Acids and Bases

The Automatic Professor Teaches you about:



Instructions: Fill in the notes while you watch the video. Make headings, skip lines between topics, and underline headings. Use color to help your brain learn.

**New stuff:**

* Observe the first image and give examples of acidic, neutral and basic substances.

What are Acids and Bases? (C2.2 Explain the Significance of the pH scale with reference to common substances.)

* Acids produce \_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions (draw one). Bases produce \_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions (draw one)
* Pause the video and draw a representation of an acidic solution and a basic solution.

pH Scale (C2.2 Explain the Significance of the pH scale with reference to common substances.)

* Pause the video and draw the pH scale from page 222.

(C2.3 Differentiate between acids, bases, and salts with respect to chemical formulae and properties)

* The more ACIDIC a solution, the more \_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions vs ­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions. The lower the number the more \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* The more alkaline (BASIC), the more \_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions vs \_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions. The higher the number the more \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* A NEUTRAL solution: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ ions.
* For every one unit increase or decrease on the pH scale, the actual increase or decrease is \_\_\_\_\_\_\_\_\_\_\_\_\_\_. Give an example or two:

pH Indicators (C2.2 Identify Acids and Bases Using Indicators)

* pH \_\_\_\_\_\_\_\_\_\_\_\_\_\_ or a pH \_\_\_\_\_\_\_\_\_\_\_\_\_\_ measure pH.
* Indicators change color at different pH values.
* Examples: \_\_\_\_\_\_\_\_\_\_\_\_\_\_. \_\_\_\_\_\_\_\_\_\_\_\_\_\_. \_\_\_\_\_\_\_\_\_\_\_\_\_\_. \_\_\_\_\_\_\_\_\_\_\_\_\_\_. (get the spelling from the textbook).
  + Natural pH indicators include \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_ paper is also an indicator. Blue means \_\_\_\_\_\_\_\_\_\_\_\_\_\_ and red means \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* + \_\_\_\_\_\_\_\_\_\_\_\_\_\_ indicators such as pH paper turn different colors at different pH.

Acids (C2.3 Differentiate between acids, bases, and salts with respect to chemical formulae and properties)

* Often written with the subscript \_\_\_\_\_\_\_\_\_\_\_\_\_\_ since they sometimes only behave as acids in water. Examples of acids you may know:­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Naming Acids (C2.4 - Recognizing names and formuale)

* Often, acids are named “hydro\_\_\_ic acid” to show that they have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ ion: H+.
* Examples of such acids include: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ , \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (Give the formula and the name.)
  + Other acids are named according to other rules and include acetic acid (in vinegar), whose formula is \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Bases (C2.3 Differentiate between acids, bases, and salts with respect to chemical formulae and properties.)

* Most bases end in \_\_\_\_\_\_\_\_\_\_\_\_\_\_, due to the presence of hydroxide ions.
* Some examples of bases include: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. (Give the formula and the name.)

Production of Ions

* Acids and bases conduct electricity because they contain freely moving \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Neutralization

* When separate solutions containing hydrogen ions and hydroxide ions are combined, they react by forming \_\_\_\_\_\_\_\_\_\_\_\_\_\_ . The solutions \_\_\_\_\_\_\_\_\_\_\_\_\_\_ each other.
* Draw the neutralization equation:
* Give an example of how an understanding of neutralization is used to deal with acidic ground rock.

Properties of Acids and Bases (C2.3 Differentiate between acids, bases, and salts with respect to chemical formulae and properties.)

* Describe how you would determine whether a substance is an acid or a base. Be specific.