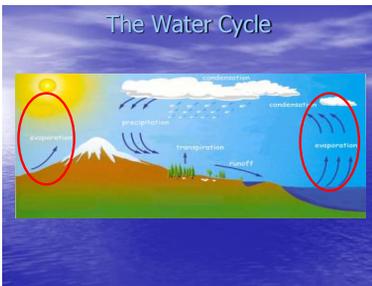
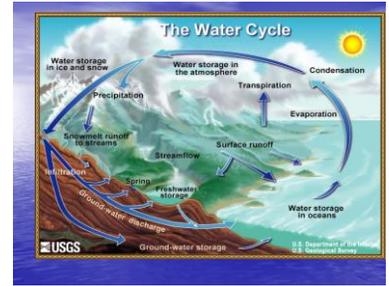
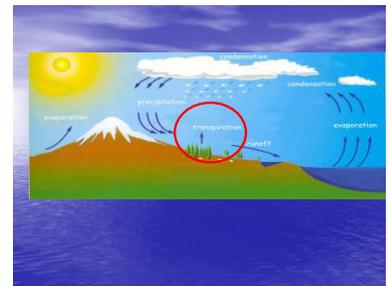




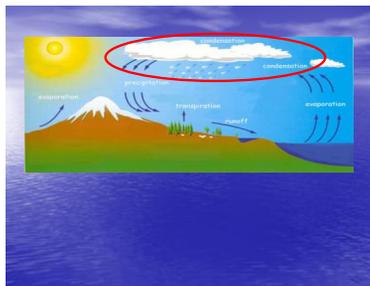
Water never leaves the Earth. It is constantly being cycled through the atmosphere, ocean, and land. This process, known as the **water cycle**, is driven by energy from the sun. The water cycle is crucial to the existence of life on our planet.



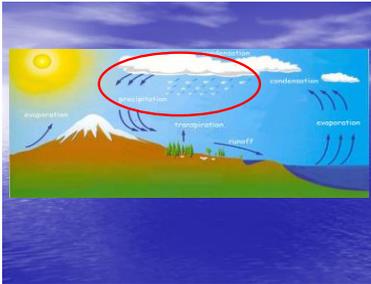
During part of the water cycle, the sun heats up liquid water and changes it to a gas by the process of **evaporation**. Water that evaporates from Earth's oceans, lakes, rivers, and moist soil rises up into the atmosphere.



The process of evaporation from plants is called **transpiration**. (In other words, it's like plants sweating.)

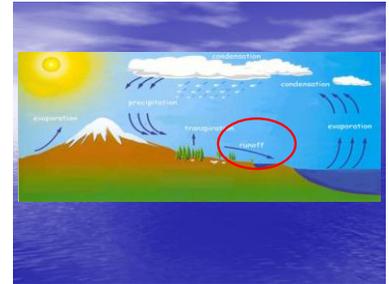


As water (in the form of gas) rises higher in the atmosphere, it starts to cool and become a liquid again. This process is called **condensation**. When a large amount of water vapor condenses, it results in the formation of clouds.



When the water in the clouds gets too heavy, the water falls back to the earth. This is called **precipitation**.

An illustration showing rain falling on a green field with a wooden fence in the foreground.



When rain falls on the land, some of the water is absorbed into the ground forming pockets of water called **groundwater**. Most groundwater eventually returns to the ocean. Other precipitation runs directly into streams or rivers. Water that collects in rivers, streams, and oceans is called **runoff**.

A photograph of a waterfall cascading over rocks.

Earth is called the "Water Planet"

- 71% of the earth's surface is covered by water.
- Water is essential for LIFE on earth.

A photograph of the Earth as seen from space, showing the blue oceans and white clouds.

**Water on earth's surface is easy to see...**

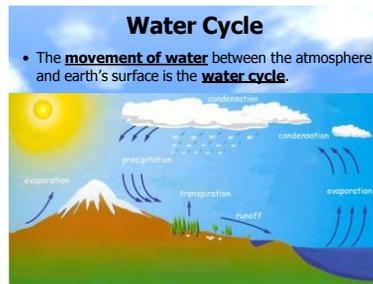
- Oceans
- Lakes
- Rivers
- Glaciers

**But what about water in earth's atmosphere???**

**Water in the atmosphere**  
It's less obvious than surface water, but there are many signs of water in the atmosphere:

- Rain, Snow, Drizzle
- **Clouds & Fog**
- Hot days that feel **"muggy"** or **"humid"**
- **Dew on the grass** in the morning

Icons representing snow, an umbrella, and dew on grass.



**How does water get into the air?**

- **EVAPORATION** – is the process where liquid water molecules **escape into the air** as water vapor.
- 3 things affect how quickly water evaporates:
  - 1) **Temperature**
  - 2) **Wind**
  - 3) **Humidity of the air**

Diagrams showing water molecules and a process of evaporation from a body of water.

## How much water can air hold?

- **HUMIDITY** is the measure of how much **water vapor** is in the air.
- **TEMPERATURE** affects how much water vapor the air can hold...



**Warm Air**

**Cold Air**

holds **MORE** water vapor. ... holds **LESS** water vapor.

That's why air feels more "**HUMID**" on hot days!

## What is the "Dew Point"?

- As air **cools**, the amount of water vapor it can hold **decreases**.
- At a certain temperature, the water vapor in the air will **CONDENSE** back into water droplets or ice.
- This temperature is the "**DEW POINT**".



## What is the "Dew Point"?

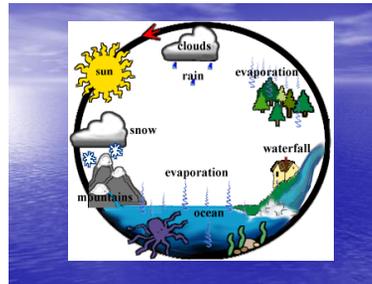
- So, when the air temperature equals the "**Dew Point**" temperature, the air **cannot hold** any more water.

That means relative humidity is 100%!

Ever wondered about why the grass (or a car windshield) is wet in the morning?



Overnight, the **temperature dropped below the "dew point" temperature**, and the water in the air condensed into water droplets on the grass.



## Important Information

- The cycling of water in and out of the atmosphere is the main cause of weather patterns on Earth.
- 97% of the Earth's water is in the oceans
- 3% of the Earth's water is fresh water.

## Fun Facts:

- The length of time an average water molecule stays in the atmosphere is 9 days.
- The length of time an average water molecule stays in the ocean is 3200 years.

