

Properties of Water



What is water like?

- Why is this important?



Water Properties Lab

1. How many drops of water will fit on a penny?
 1. Hypothesis
 2. Record your results
 3. What things do you notice about the water on the penny?
Write your observations
2. Can a paperclip float on water?
 1. Hypothesis
 2. Report your results
 3. How is it possible that metal can float on water?
3. How does water behave?
 1. Take a drop of the 3 substances – water, vinegar alcohol and place it on the foil
 2. Use the tooth pick to stir or move the liquids around
 3. Write down your observations about each substance behaves



Bonding Basics

- We've already learned about some bond types
 - Covalent
 - Ionic
- Time for a new one
 - Hydrogen bonds!



But first, what does all this have to do with our lab????

- What were our observations?
- How can we explain what we saw?

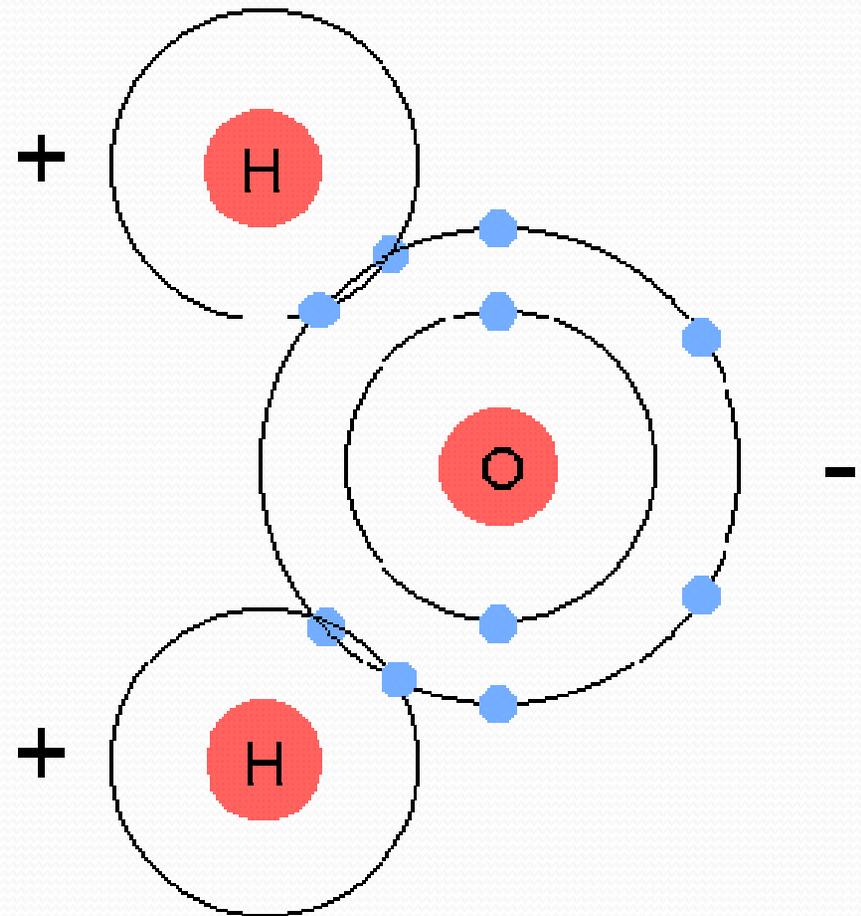


Water has special properties

- These properties make water behave the way it does.

Water has special properties

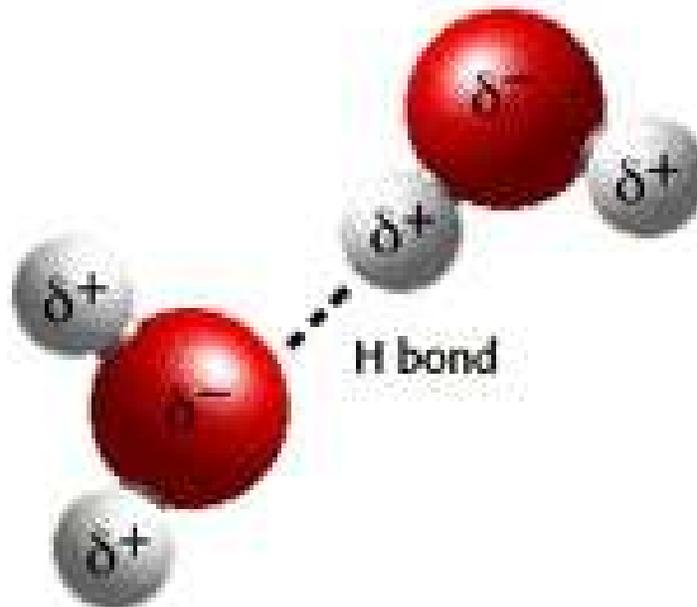
- Water is polar
- What does that mean?



Hydrogen Bonds

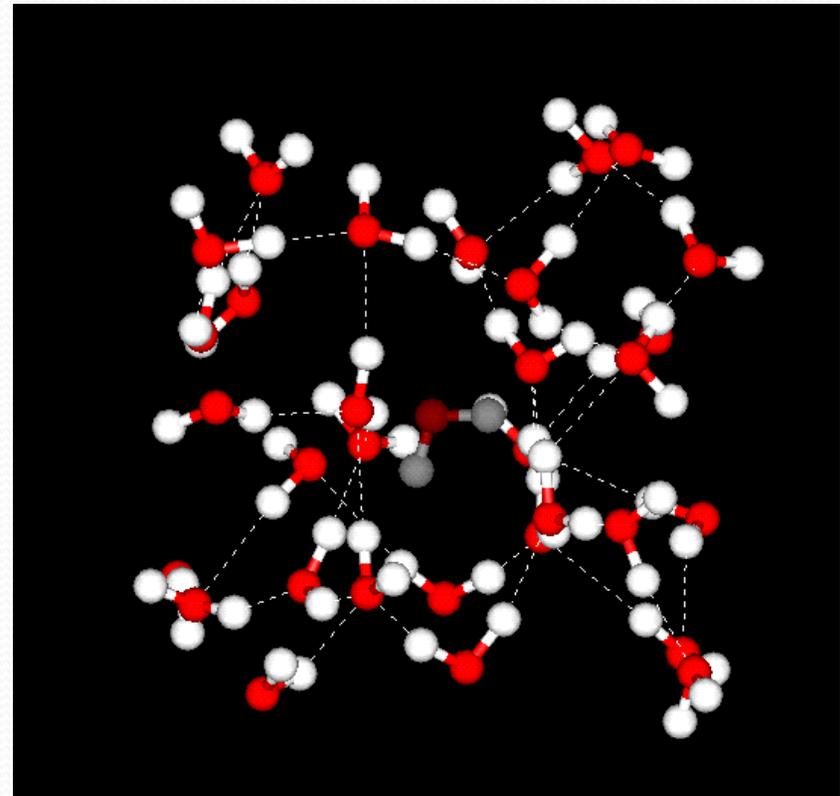
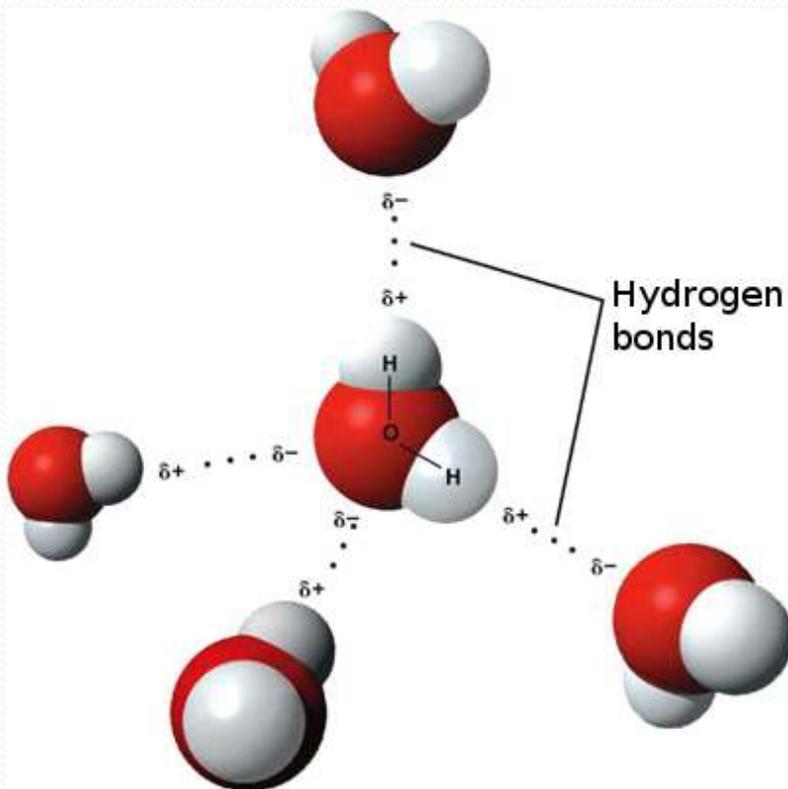
- A weak interaction where oppositely charged areas of a molecule are attracted to each other
 - A hydrogen atom is attracted to another atom
 - (Oxygen, Nitrogen, Fluorine)

Hydrogen bonding
between water molecules



And when you have lots of water molecules...

- How does water act with other water molecules?





Properties of Water

- Cohesion
- Adhesion
- Heat Capacity
- Solvent Properties

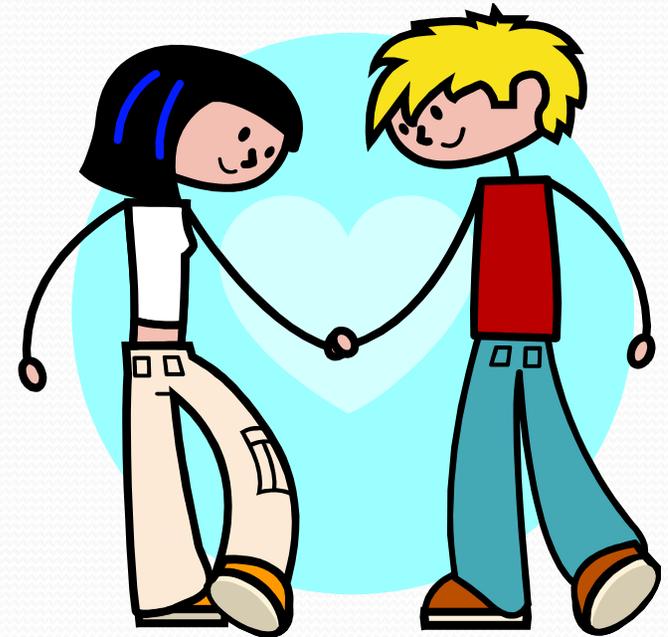
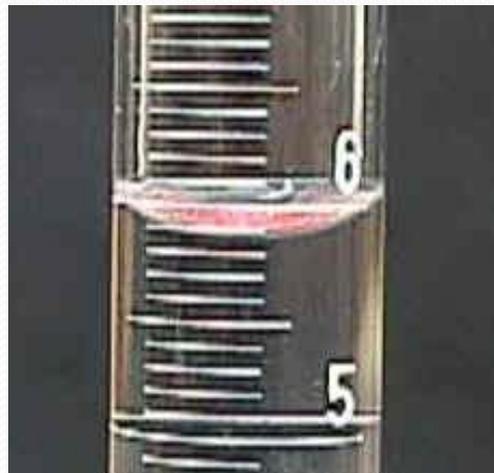
Cohesion

- The attraction between molecules of the same substance
- Water is attracted to itself



Adhesion

- The attraction between molecules of different substances.
- Water is attracted to other substances



Heat Capacity

- Water is an insulator that helps maintain a steady environment when conditions fluctuate.
- Homeostasis



Solvent Properties

- Water is polar, which allows water to dissolve many compounds like salt.



Physical States



- Solid, Liquid and Gas
- Water expands when it freezes. This helps form soil-water gets in cracks freezes and breaks the rocks. Ice is less dense than water.



Thought question?

- How do each of these properties help living things stay alive?
- Look it up and find examples of how each of the 4 properties are used in living things



Water as a limiting factor

- What is a limiting factor?
- In what ecosystems is water a limiting factor?
- How is it a limiting factor?