**Chem 12: Lab 2B – Effect of Temperature on Equilibrium Systems**

*This activity does not require a formal lab report.*

**Question: *Is the reaction below endothermic or exothermic?***

**Procedure:** This is a teacher demonstration.   
For the full procedure, see *Essential Experiments for Chemistry*: p.165 (Part 3)

Reaction: Co(H2O)6+2 (aq) + 4Cl- (aq)  CoCl4-2(aq)  + 6 H2O (aq)

*Pink Blue*

**Data/Observations:**

|  |  |  |  |
| --- | --- | --- | --- |
| *Procedure* | *Stress* | *Colour observation* | *Eq’m is leaning…* |
| Control  (CoCl2 in water) | none |  | None |
| CoCl2 with 10mL 6M HCl |  |  |  |
| Previous plus heat (in fume hood) |  |  |  |
| Previous plus cold |  |  |  |

Analysis/Conclusion:

* Make a **claim**. (Answer the lab question. Then, re-write the reaction with energy on either the reactants or products side)
* Support your claim with **evidence**. What did you see?
* **Reasoning**: WHY does the shift you observed tell you if the reaction was exo or endo?   
   Explain Le Chatelier’s Principle (for temperature shifts) by connecting to collision   
   theory and forward/reverse rates.