Name_____ Date_____

Maximizing and Minimizing Resistance Worksheet

1. There are four 10 ohms resistors and a 1.5 V battery on the breadboard. Your first challenge is to connect them so that the circuit has the largest possible total resistance. Predict: What is the maximum resistance you can achieve?

2. Wire the circuit using as many copper wires as you like, and take a photo. Explain your strategy for wiring them.

3. Let's check to see if the circuit has the resistance you predicted. Using the multimeter, measure the total current leaving the battery, and use Ohm's Law to confirm your prediction. Did the actual resistance match what you predicted?

zSpace

4. Your second challenge is to make a circuit that contains all four 10 ohms resistors, and has the least possible total resistance. Predict: What do you think this minimum resistance is?

5. Wire the circuit using as many copper wires as you like, and take a photo. Explain your strategy for wiring them.

6. Lets check to see if the circuit has the resistance you predicted. Using the multimeter, measure the total current leaving the battery, and use Ohm's Law to confirm your prediction. Did the actual resistance match what you predicted?

zSpace

7. Now, try Questions 1 through 6 using different resistors. Take a photo of your setup and test it. What did you observe?

zSpace