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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).**   |  |  |  | | --- | --- | --- | | **\_\_\_\_\_\_\_\_ 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?** |  |
| **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** | |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | **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 | | | **How is a standard atom of H different from a H ion?**   |  | | --- | | 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?**   |  | | --- | | 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?**   |  | | --- | | 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 | | | |