FLINN SCIENTIFIC

Name_____

Equilibrium in a Syringe Student Worksheet

$$2CO_2(g) + H_2O(l) \rightleftharpoons CO_2(aq) + H^+(aq) + HCO_3^-(aq) \qquad \textit{Equation 1}$$

Color Chart for Bromcresol Green

Color	pH	$[H^+]$, M	Color	pH	$[H^+]$
Yellow	3.8	16×10^{-5}	Dark green	4.6	2.5×10^{-5}
Yellow-green	4.0	10×10^{-5}	Blue-green	4.8	1.6×10^{-5}
Light green	4.2	6.0×10^{-5}	Blue	5.0	1.0×10^{-5}
Green	4.4	4.0×10^{-5}	Blue	5.2	0.6×10^{-5}

Data Tables

Part A. Effect of Pressure

Step #	Volume of Liquid Plus Gas	Indicator color	pH
2 & 3			
6			
10			
13			

Part A. Discussion Questions

1. What effect does decreasing the pressure have on the solubility of carbon dioxide gas and on the position of equilibrium for Equation 1?

2. What effect does increasing the pressure have on the solubility of carbon dioxide gas and on the position of equilibrium for Equation 1?

3. Explain the results in terms of LeChâtelier's Principle.

Equilibrium in a Syringe Student Worksheet, cont.

Part B. Effect of Pressure

Step #	Volume of Liquid Plus Gas	Indicator color	pH	Temp °C
17				
20				
23				

Part B. Discussion Questions

4. What effect does increasing the temperature have on the solubility of carbon dioxide gas and on the position of equilibrium for Equation 1?

5. What effect does decreasing the temperature have on the solubility of carbon dioxide gas and on the position of equilibrium for Equation 1?

6. Explain the results in terms of LeChatelier's Principle.