

Advay is 11 years old and is in 5th grade.

---

## **WATER**

**by Advay Tripathi**

### Introduction

Water is a clear, tasteless, and odorless liquid. Its formula is  $H_2O$ , which means that two molecules of hydrogen and one molecule of oxygen combine to make water. Water also contains minerals like calcium, copper, magnesium, zinc, iron, potassium, sodium, etc. Water is found in 3 states: solid, liquid, and gas.

When liquid water turns solid, it expands by 9%. This is called freezing. When liquid water turns into gas, the process is called evaporation. When a solid turns into a gas yet skips the liquid state is called sublimation.

### Different water sources

Our earth consists of various water sources like oceans, seas, rivers, lakes, swamps, creeks, and ponds. Oceans are the largest water bodies. Swamps and ponds are mostly found in coastal and inland regions and tropical areas. Lakes and ponds are found on every continent, perhaps even near your house. Water sources boost civilization by having people move to nearby water bodies to cultivate crops and collect marine needs such as fish, shrimp, crab, etc. The economy is then boosted by people buying and selling marine products.

### The life cycle of water

The life cycle of water starts from evaporation and transpiration (evaporation from plants). Then, the evaporation and transpiration form a cloud. This stage is called condensation. Transpiration means the movement of clouds by wind currents. When there are many water molecules in a cloud, rain begins to fall as precipitation. When rain hits steep ground, it is called runoff water. When the rainwater falls into the waterbody, it is called collection, and the water cycle starts all over again.

The water cycle in mountainous regions includes precipitation, snowmelt runoff, groundwater recharge, glacier formation, and evaporation. First, the air over mountains cools and causes water vapor to condense and fall as precipitation. Depending on the altitude, precipitation occurs as

either snow or rain. Snowmelt runoff happens when snow melts and flows down steep mountains due to gravity. Groundwater recharge occurs when rain seeps into the openings in the landscape. Glacier formation happens when snow compacts into ice and slowly moves down the landscape. Finally, evaporation occurs when water from lakes, rivers, oceans, and seas enters the atmosphere and restarts the cycle.

## Significance of water for the earth

Water is essential for all living beings, as nothing can survive without it. Vegetation, animals, and humans all need water for their daily lives as it provides essential nutrients. The hydrosphere, which consists of all the water on Earth, supports life, regulates the atmosphere, and sustains ecosystems. It plays a vital role in shaping landforms and influencing weather patterns. Water carves through landscapes through the process of weathering, erosion, and deposition. Weathering breaks down rocks, erosion moves the particles, and deposition lays down sediment. This process is how the Grand Canyon was formed by the Colorado River.

## Importance of water for the human body

About 60%-75% of our body is made out of water. Water helps maintain body temperature when we are sweating. It also helps moisturize skin, which gives off a healthier appearance. Water helps in removing wastes from our bodies which keeps our kidneys healthy. It helps to transport oxygen and food to the blood cells and gives energy to our body. Water also lubricates joints and membranes in the lungs and mouth. Water can also control weight. Drinking water instead of sugary drinks can help control calorie intake.

## Water bodies

One of the biggest and oldest water bodies on Earth is the Pacific Ocean, which measures about 163 million square kilometers (63 million square miles). The Atlantic Ocean is the second largest ocean, which measures approximately 41.1 million square miles (106 million square kilometers). Separating Europe and Africa from North America and South America, the Atlantic Ocean has the formation of the letter 'S'. The Indian Ocean is the third largest ocean and is located between India, Bangladesh, the east coast of Africa, the west coast of Australia, and Indonesia. The Indian Ocean is about 27 million square miles (70.5 million square kilometers). Some oceans are millions of years old but were named in the 20th century. The Southern Ocean is the second smallest ocean in the world. It was named in 1999 and was recognized in 2021. It measures up to

8 million square miles (20 million square kilometers). The smallest ocean is the Arctic Ocean, which measures about 14 million square kilometers (5.4 million square miles).

The Nile River is the longest in the world at 4,132 miles (6,650 km). It flows from central Africa northward through northeastern Africa to the Mediterranean Sea. The largest river by volume is the Amazon River. It is located in the Amazon rainforest.

## Water transportation

Water is one of the modes of transportation that includes boats, ships, and submarines. One of the advantages is that there are no weight or volume restrictions. It is also very cheap. One disadvantage is that the ship has a slow transit time that would take weeks or months.

People also go on water cruises for vacation.

## Hydropower

Hydropower is a renewable energy source that uses kinetic energy to generate electricity. First, the kinetic energy of the moving water is captured by the turbine, which then generates electricity. One benefit of hydropower is that it is the oldest and largest source of renewable energy. Hydropower plants can easily turn off and on the power. Hydropower accounts for about 6.2% of total electricity generation in the United States.

## Water sports

Water is a great way to have fun. When you have fun in the water body, or you play in the water, it is called water sports. Some common water sports are swimming, boating, surfing, canoeing, rafting, and snorkeling. Water polo is a common water sport. People who like to go to beaches and do water sports mostly play free diving, water skiing, kiteboarding, and parasailing.

## Fun Facts

\* It covers 71% of the earth's surface. Fresh water is very limited, about 3% all over the world. Saltwater makes up 97% of the earth's surface, which is unhealthy for living beings.

\* Ice cubes are less dense than actual liquid water.

- \* Natural disasters caused by water like floods, hurricanes, and tsunamis are powerful.
- \* People in the United States may use at least 80 gallons of water per day.
- \* Anything that we drink or eat contains water.
- \* Milk is 90% water.
- \* Watermelon, celery, zucchini, watercress, cabbage, cauliflower, bell peppers, and tomatoes, all have a water content above 90%.
- \* Among vegetables, lettuce and cucumbers have the highest percentage of water i.e. 96%.

## Conclusion

Water is very important in our daily lives. But water is limited, and we should conserve water. For water conservation, we should turn off the faucet whenever we are not using it. We should fix all the leaks. We should not waste electricity as water is used to generate it. We should not pollute water by throwing trash into the water bodies, especially oil and other toxic substances, because it affects the ecosystem. Otherwise, the pollution that we have caused is going to pollute the drinking water, which will harm our bodies.