

## Chapter 2, The Chemistry of Life (continued)

### Section 2–3 Carbon Compounds (pages 44–48)

*This section explains how the element carbon is able to form millions of carbon, or organic, compounds. It also describes the four groups of organic compounds found in living things.*

#### The Chemistry of Carbon (page 44)

1. How many valence electrons does each carbon atom have? \_\_\_\_\_

2. What gives carbon the ability to form chains that are almost unlimited in length?

#### Macromolecules (page 45)

3. Many of the molecules in living cells are so large that they are known as \_\_\_\_\_.

4. What is the process called by which macromolecules are formed? \_\_\_\_\_

5. When monomers join together, what do they form? \_\_\_\_\_

6. What are four groups of organic compounds found in living things?

a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

d. \_\_\_\_\_

#### Carbohydrates (pages 45–46)

7. What atoms make up carbohydrates? \_\_\_\_\_

8. Circle the letter of each sentence that is true about carbohydrates.

a. Starches and sugars are examples of carbohydrates.

b. Living things use them as their main source of energy.

c. The monomers in sugar polymers are starch molecules.

d. Plants and some animals use them for strength and rigidity.

9. Single sugar molecules are also called \_\_\_\_\_.

10. Circle the letter of each monosaccharide.

a. galactose

b. glycogen

c. glucose

d. fructose

11. What are polysaccharides? \_\_\_\_\_

12. How do plants and animals store excess sugar? \_\_\_\_\_

**Lipids** (pages 46–47)

13. What kinds of atoms are lipids mostly made of? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
14. What are three common categories of lipids?  
 a. \_\_\_\_\_ b. \_\_\_\_\_ c. \_\_\_\_\_
15. Many lipids are formed when a glycerol molecule combines with compounds called \_\_\_\_\_.
16. Circle the letter of each way that fats are used in living things.  
 a. As parts of biological membranes  
 b. To store energy  
 c. To give plants rigidity  
 d. As chemical messengers
17. Complete the table about lipids.

**LIPIDS**

Kind of Lipid	Description
	Each carbon atom in a lipid's fatty acid chain is joined to another carbon atom by a single bond.
Unsaturated	
	A lipid's fatty acids contain more than one double bond.

**Nucleic Acids** (page 47)

18. Nucleic acids contain what kinds of atoms? \_\_\_\_\_  
 \_\_\_\_\_
19. The monomers that make up nucleic acids are known as \_\_\_\_\_.
20. A nucleotide consists of what three parts? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
21. What is the function of nucleic acids in living things? \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Chapter 2, The Chemistry of Life (continued)

22. What are two kinds of nucleic acids?

- a. \_\_\_\_\_
- b. \_\_\_\_\_

### Proteins (pages 47–48)

23. Proteins contain what kinds of atoms? \_\_\_\_\_

\_\_\_\_\_

24. Proteins are polymers of molecules called \_\_\_\_\_.

25. What are four roles that proteins play in living things?

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

### Reading Skill Practice

You can often increase your understanding of what you've read by making comparisons. A compare-and-contrast table helps you to do this. On a separate sheet of paper, make a table to compare the four groups of organic compounds you read about in Section 2–3. You might use the heads *Elements*, *Functions*, and *Examples* for your table. For more information about compare-and-contrast tables, see Organizing Information in Appendix A.