

1. Electric charges are surrounded by an electric \_\_\_\_\_.
2. By convention, the direction of an electrical force is shown for a \_\_\_\_\_ test charge.
3. Electric field is a \_\_\_\_\_ quantity because it has magnitude and direction.
4. Sketch some electric field lines for each charge or pair of charges (Hint: Look @ page 519)

a)  $\oplus$ b)  $\ominus$ c)  $\oplus \oplus$ d)  $\oplus \ominus$ 

5. What is electric shielding?
6. What is SI unit for electric potential?
7. What device can be used to store electrical energy? \_\_\_\_\_ How does it work?
8. Describe how a Van de Graff generator works.

### Ch 34 Electric Current

1. When the ends of an electric conductor are at different potentials, charge can flow from one end to another. Charge only flows when there is a \_\_\_\_\_.
2. \_\_\_\_\_ is the flow of electric charge.
3. What is the name of the electrons that carry they charge through a circuit because they are free to move throughout the atomic network?
4. What unit do we use to measure electric current?
5. Charges only flow if there is a \_\_\_\_\_ difference.
6. To sustain current, you must have an “ \_\_\_\_\_ ” which provides a potential difference and is also called a voltage source.
7. What are three things capable of maintaining a steady flow of voltage?  
1) \_\_\_\_\_ 2) \_\_\_\_\_ 3) \_\_\_\_\_

8. The amount of charge that flows through a circuit depends on the \_\_\_\_\_ provided by the voltage source.
9. Besides voltage, the current in a circuit or wire also depends on the resistance that the conductor offers to the flow of charge, the electrical resistance. What three factors determine the electrical resistance of a wire? 1) \_\_\_\_\_ 2) \_\_\_\_\_ 3) \_\_\_\_\_
10. What is a superconductor?
11. What unit is used to measure electrical resistance?
12. The relationship among voltage, current, and resistance is called Ohm's Law. State Ohm's Law: *The current in a circuit* \_\_\_\_\_
13. What is the formula for Ohm's Law?
14. How much current can be felt when you are shocked?
15. How much current can be painful?
16. A bird (pictured) can perch on a power line and not get shocked. Why doesn't he get shocked?
17. What causes electric shock -- current or voltage?
18. What is direct current?
19. What is alternating current?
20. Does your home use AC or DC?
21. How fast is a signal carried through electrical wires?
22. True or false: Electrons from the power company or utility company travel through the power lines and into the wall outlets of your home.
23. The rate at which electrical energy is converted into another form such as mechanical energy, heat, or light is called \_\_\_\_\_.

