

Unit: Characteristics of Electricity

Mission B: Electric Circuits

Mini Lesson #1: What is an electric circuit?

- A _____ electric charge will _____ up in an object to a point where it causes it to be _____.
- An _____ is the _____ or flow of the electric charge from one place to another.
- An _____ is a _____ path in which electric _____ passes through. They are used to _____ electrical energy into other forms of energy such as _____ or _____.
- An electric circuit can be _____ shown through a _____ drawing or _____ diagram
- There are universal _____ used to show the different parts of circuits.

Cell	
Wires (connectors)	
Where wires join	
Open Switch	
Closed Switch	
Resistor	
Lamp	

- Example: Create a circuit diagram of a circuit that contains two batteries, an open switch and three lamps.

Mini Lesson 2: Understanding Circuits

- A _____ is a _____ loop that allows a charge caused by the _____ moving the charge from one place to another.
- The movement of electrons (_____) is harnessed to do _____ such as turn on a light bulb, charge your cell phone, etc.....
- There are 3 principles that explain the functioning of electric circuits:
 1. _____
 2. _____
 3. _____

Voltage

- The difference in _____ between two points. It measures the _____ each _____ gives up as it moves through a _____.
- It is measured in _____ (V).
- It is considered to be the amount of _____ between two points on a circuit that will make one _____ of energy.
- A _____ is used to read the amount of voltage. Its units are volts (_____).

Current

- Current is the _____ at which the _____ is flowing.
- It is measured in _____ (A) “ _____ ”.

Resistance

- Resistance is a material's tendency to _____ the flow of _____ (current). This results in a _____ of electrical potential (_____).
- It is measured in _____ (Ω).
- _____ hold back or resist the flow of energy.

Mini Lesson 3: Ohm's Law

- A scientist named Georg _____ was first to study and begin to understand the electrical elements of _____, _____ and _____.
- Combining these he developed the formula: $V = I \times R$
- Where:
- When solving for Ohm's Law remember to:
 1. Create a _____ of what _____ you have.
 2. Write out your _____ electric current; measured in amperes (A)
 3. Solve (including _____ electrical resistance; measured in ohms (Ω))

4. Put a _____ around your _____ answer.

Ohm's Law: Example 1

- What happens when we need to solve for the value of a circuit's current or resistance?
- We can use the "equation triangle"

Ohm's Law: Example 2