Name_____ Period _____ Date _____

Bacteria Miner

STEM Sims

Lesson 2: Buffered Solutions

How do buffered solutions affect pH compared to non-buffered solutions? Find out by testing the pH of bacteria in broth!

Doing the Science

1. Start the Bacteria Miner Simulation by clicking on the "Sim" tab.
2. Click on the "Bacteria Miner" button.
3. Click on the beaker labeled "Broth" to add broth to both the Buffered and Non-Buffered test tubes.
4. Click and drag the pH meter over to the Buffered test tube and release it when the test tube turns red.
5. Record the pH in the "Start" row of Table 1 below.
6. Repeat steps 4-5, testing the Non-Buffered solution instead of the Buffered solution.
7. Click on the beaker labeled "Bacteria" to add bacteria to the broth solution of both the Buffered and Non-Buffered test tubes.
8. Drag both the Buffered and Non-Buffered test tubes to the incubator.
9. Click on the "Start" button on the incubator to grow the bacteria.
10. Click on the "Run" button.
11. Click and drag the pH meter over to the Buffered test tube and release it when the test tube turns red.
12. Record the pH of the Buffered solution according to the day in Table 1.
13. Repeat steps 11-12, testing the Non-Buffered solution instead of the Buffered solution.
14. Repeat steps 10-13 until the 7^{th} day.

Table 1.

Day	pH of Buffered Solution	pH of Non-Buffered Solution
Start		
1		
2		
3		
4		
5		
6		
7		

Do You Understand?

1. What happened to the pH of the Non-Buffered solution compared to the Buffered solution? Why?

2. If there was a change in the pH of either solution, did the solution become more acidic or basic?