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Unit 5F
Ohm's Law
Note-Taking Guide

Name:

Date:

Main Ideas, Key Points, Questions:

After watching the video segment, write down key points, main ideas, and big questions.

Objective(s):

- ***Define Ohm's Law in words and mathematically.***
- ***Understand how different materials may follow Ohm's Law or not.***

Notes:

During the video segment, use words, phrases, or drawings to take notes.

Summary:

After watching the video segment, write at least three sentences explaining what you learned.
You may ask yourself: "If I was going to explain this to someone else, what would I say?"

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Questions to Consider

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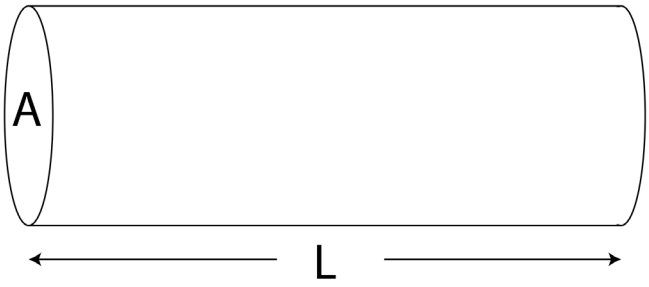
Answer the following.

1. **What is voltage, what is current, and what is resistance?**

2. **Name two ways that knowing Ohm's Law could be helpful for someone designing an electrical circuit.**

3. **When current flows through a wire of length L and cross-sectional area A, the resistance in the wire (choose one):**



   a. Is proportional to L and A
   b. Is inversely proportional to L and A
   c. ***Is proportional to L and inversely proportional to A***
   d. Is inversely proportional to L and proportional to A

4. **Using a material that is 'Ohmic' (it follows Ohm's Law), you make a circuit using wire, a battery, and a resistor. After measuring V, I, and R across the circuit, you switch out the original resistor with one 3 times more resistive. When you measure V, I, and R again, how will the new values compare to the old?**

questions continued on next page

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Answer the following.

5. You are given two materials, A and B, and told that one follows Ohm's Law and one does not. Describe an experiment you could run to figure out which is which.

6. Write out three different (but equivalent) ways of expressing Ohm's Law mathematically.

7. If doubling the voltage across an Ohmic resistor doubles the current in the resistor, then

   a. The resistor value decreased
   b. The resistor value increased
   c. The resistor value stayed the same
   d. The change in resistor value can't be determined