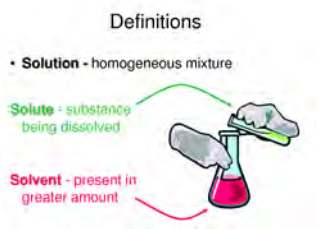
CHAPTER 6

Interactive Science

6-1

- Solution— a mixture containing a solvent and a solute
- Solvent—water (w = v) = the biggest part of a solution
- solute—what is dissolved in the solvent (salt, sugar, etc.)



6-1

- Colloid—a mixture containing small, undissolved particles that do not settle out—milk, shaving cream, smoke
- Suspension—a mixture in which the particles can be easily seen and separated by settling or filtering—soda

6-1

- ionic solutes—negative ions of solute are attracted to positively charged solvent molecules
- molecular solutes—polar molecules of the solvent attract polar molecules of the solute; and solute molecules move away from each other

6-1

- ionic compounds in water conduct electric current
- molecular compounds in water don't conduct electric current

6-1

- solutes cause boiling points to rise; freezing points to lower
- they "get in the way" of the process of changing state

6-2

- dilute solution—a mixture that has only a little solute
- concentrated solution—a mixture with a lot of solute
- How do you change a solution's concentration?
- Add more solute, boil out solvent; take out solute, pour in more solute

6-2

- calculate concentration by: comparing the amount of solute to amount of solvent
- 15g salt / 100g water = 15% concentration
- 30g salt / 100 g water = 30%
- Which is more concentrated?

6-2

- Solubility: a measure of how much solute can dissolve in a solvent at a given temperature
- Saturated Solution: is holding all the solute that it can hold
- Stirring, temperature, chopping the solute will increase its solubility

6-2

- Pressure—solubility of a gas solute in a liquid solvent increases as pressure of gas increases
- Solvents—like dissolves like—water can't dissolve oil
- Temperature—For most solid solutes, solubility increases as temperature increases; unlike most solids, gases become less soluble when the temperature goes up.

6-2

- Acids—react with metals and carbonates, taste sour, turn blue litmus paper red (and don't turn red litmus paper blue)
- Lemon juice, orange juice, vinegar, batteries
- Corrosive—"wear away" other materials

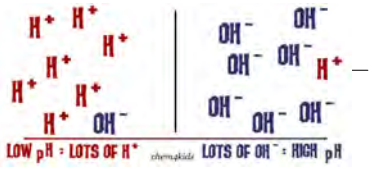
6-3 BASES:

- Are bitter.
- Are slippery.
- Reactions with indicators: Turns red litmus paper blue
- Blue = Base
- Soaps, almonds, soaps, soap, antacids,

6-4

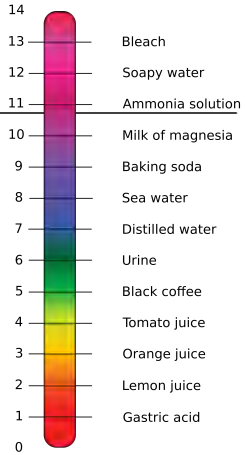
- Hydrogen Ion—atom of hydrogen that has lost its electron
- Acids produce hydrogen ions in water (H+)

6-4



- Hydroxide Ion—a negative ion made of oxygen and hydrogen—
- Bases produce hydroxide ions in water

6-4



- pH scale—shows the strength of acids & bases:
- impossibly strong acid = 0
- impossibly strong base = 14
- perfectly neutral = 7.000
- Tums = 11, Banana = 5

6-4

- Neutralization—a reaction between an acid and a base that results in a mixture with a pH of 7
- Salt—any ionic compound that can be made from a neutralization reaction