

1. What happens when an electric current is produced? A continuous flow of charges travels through a material.

2. Contrast electric current and static electricity. An electric current is a continuous flow of charge. Although charges build up on an object in static electricity, the charges do not flow.

3. Explain why electric current cannot exist if an electric circuit is broken. A continuous flow of charge cannot occur because the path is no longer complete.

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- 4. Define conductor and insulator. A conductor is a material through which charges can flow easily. An insulator is a material through which charges cannot flow easily.**
- 5. List materials that make good conductors. List materials that are insulators. Silver, copper, aluminum, and iron are examples of good conductors. Rubber, sand, plastic, glass, and wood are examples of good insulators.**
- 6. If a copper wire in a working electric circuit is replaced by a piece of rubber tubing, will there be a current in the circuit? Explain. There will be no current because rubber is an insulator.**
- 7. What are two examples of voltage sources? Batteries and generators**

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8. How does voltage cause charges to flow in a circuit? Voltage can be thought of as the amount of force pushing an electric current.

9. The electrical potential energy at one point in a circuit is greater than the electrical potential energy at another point. Will there be a current between the two points? Explain. Yes. A difference in electrical potential energy in a circuit causes charges to flow in the circuit, resulting in a current.

10. What is resistance? Resistance is the measure of how difficult it is for charges to flow through a material.

11. What are four factors that determine resistance? Four factors that determine resistance are the material, the length of the material, the diameter of the material, and the temperature of the material.

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