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| **Guided Notes: Acids, Bases, and pH** |
| **Warm-Up: Using p. 150-151 in your textbook, answer the following questions.** |
| * **What is pH?**
 | * **What is an acid?**
 |
| * **The pH scale ranges from…**
 | * **What is a base?**
 |
| **Notes** |
| **ph-scaleAcids****pH value:** | * An acid is any substance that increases the number of…
 |
| **Bases****pH value:**  | * A base is any substance which increases the number of…
* A base will also reduce the number of H+ ions in a solution
 |
| **pH Scale** | * Used to measure the degree of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a substance
* Ranges from…
* **pH = 7…**
* **pH < 7...**
* **pH > 7…**
 |
| **phscalepH of Common Substances****You Try…using the pH scale above, classify the following substances as Acids (A), Bases (B), or Neutral (N).**

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| --- | --- | --- |
| **\_\_\_\_\_\_\_\_ Milk (6.5)** | **\_\_\_\_\_\_\_\_ Distilled Water (7)** | **\_\_\_\_\_\_\_\_ Tomatoes (4)** |
| **\_\_\_\_\_\_\_\_ Soda (3)** | **\_\_\_\_\_\_\_\_ Sea Water (8)** | **\_\_\_\_\_\_\_\_Oven Cleaner (14)** |
| **\_\_\_\_\_\_\_\_ Detergent (10)** | **\_\_\_\_\_\_\_\_ Blood (7.4)** | **\_\_\_\_\_\_\_\_ Vinegar (5.6)** |

 |
| **Good to Know…** | * pH is a measure of…
* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ corresponds to a high concentration of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ corresponds to a high concentration of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |
| **More about the pH scale…****Examples…*** **pH 3 is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than pH 4**
* **pH 3 is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than pH 5**
 | * The pH scale is…
* A change of one pH number actually represents a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ change in the concentration of H+ ions
 |
| **DuracalBuffersWhat is a buffer?**  | *

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| **Buffers are important because…****Homeostasis:** | * Accept \_\_\_\_\_\_\_\_\_\_ ions when they are in excess
* Donate H+ ions when they have been \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* Many biological reactions produce acids & bases, therefore the presence of buffers…
* Help maintain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
 |
| **You Try!** |
| **Categorize the words from the Word Bank into the appropriate column.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Word Bank** | **Acid** | **Neutral** | **Base** |
|

|  |  |
| --- | --- |
| **\*Slippery** | **\*Lemons** |
| **\*Bitter** | **\*H+ ions** |
| **\*Dissolves Metal** | **\*pH = 7** |
| **\*Sour** | **\*OH- ions** |
| **\*Soap** | **\*H2O** |
| **\*pH > 7** | **\*pH < 7** |

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|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **What is the most likely pH of a tube of toothpaste?**

|  |  |
| --- | --- |
| 1. 3
 | 1. 5
 |
| 1. 7
 | 1. 9
 |

 | **An extremely strong base would have a pH of?**

|  |  |
| --- | --- |
| 1. 1
 | 1. 7
 |
| 1. 9
 | 1. 14
 |

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| **How is a standard atom of H different from a H ion?**

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| 1. A H ion has an extra electron
 |
| 1. A H ion is missing an electron
 |
| 1. A H ion has an extra proton
 |
| 1. A H ion is missing a proton
 |

 | **Healthy environments for life have a pH closest to?**

|  |
| --- |
| 1. 4
 |
| 1. 7
 |
| 1. 9
 |
| 1. 13
 |

 |
| **What might happen if you mixed a strong acid with an equally strong base?**

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| 1. An explosive chemical reaction would result
 |
| 1. The acid would destroy the base
 |
| 1. The base would destroy the acid
 |
| 1. A pH-neutral substance would form
 |

 | **What might happen if buffers did not exist in the human body?**

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| 1. Our bodily fluids would become too acidic/basic
 |
| 1. Our stomach acid would not be able to break down food
 |
| 1. Our cells would be unable to process glucose
2. We would not be able to inhale oxygen into our lungs
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