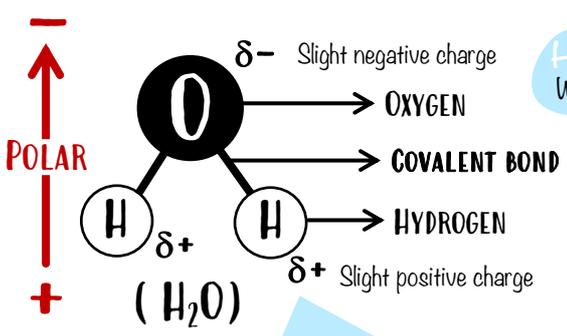
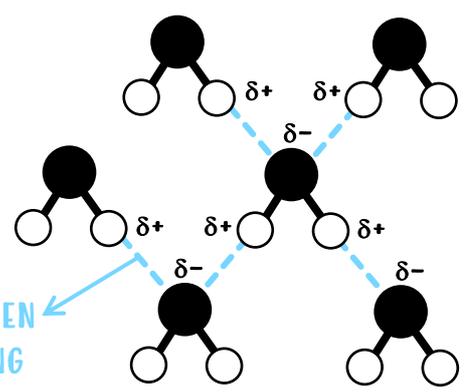


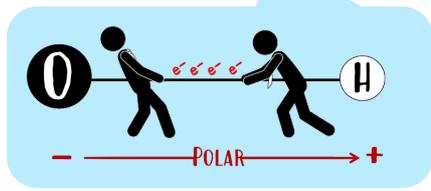
Water



TIP!
Hydrogen bonds are *hydrog*.
Weaker than covalent bonds.



Ephemeral (temporary) attraction between water molecules
(negative charge attracts positive charge)

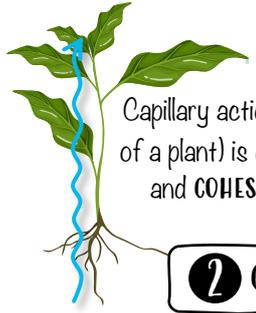
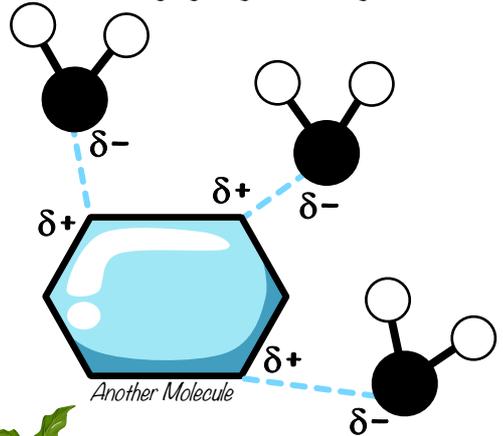


PROPERTIES OF WATER

- 1 ADHESION
- 2 COHESION
- 3 SOLVENT
- 4 PHYSICAL

1 ADHESION

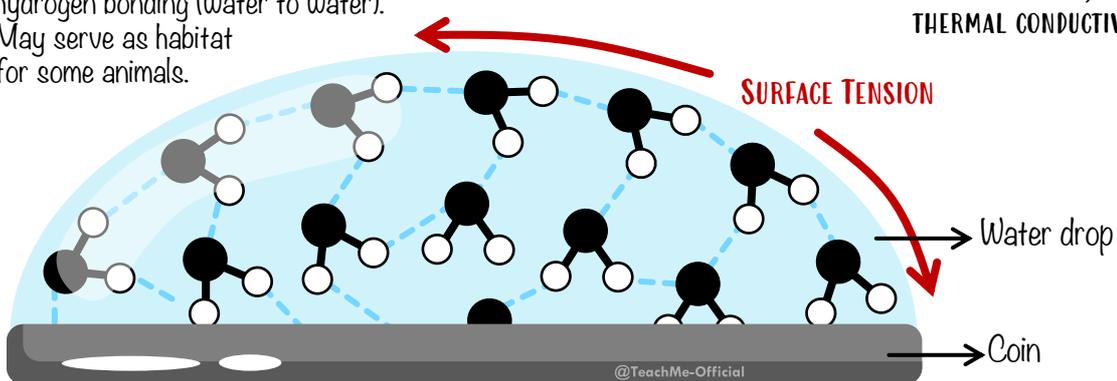
Unlike molecules are attracted to each other by hydrogen bonding



Capillary action (water climbing up xylem of a plant) is due to **BOTH** the **ADHESION** and **COHESION** properties of water!

2 COHESION

Molecules of the same type are attracted to each other by hydrogen bonding (water to water).
May serve as habitat for some animals.

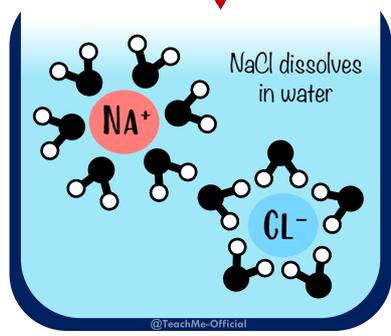


3 SOLVENT

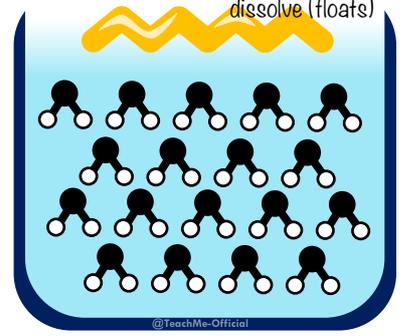
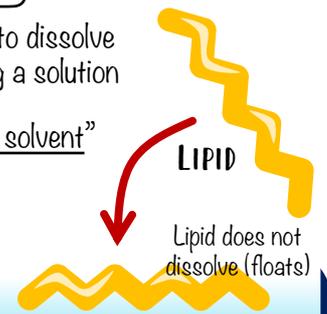
Capability of a substance to dissolve another substance creating a solution



Water is the "universal solvent"



HYDROPHILIC
Water Loving
(Amino acids, NaCl, Glucose (sugars))



HYDROPHOBIC
Water Fear
(Lipids, Proteins, CO₂, O₂, Cholesterol)

4 PHYSICAL

Includes **BUOYANCY**, **VISCOSITY**, **SPECIFIC HEAT** and **THERMAL CONDUCTIVITY** properties of water
See page 2



Water

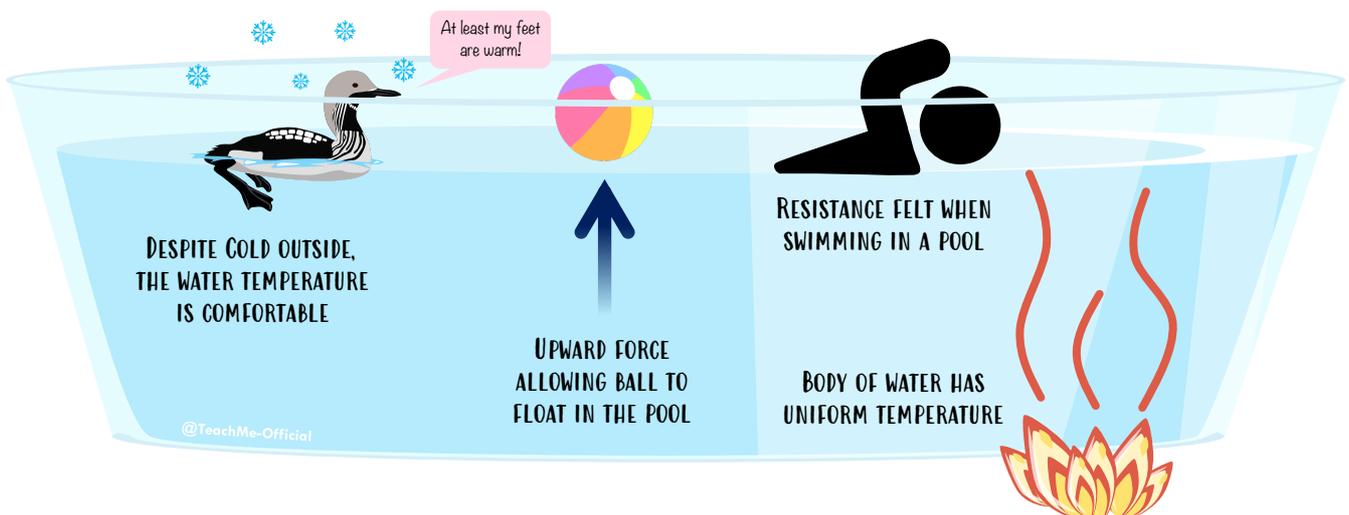
A BUOYANCY

An upwards force exerted on an object placed on a specific medium (E.g. Water).

4 PHYSICAL

B VISCOSITY

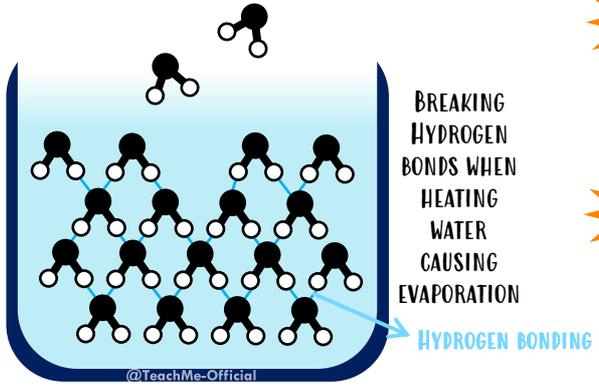
The resistance of a substance gives (E.g. water) to an object moving through it.



C SPECIFIC HEAT

The amount of heat input it takes to change the temperature of a substance (E.g. Water).

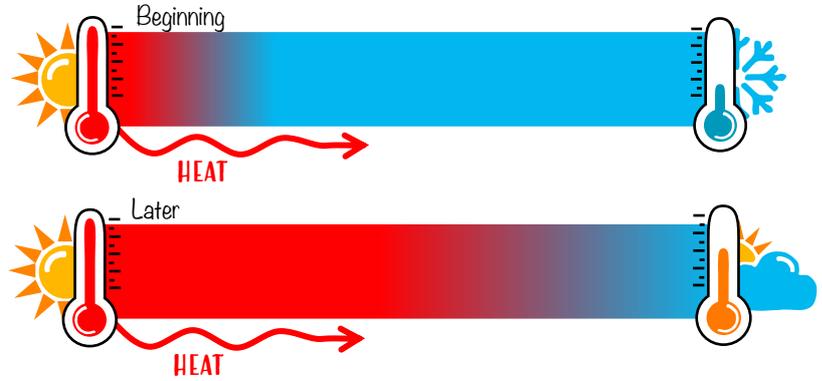
WATER HAS **HIGH** SPECIFIC HEAT (temperature doesn't change so easily)



D THERMAL CONDUCTIVITY

The ability of a substance (E.g. water) to transfer heat.

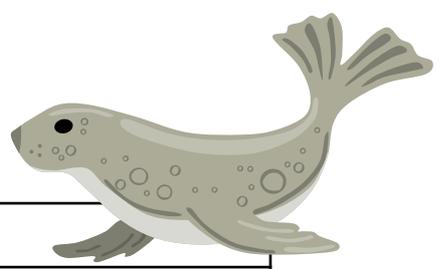
WATER HAS **HIGH** CONDUCTIVITY (heat is transferred easily in water)



PHYSICAL PROPERTIES OF WATER IN NATURE



BLACK THROATED LOON



RINGED SEAL

Helps it float	BUOYANCY	Helps it float
Requires energy to overcome the viscosity of the water. E.g., webbed feet and streamlined body shape.	VISCOSITY	Requires energy to overcome the viscosity of the water. E.g., paddle feet and streamlined body shape.
Arctic water is warmer than arctic air	SPECIFIC HEAT	Arctic water is warmer than arctic air
Need to minimize heat loss. Oil gland near tail, using beak to rub the oil on the feather making them waterproof.	THERMAL CONDUCTIVITY	Need to minimize heat loss. Thick blubber under the skin (provides insulation).



