

Earth Structure and the Hydrologic Cycle

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The basic four branches of earth science are

- _____ - study of the **earth**
- _____ - study of the **atmosphere**, weather and climate
- _____ - study of the **oceans**
- _____ - study of the **universe**

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The Earth is not quite round. It is slightly squashed from pole to pole.
The Earth is about 12756 km in diameter.

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The Earth has three basic layers.

The _____

Outer layer (where we live) it is around 5-70 km thick.

The _____

Hot, slow flowing rock! It is about 2900km thick.

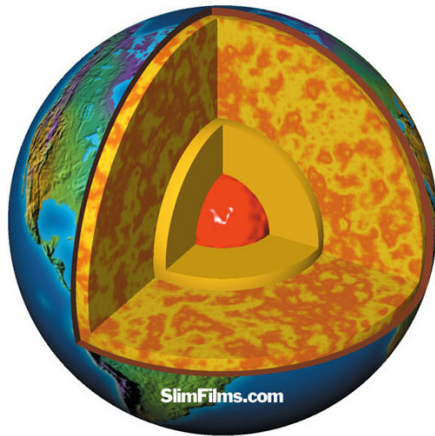
The _____

Innermost region

Divided into a inner core (mostly solid iron) and a outer core (molten nickel-iron)

It is about 3550km thick

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The Main Parts of the Earth

The _____

The **solid** part of the Earth.

Sphere - round 3d object

litho - means "stone"

All the Continents **and the land under the seas.**

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The _____

The envelope of **gases** surrounding the Earth.

Nitrogen and oxygen make up most of our atmosphere.

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The _____

The biosphere includes any place that life (of any kind) can exist on Earth.

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The _____

All the **water and ice** on the Earth.

hydro - means "water"

About 70% of the planet is covered in ocean

326,000,000,000,000,000 gallons, or about (1,260,000,000,000,000,000 liters)

Salt water makes up about 97% of the Earth's water

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The Earth's Energy

There are two primary sources of energy in and around the Earth

The Earth's _____ energy.

Left over energy from the planet's formation.

Keeps our planet's core hot and our compasses pointing the right way

The energy of the _____

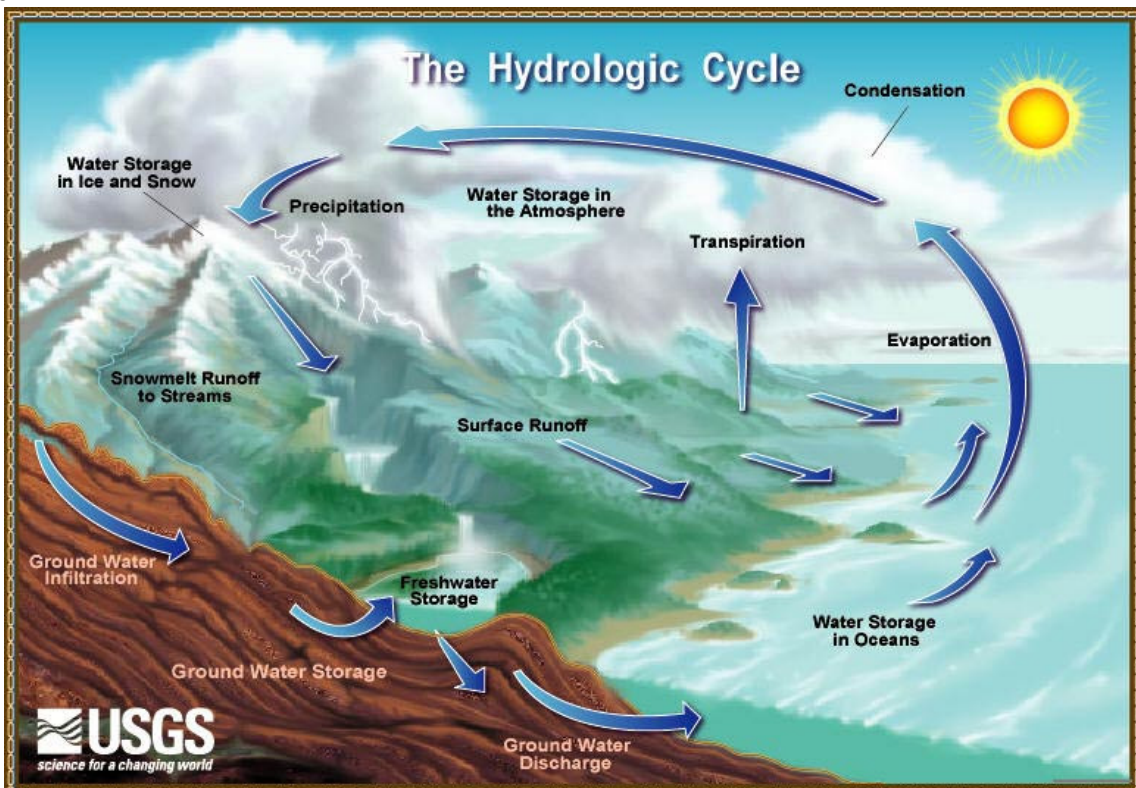
Most common source of Energy on the surface.

Almost all life on earth gets its energy from the sun

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It is the energy of the sun that heats the water to start and run the Hydrologic cycle

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Terms you should know

Evaporation Condensation Transpiration Runoff Infiltration (Percolation)
Groundwater Storage (Aquifer) Streamflow

Photosynthesis -> $\text{CO}_2 + \text{H}_2\text{O} > \text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 + \text{H}_2\text{O}$

Respiration -> $\text{C}_6\text{H}_{12}\text{O}_6 + \text{O}_2 > \text{CO}_2 + \text{H}_2\text{O}$

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_____ is the process by which water changes from a liquid to a gas.

Evaporation is the primary pathway that water moves from the liquid state back into the water cycle as atmospheric water vapor.

Studies have shown that the oceans, seas, lakes, and rivers provide nearly 90 percent of the moisture in our atmosphere via evaporation, with the remaining 10 percent being contributed by plant transpiration.

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_____ is the process in which water vapor in the air is changed into liquid water.

_____ is crucial to the water cycle because it is responsible for the formation of clouds.

_____ is the opposite of evaporation.

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_____ : The release of water from plant leaves.

An acre of corn gives off (transpires) about 3,000-4,000 gallons (11,400-15,100 liters) of water each day, and a large oak tree can transpire 40,000 gallons

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Precipitation _____ which travels over the soil surface to the nearest stream channel.

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_____ The movement of water in a natural channel, such as a river.

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_____ (Percolation)

The downward movement of water from the land surface into soil or porous rock

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_____ Storage

Water existing for long periods below the Earth's surface.

Most of the water in the ground comes from precipitation that infiltrates downward from the land surface.

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Distribution of the Earth's Water Resources

Oceans 97.2%

Ice Caps and Glaciers 2.15%

Ground Water and Aquifers 0.625%

Lakes and Ponds	0.017%
Atmosphere	0.001%
Rivers and Streams	0.0001%

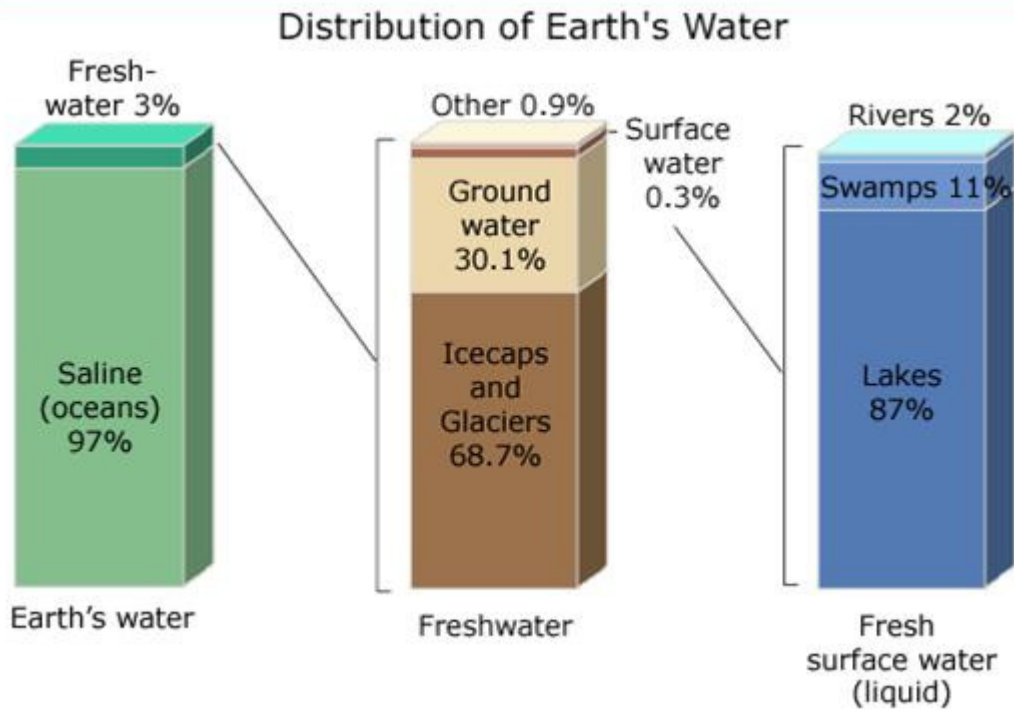
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97% of the earth's water is salt water

3% is fresh (unsalted) water

0.014% of all of the earth's water is available to humans, other organisms and fresh water ecosystems

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Global water distribution

“There is as much water on Earth today as there ever was - or will be.”