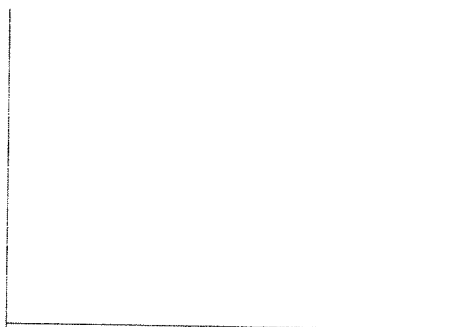


Name \_\_\_\_\_ Date \_\_\_\_\_ Period \_\_\_\_\_

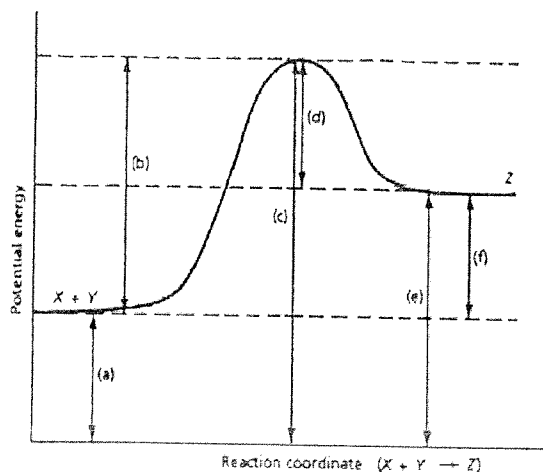
### Energy Ws #1: Reaction Rates

1. Chemical reactions occur when reactants collide. For what reasons may a collision fail to produce a chemical reaction?
2. If every collision between reactants lead to a reaction, what determines the rate at which the reaction occurs?
3. What is the activation energy of a reaction, and how is this energy related to the activated complex of the reaction?
4. What happens when a catalyst is used in a reaction?
5. Name 4 things that will speed up or slow down a chemical reaction.
6. Draw an energy diagram for a reaction. (label the axis)  
Potential energy of reactants = 350 KJ/mole  
Activation energy = 100 KJ/mole  
Potential energy of products = 250 KJ/mole

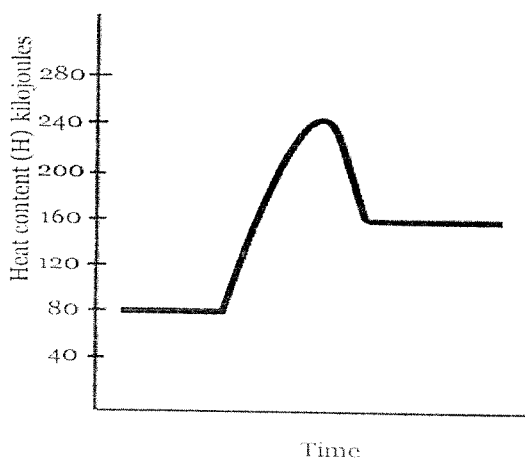


7. Is the reaction in # 6 exothermic or endothermic? Explain.
8. How could you lower the activation energy for the reaction in #6?

## Potential Energy Diagram Worksheet



1. Which of the letters a–f in the diagram represents the potential energy of the products? \_\_\_\_\_
2. Which letter indicates the potential energy of the activated complex? \_\_\_\_\_
3. Which letter indicates the potential energy of the reactants? \_\_\_\_\_
4. Which letter indicates the activation energy? \_\_\_\_\_
5. Which letter indicates the heat of reaction? \_\_\_\_\_
6. Is the reaction exothermic or endothermic? \_\_\_\_\_
7. Which letter indicates the activation energy of the reverse reaction? \_\_\_\_\_
8. Which letter indicates the heat of reaction of the reverse reaction? \_\_\_\_\_
9. Is the reverse reaction exothermic or endothermic? \_\_\_\_\_



1. The heat content of the reactants of the forward reaction is about \_\_\_\_\_ kilojoules.
2. The heat content of the products of the forward reaction is about \_\_\_\_\_ kilojoules.
3. The heat content of the activated complex of the forward reaction is about \_\_\_\_\_ kilojoules.
4. The activation energy of the forward reaction is about \_\_\_\_\_ kilojoules.
5. The heat of reaction ( $\Delta H$ ) of the forward reaction is about \_\_\_\_\_ kilojoules.
6. The forward reaction is \_\_\_\_\_ (endothermic or exothermic).
7. The heat content of the reactants of the reverse reaction is about \_\_\_\_\_ kilojoules.
8. The heat content of the products of the reverse reaction is about \_\_\_\_\_ kilojoules.
9. The heat content of the activated complex of the reverse reaction is about \_\_\_\_\_ kilojoules.
10. The activation energy of the reverse reaction is about \_\_\_\_\_ kilojoules.
11. The heat of reaction ( $\Delta H$ ) of the reverse reaction is about \_\_\_\_\_ kilojoules.
12. The reverse reaction is \_\_\_\_\_ (endothermic or exothermic).