The Properties of Water

Mrs. Stephens

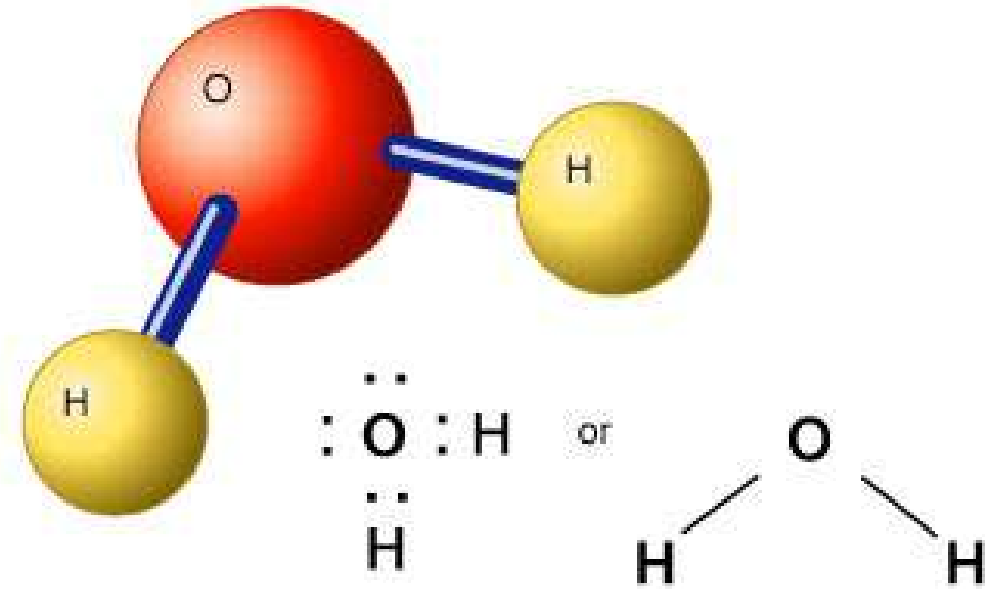
Biology

Agenda

- Read and Record Objectives
- Review Unit 1 Exam
- Do Now
- Properties of Water Presentation
- Properties of Water Lab
- Homework: Properties of Water Lab Report due next class.
  - Be sure that your report is typed in Times New Roman 12pt. Font.
  - Late reports will be dropped a letter grade per day!

Do Now

- Observe the molecule of water below.
- In your own words, explain how two molecules of water stick together. You may also include a picture.

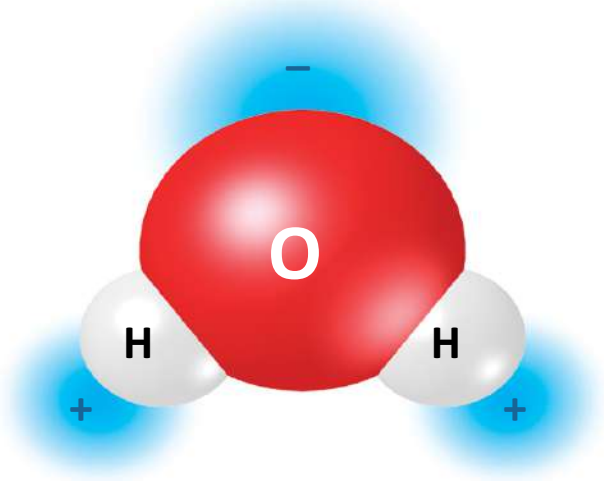


KEY CONCEPT

Water's unique properties allow life to exist on Earth.

Life depends on hydrogen bonds in water.

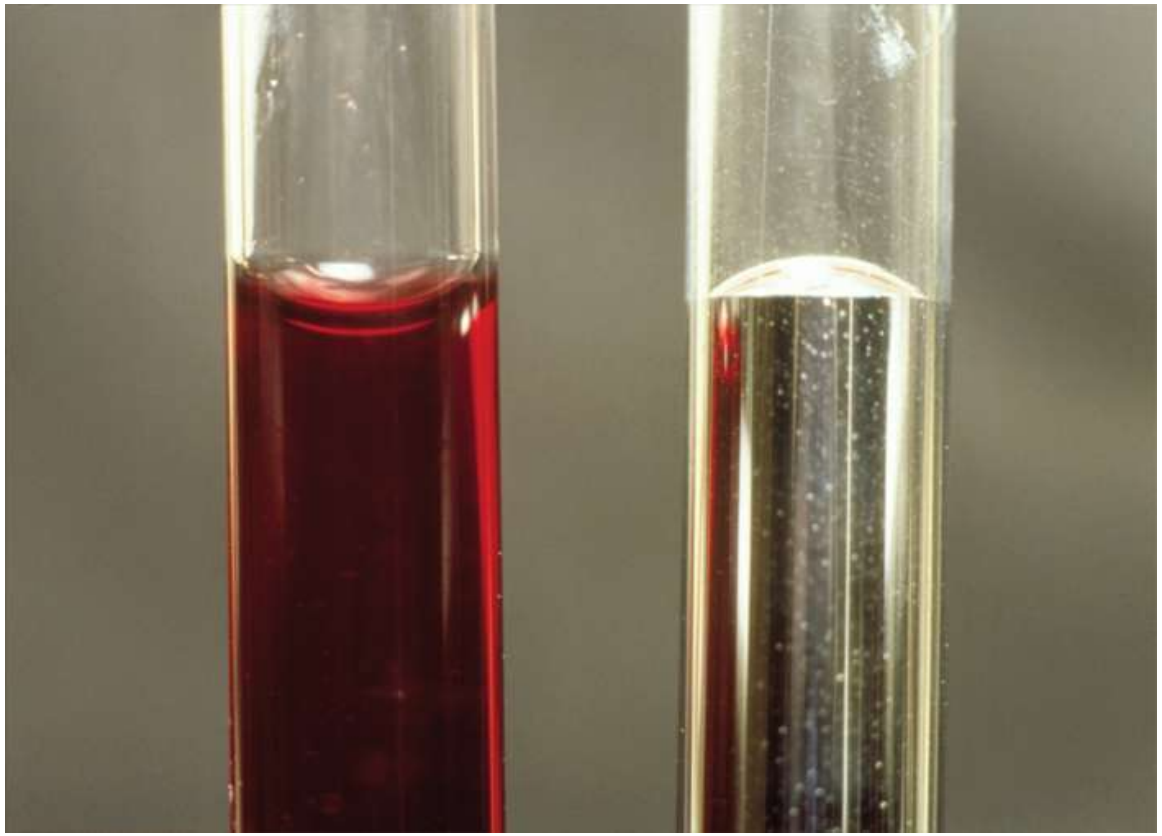
- Water is a polar molecule.
  - Polar molecules have slightly charged regions.



– Nonpolar molecules do not have charged regions.

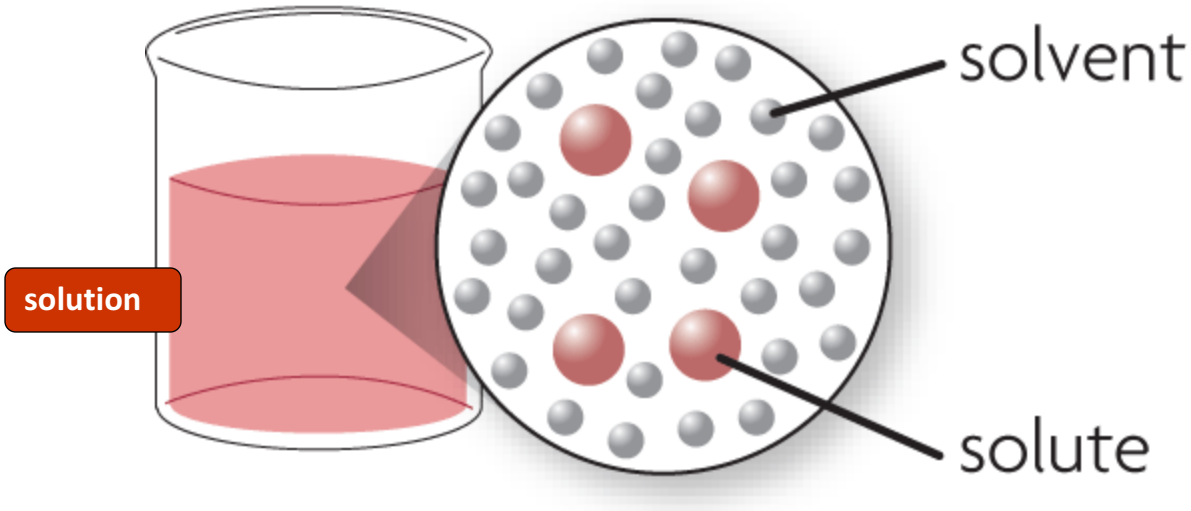
– Hydrogen bonds form between slightly positive hydrogen atoms and slightly negative atoms.

- Hydrogen bonds are responsible for two important properties of water.
  - cohesion
  - adhesion



Many compounds dissolve in water.

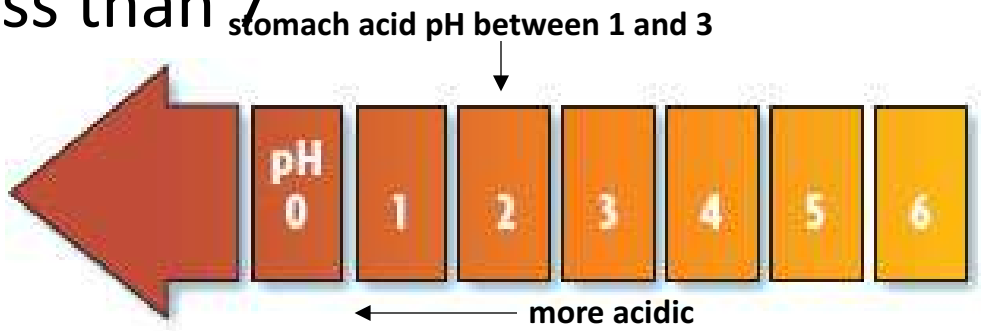
- A solution is formed when one substance dissolves in another.
  - A solution is a homogeneous mixture.
  - Solvents dissolve other substances.
  - Solutes dissolve in a solvent.

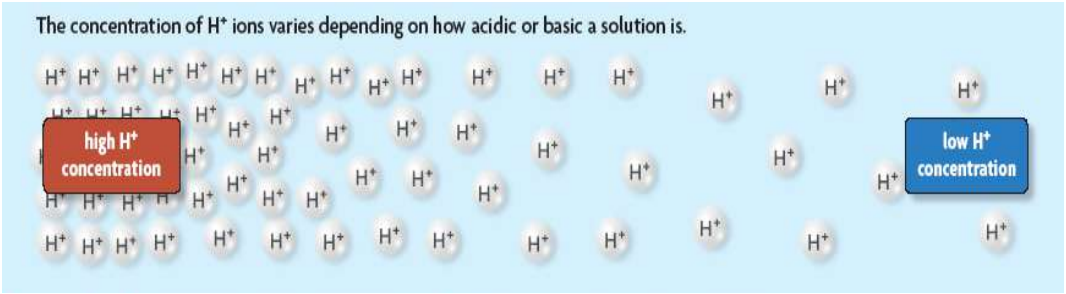


- “Like dissolves like.”
  - Polar solvents dissolve polar solutes.
  - Nonpolar solvents dissolve nonpolar solutes.
  - Polar substances and nonpolar substances generally remain separate.

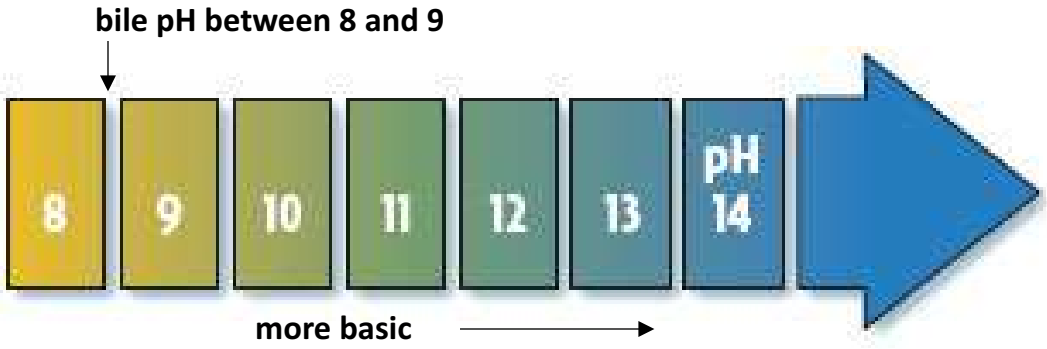
Some compounds form acids or bases.

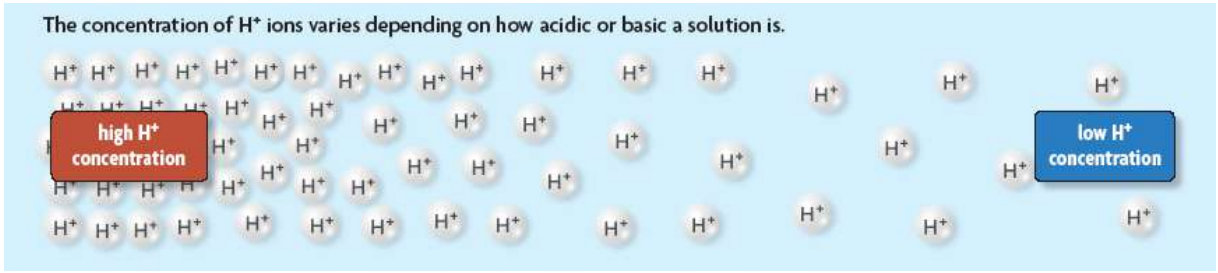
- An acid releases a hydrogen ion when it dissolves in water.
  - high H^+ concentration
  - pH less than 7



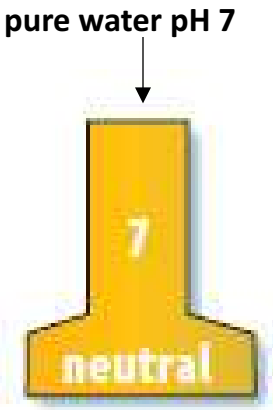


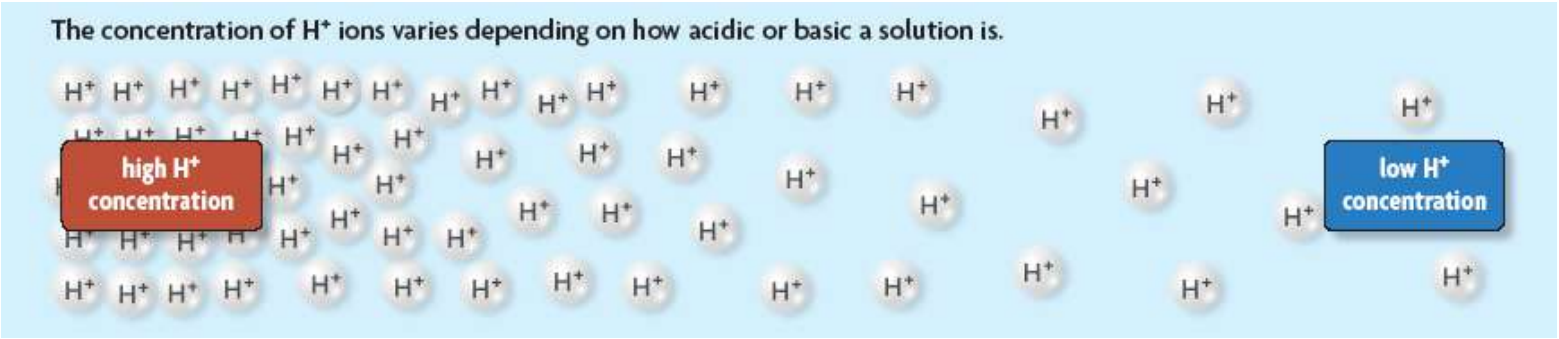
- A base removes hydrogen ions from a solution.
  - low H^+ concentration
  - pH greater than 7





- A neutral solution has a pH of 7.





How are insects able to walk on water?

- Observe the video clip.
- Turn and talk with a partner and develop an idea that explains why the water strider is able to “walk on water.

Properties of Water Lab

- Return to your lab groups.
- Follow the instructions on your lab sheet.
- Be sure to use the order of sections in your lab notebook as a guide for how each section should be written. Use your lab report rubric in the front of your notebook to correctly write your lab report.

Group Work and Participation Rubric

Criterion	4	3	2	1
Active Participant	Always prepared. Engaged in all of the learning process.	Mostly prepared. Engaged in most of the learning process.	Sometimes prepared. Engaged in some of the learning process.	Rarely prepared. Engaged in little or none of the learning process
Academic Independence	Consistently demonstrates intellectual curiosity Consistently self-motivated and independent.	Frequently demonstrates intellectual curiosity Usually self-motivated and independent.	Sometimes demonstrates intellectual curiosity. Sometimes self-motivated and independent.	Rarely demonstrates intellectual curiosity. Rarely or never self-motivated, frequently depends on prompting and/or teacher assistance.
Works Collaboratively	Did a full share of the work--or more	Did an equal share of the work	Did almost as much work as others	Did less work than others
	Took the initiative in helping the group get organized	Worked agreeably with partner(s) concerning times and places to meet	Could be coaxed into meeting with other partner(s)	Did not meet partner(s) at agreed times and places
	Provided many ideas for the unit development	Participated in discussions about unit	Listened to others; on some occasions, made suggestions	Seemed bored with conversations about the unit