

Water cycle

- ▶ The **water cycle** is the process by which water is continually cycled through the Earth's atmosphere, land, and oceans.
- ▶ It is a vital part of the Earth's ecosystem, as it helps to regulate temperature, provide drinking water, and support plant and animal life.
- ▶ In the **water cycle**, water moves between different areas, which include:
 1. Oceans
 2. Rivers
 3. The atmosphere
- ▶ The water is moved by specific processes, which is possible because water can change state at relatively low temperatures.

Steps of water cycle

There are main 4 steps of water cycle

1. Evaporation
2. Transpiration
3. Condensation
4. Precipitation

1. **Evaporation:** The energy from the Sun causes some of the water to **evaporate** from the oceans, rivers, lakes and water on land. This forms water vapour, which rises with the warm air into the atmosphere.

2. **Transpiration:** in plants also causes water to turn into water vapour.

3. **Condensation:** As the water vapour rises, it will cool down in the air, so it **condenses** to form clouds.

4. **Precipitation:** The water vapour can be blown from one region to another. Eventually, the water droplets fall back down to the Earth's surface in the form of rain, snow, sleet, or hail called **precipitation**.

5. **Drainage of water:** Some of the water that falls to the ground infiltrates or seeps into the soil, where it's absorbed by plants for photosynthesis, or it may **run off** into rivers and lakes, eventually making its way back to the oceans.

6. Then the cycle repeats.

- It is important to **note** that the water cycle is a continuous process, with water constantly evaporating and falling back to the Earth's surface. It is also affected by various factors, such as temperature, humidity, and the amount of sunlight.

The Importance of the Water Cycle

- The water cycle is important for a number of reasons.
- For example:
 1. it helps us to **predict weather patterns** and manage our water resources.
 2. It also plays a crucial role in the health of the **Earth's ecosystem**, as it helps to regulate temperature and provide water for plants and animals.
 3. **Use in Agriculture:** The water cycle plays a crucial role in agriculture, as it provides the water needed for plants to grow. By understanding the water cycle, farmers can better predict when to plant and irrigate their crops to maximise crop yield.
 4. **Energy production** – Hydroelectric power plants use the energy from falling water to generate electricity. By understanding the water cycle, we can predict when there will be enough water available to produce hydroelectric power and plan accordingly.
 5. **Flood prevention** – By understanding the water cycle, we can better predict and prevent floods. For example, we can use dams and levees to control the flow of water and reduce the risk of flooding.
- **Desalination** is the process of removing salt and other minerals from seawater, making it safe to drink and use for other purposes. It is often used as a source of fresh water in areas that are experiencing drought or a lack of rainfall that leads to a water shortage.

