

Name _____ Date _____ Period _____

Le Chatelier's Principle Simulation

STEP ONE: Analyze the four experiments below and predict the color change that would occur for each of the manipulations listed.

Experiment 1: Click on the cobalt system.

Original color BEFORE the reaction: **PURPLE**

Reaction with the colors of the reactants and products:



Note	Manipulated Change	Predict the Color Change	Observation (color change)	Reaction shifts to the Right OR shifts to the Left ?	Reactant or Product favored?
-----	<i>Heating</i>				
-----	<i>Cooling</i>				
<i>KCl is really K⁺ and Cl⁻ ions</i>	<i>Adding KCl solution</i>				
-----	<i>Adding Water</i>				
<i>AgNO₃ is really Ag⁺ and NO₃⁻ ions. The Ag⁺ ions react with the Cl⁻ ions to form a ppt</i>	<i>Adding AgNO₃ solution</i>				

Explain why the reaction shifts when increasing the temperature of the reaction:

Experiment 2: Click on the [chromate system](#).

Original color BEFORE the reaction: **ORANGE**

Reaction with the colors of the reactants and products:



Note	Manipulated Change	Predict the color change	Observation (color change)	Reaction shifts to the Right OR shifts to the Left ?	Reactant or Product favored?
<i>HCl is really H⁺ and Cl⁻ ions</i>	<i>Adding HCl solution</i>				
<i>H⁺ ions react with the OH⁻ ions to form water</i>	<i>Adding NaOH solution</i>				

Explain why the reaction shifts when adding HCl to the reaction:

Experiment 3: Click on the [nitrogen dioxide system](#).

Original color BEFORE the reaction: **YELLOWISH BROWN**

Reaction with the colors of the reactants and products:



Note	Manipulated Change	Predict the Color Change	Observation (color change)	Reaction shifts to the Right OR shifts to the Left ?	Reactant or Product favored?
-----	<i>Heating</i>				
-----	<i>Cooling</i>				

Explain why the reaction shifts when lowering the temperature of the reaction:

Experiment 4: Click on the [iron thiocyanate system](#).

Original color BEFORE the reaction: **ORANGE**

Reaction with the colors of the reactants and products:



Note	Manipulated Change	Predict the Color Change	Observation (color change)	Reaction shifts to the Right OR shifts to the Left ?	Reactant or Product favored?
-----	Heating				
KSCN is really K ⁺ and SCN ⁻ ions	Adding KSCN solution				
Fe(NO ₃) ₃ is really Fe ³⁺ and NO ₃ ⁻ ions	Adding Fe(NO ₃) ₃ solution				

Explain why the reaction shifts when adding the iron (III) nitrate to the reaction:

STEP TWO: AFTER COMPLETING STEP ONE... Click on the link below and you will be brought to a page with six experiments. You will only be observing the four experiments you used for your predictions in step one.

CLICK HERE FOR SIMULATION

To perform the listed manipulation change, use the icons to the left and right of the test tube photograph.

NOTE: The original photograph that appears once you open the simulation is the color of the reaction **before** you have added the stressor/ manipulation. For each listed manipulation, consider the color changes that you observed, determine if the reaction shifted right (product favored) or shifted left (reactant favored).