



# PROPERTIES OF WATER

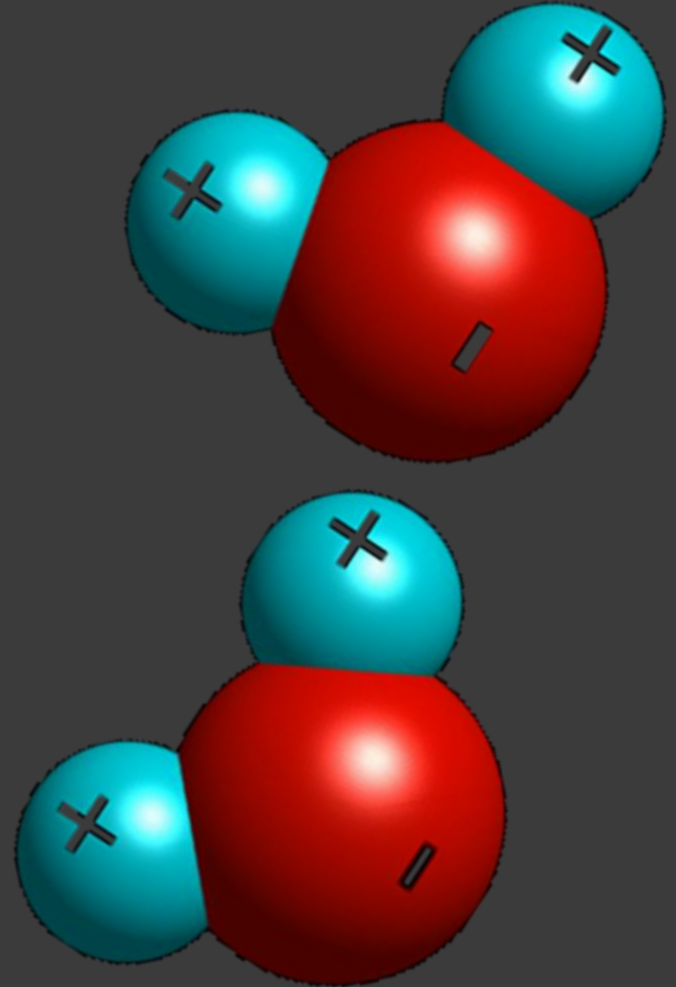


Water is essential for living things to grow, reproduce, and carry out important processes.

About 97% of Earth's water is salt water found in the ocean, while the other 3% is fresh water, with 2% found in huge masses of ice near Earth's poles.

A water molecule  
( $H_2O$ ) is made of 3  
atoms, 2 hydrogen  
and 1 oxygen

This gives water  
properties to do  
weird things.

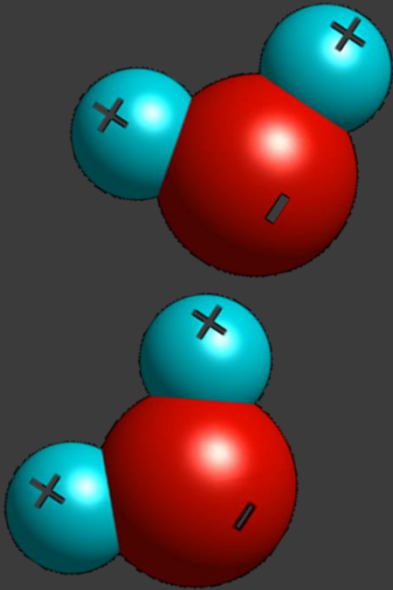


# WATER IS POLAR

The oxygen atom “behaves”  
more negative

The hydrogen atoms  
“behave” more positive.

The oxygen atom is slightly  
more negative causing the  
molecule to be polar.



Polarity means  
there is an uneven  
distribution of  
electron density.

This polarity allows  
water to have  
special properties.



# Water Characteristics





Usually polar and non-polar substances do not mix, but water is different.

It is called the “Universal Solvent” because its bipolar molecule enables it to dissolve a wide variety of substances.

Water can change into all states of matter (solid, liquid, gas) within Earth's temperature range.





Water can adhere to other objects just like the water droplets on the pine needles or a spider web



Adhesion allows water to stick to other surfaces.





Capillary action is a characteristic that allows water to defy gravity and move upward. –water moves through materials with pores or narrow spaces (ex. water traveling up stems to leaves)



Cohesion allows water molecules to stick to other water molecules.



### Cohesion

Cohesion is the property of water that causes it to be attracted to itself.

Cohesion makes a surface film on water allowing bugs to walk on water.

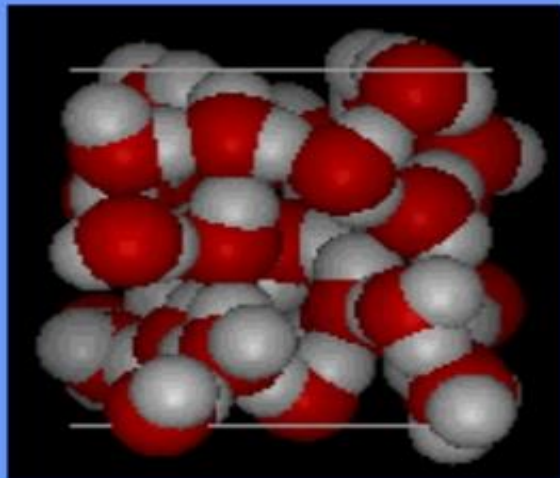


This is called surface tension.

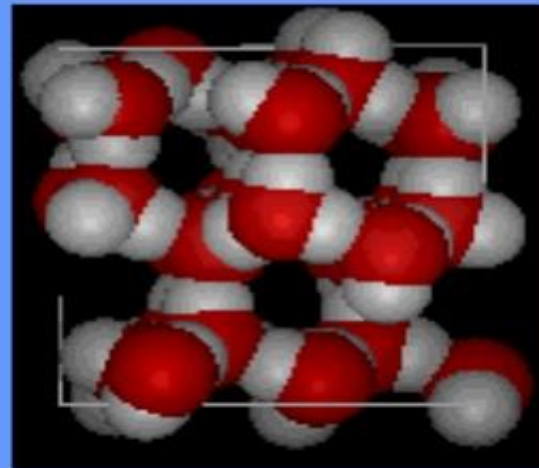
The density of most substances increases when a liquid becomes a solid. Solid water is actually less dense than liquid water. It is for this reason that ice floats

The polarity of water makes ice less dense than liquid water.

**Water**



**Ice**





Video

<https://www.youtube.com/watch?v=ASLUY2U1M-8>