

Topic #4

Water Properties – A Basis for Life.

(Campbell and Reece p. 47-56)

I. Objectives

A. Understand chemical properties of water important to life

II. Water.

A. Life totally dependent on water.

B. Unique properties

C. Cohesion

D. High specific heat

E. Evaporates

F. Good solvent.

1. Hydrated.

2. Hydrophilic.

G. Hydrophobic interactions.

1. Nonpolar molecules.
2. Examples.

H. Acidity.

1. Number of hydrogen and hydroxide ions.



2. Acid.

3. Base.

4. pH.

- a) Why is pH=7 neutral?

H^+ concentration X OH^- concentration = 10^{-14} moles per liter
(1 mole = 6.02×10^{23} molecules)

Neutral: H^+ concentration = 10^{-7} , OH^- concentration = 10^{-7}

- b) Buffers.

III. Key Terms

acid

base

buffer

calorie (cal)

Celsius scale

cohesion

evaporate

vaporization

hydrogen bonds

hydrogen ion

hydrophilic

hydrophobic

hydroxide ion

mole (mol)

pH

polar molecule

solvent

specific heat

surface tension