Names:

Human Respiration and pH

Working in a group of four, perform the following experiment and write it up on a computer. There will be one lab write-up for each pair of students, so put both of your names above.

**Problem:** What effects will a swimmer have on the pH of his/her environment? (assume he/she is doing the “crawl”)

**Background Information**

Humans are warm-blooded members of the Class Mammalia that breathe by removing oxygen from the air in which they live and giving off CO2 through their mouth. This process is called **respiration**. The blood that carried the Oxygen is a **“buffered solution”.** The relationship between the oxygen, carbon dioxide, water and blood is an example of how your body maintains homeostasis and as a preview to the Respiration chapter we will study later this semester.

**pH** is a measure of the relative acidity of solutions. The lower the pH, the more **acidic** the solution or the higher the pH, the less acidic the solution. A pH of 7 is considered neutral [not acidic nor **basic**]. pH ranges from 7-14 are basic; while ranges from 0-7 are acidic.

*\*\*\*Honors Anatomy students add 2 paragraphs of more detailed background that you and your partner created here and then…. erase this prompt*

**Hypothesis:** If a human exhales into a small container of water with a recording pH probe, then the pH will decrease / increase / or remain constant {erase two and this prompt), because {complete this thought then erase this prompt}

**EXPERIMENTAL DESIGN**

**Materials**

pH probe, Human, Plastic beaker, distilled water, Straw, graph paper, ruler, colored pencils

**Set-up** -- Record the pH of the water over a 14 minute period, every two minutes

{write you own instructions here}

**RESULTS**

(Add a data table here)

{Add your graph here then delete this prompt}

**Comprehension Questions**

1] As the pH goes from 5.8 to 6.3, what happens to the acidity of the solution?

**Answer:**

2] Seltzer water is regular water with CO2 bubbled through it (pure carbonated water). What would you predict the pH of seltzer water to be: above or below pH 7? Explain:

**Answer:**

3] What do you predict the pH of “Sprite” would be? Why?

**Answer:**

4] What do you predict the pH of baking soda in water to be? Why? Hint: Baking soda water has bicarbonate ions in it.

**Answer:**

5] If you were to continue to blow into the beaker for 24 hours, what would you predict the pH to be when you finished? Explain:

**Answer:**

6] If, after 24 hours in the beaker as in #3, you then bubbled air through the water with an aquarium pump, what would you predict the pH to do? (increase, decrease, remain the same)… Explain:

**Answer:**

**Conclusions**

{Write a conclusion paragraph here making sure that you refer back to your hypothesis and stating whether you were correct or not. Also include any errors your “team” might have made and what you learned from doing this activity. You may also add if you enjoyed the lab or not and why)