

Name _____

AP Biology

Chapter 3 - Water and Life

Guided Reading Assignment Campbell's 10th Edition

Essential Knowledge

2.A.3 Organisms must exchange matter with the environment to grow, reproduce, and maintain organization

This chapter is a review from your previous biology class – these concepts are critical and repeated throughout the year. If you have not covered this material previously or need additional assistance with the concepts please schedule time to see me.

1. Why is water considered a polar molecule?

2. For each of the below listed properties of water – briefly define the property and then explain how water's polar nature and polar covalent bonds contribute to the water special property. Include an example in nature of each property also.
 - a. Cohesion

 - b. Adhesion

 - c. Surface tension

 - d. High specific heat

 - e. Heat of vaporization

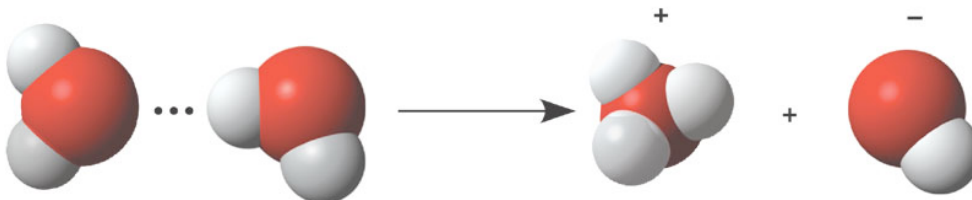
 - f. Evaporative cooling

3. What is special about water and density?

4. Define the following terms:

- a. Solute
- b. Solvent
- c. Aqueous solution
- d. Hydrophilic
- e. Hydrophobic
- f. Colloid
- g. Hydration shell
- h. Molarity

5. Label the diagram below to demonstrate the dissociation of the water molecule and then relate this diagram to pH.



6. What defines an acid and a base?

7. Why are “apparently” small changes in pH so important in biology?

8. What is a buffer and write and explain the carbonic acid buffer system in human blood – yes we are back to the equation AGAIN!

9. What is acid precipitation and why is it important to living organisms