

Check Your Understanding

Checking Concepts

1. The word “static” in static electricity describes what property of the charge?
2. When an acetate strip is charged by rubbing, does it acquire a positive charge or a negative charge?
3. Draw a diagram of an atom that has three protons, four neutrons, and three electrons.
 - (a) Label the protons, neutrons, and electrons.
 - (b) State which particles are neutral, negative, or positive.
4. Which particles in an atom are transferred when you charge an object?
5. Using + and – signs, make a sketch of:
 - (a) a neutral object
 - (b) a negative object
 - (c) a positive object
6. What is the term for a solid object that holds charges very nearly in one place?
7. What is the term for a solid object that allows free electrons to move easily through it?
8. What unit is used for measuring static charge?
9. What does it mean to say that a conductor is grounded?
10. What is the purpose of the electroscope?

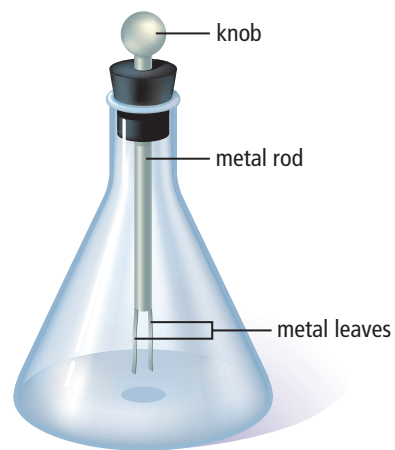
Understanding Key Ideas

11.
 - (a) What are the similarities between a proton and an electron?
 - (b) What are the differences?
12. What is the difference between a positively charged object and a negatively charged object?
13. How is it possible for an object to be neutral if it contains millions of electrons?

14. Explain why a person can get a shock by walking across a carpet and then touching a metal object such as a doorknob.
15. When you touch a charged object with your hand, the object becomes neutral. Explain what has happened to the charge in this process.
16. Compare and contrast charged conductors and insulators.
17. Suppose two *identical* neutral objects were rubbed together. Is it possible for these objects to gain a static charge? Explain.

Pause and Reflect

At the beginning of this section, you saw how an electroscope is used to detect static charge. Explain why the knob, rod, and leaves are made of metal. How would replacing the metal knob with a plastic knob affect the electroscope? Use vocabulary words from this section in your explanations.



An electroscope