Name _____ Date _____ Class _____

Electric Charge and Static Electricity

This section describes how electric charges interact and explains what an electric field is. It also explains what static electricity.

Use Target Reading Skills

Before you read, preview Figure 4 in your text. Then write two questions that you have about the diagram in the graphics organizer below. As you read, answer your questions.

Transferring Static Electricity

Q. What are the three ways static electricity can be transferred?
A.
Q.
A.

Electric Charge

1. The charge on a proton is called _____.
2. The charge on an electron is called _____.
3. Circle the letter of each statement that is true about interactions between charges.
   - **a.** Charges that are the same repel each other.
   - **b.** Charged objects never attract each other.
   - **c.** Charges that are different attract each other.
   - **d.** Charged objects always repel each other.
4. Why do protons repel protons but attract electrons?

   _____

   _____
5. The interaction between electric charges is called _____.

Electric Charge and Static Electricity *(continued)*

Electric Force

6. What is electric force?

_____

_____

7. What is a region around a charged object where the object's eletric force is exterted on other charged objects?

_____

8. Electric field lines are drawn with arrows to show the _____ of the electric force.

9. Is the following sentence true or false? The greater the distance, the stronger the electric field. _____

10. When there are two or more charges, the electric fields of each individual charge _____ by repellng or attracting.

Static Electricity

11. Circle the letter of the sentence that explains why there is no overall electric charge in a neutral object.

a. In the object's atoms, each positive charge is balanced by a negative charge.
b. The object's atoms contain no charged particles.
c. The positive charges are attracted to other positive charges.
d. In the object's atoms, negative charges outnumber positive charges.

12. How can an object become charged?

_____

_____

_____

13. The buildup of charges on an object is called _____.

14. If an object gains electrons, what will be its overall charge?

_____

Transferring Charge

15. What law states that charges are not created or destroyed?

_____

_____

16. Complete the table about methods of transferring charge.

Transferring Charges	
Method	**Definition**
a.	The transfer of electrons from one object to another by rubbing
b.	The transfer of electrons from a charged object to another object by direct contact
c.	The movement of electrons to one part of an object by the electric field of another object

17. Suppose you dry your clothes in a dryer, and when you take them out they cling to one another. Why do they stick together?

_____

_____

_____

_____

18. An electric charge can be detected by an instrument called a(n) _____.

19. Why do the leaves of an electroscope spread apart when a charged object touches the metal knob?

_____

_____

_____

_____

Electric Charge and Static Electricity *(continued)*

Static Discharge

20. What happens when a negatively charged object and a positively charged object are brought together?

_____

_____

21. The loss of static electricity as electric charges transfer from one object to another is called _____.

22. Is the following sentence true or false? Lightning is an example of static discharge. _____