**Resistance** – Connection between Voltage and Current

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will flow if a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is applied to the circuit.**

= electrons will move if they are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The same voltage does **NOT** always produce the same current due to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**RESISTANCE -** how \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ it is for electrons to flow through the material

 - measured in a unit called \_\_\_\_\_\_\_\_\_\_\_\_\_\_(Ω) by using an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**RESISTOR -** any \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that decreases the flow of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in a circuit.

Ex. Any kind of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Ex. Compressed carbon resistors use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to indicate the resistance that they provide.

Each colour has a given number value:



 1st Band =

 2nd Band =

 3rd Band =

 4th Band =

 Gold = $\pm $ 5%

 Silver = $\pm $ 10%

 No band = $\pm $ 20%

Example: Red Black Red

**Resistance Notes**

**Practice:**

1. Blue Orange Red Silver 🡪

2. Yellow Yellow Orange Gold 🡪

3. Grey Green Yellow 🡪

**OHM’S LAW-**

A scientist named George Ohm conducted experiments with circuits and determined that there is a **relationship** between **voltage**, **current and resistance.**

His work lead to the creation of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

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| --- | --- | --- | --- |
| **OHM’S LAW** | **Symbols** | **Unit** |  |
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|  |  |
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**PRACTICING OHM’S LAW**

1. An electrical device with a resistance of 3.0 Ω will allow a current of 4.0 amps to flow through. What is the voltage across the device?

2. When a voltage of 120 V is used across an electric heater, a current of 10.0 amps will flow through the heater if the resistance is \_\_\_\_\_\_ Ω.