

Station 1 – LT 8.1 and 8.2

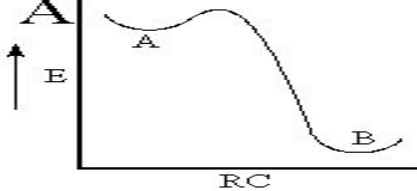
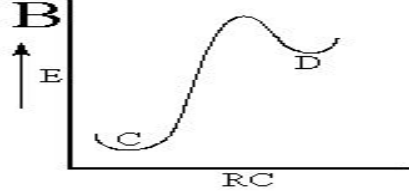
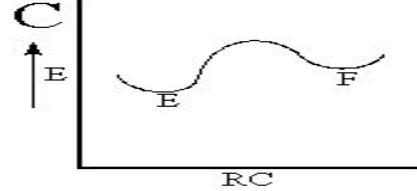
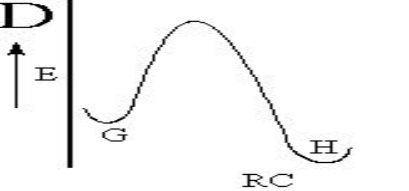
Lesson	8.2
Questions	<ol style="list-style-type: none">1. Define a rate of a chemical reaction. Make sure to use the ideas of rate of products and reactants in your definition.2. What does collision theory state?3. The rate of the reaction $\text{H}_2 + \text{Cl}_2 \rightarrow 2\text{HCl}$can be described as the decrease of _____ with time.4. If you increase the concentration of the reactants, then how does the rate of the reaction change?5. Station 1 Taste Test

Station 2 – LT 8.3

Lesson	8.1
Questions	<ol style="list-style-type: none">1. Why does increasing the concentration increase the rate of the reaction?2. Why does decreasing the temperature slow the rate of the reaction?3. Why does increasing the pressure increase the rate of the reaction?4. Station 2 Taste Test

Station 3 – LT 8.4 and LT 8.5

Lesson	8.2
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<p>Questions</p>	<p>1. Draw a reaction coordinate for a chemical reaction. Indicate the products, reactants, and activation energy on your reaction coordinate.</p> <p>2. What is the activation energy for a chemical reaction and how is it related the rate of a reaction?</p> <p>3. Which reaction has the lowest activation energy?</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p>A</p>  <p>RC</p> </div> <div style="text-align: center;"> <p>B</p>  <p>RC</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 20px;"> <div style="text-align: center;"> <p>C</p>  <p>RC</p> </div> <div style="text-align: center;"> <p>D</p>  <p>RC</p> </div> </div> <p>4. What is a catalyst? How is it related to the activation energy for a chemical reaction? On the reaction coordinate for question #1, indicate how a catalyst would change how the reaction coordinate that you drew.</p> <p>5. Station 3 Taste Test</p>
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Station 4 – LT 8.6

<p>Lesson</p>	<p>8.3</p>
<p>Questions</p>	<p>1. When something is at equilibrium, what does that mean in regards to the rate of the forward</p>

	<p>and reverse reactions?</p> <p>2. Why did the paper fight explain the idea of dynamic equilibrium?</p> <p>3. Does the reaction stop once equilibrium is achieved? JUSTIFY your answer.</p> <p>4. Which of the following is true of a reaction at equilibrium:</p> <p style="padding-left: 40px;">A. the forward and reverse reaction occur at the same rate</p> <p style="padding-left: 40px;">B. the concentration of products stays the same</p> <p style="padding-left: 40px;">C. the concentration of the reactants stays the same</p> <p style="padding-left: 40px;">D. all of the above</p> <p>5. Station 4 Taste Test</p>
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Station 5 – LT 8.7

Lesson	8.3
Questions	<p>1. What does Le Chatelier's Principle state?</p> <p>2. For the reaction below, which change would cause the equilibrium to shift to the right?</p> $\text{CH}_4(\text{g}) + 2\text{H}_2\text{S}(\text{g}) \leftrightarrow \text{CS}_2(\text{g}) + 4\text{H}_2(\text{g}) + 5000 \text{ kJ}$ <p>(a) Decrease the concentration of H₂S.</p> <p>(b) Increase the pressure on the system.</p> <p>(c) Increase the temperature of the system.</p>

	<p>(d) Increase the concentration of CS₂.</p> <p>(e) Decrease the concentration of CH₄.</p> <p>3. What would happen to the position of the equilibrium when the following changes are made to the equilibrium system below?</p> $2\text{SO}_3(\text{g}) \leftrightarrow 2\text{SO}_2(\text{g}) + \text{O}_2(\text{g})$ <p>(a) SO₂ is added to the system.</p> <p>(b) SO₃ is removed from the system.</p> <p>(c) O₂ is added to the system.</p> <p>4. Station 5 Taste Test</p>
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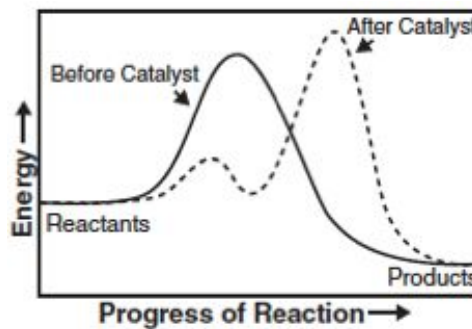
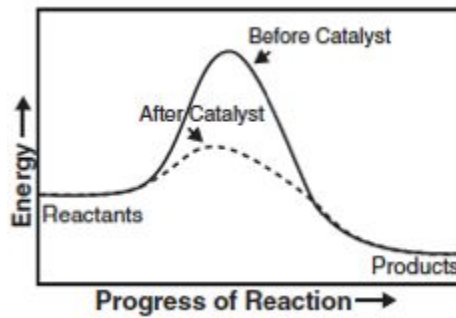
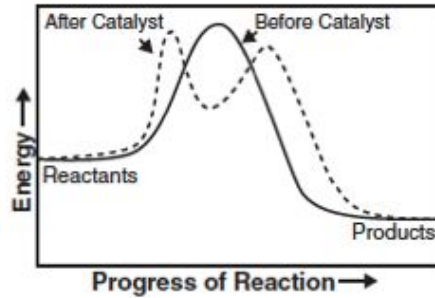
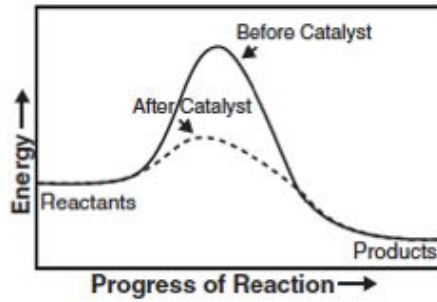
Station 6 – LT 8.7

	<p>Lesson 8.3</p>
Questions	<p>1. What would happen to the position of the equilibrium when the following changes are made to the reaction below?</p> $2\text{HgO}(\text{s}) \leftrightarrow \text{Hg}(\text{l}) + \text{O}_2(\text{g})$ <p>(a) HgO is added to the system.</p> <p>(b) The pressure on the system increases.</p> <p>2. Predict the effect of decreasing the volume of the container for each equilibrium below</p> <p>(a) $2\text{H}_2\text{O}(\text{g}) + \text{N}_2(\text{g}) \leftrightarrow 2\text{H}_2(\text{g}) + 2\text{NO}(\text{g})$</p> <p>(b) $\text{SiO}_2(\text{s}) + 4\text{HF}(\text{g}) \leftrightarrow \text{SiF}_4(\text{g}) + 2\text{H}_2\text{O}(\text{g})$</p>

	<p>(c) $\text{CO(g)} + \text{H}_2\text{(g)} \leftrightarrow \text{C(s)} + \text{H}_2\text{O(g)}$ Predict the effect of decreasing the temperature on the position of the following equilibria.</p> <p>(a) $\text{H}_2\text{(g)} + \text{Cl}_2\text{(g)} \leftrightarrow 2\text{HCl(g)} + 49.7 \text{ kJ}$ (b) $2\text{NH}_3\text{(g)} + 37.2 \text{ kJ} \leftrightarrow \text{N}_2\text{(g)} + 3\text{H}_2\text{(g)}$ (c) $\text{CO(g)} + \text{H}_2\text{O(g)} \leftrightarrow \text{CO}_2\text{(g)} + \text{H}_2\text{(g)} + 27.2 \text{ kJ}$</p> <p>3. Station 6 Taste Test</p>
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Final Station – Essential Content

Lesson	All of Unit 8
Questions	<p>1. A student observed that the rate of a chemical reaction increased as the temperature of the system increased. Which of the following statements best explains why thermal energy caused an increase in the reaction rate?</p> <ol style="list-style-type: none"> The surface area of the product particles decreased. The collision rate of the reactant particles increased. The concentrations of the reactant particles increased. The concentrations of the product particles decreased. <p style="text-align: center;">$\text{Fe (s)} + \text{CuCl}_2\text{(aq)} \rightarrow \text{FeCl}_2\text{(aq)} + \text{Cu (s)}$</p> <p>2. A student adds iron filings to a copper(II) chloride solution at room temperature. A balanced equation for the reaction that occurs is shown above. Which of the following changes would most likely increase the reaction rate?</p> <ol style="list-style-type: none"> using larger pieces of iron performing the reaction in an ice bath decreasing the volume of the CuCl_2 solution increasing the concentration of the CuCl_2 solution <p>3. Which reaction diagram shows the effect of using the appropriate catalyst in a chemical reaction?</p> <ol style="list-style-type: none">



4. In an experiment, a student mixes two compounds, X and Y, which react to give off energy and form compound Z, as shown in the equilibrium equation below. After the reaction reaches equilibrium, which of the following changes would shift the equilibrium to the left?

- a. adding more compound X to the equilibrium
- b. adding more compound Y to the equilibrium
- c. increasing the temperature of the equilibrium
- d. decreasing the temperature of the equilibrium



5. The equation below shows the reaction of chloroform (CHCl_3) with hydrogen (H_2) to produce methane (CH_4) and chlorine (Cl_2). Which of the following changes will shift the equilibrium to the right, producing more methane?
- a. raising the temperature of the reaction
 - b. lowering the concentration of hydrogen
 - c. increasing the total pressure of the gases
 - d. increasing the volume of the reaction vessel
6. When a reaction is at equilibrium and more reactant is added, which of the following changes is the immediate result?
- a. The reverse reaction rate remains the same.
 - b. The forward reaction rate increases.
 - c. The reverse reaction rate decreases.
 - d. The forward reaction rate remains the same.



7. An equation for an equilibrium reaction is shown above. Which of the following changes in reaction conditions will **not** shift the equilibrium of the system?
- a. an increase in the pressure
 - b. an increase in the temperature
 - c. a decrease in the SO_3 concentration
 - d. a decrease in the NO_2 concentration