

## CHAPTER 16 STUDY GUIDE

# Reaction Rates

### Section 16.1 A Model for Reaction Rates

In your textbook, read about expressing reaction rates and explaining reactions and their rates.

Use each of the terms below just once to complete the passage.

collision theory	activated complex	mol/(L·s)
activation energy	reaction rate	

According to the **(1)** \_\_\_\_\_, atoms, ions, and molecules must collide in order to react. Once formed, the **(2)** \_\_\_\_\_ is a temporary, unstable arrangement of atoms that may then form products or may break apart to reform the reactants. Every chemical reaction requires energy, and the minimum amount of energy that reacting particles must have to form the activated complex is the **(3)** \_\_\_\_\_. In a chemical reaction, the **(4)** \_\_\_\_\_ is the change in concentration of a reactant or product per unit time. It may be expressed using the units of **(5)** \_\_\_\_\_.

Use the energy diagram for the rearrangement reaction of methyl isonitrile to acetonitrile to answer the following questions.

6. What kind of reaction is represented by this diagram, endothermic or exothermic?  
\_\_\_\_\_
7. What is the chemical structure identified at the top of the curve on the diagram?  
\_\_\_\_\_
8. What does the symbol  $E_a$  represent?  
\_\_\_\_\_
9. What does the symbol  $\Delta E$  represent?  
\_\_\_\_\_

