

UNIT: ELECTRICAL CIRCUITS

ACT-BASED READING: TECHNICAL READING COMPREHENSION – OHM'S LAW IN ACTION

READING-BASED ACTIVITIES AND ACT-STYLE QUESTIONS TO REINFORCE SKILLS

OBJECTIVE:

Strengthen students' ability to extract and analyze information from a technical passage.

STUDENT DIRECTIONS:

1. Provide students with the following passage:

Passage:

Ohm's Law, named after German physicist Georg Ohm, defines the relationship between voltage, current, and resistance in an electrical circuit. It states that the current (I) in a circuit is directly proportional to the voltage (V) and inversely proportional to the resistance (R), represented mathematically as: $V=I \times R$

In practical applications, understanding Ohm's Law helps engineers design circuits that prevent overheating and power failures. If a circuit's resistance increases while voltage remains constant, the current decreases, potentially leading to inefficient energy use. On the other hand, reducing resistance can cause a surge in current, which may damage electronic components. Therefore, electrical engineers carefully calculate resistance levels when designing safe and efficient circuits.

2. Discussion Questions:

- What is the main idea of this passage? (**Key Ideas and Details**)
- How does the passage explain the effect of resistance on current? (**Integration of Knowledge**)
- Which real-world application of Ohm's Law is described? (**Application of Concepts**)

3. Follow-Up Activity:

- Have students **rewrite** the passage in their own words, simplifying technical terms.

ACT-STYLE MULTIPLE CHOICE QUESTION:

Question 1 (Key Ideas and Details):

- According to Ohm's Law, if resistance in a circuit increases while voltage remains constant, what will happen to the current?
 - A. It will increase.
 - B. It will decrease.
 - C. It will remain the same.
 - D. It will fluctuate randomly.

Question 2 (Craft and Structure):

- In the passage about Ohm's Law, which of the following best describes the role of the second paragraph?
 - A. It provides a historical background on Georg Ohm.
 - B. It presents an opposing viewpoint on electrical resistance.
 - C. It explains real-world applications of Ohm's Law.
 - D. It describes the mathematical derivation of Ohm's Law.