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Physical & Chemical Properties of Water

- I. Polarity
 - a. Describe the electronegativity of water.
 - b. What type of bonds form between two water molecules?
- II. Emergent Properties
 - a. Why is water both adhesive and cohesive? Why is this important?
 - b. Define surface tension and give an example.
 - c. What causes surface tension?
 - d. Why is water important to global climate?
 - e. Describe the relationship between heat, temperature and kinetic energy.
 - f. What is a calorie, kilocalorie, and joule?
 - g. Water has a high specific heat. Explain. Why is this property important to living organisms.
 - h. Explain evaporative cooling and the application of heat of vaporization.
 - i. How does ice insulate underlying bodies of water?
 - j. Why is water considered the “solvent of life”?
 - k. Describe the relationship between solute, solvent, and solutions.
 - l. What is an aqueous solution?
 - m. Describe the function of a hydration shell.
 - n. Compare/contrast hydrophobic with hydrophilic substances
 - o. What is a colloid?
 - p. What is a mole (not the little furry thing)?
 - q. How do you calculate molarity?
- III. Dissociation of water
 - a. What is pH?
 - b. Describe the relationship between hydrogen ion and hydroxide ion.
 - c. How is pH measured?
 - d. What is a buffer and why are they important to living organisms?
 - e. Why is acid precipitation harmful?