Revised August 2012

HONORS LAB 11b: Le Chatelier's Principle Simulation I

Use the following URL to answer the questions that follow;

http://bit.ly/x1CoHc

Experiment 1:

Click on the cobalt system. You will be shown a chemical equilibrium reaction at the top of the page and a photograph of a purple solution surrounded by icons. Clicking on each icon in turn will show a pair of photographs. The first one is a photograph of the solution as it was BEFORE action indicated by the click, the second photograph is the change in solution as a RESULT of the action indicated by the click. Answer the questions below;

(i) Why is the solution purple at the beginning?

(ii) For each action, consider the changes that are observed and explain why they took place;

	Observation (change)	**Explanation**
Heating		
Cooling		
Adding KCl solution		
Adding water		
Adding $AgNO_3$ solution		

Experiment 2:

Click on the chromate system. You will be shown a chemical equilibrium reaction at the top of the page and a photograph of an orange solution surrounded by icons. Clicking on each icon in turn will show a pair of photographs. The first one is a photograph of the solution as it was BEFORE action indicated by the click, the second photograph is the change in solution as a RESULT of the action indicated by the click. Answer the questions below;

(iii) Why is the solution orange at the beginning?

(iv) For each action, consider the changes that are observed and explain why they took place;

	Observation (change)	**Explanation**
Adding HCl		
Adding NaOH		

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Experiment 3:

Click on the nitrogen dioxide system. You will be shown a chemical equilibrium reaction at the top of the page and a photograph of a pale brown gas surrounded by icons. Clicking on each icon in turn will show a pair of photographs. The first one is a photograph of the solution as it was BEFORE action indicated by the click, the second photograph is the change in solution as a RESULT of the action indicated by the click. Answer the questions below;

(v) Why is the gas pale brown at the beginning?

(vi) For each action, consider the changes that are observed and explain why they took place;

	Observation (change)	Explanation
Heating		
Cooling		

Experiment 4:

Click on the iron thiocyanate system. You will be shown a chemical equilibrium reaction at the top of the page and a photograph of a pale orange solution surrounded by icons. Clicking on each icon in turn will show a pair of photographs. The first one is a photograph of the solution as it was BEFORE action indicated by the click, the second photograph is the change in solution as a RESULT of the action indicated by the click. Answer the questions below;

(vii) Why is the solution pale orange at the beginning?

(viii) For each action, consider the changes that are observed and explain why they took place;

	Observation (change)	Explanation
Heating		
Adding KSCN solution		
Adding Na_2HPO_4 solution		
Adding $Fe(NO_3)_3$ solution		