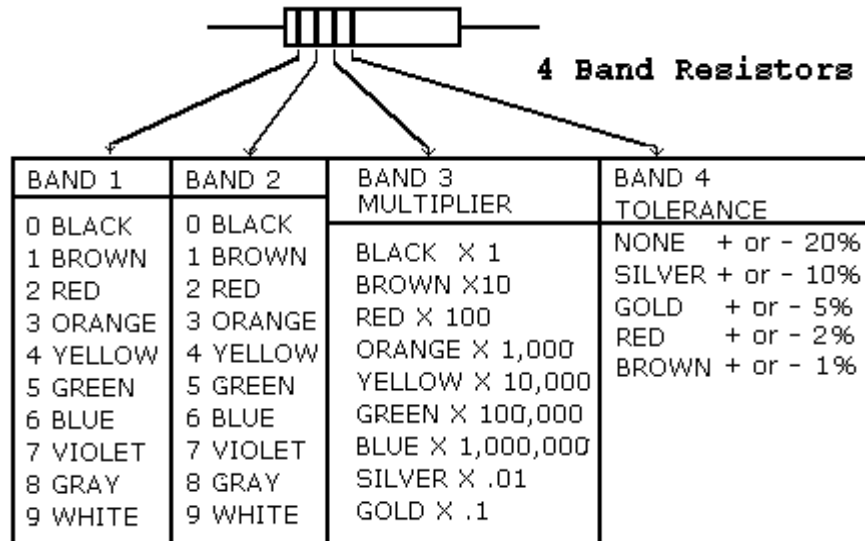


Name: _____

Equivalent Resistance Lab Activity SPH4C

Materials: Several resistors of varying resistance, a digital ohmmeter or multimeter, tape



1. Select a resistor. Write down the colour code on the resistor:

What is its resistance according to the colour code? _____

Test its resistance using the digital ohmmeter or multimeter.

What is its resistance according to the meter? _____

Is this within the indicated tolerance? _____

2. Select a different resistor. Write down the colour code on the resistor:

What is its resistance according to the colour code? _____

Test its resistance using the digital ohmmeter or multimeter.

What is its resistance according to the meter? _____

Is this within the indicated tolerance? _____

3. Tape the resistors together so that they are in series.

What do you expect the equivalent resistance to be? (Show your work.)

Test the equivalent resistance using the digital ohmmeter or multimeter.

What is the equivalent resistance according to the meter? _____

4. Tape the resistors together so that they are in parallel.

What do you expect the equivalent resistance to be? (Show your work.)

Test the equivalent resistance using the digital ohmmeter or multimeter.

What is the equivalent resistance according to the meter? _____

Repeat Steps 1 – 4 using two different resistors again:

5. Select a resistor. Write down the colour code on the resistor:

What is its resistance according to the colour code? _____

Test its resistance using the digital ohmmeter or multimeter.

What is its resistance according to the meter? _____

Is this within the indicated tolerance? _____

6. Select a different resistor. Write down the colour code on the resistor:

What is its resistance according to the colour code? _____

Test its resistance using the digital ohmmeter or multimeter.

What is its resistance according to the meter? _____

Is this within the indicated tolerance? _____

7. Tape the resistors together so that they are in series.

What do you expect the equivalent resistance to be? (Show your work.)

Test the equivalent resistance using the digital ohmmeter or multimeter.

What is the equivalent resistance according to the meter? _____

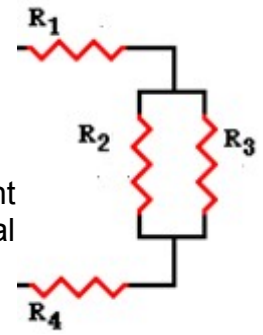
8. Tape the resistors together so that they are in parallel.

What do you expect the equivalent resistance to be? (Show your work.)

Test the equivalent resistance using the digital ohmmeter or multimeter.

What is the equivalent resistance according to the meter? _____

Now you have 4 resistors you can arrange in different configurations. As an example, refer to the diagram at right.



Design 3 different configurations using at least three resistors in each.

Diagram each configuration below, calculate its expected equivalent resistance (show your work again!), and then determine its actual equivalent resistance using the meter.

Diagram 1:

Expected equivalent resistance:

Actual equivalent resistance: _____

Diagram 2:

Expected equivalent resistance:

Actual equivalent resistance: _____

Diagram 3:

Expected equivalent resistance:

Actual equivalent resistance: _____