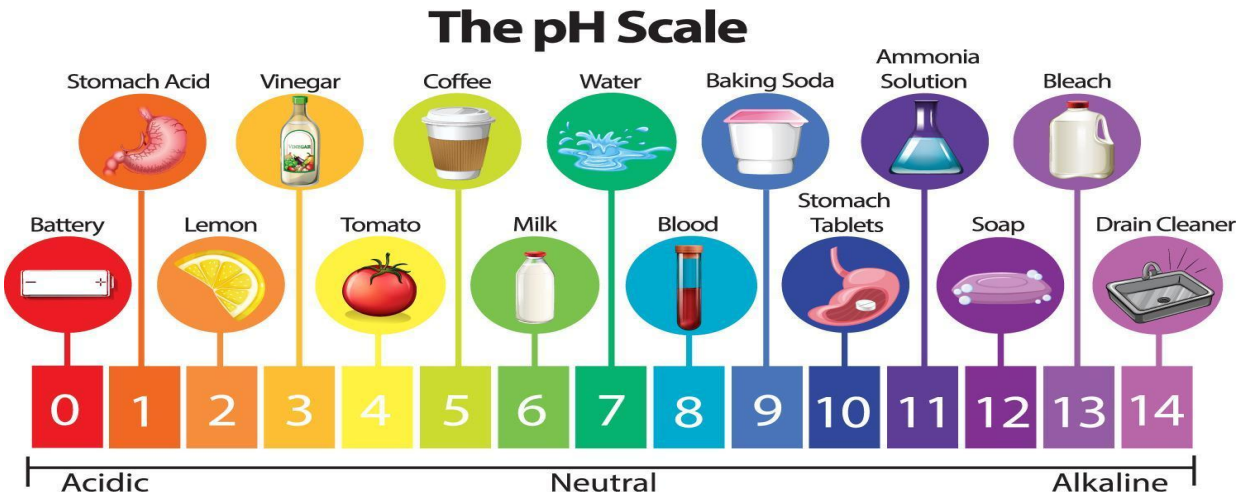
Name:_____ Period:_____ Date:_____
Score:_____

Properties of Water, Acids, and Bases Virtual Lab



I. Introduction:

What is pH and pH level?

The **H** in p**H** represents **Hydrogen**. For the most part, the **p** in **p**H represents the **power of hydrogen.** This is mathematically calculated as follows:

$$\mathrm{pH} = -\log_{10}(a_{\mathrm{H}^+}) = \log_{10}\left(\frac{1}{a_{\mathrm{H}^+}}\right)$$

Basic Rules: 1) pH levels 0-6 is considered an Acid

2) pH level of 7 is neutral or water

3) pH levels of 8-14 is considered a Base

4) pH level is only used to measure aqueous solutions

Why is pH level important?

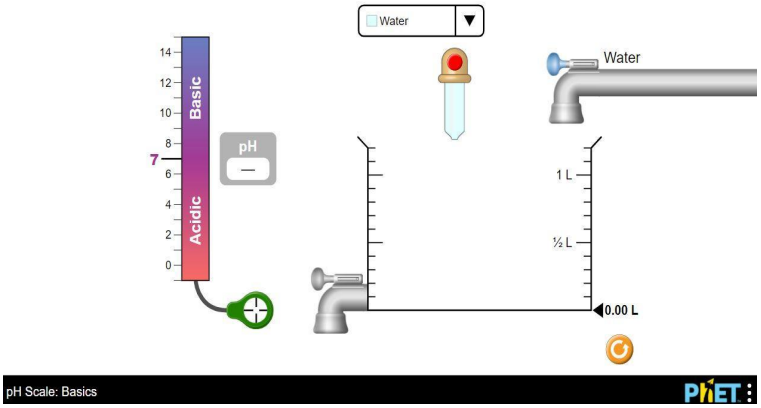
The measurement of pH levels help determine and evaluate the usage and quality of water. Since Earth and living and nonliving organisms rely heavily on water, excessive changes in pH can be harmful in terms of environmental pollution like poor water quality and even acid rain. On a cellular level, pH imbalance can alter or destroy cells.

II. Hypothesis:

"Predict the effect of the aqueous solution's pH level with and without additional water."

III.Virtual Lab Procedures:

1. Access virtual lab website: https://phet.colorado.edu/sims/html/ph-scale-basics/latest/ph-scale-basics_en.html
2. Select and add ½ liter of the testing solution to the beaker
3. Use the ph level detector to identify the starting pH level of the testing solution and record data onto the data table
4. Add ½ liter of water to the testing solution, measure ph level, and record the data onto the data table
5. Drain ½ liter of the aqueous mixture, then add ½ liter of new water to the solution, and test for new pH level and record data
6. Complete data tables A-C



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IV. Use the Virtual lab to complete the following data tables.

A. pH level and us

	Water	Spit	Blood	Vomit
pH level at ½ L				
pH level at 1 (½ solution+ ½ water)				
pH level after ½ L disposal and ½ L of water refilled				
Conclusion: place aquarius solutions in order according to pH Level _____				

B. pH level and food we consume

	Water	Milk	Chicken Soup	Coffee	Orange Juice	Soda
pH level at ½ L						
pH level at 1 L (½ + ½ water)						
pH level after ½ L disposal and ½ L of water refilled						
Conclusion: place aquarius solutions in order according to pH Level _____						

C. pH level and chemicals we use:

	Water	Drain Cleaner	Hand Soap	Battery Acid
pH level at ½ L				
pH level at 1 L (½ + ½ water)				
pH level after ½ L disposal and ½ L of water refilled				
Conclusion: place aquarius solutions in order according to pH Level _____				

V. Lab Report:

Describe your findings and conclusions

_____

_____

_____

_____

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What is the pH level of vegetable oil and alcohol?