

Chapter 20

Use with Section 2

REINFORCEMENT

● Ionic and Covalent Bonds

Correctly complete the following paragraphs using terms from the box below. Some terms may not be used, and some terms may be used more than once.

| | | |
|-----------|-----------|----------|
| electrons | losing | positive |
| covalent | molecules | protons |
| gaining | negative | random |
| gains | neutral | regular |
| ionic | nonpolar | ions |
| loses | polar | sharing |

Elements in Group 1 become more stable by 1. _____ an electron. These elements form 2. _____ ions because they have more 3. _____ than 4. _____. Chlorine readily 5. _____ an electron, forming a 6. _____ ion. The attraction between sodium ions and chlorine ions forms 7. _____ bonds. In sodium chloride, the ions are lined up in a 8. _____ pattern.

Unlike sodium and chlorine, some atoms become more stable by 9. _____ electrons, forming 10. _____ that are 11. _____ rather than charged 12. _____. The bonds in a molecule of oxygen are 13. _____ 14. _____ bonds, while the bonds in a molecule of water are 15. _____ 16. _____ bonds.

Next to each formula, write the number of atoms of each element found in one unit of the compound.

17. potassium iodide, KI _____
18. sodium sulfide, Na₂S _____
19. silicon dioxide, SiO₂ _____
20. carbonic acid, H₂CO₃ _____

The electron dot diagram for carbon tetrachloride is shown at the right.

21. Is carbon tetrachloride an ionic or a covalent compound?

22. Are the bonds between carbon and chlorine single, double, or triple bonds?

23. What is the chemical formula for carbon tetrachloride?

