Always OPEN a circuit when measuring a current. Put the DMM between the two places where you want to measure the current.

Always measure resistances after you remove the resistor from the battery.

Procedure:

1 breadboard you built last week

1 9V Battery

1 1kΩ resistor

Measure:

1) Measure the Voltage across the resistor as shown in Diagram 1

2) OPEN the circuit and measure the current as shown in Diagram 2

3) REMOVE batteries from the circuit and measure the resistance as shown in Diagram 3

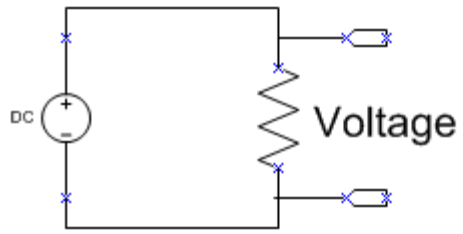


Diagram 1

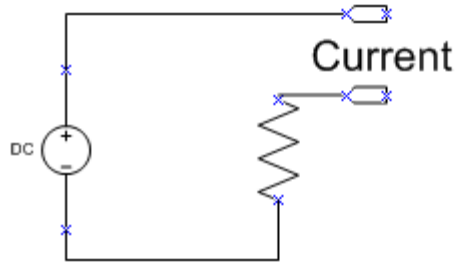


Diagram 2

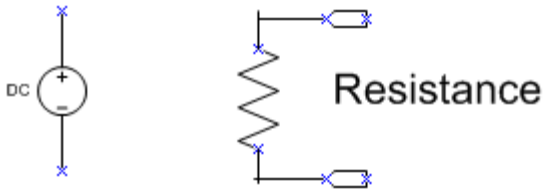
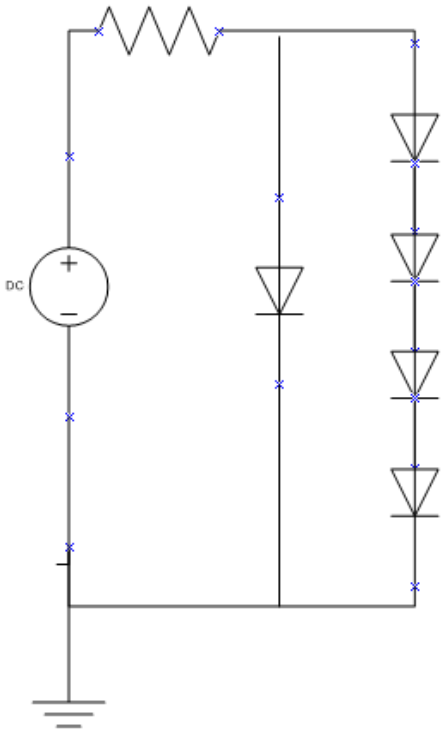


Diagram 3

Part 2:

Use your board from last week and make the following circuit.



Questions:

Measure the voltage across the 4 LEDs and the single LED and record their values:

How do these two measurements compare?

What did you notice about the brightness of the LEDs?

- The 4 LED's in a row
- The 1 LED not in the row of 4

The difference between the 4 LED's in a row and the 1 not in that row.