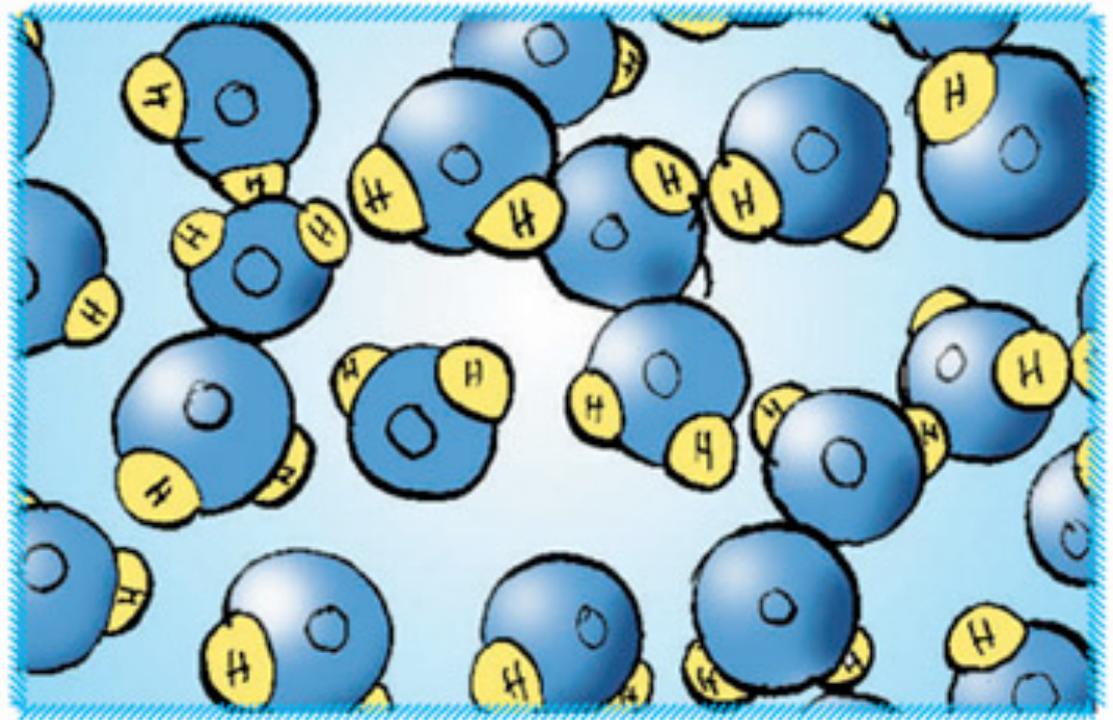


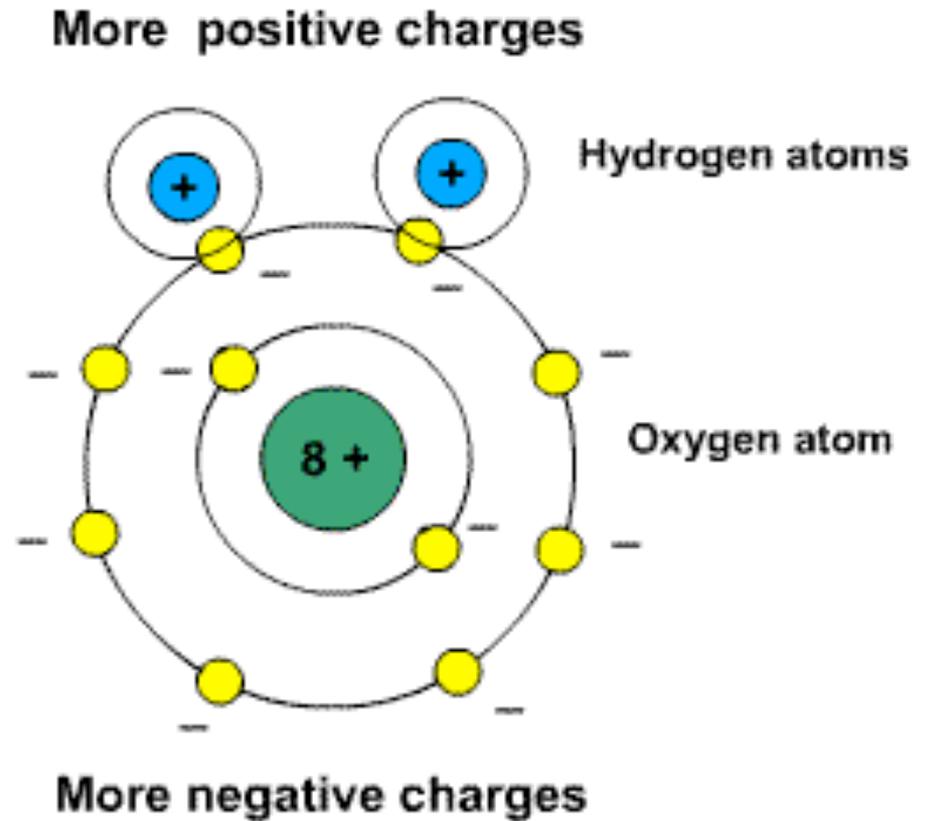
Scientific Method Day 2

WATER!

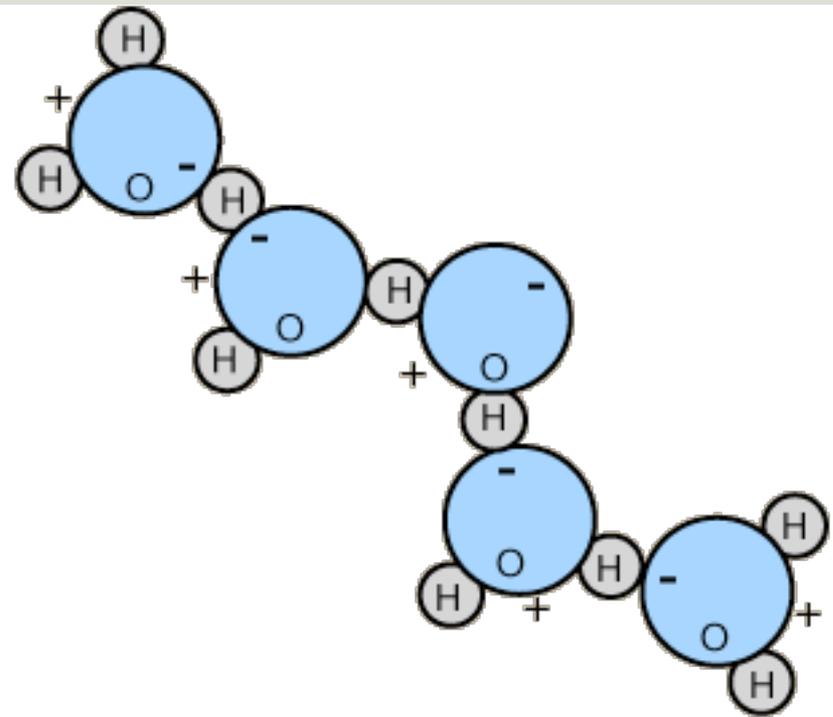
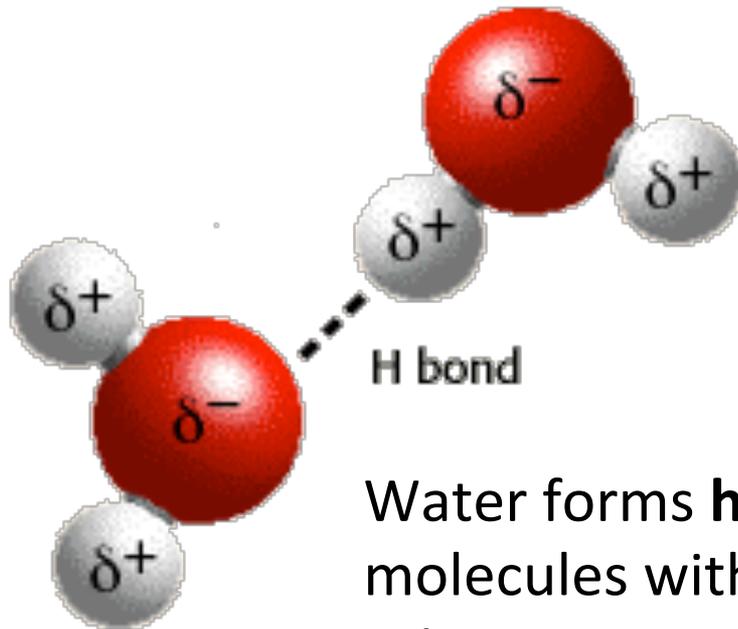


Water is **polar** =
electrons are unevenly shared
leaving a + and - end

- Oxygen -
- Hydrogen +



Hydrogen bonding between water molecules



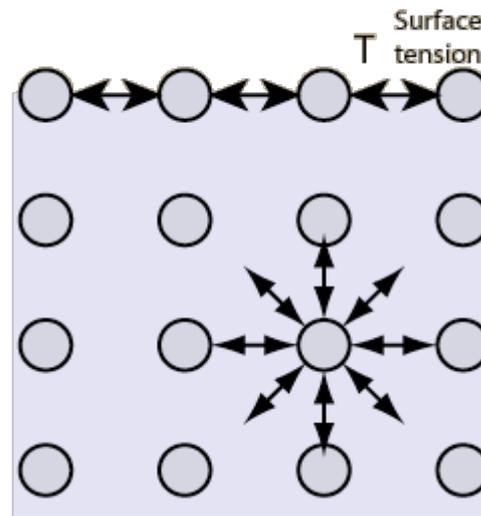
Water forms **hydrogen bonds** =
molecules with a +/- end are attracted to each
other

This is ***cohesion***=when water sticks to water
(forms sphere bubbles)

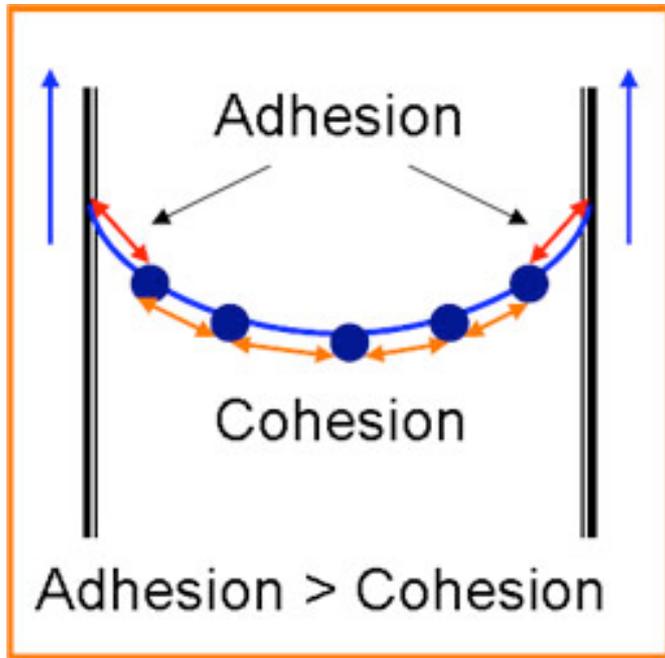
[Stream of water demo](#)

surface tension

is the result of cohesion being strongest at the surface



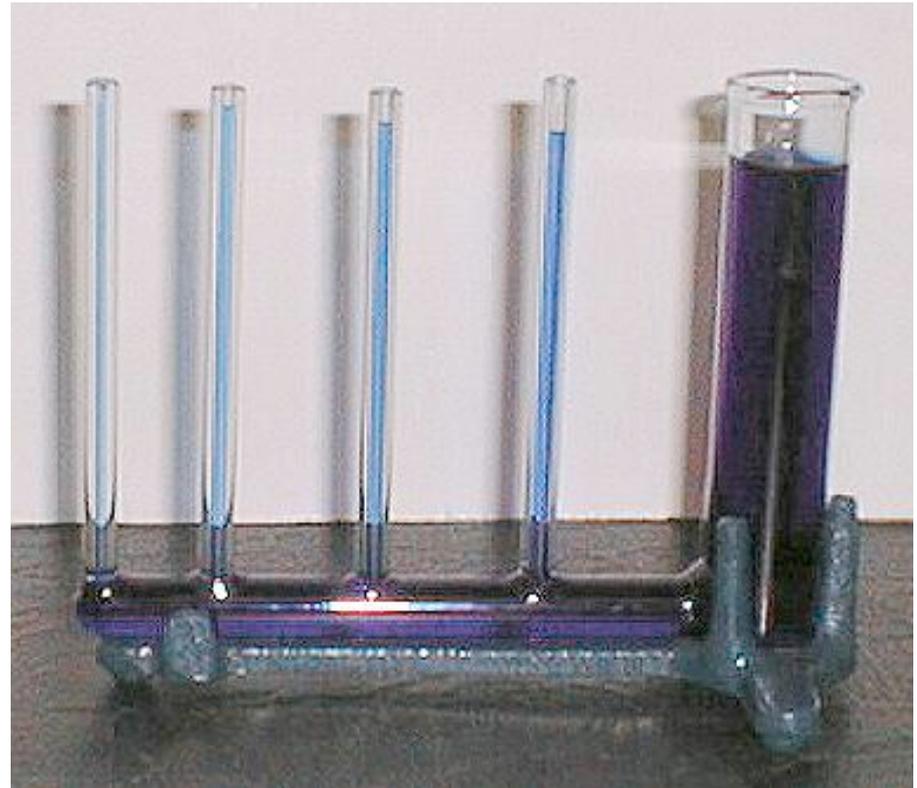
Creates a **meniscus**-bubble at surface



Adhesion- water is also very sticky to any other molecule that is polar



Capillary Action-
water can climb up
small tubes due to
adhesion (sticks to
tube) + **cohesion**
(water pulls on other
water)

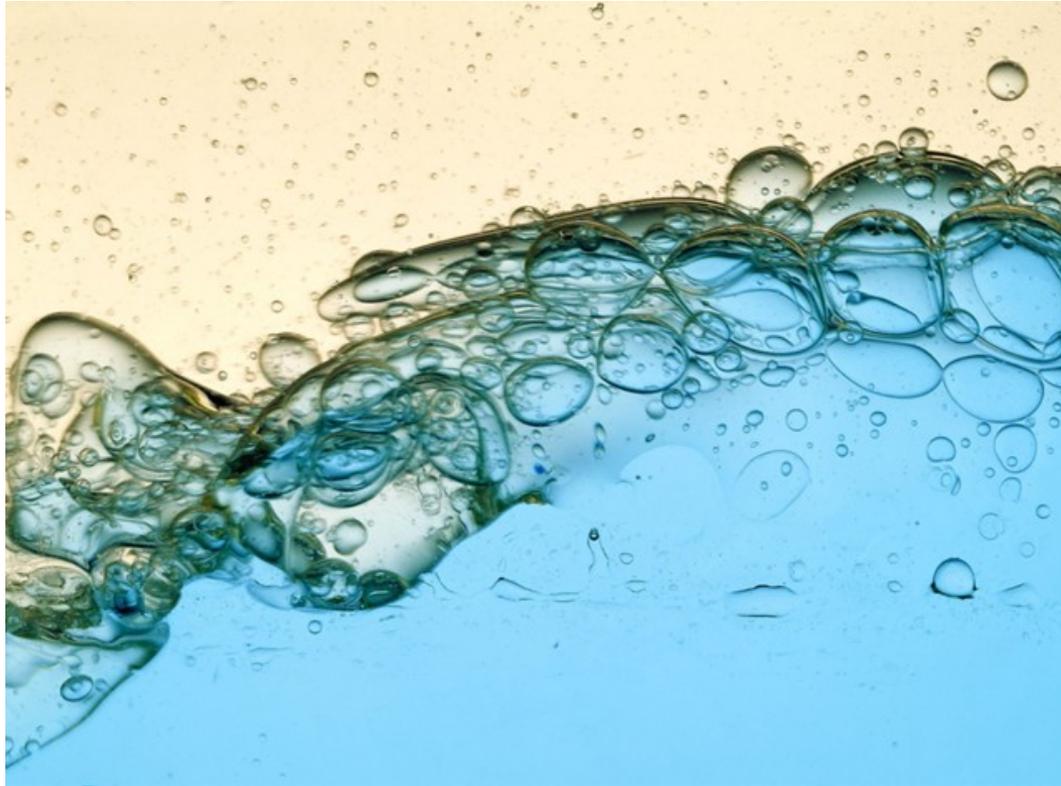


But some molecules do NOT stick to water (oils, waxes) b/c they are **non-polar** = electrons are evenly shared (so there is not +/- to stick to)



<http://thedetailers.blogspot.com>

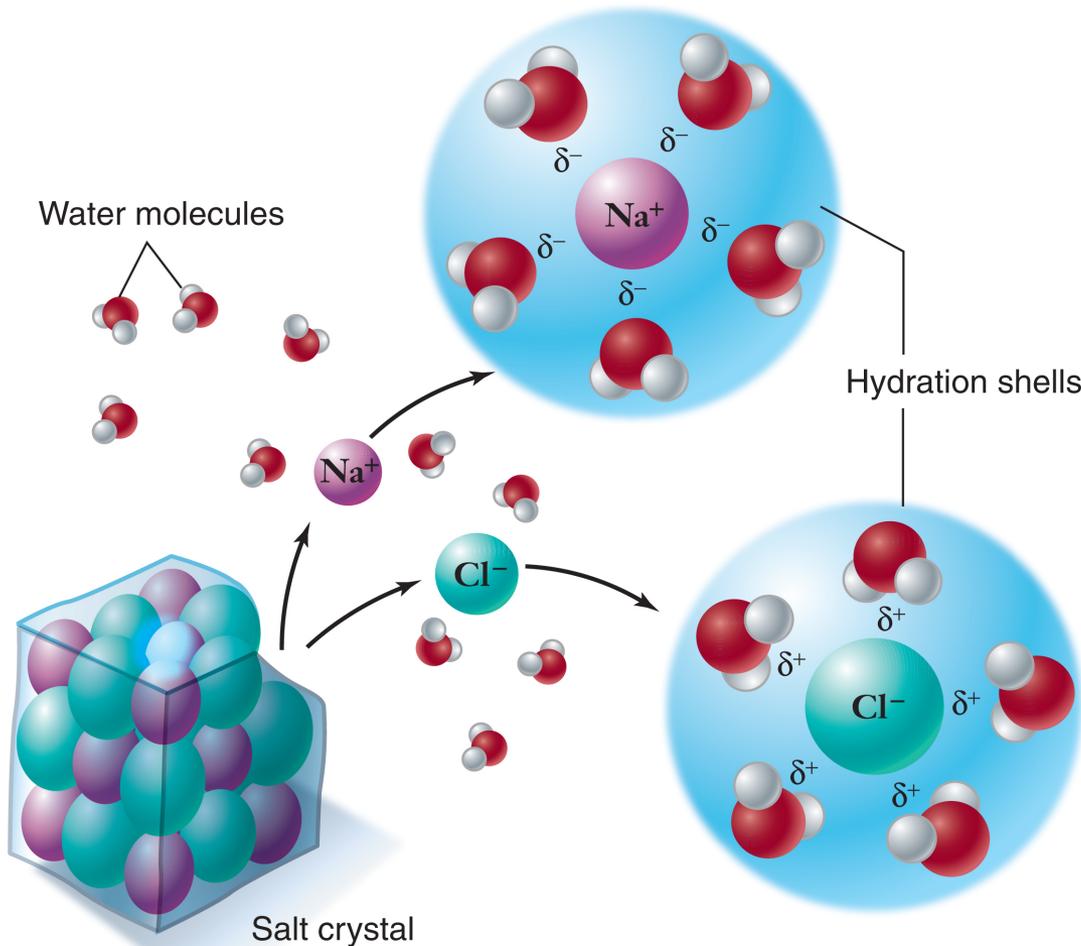




Oil is nonpolar and instead of dissolving is surrounded in droplets within the water

Water is a **universal solvent** –it dissolves more molecules than any other substance

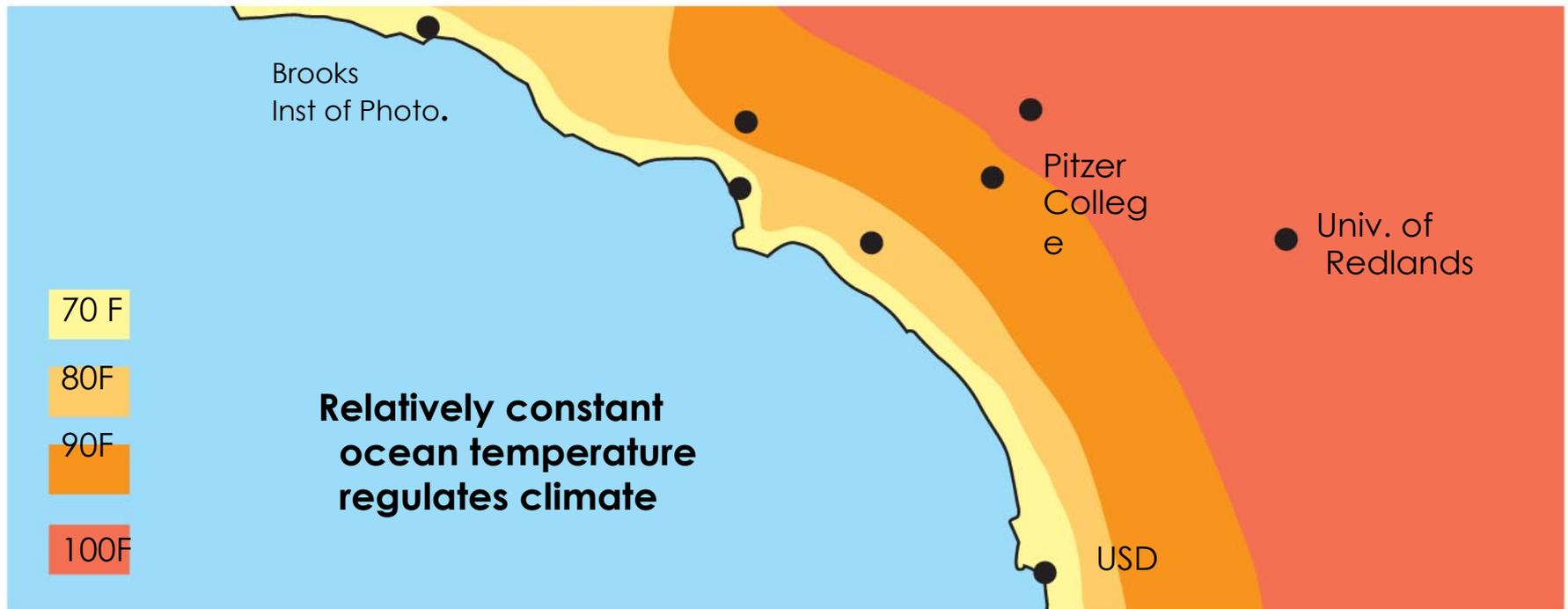
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NaCl dissolves in water b/c the Na⁺ attracts to the ___? and the Cl⁻ attracts to the ___?

Water has a **high heat capacity**

- it takes a lot of energy to raise its temp
- it does not gain or lose heat rapidly
- the energy pulls apart polar hydrogen bonds first & then makes them heat up/move faster



Nature of Science (NOS)

- ❑ **Bias exists** – humans have prior knowledge and expectations that make it impossible to be 100% objective
- ❑ **Collaboration** improves conclusions-scientists build on research of others and share current research.
- ❑ **Uncertainty**-the more data exists the more you may accept your hypothesis but “leave the door open” for new discoveries
- ❑ **Errors & Creativity involved**-Not all answers are found by following scientific method step-by-step; luck plays a part!
- ❑ **Self-Correcting**-If new data doesn't fit current conclusions then those ideas must be modified to fit the new info!