

## The Hydrologic Cycle

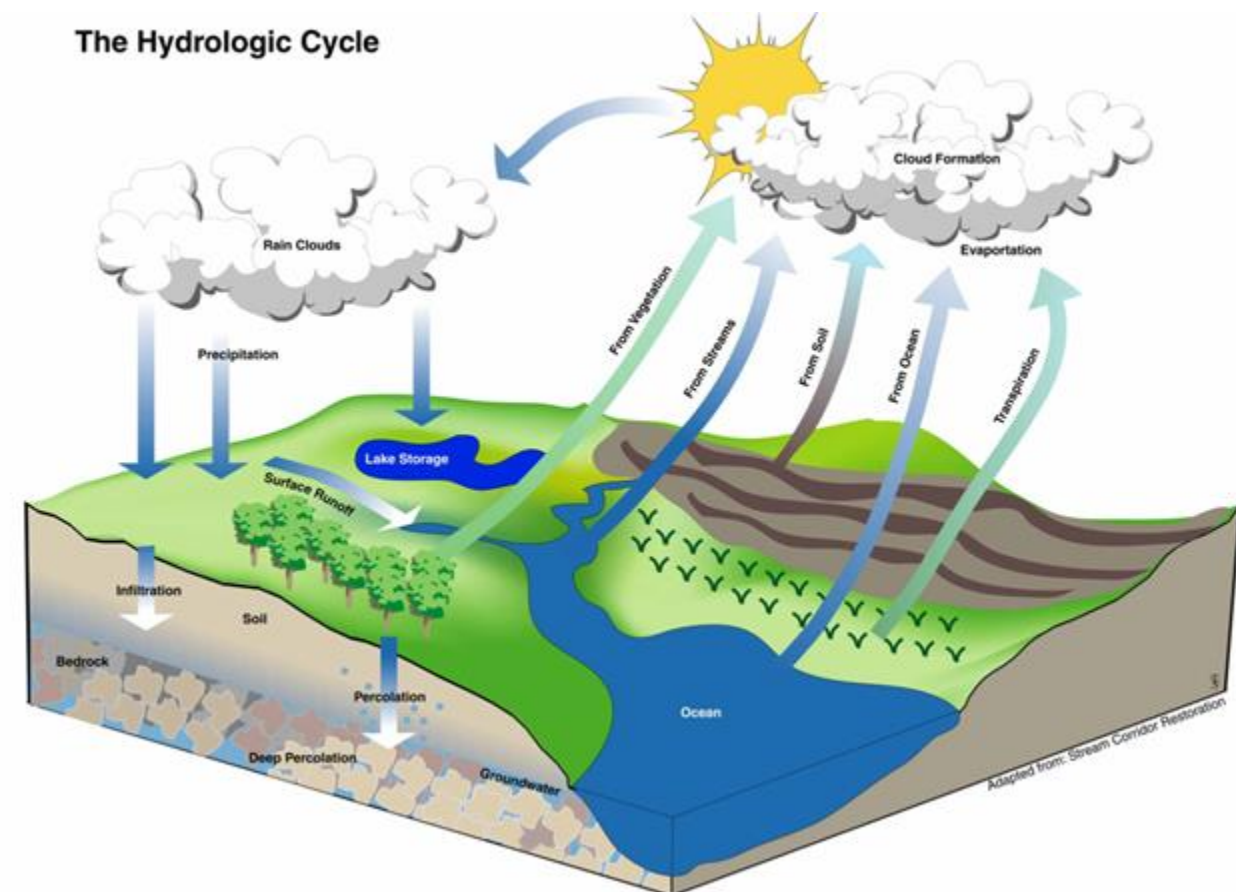
### Learning Activity

Go online and review the water cycle-

<https://www.youtube.com/watch?v=al-do-HGulk>

All the water we'll ever have is already here on Earth. We study hydrology because we need to know how best to steward this precious resource so that future generations will have the same or better use and enjoyment as we did.

Water circulates around the Earth in a process called the **hydrologic cycle** or water cycle. The energy from the sun and wind causes water on the Earth's surface in oceans, lakes, river, streams, and wetlands to evaporate into water vapor into the air, which rises and forms clouds. Vegetation from rain forests to the turf grass on your lawn draws up groundwater from the earth, uses it for photosynthesis, and then transpires it out through pores on the leaves as water vapor. This movement of water from the Earth's surface and vegetation is called Evapotranspiration or ET. Clouds return the water to Earth through precipitation (rain or snow) or through fog.

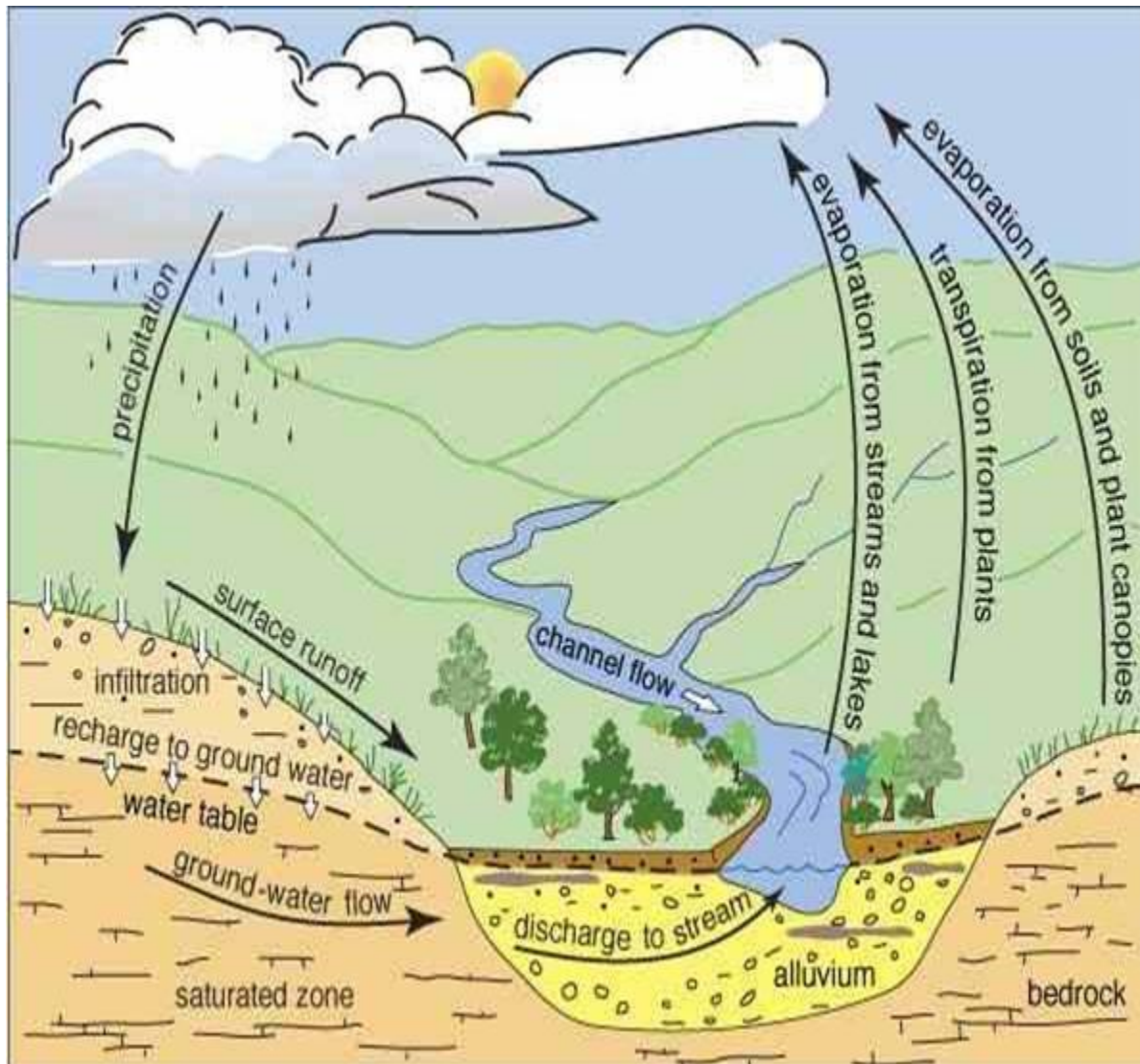


**Side note:** Montane, or high-elevation, forests in tropical climates are sometimes called cloud forests. Water vapor in the thick fog and clouds condenses on trees, and then runs off to the ground below. Large cloud forests can produce so much condensate that it forms streams that flow down the mountain, serving as a water source to people and animals living at lower altitudes. If too many of those trees are harvested, that water source is lost.

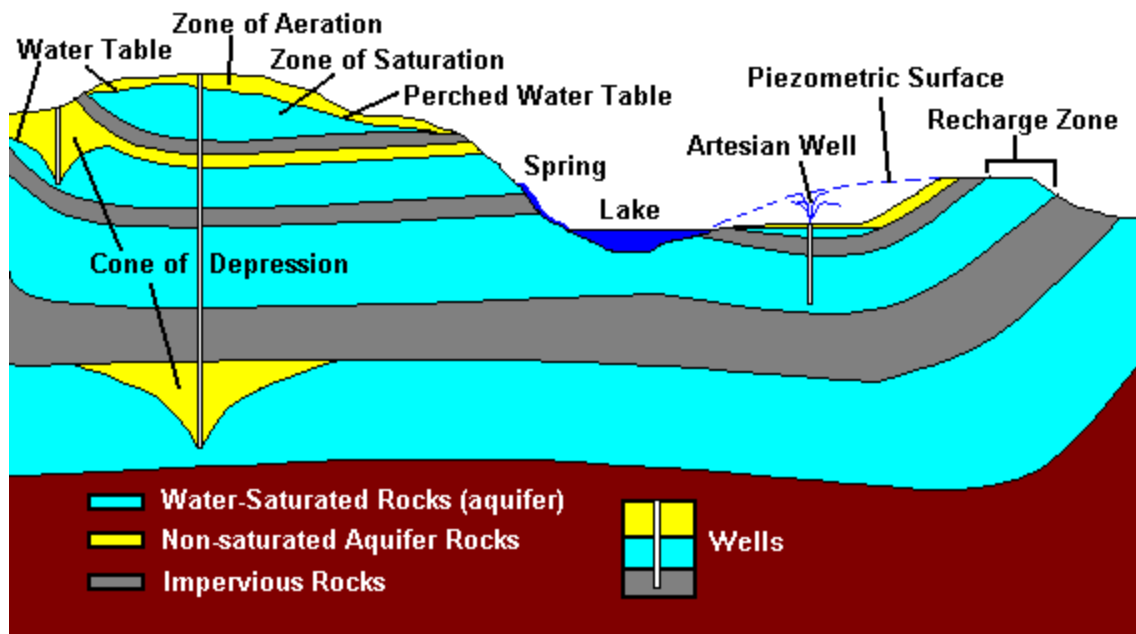


Precipitation, whatever form it takes, lands on the Earth's surface. Some of it collects into storage areas that we call lakes, ponds, wetlands, streams, rivers, and oceans. When that water falls on the ground and moves to one of those storage areas, we call that movement Runoff. When that water moves in a conveyance such as a creek, stream, or river, we call that Flow.

Some of the water soaks into the ground, and we call that Infiltration. Some infiltrated water stays in the top layers of soil and gets used by vegetation, moves sideways into a stream, wetland, or lake, or simply dries out. We sometimes call that Surficial Groundwater, or sometimes the Water Table.



Some of the infiltrate continues to move downward into deeper soil and rock layers. We call that process Percolation. Percolation returns water into the deeper aquifers, a process we call Groundwater Recharge. Some of this deeper, percolated water moves into our lakes and oceans, where the hydrologic cycle starts again. Some of the groundwater is withdrawn for use as drinking water or for industrial or other processes.



#### Vocabulary of The Hydrologic Cycle:

- Evapotranspiration-Vegetation from rain forests to the turf grass on your lawn draws up groundwater from the earth, uses it for photosynthesis, and then transpires it out through pores on the leaves as water vapor. This movement of water from the Earth's surface and vegetation is called Evapotranspiration or ET
- Precipitation- Water that falls to the ground as rain, snow, or sleet
- Runoff- Water that falls to the ground, and moves downhill to a lake, river, stream or other storage area
- Infiltration- Water that falls to the ground and soaks into the ground where it falls.
- Percolation- Water that soaks into the ground and continues to soak deep into porous layers of rock and soil

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