

**Chemical Reactions** ▪ *Reading/Notetaking Guide***Controlling Chemical Reactions** (pp. 234–239)

*This section explains what all chemical reactions require to get started. It also describes how the rates of chemical reactions can be controlled.*

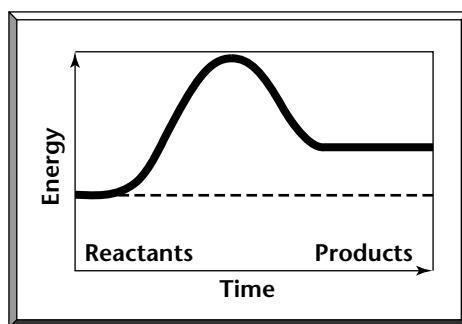
**Use Target Reading Skills**

*Fill in the graphic organizer as you read. Under “Notes,” write key ideas, using phrases and abbreviations. Include a few important details. Under “Recall Clues and Questions,” write study questions that your notes help you answer.*

Controlling Chemical Reactions	
Recall Clues and Questions	Notes

**Chemical Reactions** ▪ *Reading/Notetaking Guide***Energy and Reactions** (pp. 235–236)

1. The \_\_\_\_\_ is the minimum amount of energy needed to start a chemical reaction.
2. Is the following sentence true or false? All chemical reactions need a certain amount of activation energy to get started.  
\_\_\_\_\_
3. In a reaction that makes water from hydrogen gas and oxygen gas, where does the activation energy come from?  
\_\_\_\_\_  
\_\_\_\_\_
4. A reaction that releases energy is called a(n) \_\_\_\_\_.
5. A reaction that absorbs energy is called a(n) \_\_\_\_\_.
6. Why does an exothermic reaction need activation energy?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
7. On the graph below, how does the energy of the products compare with the energy of the reactants?  
\_\_\_\_\_  
\_\_\_\_\_



8. Label the graph above as either an exothermic or endothermic reaction.
9. What part of the graph in question 7 represents the activation energy for the reaction?  
\_\_\_\_\_  
\_\_\_\_\_

**Chemical Reactions** ▪ *Reading/Notetaking Guide***Controlling Chemical Reactions** *(continued)***Rates of Chemical Reactions** (pp. 237–239)

10. What are five factors that affect the rate of a chemical reaction?

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11. Why does surface area of a reactant influence the rate of the reaction?

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12. In what way is temperature related to chemical reaction rates?

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13. Circle the letter of each of the following that would increase the rate of a reaction.

- |                               |                               |
|-------------------------------|-------------------------------|
| a. Add heat.                  | b. Decrease the surface area. |
| c. Increase the surface area. | d. Reduce heat.               |

14. The amount of substance in a given volume is called

\_\_\_\_\_.

15. To increase the rate of a reaction, why would you increase the concentration of the reactants?

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16. Is the following sentence true or false? Another way to control the rate of a reaction is to change the activation energy needed.

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17. What is a catalyst?

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18. Is the following sentence true or false? Catalysts are always permanently changed in a reaction. \_\_\_\_\_

19. A biological catalyst is called a(n) \_\_\_\_\_.

**Chemical Reactions** ▪ *Reading/Notetaking Guide*

20. Why must living things rely on thousands of catalysts for chemical reactions necessary for life?

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21. What is an inhibitor?

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22. How do most inhibitors work?

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