

Hydrosphere

LHA Earth/Environmental Science

What is the Hydrosphere?

Hydrosphere → _____

- Includes water that is on the _____ of the planet
- Includes water that is _____
- Includes water that is in the _____

- Can be liquid, ice, or vapor

Water Fun Facts

70% - Water covers 70% of all the _____!

3% - Only about 3% of all water is _____!

0.014% - Of all the freshwater on Earth, only 0.014% can be _____!

- Most of the freshwater is ice in the _____ and _____

Short Water Cycle

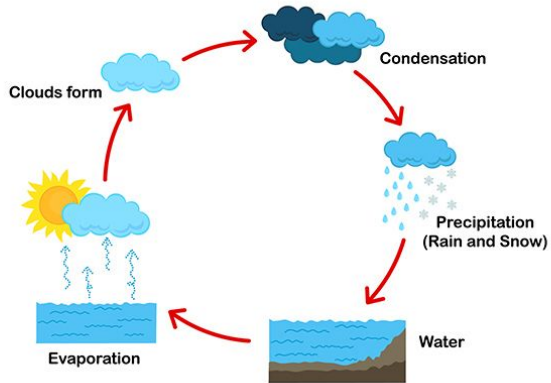
Short Water Cycle: Basic water cycle

- _____ - water is heated and turns into water vapor

- _____ - High up in the atmosphere the air cools down and this vapour turns into tiny water droplets, which form clouds

- _____ - The clouds float on air currents. Droplets fall down as snowflakes, hail, or raindrops. They may fall on land or in a body of water

Short Water Cycle

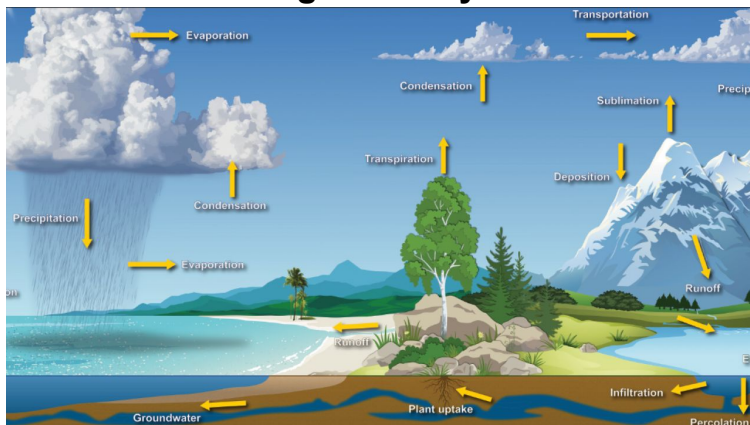


Long Water Cycle

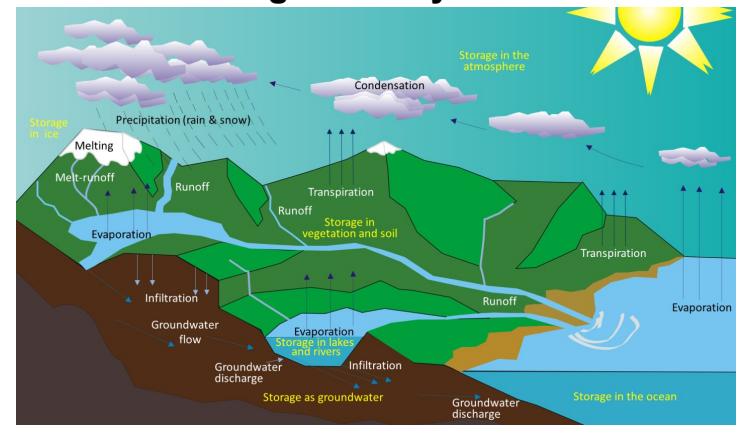
Long Water Cycle: On top of the short water cycle...

- _____ - precipitation that does not soak into the ground, but instead moves on the Earth's surface toward bodies of water
- _____ - freshwater (from rain or melting ice/snow) that soaks into the soil and stored in tiny spaces (pores) between rocks and particles of soil
 - _____ - process of water entering the ground from the surface
 - _____ - Water that gets soaked up into plant's roots
- _____ - water from plants is released as water vapor (evaporation) from their leaves

Long Water Cycle



Long Water Cycle #2



REFLECTION

How does the short and long water cycles differ?

What are some new water cycle terms that you learned?

Land Water

Natural Resource

People also depend on water as a _____.

- Humans are not content with getting water directly from bodies of water, they create canals, _____, _____, and _____ to collect water
- They direct the water where they want it.

Aqueducts

Aqueduct → watercourse constructed to _____ from a source to a distribution point far away

- Modern Day → the term aqueduct is used for any system of _____, _____, canals, _____, and other structures used for this purpose.

Dams

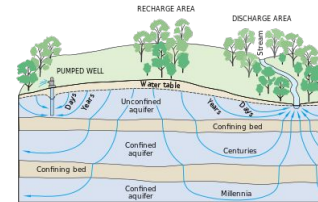
Dam → a barrier that _____ the flow of surface water or underground streams

- Reservoirs created by dams not only suppress floods, but also provide water for activities such as _____, human consumption, industrial use, aquaculture, generate _____, and navigability

Aquifer

Aquifer → a body of rock and/or sediment that holds groundwater

- _____ **aquifers** have a layer of impenetrable rock or clay above them
- _____ **aquifers** lie below a permeable layer of soil



Wells

Well → a hole drilled into the ground to _____ contained in an _____

- Sometimes, a _____ are used to pull water out of the ground, and a screen filters out unwanted particles that could clog the pipe
- Older wells used a _____ and a bucket to retrieve water



REFLECTION

Why do you think humans created things like dams, wells, and canals instead of relying on natural bodies of water (lakes, rivers, streams, etc)?

Do you think aquifers will ever run out of water? What do you think would happen if that happens?

Oceans

HUUUUGE!

Make up _____% of the planet

Contains _____% of ALL of the water on Earth

Heat and Energy

Transfer of Heat:

- Oceans are heated up from the sun around the _____
- The heat energy is transferred between the equator and the _____ (*North Pole and South Pole*)
 - This is done by large ocean currents deep in the ocean, along with wind currents
- Ocean currents are **extremely important** because they _____ around the planet and influence _____ around the globe

Ocean Currents

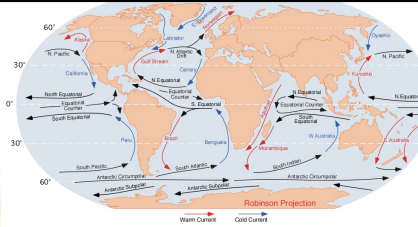
Predictable:

- Ocean water moves in _____ ways along the ocean surface
- Surface currents can flow for _____ of miles and reach depths of _____ of feet
- These currents remain _____, even in large storms

Created by three things:

- Global _____ patterns, _____ of Earth, and shape of ocean _____ (*ocean floor sections*)

The ocean floor is made up of 5 major ocean basins



Ocean currents distribute heat around the planet

- Red Arrows** = warm water moving to cooler climate
- Blue Arrows** = cool water moving to warm climate
- Black Arrows** = currents not changing temperature

Vital

Oceans are so important to human civilizations that nearly _____% of the world's population live near _____

- Oceans make up a majority of all biomass on Earth
 - _____ → total mass of living organisms on Earth
 - These organisms supply people with _____ and _____ created by marine plants
- Distribute _____ around planet and moderate _____ within regions

REFLECTION

Why are oceans so vital to the Earth and humans?

How can we utilize the oceans to help the survival of humans?