**pH Virtual Lab**

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_Period:\_\_\_\_\_\_\_

Go to: **http://www.brainpop.com/games/virtuallabsphscaleandmetercalibration/**

**Part I.**

Introduction: use information provided to complete the pH chart below. Color in the levels.

**pH Scale**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |

2. Fill in the missing pH values for the following substances:

Lemon Juice: pH \_\_\_\_\_\_\_ Vinegar: pH \_\_\_\_\_\_\_ Soft drinks: pH \_\_\_\_\_\_\_ Coffee: pH \_\_\_\_\_\_\_ Milk: pH \_\_\_\_\_\_\_

Saliva: pH \_\_\_\_\_\_ Blood: pH \_\_\_\_\_\_ Egg Whites: pH \_\_\_\_\_\_ Baking Soda: pH \_\_\_\_\_ Milk of Magnesia: pH \_\_\_\_\_

3. Use the indicator paper to test given substances. Match the indicator strips.

4. Why would a food scientist care about food’s acidity? Be very specific.

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5. How do food scientists work to ensure that canned or jarred foods are safe for consumption?

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6. What are salsa’s ingredients and their pH levels?

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7. Why is it necessary to calibrate a pH meter? What is the best method of calibration?

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**Part II.**

Go to: **http://www.glencoe.com/sites/common\_assets/science/virtual\_labs/E22/E22.html**

What is the pH of a solution? What is the method of measuring it?

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Procedure:

1. Open the Table and record the names of the solutions you will test. Predict the pH value of each solution, and record your predictions in the table.
2. Use pH paper to test the first solution. Click and drag the paper into the test tube, then match its color on the scale of pH values. Use the up and down arrows on the pH Value Counter to indicate the pH value of the solution.
3. Use separate strips of pH paper to test each of the other solutions and determine its pH. Use the up and down arrows on the pH Value Counters to indicate the pH values of these solutions. Enter the information in the Table.
4. When all the pH values are entered, click the Check button to evaluate your answers. If the pH value of a solution is incorrect, the pH value is highlighted yellow. Use pH paper to test the solution again. Use the up and down arrows on the pH Value Counter to enter answer. Then click the Check button again.
5. After you have recorded the data in the Table, open the Journal and record your answers below.
6. Click the reset button to test a new set of solutions.

|  |  |  |  |
| --- | --- | --- | --- |
| SOLUTIONS | PREDICTED pH VALUE | ACTUAL pH VALUE | TYPE OF SOLUTION |
| 1. Shampoo
 |  |  |  |
| 1. Lemon juice
 |  |  |  |
| 1. Stomach Acid
 |  |  |  |
| 1. Tomatoes
 |  |  |  |
| 1. Battery Acid
 |  |  |  |
| 1. Sea Water
 |  |  |  |
| 1. Vinegar
 |  |  |  |
| 1. Orange Juice
 |  |  |  |
| 1. Antacid
 |  |  |  |
| 1. Soft drinks
 |  |  |  |
| 1. Oven cleaner
 |  |  |  |
| 1. Pure Water
 |  |  |  |
|  |  |  |  |

**Analysis and Conclusion**

1. What facts did you use to predict the pH values of the solutions? How did your predicted values compare to the actual pH values? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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2. Of the 12 solutions that you tested, which one was the most acidic? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Which one was the most basic? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Which one was the closest to neutral? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Which one was neutral?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Milk of magnesia is sometimes used as a remedy for an “acid stomach”. Would you expect the pH of milk of magnesia to be less than 7, more than 7, or 7? WHY? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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