Unit 9: Ch 18 – LeChatelier's Principle

FACTORS AFFECTING EQUILIBRIUM (EQ):

- _____ changes in _____, _____, or _____ will cause the *EQ* to _____.

- **LECHATELIER'S PRINCIPLE:**
  - Therefore, the _____ *(reaction)* responds to _____ the _____ and return to _____.
    - **WHY?** → Keep _____ ***CONSTANT***

- **1. CONCENTRATION:**
  - **$H_2CO_{3\,(aq)}$ <--> $CO_{2\,(aq)}$ + $H_2O_{\,(l)}$**
    - _____ concentration of _____ → EQ shifts _____
    - _____ concentration of _____ → EQ shifts _____
  - **NOTE:** EQ constant *(K)* value _____ change in _____ EQ shift

- **2. PRESSURE:**
  - _____ in *pressure* _____ affects _____ *reactants* and *products*.
  - **$N_{2\,(g)}$ + 3 $H_{2\,(g)}$ <--> 2 $NH_{3\,(g)}$**
    - _____ pressure: *EQ* shifts to the side with _____ moles of _____ and vice versa.
    - *Increase* pressure: *EQ* shifts → _____
  - **NOTE:** EQ constant *(K)* value _____ change in _____ EQ shift.

- **3. TEMPERATURE:**
  - **$6\ CO_{2\ (g)} + H_2O_{\ (l)} + Heat \ <--> \ C_6H_{12}O_{6\ (aq)} + 6\ O_{2\ (g)}$**
    - _____thermic = _____ heat (_____ side)
      - _____ temperature = *EQ* shifts → _____
  - **$2\ SO_{2\ (g)} + O_{2\ (g)} <--> 2\ SO_{3\ (g)} +$ *Energy***
    - _____thermic = _____ heat (_____ side)
      - _____ temperature = *EQ* shifts → _____
  - **NOTE:** *EQ* constant *(K)* _____ during _____ *EQ* shift _____.
    - _____thermic = _____ temp → *EQ* constant *(K)* _____
    - _____thermic = _____ temp → *EQ* constant *(K)* _____

PUTTING IT ALL TOGETHER:

$$N_{2\ (g)} + 3\ H_{2\ (g)} <--> 2\ NH_{3\ (g)} + Heat$$

Stress Type	EQ Shift	$[N_2]$	$[H_2]$	$[NH_3]$	EQ Constant *(K)*
Add N_2					
Remove H_2					
↓ Temperature					
↑ Pressure					