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## The Importance of Water, Living Organisms, Human Beings, Questions

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Water is one of the most important resources on the planet. Without water, life cannot exist. But what makes water so important? Water has several unique characteristics that make it an extremely valuable resource. Some such properties of water are listed below.

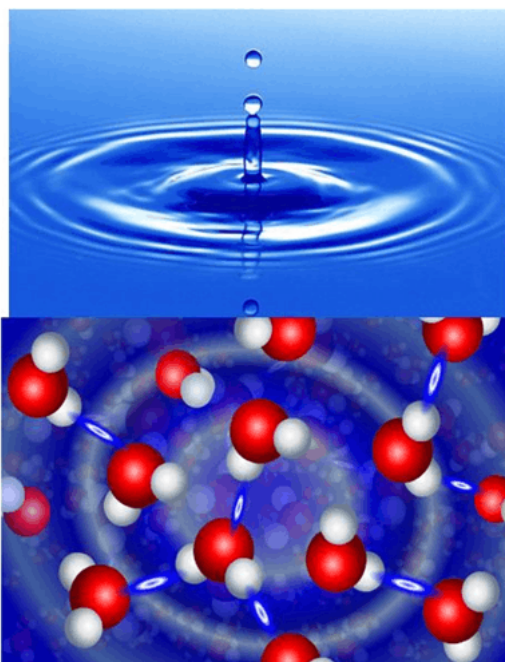
- Water is a very good solvent – it has the ability to dissolve many different substances.
- The boiling point and freezing point of water make it easily available in all three states (solid, liquid, and gaseous) .
- The specific heat of water is quite high. This enables water to absorb and release heat slowly, thereby regulating the temperature of its environment.
- Owing to its transparency, water can allow light to reach the life forms that are submerged in it. This is crucial for the survival of plant life in the oceans, lakes, and rivers.
- Water is neither acidic nor basic in nature. It has a pH of 7, making it a neutral substance.

### Importance of Water in Living Organisms

- Water is the medium through which all essential vitamins and minerals are transported in the bodies of living organisms (owing to its ability to dissolve a wide range of substances) .
- Water also plays a vital role in facilitating the work of enzymes in living organisms. For example, the sodium bicarbonate secreted by the pancreas is broken down into ions by water, making the medium sufficiently alkaline for the enzymes to work.
- Water helps maintain body temperatures in plants and animals. In order to decrease the temperature in their bodies, animals lose water via perspiration (sweating) and plants lose water via transpiration.
- Since water can rise in capillary tubes without any external help, it can be transported from the roots of trees to every other part of the tree.
- Water is an integral part of photosynthesis. Without it, autotrophic plants would not be able to produce their own food.
- Water serves as a habitat for more than 50% of all life on Earth.

## The Significance of Water to Living Organisms

- **Water is of immense importance to all living organisms**
- **It is used by them in many different ways**
- **These uses can be explained by referring to the properties of water**
- **Water is used as a coolant**
  - Refer to thermal properties
- **Water is used as a transport medium**
  - Refer to cohesion, solvent properties, and thermal properties
- **Water is used as a habitat**
  - Hydrogen bonding, refer to cohesion, transparency, and thermal properties



### Importance of Water in Human Beings

- Insufficient water content in the human body results in severe dehydration, which is often accompanied by kidney failure, seizures, and swelling in the brain.
- Water helps improve the circulation of oxygen throughout the body.
- It also plays a crucial role in the digestion of food.
- Water is a very important component of saliva, which helps break down food.
- The excretion of waste in the human body requires water. Insufficient water levels in the body may increase the strain on the kidneys, resulting in the formation of kidney stones.



### Other Important Uses of Water

- If not for the high specific heat of water, the temperature of the Earth's surface would be much lower. This would make it difficult for life to survive.
- The water in the Earth's oceans absorb heat from the sun during the day and help maintain the temperature during the night.
- Water is necessary for the irrigation of crops and is, therefore, an integral part of agriculture.
- It is widely used in cooking activities since it boils at a temperature of  $100^{\circ}$
- Humans make use of water for a wide range of domestic activities such as washing and cleaning.
- Water also serves as a medium for the transportation of cargo. Many goods are transported between the Earth's continents via ships.

## THE IMPORTANCES OF THE WATER

- Human uses the water in:
  - **Agriculture:** The most important for the agriculture is for irrigation.
  - **For drinking:** Because the body need 75% of water to do exercise.
  - **Washing:** Washing is also an important component of several aspects of personal body hygiene.
  - **Fire extinction:** One of the important use of the water is the fire extinction.
  - **Recreation:** For example swimming, waterskiing, boating, surfing and diving.
  - **Industrial applications:** Water is used in power generation.

### Industrial Uses of Water

- Many industries require large quantities of water for processing, cooling, and diluting products. Examples of industries that consume large quantities of water include the paper industry, the food industry, and the chemical industry.
- Water is also used as an industrial solvent for the production of several commercially important products. Almost all power plants that generate electricity employ water to spin turbines.
- Heavy water, an important form of water, is widely used in nuclear reactors as a neutron moderator.