

SECTION 3-2 REVIEW**CARBON COMPOUNDS**

VOCABULARY REVIEW Define the following terms and provide one example for each.

1. organic compound _____

2. functional group _____

3. alcohol _____

4. monomer _____

5. polymer _____

MULTIPLE CHOICE Write the correct letter in the blank.

- _____ 1. Organic compounds contain
a. carbon and usually other elements. c. only carbon.
b. many kinds of elements except carbon. d. only carbon and hydrogen.
- _____ 2. The number of covalent bonds a carbon atom can form with other atoms is
a. 1. b. 2. c. 4. d. 8.
- _____ 3. A covalent bond formed when two atoms share two pairs of electrons is called a
a. single bond. b. double bond. c. triple bond. d. quadruple bond.
- _____ 4. The breakdown of a polymer involves
a. hydrolysis. c. the breaking of hydrogen bonds.
b. a condensation reaction. d. the breaking of ionic bonds.
- _____ 5. ATP releases energy when
a. it undergoes a condensation reaction. c. a phosphate group is added to it.
b. a hydroxyl group is added to it. d. a phosphate group is removed from it.

SHORT ANSWER Answer the questions in the space provided.

1. Give an example of how a functional group can affect the properties of an organic compound.

2. Arrange the following in order of size, from smallest to largest: polymer, monomer, carbon atom, macromolecule. _____

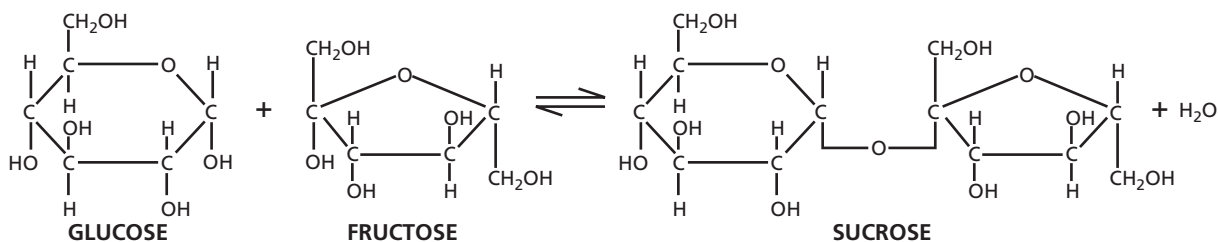
3. Explain how a water molecule is produced when glucose and fructose undergo a condensation reaction. _____

4. What are the products of the hydrolysis of ATP? What else is released during this reaction?

5. **Critical Thinking** How would the variety of organic compounds be different if carbon had seven electrons in its outermost energy level instead of four? _____

STRUCTURES AND FUNCTIONS Use the figure to answer the following questions.

The formation of sucrose from glucose and fructose is represented by the chemical reaction shown below. Notice that this reaction can proceed in either direction.



1. What are the reactants and products of the forward (left-to-right) reaction? _____
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2. Is the forward reaction a condensation reaction or hydrolysis? _____
3. What are the reactants and products of the reverse (right-to-left) reaction? _____
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4. Is the reverse reaction a condensation reaction or hydrolysis? _____