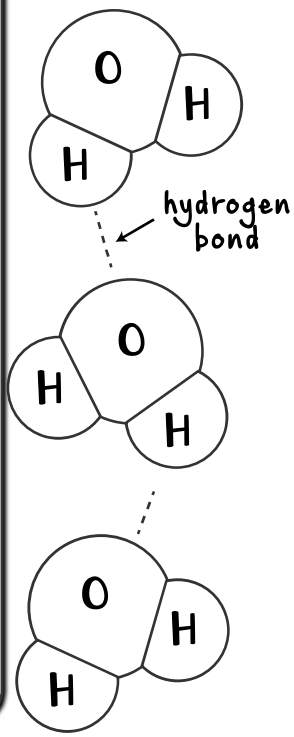
Name: _____

Properties of Water

Water molecules are very polar:

- The oxygen atom attracts its shared electrons strongly, so the oxygen atom has a slightly _____ charge.
- The hydrogen has a slightly _____ charge.
- This makes them "stick" to each other with a strong attraction called a _____.

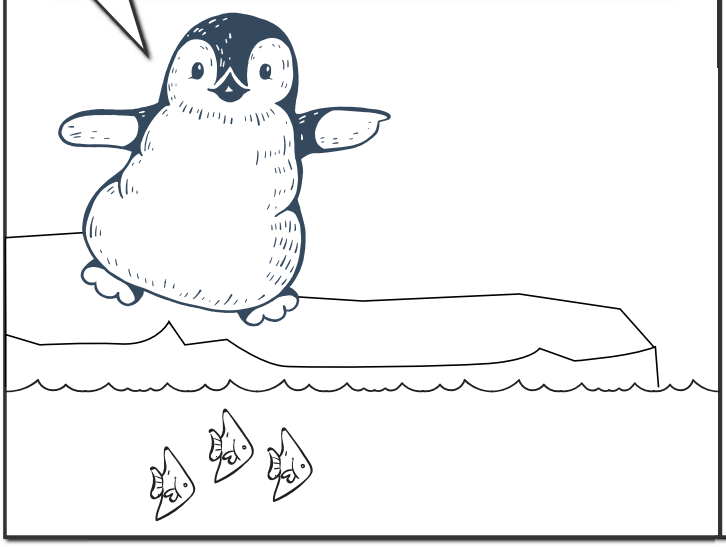


Water has a high specific heat:

- High specific heat means it takes _____ of energy to change a body of water's _____.
- Aquatic life can live without rapid/deadly changes in _____.

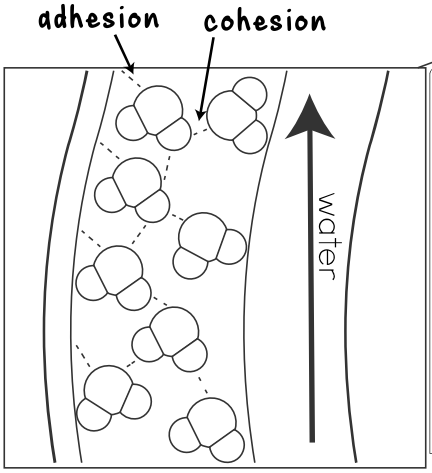
Ice is less dense than water:

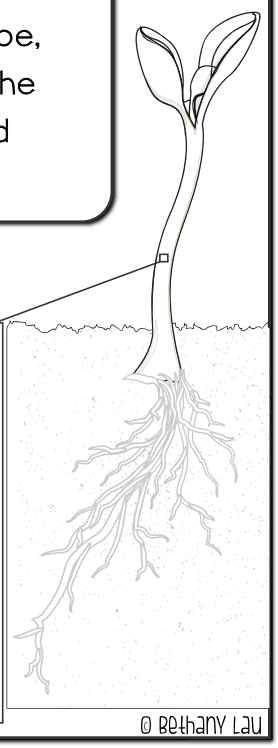
- Ice forms at the _____ because of the cold air. Aquatic organisms that live underneath the ice in the water are _____from extreme cold by the ice.
- This also allows for some animals to live on top of the ice!



Capillary Action:

- Water moves up _____ tubes within plants!
- Water is drawn up the tube, against _____, by the forces of _____ and _____.



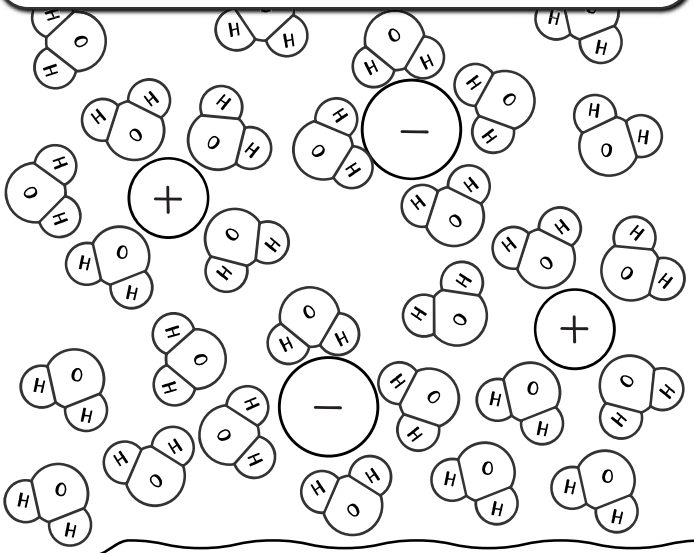


Important for Life

Water is a terrific solvent:

• Many ions and polar molecules necessary for life _____ in water.

• Water is great for carrying these ions and molecules within ____ or _____ _____ between different body tissues.

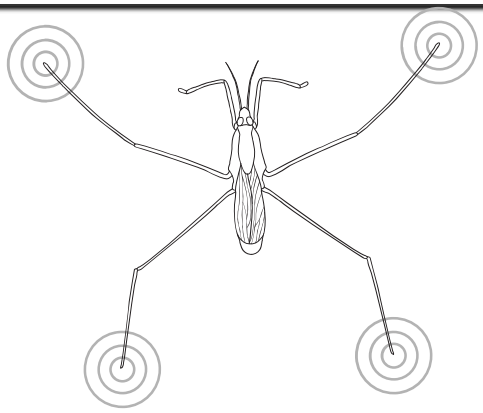


Water has a strong surface tension:

• Molecules at the surface hold _____ to each other than molecules further under the surface.

• Some life depends on being able to float on top of the surface.

• This is also why water can bead up into droplets on glass surfaces.

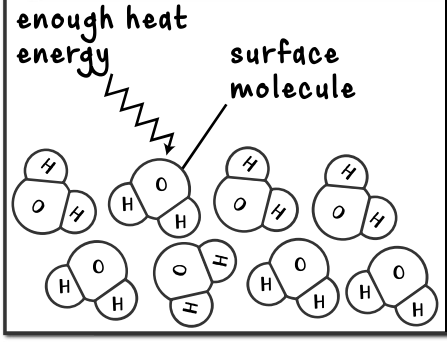


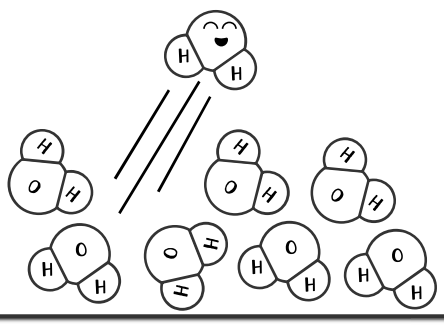
Water has a relatively high boiling point and heat of vaporization for a small hydride molecule:

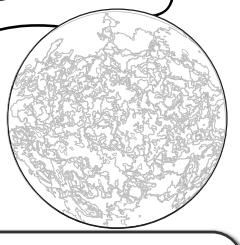
• It takes a lot of heat energy for water molecules to leave their _____, held together by _____.

• Because water does not boil at a lower temperature, most water on the planet is found in the form of _____, which is essential for life!

• Surface water molecules can evaporate when individually they gain enough _____ to break free from the _____ of the molecules around them.







Is there water on other planets?

• Many _____ in our solar system have evidence of ice and perhaps liquid water is underneath.

• Scientists believe _____ is a requirement for life to exist, which is why we keep looking for it!

• Most planets are _____ or _____ for liquid water to exist.