Name _____ Date _____ Class _____

Chemical Compounds in Cells

This section identifies the basic building blocks of cells. It also explains the importance of water to cells.

Use Target Reading Skills

As you read, compare and contrast carbohydrates, proteins, and lipids in the table below.

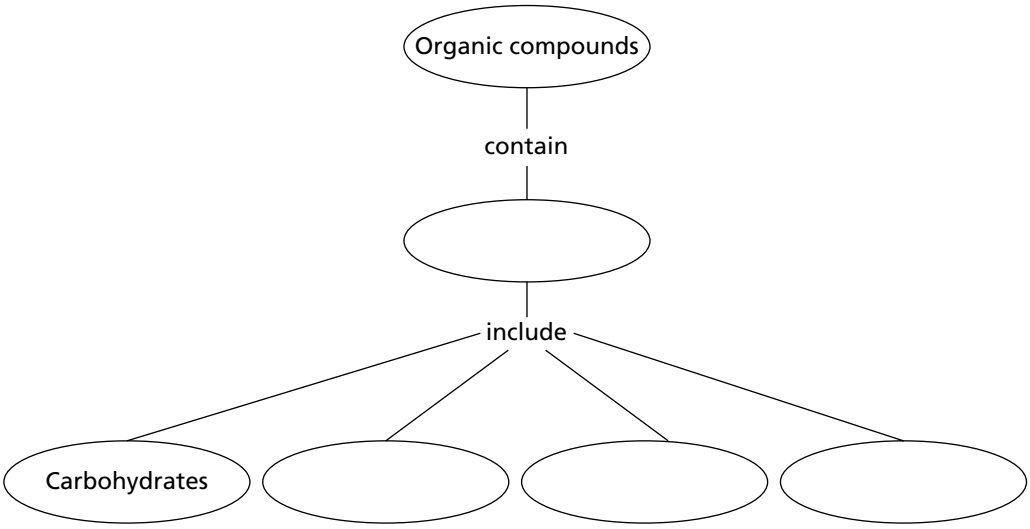
Type of Compound	Elements	Functions
Carbohydrate	Carbon, hydrogen, oxygen	
Protein		
Lipid		

Elements and Compounds

1. A(n) _____ is any substance that cannot be broken down into simpler substances. Its smallest unit is the _____.
2. When two or more elements combine chemically, they form a(n) _____. Its smallest unit is usually called a(n) _____.

Chemical Compounds in Cells *(continued)*

3. Complete this concept map on organic compounds.



4. Compounds that do not contain carbon are called _____.

Carbohydrates

5. A carbohydrate is made of carbon, hydrogen, and _____.

6. Starch is a kind of carbohydrate. What foods have starch?

_____

_____

_____

7. How do cells use carbohydrates?

_____

_____

_____

Lipids

8. What are three examples of lipids?

a. _____ **b.** _____

c. _____

9. How are lipids like carbohydrates?

_____

_____

10. Cells store _____ in lipids to use later.

Proteins

11. _____ form parts of cell membranes and many of the cell's organelles.

12. What small molecules make up proteins? _____

13. What do enzymes do?

_____

Nucleic Acids

14. Very long organic molecules that contain instructions that cells need to function are called _____.

15. Is the following sentence true or false? Cells use the instructions in nucleic acids to carry out all life functions. _____

16. List the two kinds of nucleic acids.

a. _____ **b.** _____

Water and Living Things

17. List four ways that cells use water.

a. _____

_____

b. _____

_____

c. _____

_____

d. _____

_____

Section 1.3 CHEMICAL COMPOUNDS IN CELLS

ELEMENTS:

EXAMPLES:

ATOM:

COMPOUNDS:

EXAMPLES:

MOLECULE:

INORGANIC COMPOUND –

EXAMPLE:

ORGANIC COMPOUND-

EXAMPLE:

<table>
<tr><td>CARBOHYDRATES:</td><td colspan="2">LIPIDS:</td></tr>
<tr><td>EXAMPLES-</td><td colspan="2">EXAMPLES-</td></tr>
<tr><td>USED BY CELL:</td><td colspan="2">USED BY CELL:</td></tr>
<tr><td>PROTEINS:</td><td colspan="2">NUCLEIC ACIDS:</td></tr>
<tr><td>EXAMPLES-</td><td colspan="2">EXAMPLES-</td></tr>
<tr><td>AMINO ACIDS:</td><td colspan="2">USED BY CELL:</td></tr>
<tr><td rowspan="2">USED BY CELL</td><td>DNA</td><td>RNA</td></tr>
<tr><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td></td></tr>
</table>

WATER AND LIVING THINGS:

IMPORTANCE OF WATER TO CELLS:

Most chemical reactions within cells could not take place without water.

Name _____ Date _____ Class _____

Chemical Compounds in Cells

Understanding Main Ideas

Fill in the blanks in the table below.

Organic Compounds		
Type of Compound	**Example**	**Major Roles in Living Things**
Carbohydrates	**1.** _____	Help form cell walls and membranes; provide energy
2. _____	Fats	Help form cell membranes; **3.** _____
4. _____	Enzymes	Help form cell membranes and organelles; speed up chemical reactions
5. _____	DNA	Direct all the cell's functions; **6.** _____

Building Vocabulary

Match each term with its definition by writing the letter of the correct definition in the blank beside the term.

____ **7.** element
____ **8.** compound
____ **9.** carbohydrate
____ **10.** proteins
____ **11.** amino acids
____ **12.** enzyme
____ **13.** lipid
____ **14.** nucleic acids
____ **15.** DNA
____ **16.** RNA

a. type of nucleic acid that plays an important role in the production of proteins
b. type of nucleic acid that passes from parent to offspring and directs all the cell's functions
c. very large organic molecules made of carbon, oxygen, hydrogen, nitrogen, and phosphorus
d. large organic molecules made of carbon, hydrogen, oxygen, nitrogen, and, in some cases, sulfur
e. small molecules that make up proteins
f. the chemical combination of two or more elements
g. type of protein that speeds up chemical reactions in living things
h. any substance that cannot be broken down into simpler substances
i. an energy-rich organic compound such as sugar
j. an energy-rich organic compound such as fat