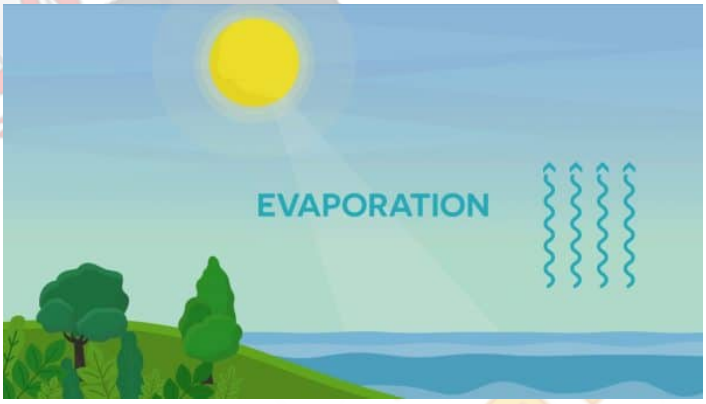
D3. Evaporation

Evaporation: The Water Cycle's Magical Disappearance

Water is all around us, and it plays a crucial role in the water cycle. Have you ever wondered what happens to water when it disappears? This magical vanishing act is called evaporation, and it is an essential part of the water cycle.



What is Evaporation?
Evaporation is like a magic trick performed by water. When water is heated by the Sun's warm rays, it turns into an invisible gas called water vapor. Water vapor is like a ghost that we can't see, but it's always around us.

Where Does Evaporation Occur?
Evaporation can happen anywhere there is water, whether it's a vast ocean, a peaceful lake, a running river, or even a small puddle after the rain. The Sun's energy provides the heat needed to perform this incredible magic trick.

How Does Evaporation Happen?
As the Sun's rays shine down on the water's surface, the water molecules start to get very excited. They begin to dance, move, and jump around. The Sun's energy gives them the power to break free from the water and turn into water vapor. These water vapor molecules rise into the sky, where they form clouds.

Why is Evaporation Important?
Evaporation is a vital part of the water cycle because it helps to move water from the Earth's surface up into the sky. This is like sending water on a magical adventure! Once in the sky, water vapor cools down and transforms into tiny water droplets, forming clouds. These clouds will eventually release the water back to Earth as precipitation, such as rain, snow, sleet, or hail.

Effects of Evaporation
Evaporation not only helps in the water cycle, but it also has some other fascinating effects. When you hang your wet clothes outside to dry on a sunny day, they will dry faster because of evaporation. The heat from the Sun makes the water on your clothes turn into water vapor, and it disappears into the air.

Fun Facts About Evaporation
Did you know that a large oak tree can release over 40,000 gallons of water into the air through evaporation in a single year?

The amount of water evaporating from the Earth's surface is enormous. It is estimated that about 500,000 cubic kilometers of water evaporate each year. That's enough water to cover the entire United States in about one meter of water!
Now that you know the magic behind evaporation, the next time you see a puddle disappear after a sunny day, you'll know that it's all thanks to the water's exciting dance with the Sun!

1. What happens during evaporation in the water cycle?
    A) Water turns into ice.
    B) Water changes into tiny droplets.
    C) Water vapor rises into the sky.
    D) Water becomes heavy and falls back to Earth.

2. What is evaporation?
    A) Water turning into an invisible gas called water vapor.
    B) Water freezing into ice.
    C) Water falling back to Earth as precipitation.
    D) Water turning into solid rock.

3. Where does evaporation occur?
    A) Only in the oceans.
    B) Only in lakes and rivers.
    C) Everywhere there is water.
    D) Only in the desert.

4. What provides the heat for evaporation?
    A) The Moon's rays.
    B) The Sun's warm rays.
    C) The wind.
    D) The rain.

5. What happens to water vapor in the sky?
    A) It turns into tiny water droplets and forms clouds.
    B) It becomes heavy and falls back to Earth as rain.
    C) It freezes into ice crystals and forms snow.
    D) It disappears forever.

6. Why is evaporation important in the water cycle?
    A) It helps to move water from the sky to the Earth's surface.
    B) It helps to move water from the Earth's surface to the sky.
    C) It helps to move water from the rivers to the oceans.
    D) It helps to move water from one cloud to another.

7. What is the effect of evaporation on wet clothes hanging outside on a sunny day?
    A) The clothes become heavier.
    B) The clothes shrink in size.
    C) The clothes dry faster.

D) The clothes become wetter.

8. How do water vapor molecules rise into the sky during evaporation?
   A) They break free from the water and turn into water vapor.
   B) They turn into tiny water droplets and form clouds.
   C) They freeze into ice crystals and form snow.
   D) They become heavy and fall back to Earth as precipitation.

9. What happens to water vapor in the sky after evaporation?
   A) It turns into invisible gas.
   B) It turns into tiny water droplets and forms clouds.
   C) It becomes heavy and falls back to Earth as rain.
   D) It turns into solid ice.

10. How much water evaporates from the Earth's surface each year?
   A) About 500 cubic kilometers
   B) About 5,000 cubic kilometers
   C) About 50,000 cubic kilometers
   D) About 500,000 cubic kilometers

ANSWERS & EXPLANATIONS

1. C) Water vapor rises into the sky.
    - During evaporation, water turns into an invisible gas called water vapor, which rises into the sky.

2. A) Water turning into an invisible gas called water vapor.
    - Evaporation is the process where water turns into an invisible gas called water vapor.

3. C) Everywhere there is water.
    - Evaporation can happen anywhere there is water, whether it's in oceans, lakes, rivers, or even puddles.

4. B) The Sun's warm rays.
    - The heat for evaporation comes from the Sun's warm rays, which excite water molecules and turn them into water vapor.

5. A) It turns into tiny water droplets and forms clouds.
    - In the sky, water vapor turns into tiny water droplets and forms clouds during condensation.

6. B) It helps to move water from the Earth's surface to the sky.
    - Evaporation is important in the water cycle because it helps to move water from the Earth's surface up into the sky.

7. C) The clothes dry faster.
    - The heat from the Sun during evaporation makes wet clothes dry faster when hung outside on a sunny day.

8. A) They break free from the water and turn into water vapor.
    - During evaporation, water molecules get excited by the Sun's energy and break free from the water to turn into water vapor.

9. B) It turns into tiny water droplets and forms clouds.
    - After evaporation, water vapor turns into tiny water droplets during condensation, forming clouds.

10. D) About 500,000 cubic kilometers
    - It is estimated that about 500,000 cubic kilometers of water evaporate from the Earth's surface each year.