

SECTION
2.4CHEMICAL REACTIONS
Section Quiz

Choose the letter of the best answer.

- _____ 1. Chemical reactions change substances into different substances by
- conserving matter between the substances.
 - breaking and forming chemical bonds
 - strengthening electrical charges of substances.
 - changing a solvent into a solute.
- _____ 2. Identify the reactants in the following chemical reaction: $6\text{H}_2\text{O} + 6\text{CO}_2 \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$
- $6\text{H}_2\text{O}$ and 6CO_2
 - 6CO_2 and $\text{C}_6\text{H}_{12}\text{O}_6$
 - $6\text{H}_2\text{O}$, $\text{C}_6\text{H}_{12}\text{O}_6$, and 6O_2
 - $\text{C}_6\text{H}_{12}\text{O}_2$ and 6O_6
- _____ 3. The double arrows tell you that the following reaction $\text{CO}_2 + \text{H}_2\text{O} \rightleftharpoons \text{CO}_2\text{CO}_3$
- takes place very rapidly.
 - is very unstable.
 - occurs in both directions.
 - has high bond energies.
- _____ 4. What is the term for the amount of energy that needs to be added for a chemical reaction to start?
- chemical energy
 - activation energy
 - bond energy
 - reactant energy
- _____ 5. Which phrase best describes an exothermic chemical reaction?
- does not absorb any energy
 - forms products with higher bond energy than reactants
 - is in a state of equilibrium
 - releases more energy than it absorbs

Study Guide A continued

MAIN IDEA: Chemical reactions release or absorb energy.

Choose whether the statement is true or false.

6. *true / false* Not all chemical reactions involve changes in energy.
7. *true / false* Activation energy is required for a chemical reaction to start.
8. *true / false* Some chemical reactions release more energy than they absorb, while others absorb more energy than they release.
9. *true / false* Chemical reactions can occur whether or not energy is added to the reactants.
10. *true / false* An exothermic chemical reaction absorbs more energy than it releases.

Vocabulary Check

Draw lines to connect the words or phrases that mean the same thing.

- | | |
|--------------------------|---|
| 11. endothermic reaction | substances changed during a chemical reaction |
| 12. exothermic reaction | substances made by a chemical reaction |
| 13. activation energy | chemical reaction that releases more energy than it absorbs |
| 14. reactants | chemical reaction that absorbs more energy than it releases |
| 15. products | amount of energy that needs to be absorbed for a chemical reaction to start |
| 16. equilibrium | amount of energy that will break a bond between two atoms |
| 17. bond energy | state reached when reactants and products are made at the same rate |