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 x 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.*

1. **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**)
2. **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?

1. It will increase.
2. It will decrease.
3. It will remain the same.
4. 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?

1. It provides a historical background on Georg Ohm.
2. It presents an opposing viewpoint on electrical resistance.
3. It explains real-world applications of Ohm’s Law.
4. It describes the mathematical derivation of Ohm’s Law.