**Resistance Worksheet**

Simulation: <https://phet.colorado.edu/sims/html/resistance-in-a-wire/latest/resistance-in-a-wire_en.html>

1. Draw an example of a resistor with a resistance of 1.00 ohms. Label the resistivity, the length, and the area. Show mathematically that your resistor would have a resistance of 1.00 ohms.
2. What do black dots within the cork represent?

1. Develop a method to test how the resistance of a resistor changes as the length changes. Describe how you would complete this in a lab. Collect data for at least five trials. Graph your data and briefly explain the results in 1-3 sentences.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Method** | | | |  |
|
| **Resistance** | **Resistivity** | **Area** | **Length** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. Develop a method to test how the resistance of a resistor changes as the resistivity changes. Describe how you would complete this in a lab. Collect data for at least five trials. Graph your data and briefly explain the results in 1-3 sentences.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Method** | | | |  |
|
| **Resistance** | **Resistivity** | **Area** | **Length** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. Develop a method to test how the resistance of a resistor changes as the area changes. Describe how you would complete this in a lab. Collect data for at least five trials. Graph your data and briefly explain the results in 1-3 sentences.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Method** | | | |  |
|
| **Resistance** | **Resistivity** | **Area** | **Length** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

1. Is it possible to decrease the resistance of the wire without changing the material it is made of? Justify your answer.