

Water Molecule Unit Notes

Name: _____

DO NOT LOSE! PUT IN SCIENCE BINDER

Area of Focus: Where is our water?

The six ways _____ use water

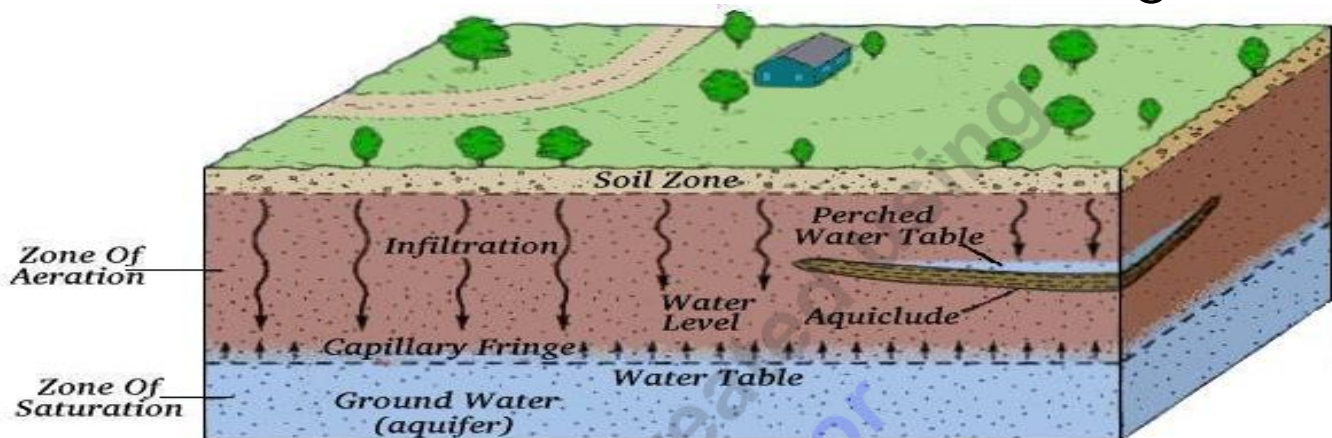
- Survival / _____
- Household
- R _____
- Industrial
- T _____
- Agricultural

Earth's Water Supply

- Oceans _____% - Salt (Cannot _____ or use for Agriculture)
- Ice Caps _____% (Locked)
- Groundwater 0.5% (Most is too Deep)
- Soil M _____ 0.005% (Can't Obtain)
- Atmosphere 0.001% (Can't Obtain)
- Inland _____ 0.018% (Available)
- Rivers 0.000096% (Available)

New Area of Focus: Groundwater

Groundwater – Water _____ in the ground



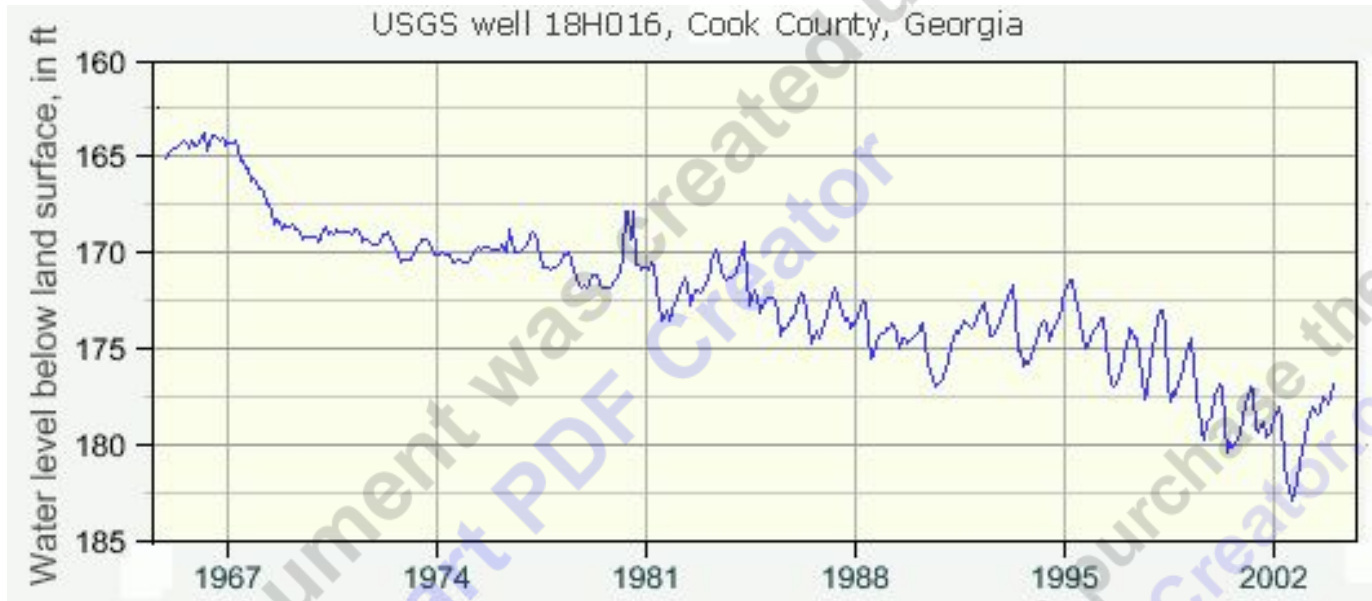
Negative _____ of Groundwater Depletion

- Drying up of _____
 - R_____ of water in streams and lakes
 - Deterioration of _____ quality
 - Increased _____ costs
 - Land use decreases in _____
- Please create a line graph in journal with the following data.

This document was created by SmartPDF Creator
To remove this message purchase the product at www.SmartPDFCreator.com

Year Water level below land (Cook Co. Georgia)

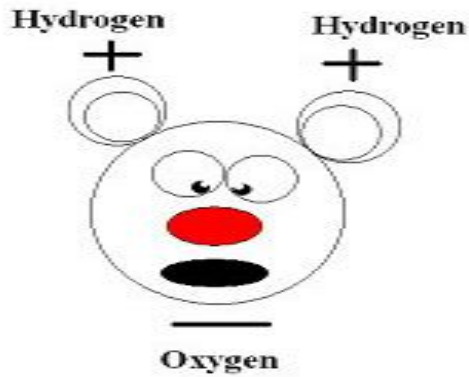
■ 1967 -	163 ft
■ 1974 -	170 ft
■ 1981 -	173 ft
■ 1988 -	175 ft
■ 1995 -	172 ft
■ 2002 -	183 ft
■ 2008 -	190 ft



Groundwater Contamination: The act of contaminating or _____ the groundwater.

NEW AREA OF FOCUS: PROPERTIES OF WATER

Water is _____. Two hydrogen atoms, one oxygen.

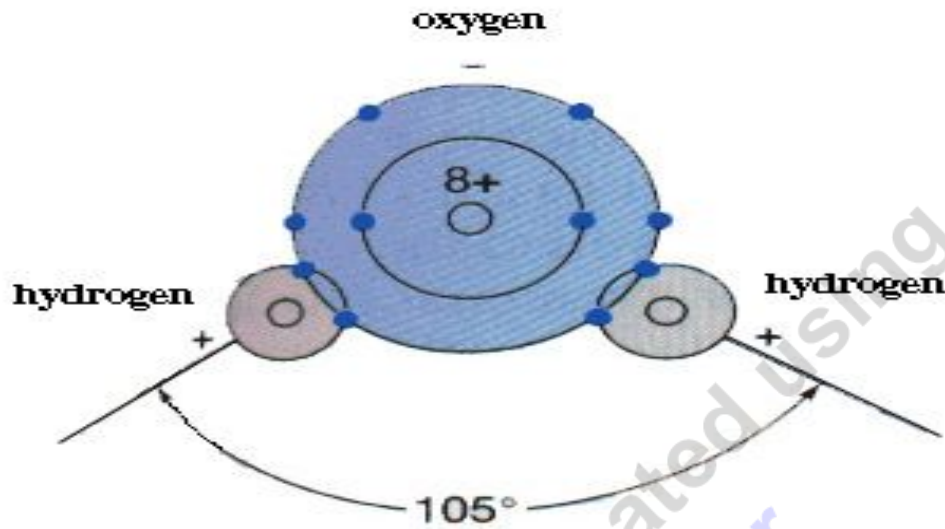


Properties of Water: Water has unique _____ because of its lopsided + and - ends.

Some water basics

- Water freezes at _____ degrees Celsius, and boils at _____ degrees
- Water freezes at _____ degrees Fahrenheit (F) and boils at 212 degrees F (Sea-Level)
- Water weighs _____ Kilograms per cubic foot.
- Weight: _____ pounds per cubic foot at 32°F (It's heavy).
- Density: _____ gram per cubic centimeter
- Water is H₂O. Two hydrogen _____, one oxygen.

Structure- H₂O (water) One oxygen bound by two hydrogen. Oxygen shares one _____ with each hydrogen atom.

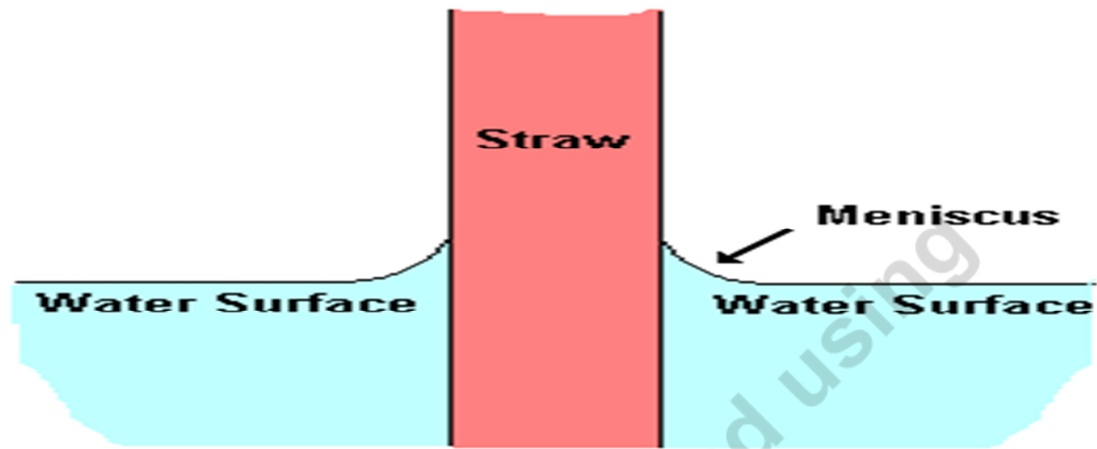


Polar molecule: One end of the water molecule tends to have a _____ charge while the other has a _____ charge.

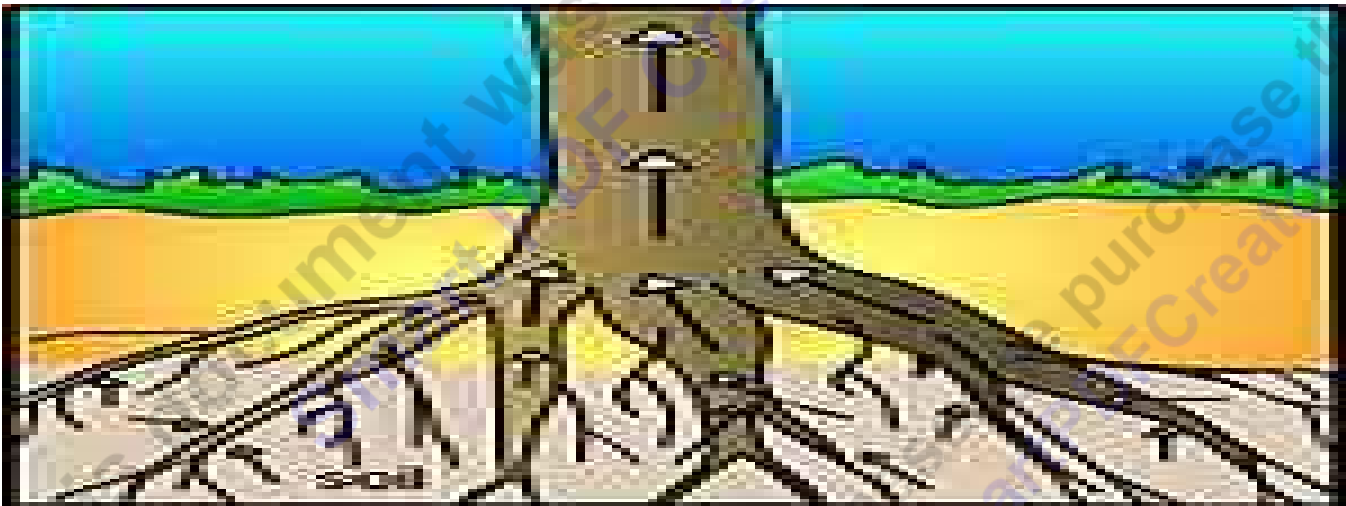
Non-polar (lipids) _____ charge

Properties of Water

- Cohesion-Hydrogen bonds hold _____ molecules together to each other.
- Adhesion – Holds water to a _____
- A meniscus is the _____ surface at the top of a column of liquid



- Capillary action – water can move up plants by adhesion.



Chromatography - A method used to _____ complex mixtures

Surface tension: Water molecules _____ to themselves.

High Specific Heat- Hydrogen bonds _____ heat when they break, and release heat when they _____.

It takes a lot of energy to _____ water, a lot of energy to freeze it, and a lot of energy to melt ice.

Water _____ the temperature of the earth.

Lower Density of Ice- Molecules are spaced far apart. Ice floats

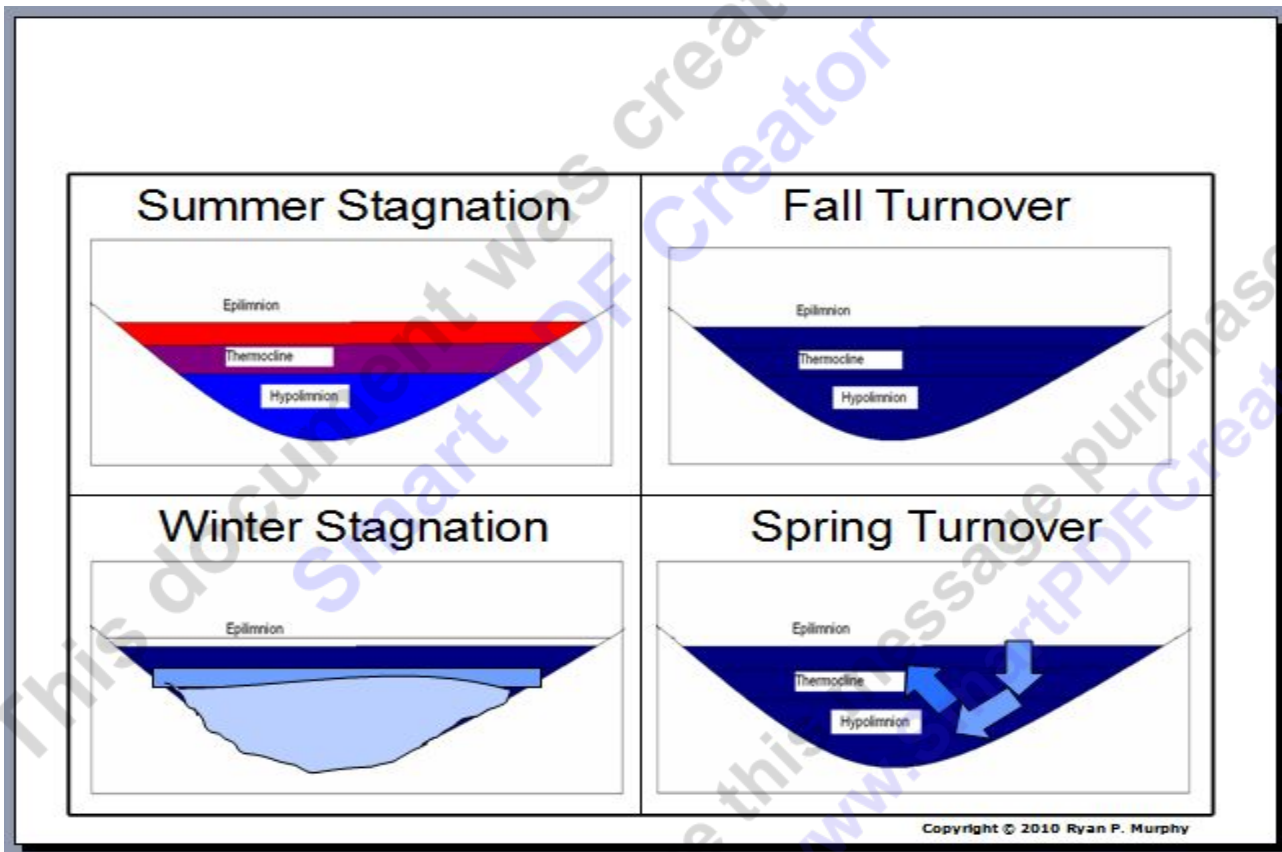
Lake Turnover Notes

- Epilimnion: The _____ layer in a layered lake.
- Thermocline: A layer within a body of water where the temperature _____ rapidly with depth.
- Hypolimnion - The _____ and most dense layer of water in a lake. Non-circulatory and remains cold throughout the year

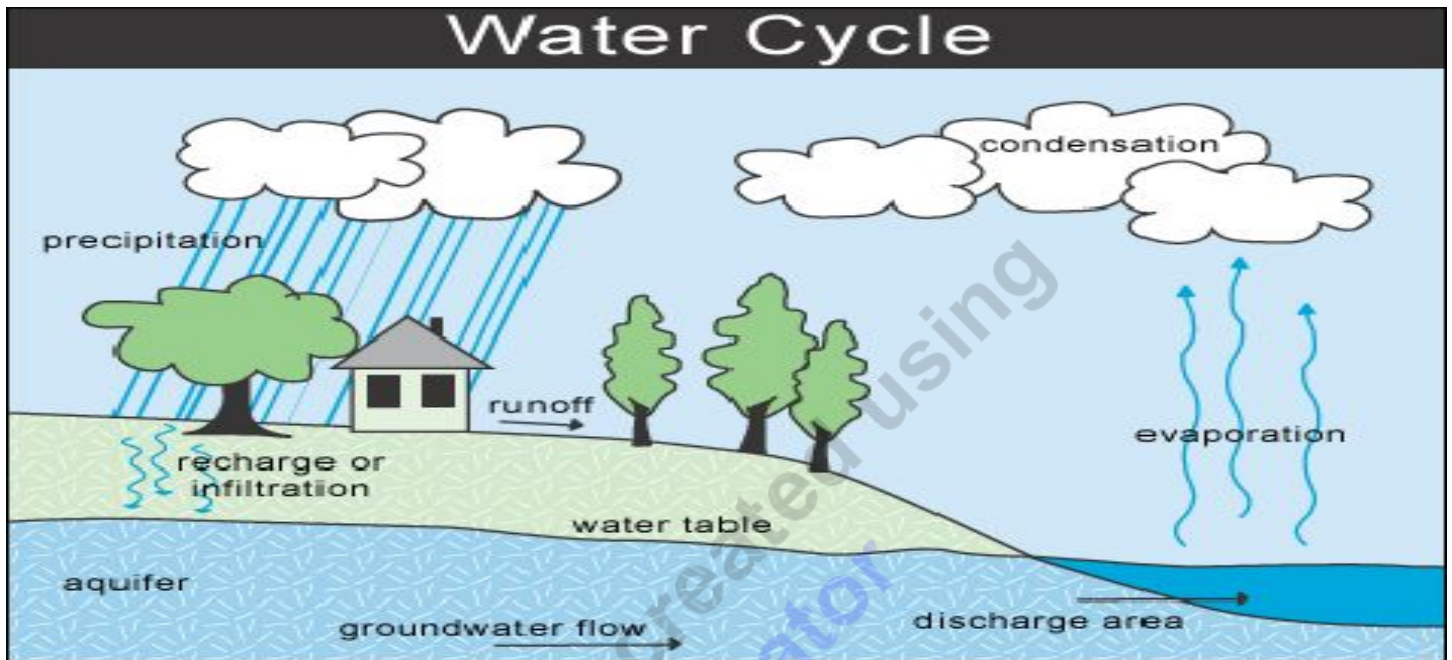
Summer Lake Stratification Zones



Throughout the year, a lake goes through many changes. In the summer the lake has three distinct layers. Colder temperatures and wind in the fall mix the layers. After the ice forms across the lake, winter layers form. The melting ice mixes the layers in the spring. The lake returns to its summer layering when the temperatures



The hydrologic cycle: The continuous movement of _____ on, above, and _____ the surface of the earth.



Evaporation – Substance changes from a _____ state to a _____ state (requires energy).

Condensation – Water vapor (_____) turns back to a _____. (energy required / cold) -cloud formation.

Precipitation – Water that is so heavy it _____ as liquid / solid.

Sublimation – Solid state turns directly to a _____ state skipping _____ phase.

Transpiration – Water released by _____ into air.

- Non-living to the living, and back again.

Surface run-off: The water flow which occurs when soil is full to capacity and excess water _____ over the land.

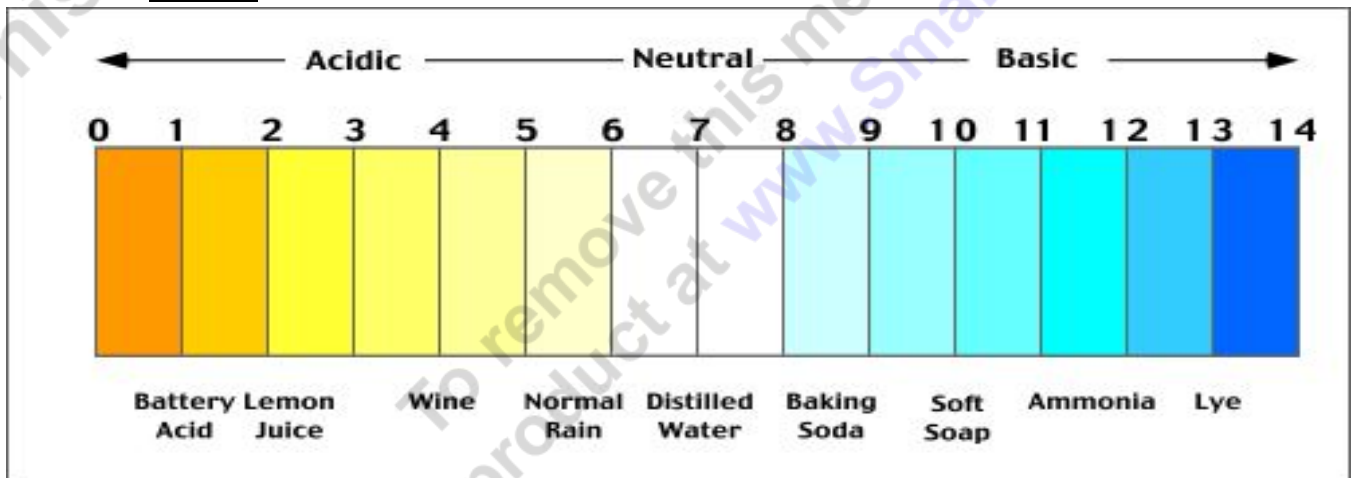
Percolation: The slow movement of water through the _____.

Groundwater d _____: Water that has been underground seeps back into the oceans, or into rivers or lakes.

Water in a pure state has a neutral _____. As a result, pure water is neither **acidic** nor _____.

pH scale goes 1-14

- _____ is neutral or very little pH
- 1 is Acidic
- _____ is basic



pH - An expression for the effective concentration of _____ ions in a solution.

The strength of an acid is based on the concentration of H⁺ (hydrogen) _____ in the solution.

- Hydrochloric Acid can induce chemical change.
- $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$ (gas)

Acid rain: Any form of _____ that is unusually acidic. Usually around a pH of 5

Acid Rain is caused by N _____ and Sulfur dioxides. Aka – Air pollution.

Universal S _____: Liquid water is able to _____ a large number of different chemical compounds.

Homogeneous mixture – _____ throughout.

Heterogeneous – A mixture of two or more compounds.

Solvent – The substance that does the dissolving (usually _____ amount)

Solute – The substance that gets dissolved (usually _____ amount)

Solubility - How much _____ can dissolve in a substance before it becomes _____.

Supersaturated: When no more _____ will dissolve. (crystals visible)

This document was created using
Smart PDF Creator

To remove this message purchase the
product at www.SmartPDFCreator.com