

Water and Solutions

Section 6.3

Mixtures with Water

- Think about Kool-Aid.....
 - You mix a powder with water
 - A new product is NOT formed
 - It's just powder and water together
- When water mixes with another chemical with no new product = **MIXTURE**
- Mixtures can be made up of many things or just one thing

Mixtures with Water

Homogeneous Mixture

- Uniform composition throughout
- “looks the same”
- Also called a solution
- Made of a solvent and a solute
 - Solvent – water
 - Solute – gets dissolved
- Examples:
 - Salt water
 - Coffee
 - Kool-aid (well mixed)

Heterogeneous Mixture

- Parts remain separate and visible
- “looks different”
- Most mixtures are this type
- If you have to shake or stir it – it’s this type
- Examples:
 - Salad
 - Cookies
 - Fog
 - Milk
 - Yogurt

Acids and Bases

Acid

- Solute dissolved in water
- Contains H
- Releases hydrogen ion (H^+) in water
- More H^+ released = more acidic a solution
- Taste sour
- Necessary for life!
- Examples:
 - Battery acid
 - Apples
 - Pop

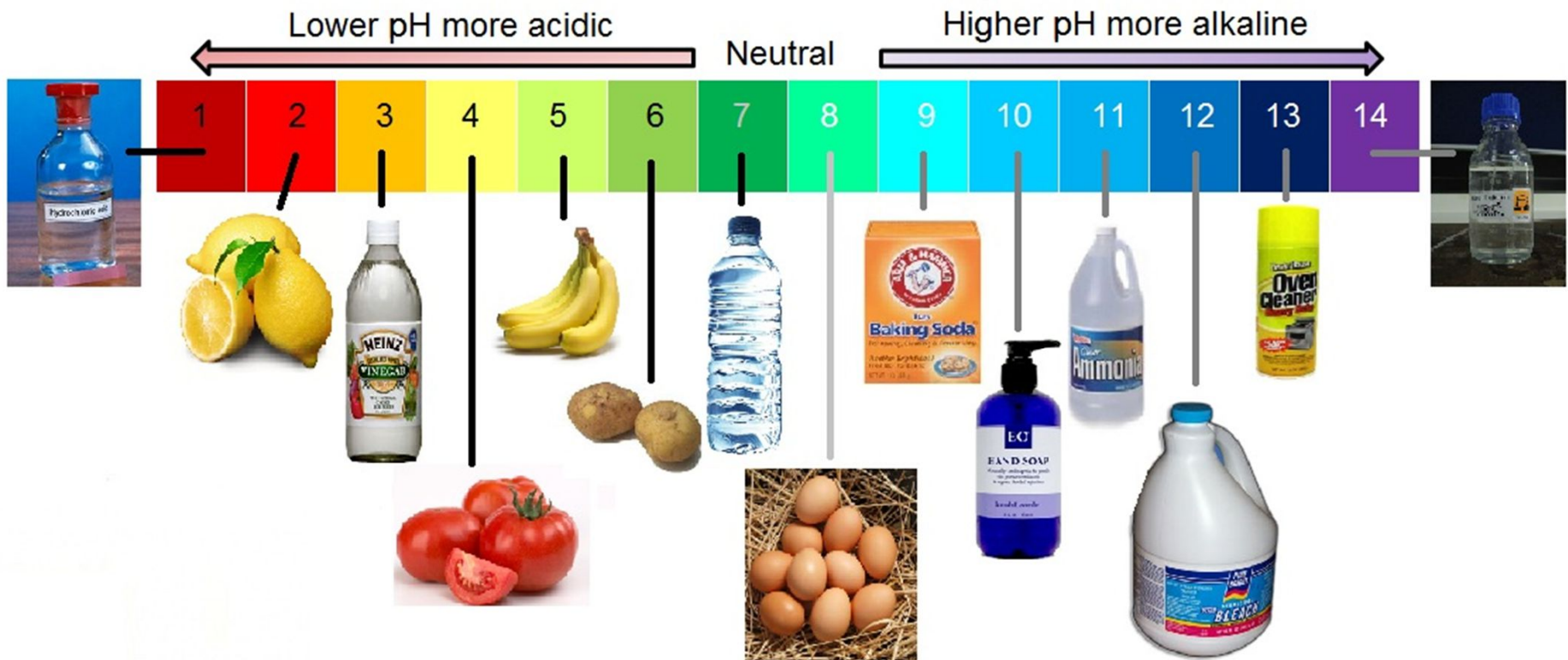
Base

- Solute dissolved in water
- Contains hydroxide (OH)
- Releases hydroxide ion (OH^-) in water
- More OH^- released = more basic
- Taste bitter
- Necessary for life!
- Examples:
 - Pepto Bismol
 - Soap
 - Bleach

pH and Buffers

- Amount of H^+ and OH^- in a solution determines how strong it is
 - More H^+ = strong acid
 - More OH^- = strong base
- To measure strength we use the pH scale
 - Measures H^+ amount
 - Pure water is a pH of 7.0
 - Acids range from 0-6.99
 - Bases range from 7.01 - 14

pH and Buffers



pH and Buffers

- Most biological processes occur between pH 6.5 and 7.5
 - What was that called when you stayed balanced?
- To keep homeostasis, the body has buffers
 - Mixtures that can react with acids or bases
 - Keep the pH within a certain range
 - If pH is too high or too low, body functions can stop occurring

Homework

- Make a list on a separate piece of paper
- Over the next 24 hours, list as many acids or bases that you come in contact with
- These can be foods, cleaners, soaps, etc
- Remember – acids will usually end with “acid”
- Remember – bases usually contain “hydroxide”
- **SO LOOK AT LABELS!**
- Must get at least 10!