

Hydrosphere/Biosphere:

Why is Earth UNIQUE?



Water and life...

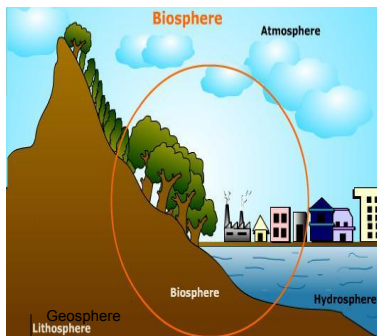
*The hydrosphere and biosphere are unique to Earth.

Hydrosphere – includes ALL of the water at or near Earth's surface

Biosphere – is the narrow layer at the surface of Earth where life can exist.



All Earth's layers are spheres

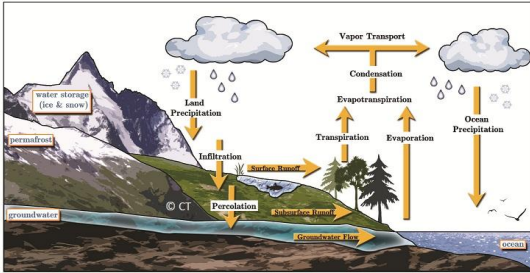


Why is Earth an OPEN SYSTEM with regard to energy?

Why is Earth a closed system with regard to matter?

Water is essential to LIFE:

Process that moves all of Earth's water through different systems.



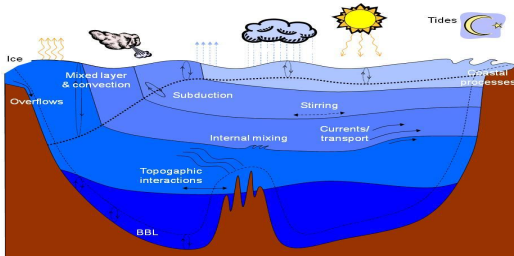
What are the 3 Major Processes of the Water Cycle?

Oceans:

75% of Earth's surface is covered by water.

Of that 75%, only 3% is freshwater!!

The oceans are all joined and absorb energy and regulate temperature.

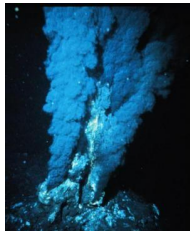


Biggest & Deepest ocean is Pacific

- The only life on the planet known to *not* rely directly on the sun's energy

are the creatures of the deep

clustered around HYDROTHERMAL Vents
some creatures perform chemosynthesis.

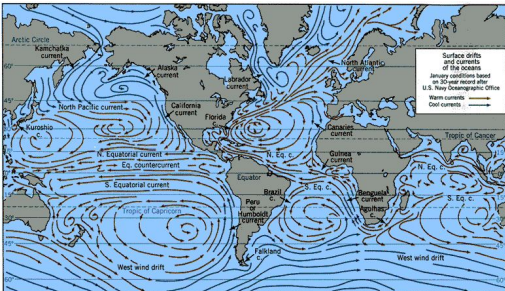




Properties of the Ocean

<i>Ocean Water</i>	<i>Temperature Zones</i>	<i>Global Temperature Regulator</i>
<ul style="list-style-type: none"> -Salts dissolved on land and carried into ocean. -NaCl 	<ul style="list-style-type: none"> -Surface Zone (top, sunlight, currents) -Thermocline (boundary between cold and warm water) -Deep Zone (no light, very cold) 	<ul style="list-style-type: none"> -Absorbs and stores energy from sunlight. -Absorbs over 1/2 of sunlight. -Regulates daily and seasonal temps so life can exist.

World surface ocean currents



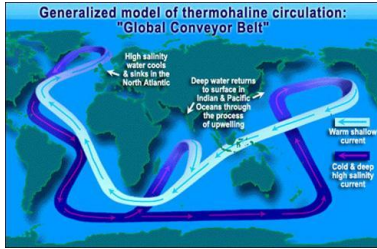
Pushed by the wind



The ocean supports life and distributes heat and nutrients around the planet.

-Streamlike movement of water around Earth.

-Ocean currents influence different climates around the world.



Freshwater = rivers and lakes

- Water is considered a renewable resource
 - However it's quality can be destroyed by pollution making it unhealthy or unusable.



-Most freshwater locked up in glaciers and icecaps.
-River system drains an area of land.



Groundwater

-**Aquifer**: underground rock that stores and filters water

*When it rains, this water can do one or more of the following:

- Infiltrate** (soak into the ground and become groundwater)
- Runoff** (run over the top of hard ground, pavement, or down the side of a steep slope)
- Evaporate** (rejoin the water cycle again)
