

# Student Activity Sheet 2-8

## Ohmmeter

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Introduction

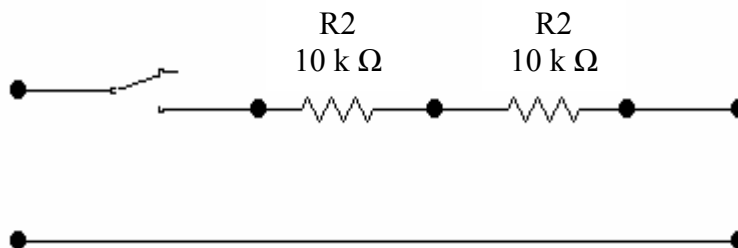
This lab activity will demonstrate the use of the Ohmmeter. The electrical meters used to take readings such as resistance actually become part of the circuit. By becoming part of the circuit and providing another path for current, the characteristics of the circuit being evaluated may change. Selecting the Lo Ohms function will help reduce this effect. *For this lab and labs done for this class we will use the Ohm's function.*

### Materials and Equipment

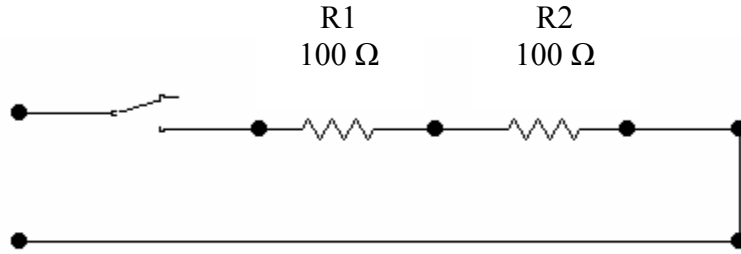
- An Ohmmeter
- 2-10 k $\Omega$  1 W resistor (brown, black, orange)
- 2-100  $\Omega$  1 W resistor (brown, black, brown)
- A SPDT switch
- A breadboard

### Procedure

- Step 1. Gather all materials required for this activity.
- Step 2. Assemble a circuit consisting of two 10k $\Omega$  resistors connected in series. (Use the schematic below to assist you.) Do not energize the circuit until your instructor checks your circuit. \_\_\_\_\_







Step 6. Reconstruct the circuit using the 100 Ω resistors in place of the 10 kΩ resistors. Take the resistance readings the switch closed and open.

Record the ohmmeter readings:

Switch closed  $R_t = \underline{\hspace{2cm}} \Omega$ .

Switch open  $R_t = \underline{\hspace{2cm}} \Omega$ .

Step 7. Close the switch and measure the resistance across R1 and then across R2.

Record the ohmmeter readings:

R1 =  $\underline{\hspace{2cm}} \Omega$ .

R2 =  $\underline{\hspace{2cm}} \Omega$ .

Question 3. When added, the two ohm readings at R1 and R2 should equal the total resistance measured in step 3 with the switch closed. Do they match or are they close?  $\underline{\hspace{3cm}}$

Step 8. Repeat step 7 with a digital meter.

Record the ohmmeter readings from the digital ohmmeter:

R1 =  $\underline{\hspace{2cm}} \Omega$ .

R2 =  $\underline{\hspace{2cm}} \Omega$ .

Question 4. When added, the two ohm readings at R1 and R2 should equal the total resistance measured in step 6 with the switch closed. Do they match or are they close?  $\underline{\hspace{3cm}}$

Step 9. Turn off the ohmmeter. Clear your work area. Properly store the supplies.