

Name _____

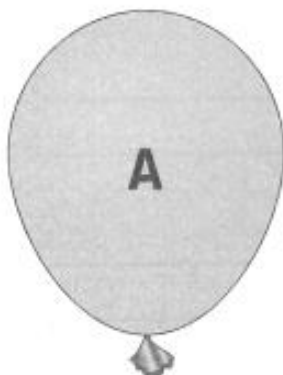
Date _____

Applying

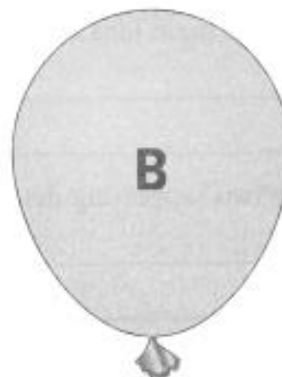
Topic 3.2

The Law of Electric Charge*Use with textbook pages 206–207.*

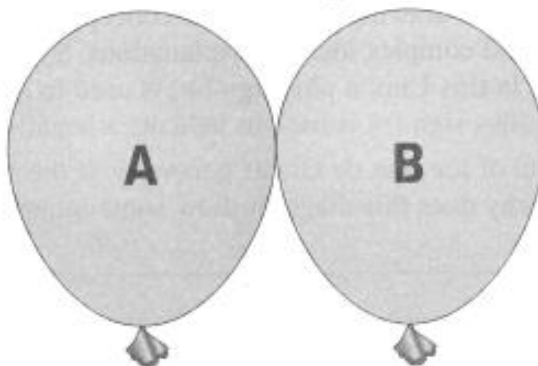
1. a) Balloon A has been given a positive charge. Add plus and minus signs to the balloon to indicate this.



- b) Balloon B is electrically neutral. Add plus and minus signs to the balloon to indicate this.



- c) Balloons A and B are attracted to each other. Add plus and minus signs to the diagram to show the location of the charges.



- d) Write a caption explaining why the balloons behave as they do.

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**Processing and
Analyzing****Topic 3.2****Using Terminology***Use with textbook pages 204–207.*

Match each description below with Image A (before hair is rubbed with a balloon) or Image B (after hair is rubbed with a balloon). Write each description on the lines provided.

electrically neutral

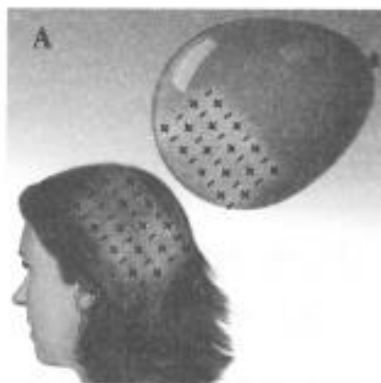
charge transfer

attraction

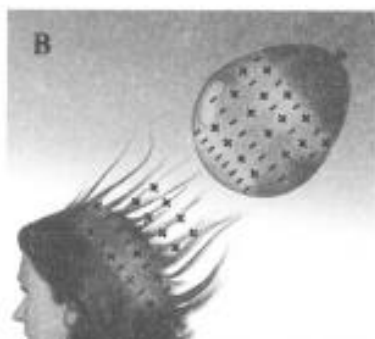
no charge transfer

electrically charged

no attraction



1. _____
2. _____
3. _____



4. _____
5. _____
6. _____

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3.2 Assessment

Match each description on the left with the term it best matches on the right. Each term may be used only once.

Description	Term
1. ____ positive charge	A. charging by friction
2. ____ negative charge	B. electron
3. ____ like charges repel each other	C. law of electric charge
4. ____ charging a material by rubbing	D. proton
5. ____ uncharged material	E. electrically neutral

Circle the letter of the best answer for questions 6 to 17.

6. What will happen if you rub two different materials together?
 - A. They will always repel each other.
 - B. They will always attract each other.
 - C. Atoms may rub off one material and be transferred to the other.
 - D. Electrons may rub off one material and be transferred to the other.
7. Why can protons not be rubbed off one material and transferred to another?
 - A. They are part of the nucleus of atoms and are held firmly in place.
 - B. They are part of the neutrons of atoms and are held firmly in place.
 - C. They surround the nucleus and are tightly bound to it.
 - D. They are too massive.
8. Which of the following is true of storm clouds?
 - A. They are always positively charged at the bottom and negatively charged at the top.
 - B. They can become charged by friction.
 - C. They do not obey the law of electric charge.
 - D. They are always electrically neutral.

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9. What is always true of an object that is electrically neutral?
- A. It has more protons than electrons.
 - B. It has more electrons than protons.
 - C. It has an equal number of protons and electrons.
 - D. It has no protons or electrons.
10. What is always true of an object that is electrically charged?
- A. It has more protons than electrons.
 - B. It has more electrons than protons.
 - C. It has an unequal number of protons and electrons.
 - D. It has no protons or electrons.
11. Which of the following are true of materials with an equal number of positive and negative charges?

I	They are uncharged.
II	They have an equal number of protons and electrons.
III	They do not attract or repel each other.

- A. I and II only
 - B. I and III only
 - C. II and III only
 - D. I, II, and III
12. You take a toque off your head in winter and your hair clings to it. Which of the following best explain what has occurred?

I	Both materials have become electrically neutral.
II	Both materials have become charged by friction.
III	Both materials attract each other.

- A. I and II only
- B. I and III only
- C. II and III only
- D. I, II, and III

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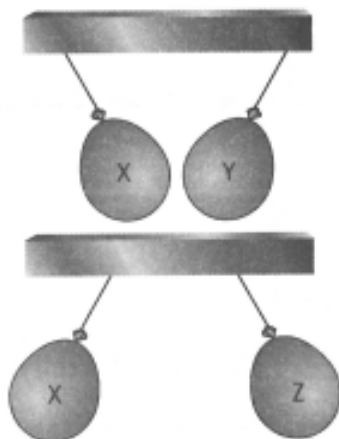
13. You take the laundry out of the dryer and find your cotton socks stuck to your polar fleece vest. Which of the following are true of both materials?

I	Both materials have become electrically charged.
II	Both materials have an unequal number of charges.
III	Both materials are obeying the law of electric charge.

- A. I and II only
B. I and III only
C. II and III only
D. I, II, and III

Use the image and text below to answer questions 14 and 15.

Experiments were performed with three balloons, labelled X, Y, and Z. The results of bringing two different pairs of balloons close together are shown below.



14. What can you infer about balloon X and balloon Y?
- A. Both must be charged.
B. Both must be neutral.
C. At least one of them must be charged.
D. Nothing can be inferred.
15. What can you infer about balloon X and balloon Z?
- A. Both must be charged.
B. Both must be neutral.
C. At least one of them must be charged.
D. Nothing can be inferred.

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16. Which of the following are true of the law of electric charge?

I	Opposite charges attract each other.
II	Opposite charges repel each other.
III	Like charges repel each other.

A. I and II only

C. II and III only

B. I and III only

D. I, II, and III

17. The law of electric charge applies to all individual charges. Which of the following are true of a single negative charge as a result?

I	It repels all other negative charges.
II	It repels only the negative charges closest to it.
III	It attracts all other positive charges.

A. I and II only

B. I and III only

C. II and III only

D. I, II, and III