Understanding Key Ideas

13. Explain how an object containing many electrons can be neutral.
14. Explain why clothes dried in the clothes dryer have more static electricity than those dried on a clothesline.
15. Antistatic carpets have metal fibres woven into their material. Explain how these fibres could prevent a static charge build-up on a person shuffling across the carpet.
16. If the picture tube in a television gains a static charge when the television is on, is the picture tube a conductor or an insulator? Explain your answer.
17. Is lightning a static charge, or is it produced by static charge? Explain your answer.
18. Explain one way in which electric force and the force of gravity are similar.
19. A positive rod attracts an unknown object. Explain what this indicates about the charge on the unknown object.
20. Use a Venn diagram to compare induction and conduction.
21. Explain why a charged balloon will "stick" to a wooden wall but not to a metal wall.
22. Imagine that it is a cold winter day and you are removing your wool sweater. As you pull it over your head, you see little sparks and you hear popping and crackling sounds in the sweater. Explain what might be causing the sparks and sounds.
23. When you comb your hair, the comb can become positively charged. Can your hair remain neutral? Explain.
24. Explain what happens to the leaves of a negatively charged electroscope when objects with the following charges are brought close to, but are not touching, the electroscope.
    (a) negative
    (b) positive

Pause and Reflect

You have seen how a Van de Graaff generator affects the hair of anyone touching it. Assume that the dome of the generator is positively charged. Since a person's hair is initially neutral, why does the hair "stand on end" after the person touches the dome for a period of time? Your explanation should include a discussion of electron transfer and the laws of static charge.