Electricity and Circuits

Name: _____ Date: _____ Grade: Grade 4

Part A: Multiple Choice

Circle the best answer for each question.

1. A student tests four materials to see which completes a circuit and lights a bulb. Which material will most likely work?

- A) a wooden stick
- B) a plastic straw
- C) an iron nail
- D) a rubber eraser

2. Three bulbs are connected in parallel to a battery. One bulb is unscrewed. What happens to the other two?

- A) they both go out
- B) they stay on at the same brightness
- C) they get dimmer
- D) the battery stops working

3. Why does a thick copper wire have less resistance than a thin copper wire of the same length?

- A) thick wire weighs more so electrons move faster
- B) thick wire gives electrons more room to flow
- C) thin wire is a better conductor than thick wire
- D) thick wire has fewer electrons inside it

4. A circuit has a battery and a buzzer, but the buzzer does not make a sound. Which change would most likely fix the problem?

- A) add another buzzer in series
- B) replace the copper wire with a string
- C) close the open switch in the circuit
- D) remove the battery from the circuit

Part B: Fill in the Blank

Write the correct answer on each line.

1. When two batteries are placed in series, the total voltage is the _____ of both batteries' voltages.

2. An electric fan converts electrical energy into _____ energy that moves air.

3. In a circuit diagram, an X inside a circle is the symbol for a _____.

4. Materials like glass, rubber, and _____ are common insulators used to protect people from electricity.

5. Adding more devices in a series circuit increases the total resistance and decreases the _____.

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1. A student tests four materials to see which completes a circuit and lights a bulb. Which material will most likely work?

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4. A circuit has a battery and a buzzer, but the buzzer does not make a sound. Which change would most likely fix the problem?

- ○ A) add another buzzer in series
- ○ B) replace the copper wire with a string
- ● **C) close the open switch in the circuit**
- ○ D) remove the battery from the circuit

Part B: Fill in the Blank

Write the correct answer on each line.

1. When two batteries are placed in series, the total voltage is the **sum** of both batteries' voltages.

2. An electric fan converts electrical energy into **mechanical** energy that moves air.

3. In a circuit diagram, an X inside a circle is the symbol for a **bulb** .

4. Materials like glass, rubber, and **plastic** are common insulators used to protect people from electricity.

5. Adding more devices in a series circuit increases the total resistance and decreases the **current** .