About resistors

Resistance is one of the most important and useful characteristics of electronic circuits. Resistance allows for the control of current, and the ability to control current flow through resistors allows for the control of potential. The resistor, despite its name and its primary function of opposing current flow, is one of the most commonly used electronic parts and is found in nearly every type of circuit.

Resistor activity

1. What is resistance?

2. What unit is resistance measured in?

3. Name some materials that have a low resistance. What are these materials called?

4. Name some materials that have a high resistance. What are these materials called?

5. Obtain a multimeter. Record its brand and/or model number.

6. Set the multimeter to its resistance range, hold one probe tip with the fingers of each hand, and measure your resistance.

7. Based on your resistance, would you be considered a conductor or an insulator?

8. Calculate how many volts of potential would be required to produce 1mA of current flow through you. (Hint: use Ohm's Law)

9. List two precautions that you need to take to ensure an accurate resistance measurement.

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10. Determine the colour code of each resistor listed in the chart, and then properly measure its actual resistance using the multimeter. Are all of your measured values within their tolerance?
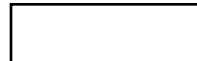
Value	Colour 1	Colour 2	Multiplier	Tolerance	Measured Ω
100 Ω ±5%					
330 Ω ±5%					
470 Ω ±5%					
1.8 kΩ ±5%					
2.2 kΩ ±5%					
10 kΩ ±5%					

11. Does this line have resistance? If so, how much?

12. Using a *pencil*, colour in this box. Measure its resistance.
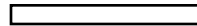
13. Using a *pencil*, colour in this box as well, making sure to colour this box just as lightly or darkly as you coloured the box in step 12. Measure its resistance.

14. Explain the difference in the resistance of the two boxes that you coloured in steps 12 and 13.

15. How much current would flow through each of the boxes if 120 V of potential were applied?

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