

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

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?"

Answer the following.

1. Define voltage, current, and 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 is:
(Choose one.)



- a. proportional to L and A
b. inversely proportional to L and A
c. proportional to L and inversely proportional to A
d. inversely proportional to L and proportional to A
4. Using a material that is "Ohmic" (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 that is three times more resistive. When you measure V , I , and R again, how will the new values compare to the original measurements?

Answer the following.

5. You are given two materials, A and B, and told that one follows Ohm's law while the other does not.

6. Write three different but equivalent ways of expressing Ohm's law mathematically.

7. If doubling the voltage across an Ohmic resistor also doubles the current in the resistor, which of the following is true? (Choose one.)

- a. The resistor value decreases.
- b. The resistor value increases.
- c. The resistor value stays the same.
- d. The change in resistor value can't be determined.