

SUBJECT – SCIENCE

CLASS – VII

CHAPTER – 16, WATER: A PRECIOUS RESOURCE

1. When do we celebrate World Water Day?

March 22 is celebrated as World Water Day.

2. Why do we celebrate World Water Day?

We celebrate Water Day every year to attract the attention of everybody towards the importance of conserving water.

3. When was International year of freshwater observed?

Year 2003 was observed as the International year of freshwater to make people aware of this dwindling natural resource.

4. Name the three forms of water which circulates through the water cycle?

When water circulates through the water cycle, it can be found in all the three forms i.e. solid, liquid and gas.

- The solid form, snow and ice is present as ice caps at the poles of the Earth, snow covered mountains and glaciers.
- Liquid water is present in the oceans, lakes, rivers and even under ground.
- The gaseous form is the water vapour present in the air around us.

5. What does moisture in the soil indicates?

The moisture in the soil indicates the presence of water underground.

6. What is water table?

If we dig deeper and deeper in the ground, we would reach a level where all the space between particles of soil and gaps between rocks are filled with water. The upper limit of this layer is called the water table.

7. What is ground water?

The water found below the water table is called ground water.

8. What is the source of ground water?

The rain water and water from other sources such as rivers and ponds seeps through the soil and fills the empty spaces and cracks deep below the ground. The process of seeping of water into the ground is called infiltration. The ground water thus gets recharged by this process.

9. What is infiltration?

The process of seeping of water into the ground is called infiltration.

10. What is an aquifer?

At places, the ground water is stored between layers of hard rock below the water table. This is called an aquifer. Water in the aquifers can be pumped out with the help of tube wells or hand pumps.

11. What will be the effect of water scarcity on plants?

Plants need water to get nutrients from the soil and to prepare their food. Without water, plants will not be able to prepare food by the process of photosynthesis. Hence, they will die.

12. What will be the consequences if water will not be available to plants?

If water will not be available to plants then they will not be able to make food and hence they will die. The green character of the planet shall be lost. This may mean the end of all life. There will be no food, no oxygen, not enough rain and innumerable other problems would be there.

13. In India, some regions may have flood while at the same time other regions may suffer from drought. Comment on this statement.

The distribution of water over the globe is quite uneven due to a number of factors. Some places have good amount of rain and are water – rich. On the other hand, there are deserts which have scanty rainfall. India is a vast country and the rainfall is not same everywhere. Some regions have excessive rains while some others have very little rainfall. Excessive rains cause floods, whereas the absence of rain results in drought. Therefore, some regions of our country may have floods while others may suffer from drought at the same time.

14. What is rain water harvesting?

The rain water can be used to recharge the ground water. Rain water harvesting includes collecting rain water falling on roofs of buildings in tanks below the ground.

15. What is ground water depletion?

The gradual and continuous lowering of water table is called ground water depletion. The ground water depletion is also called depletion of water table.

16. What is drip irrigation?

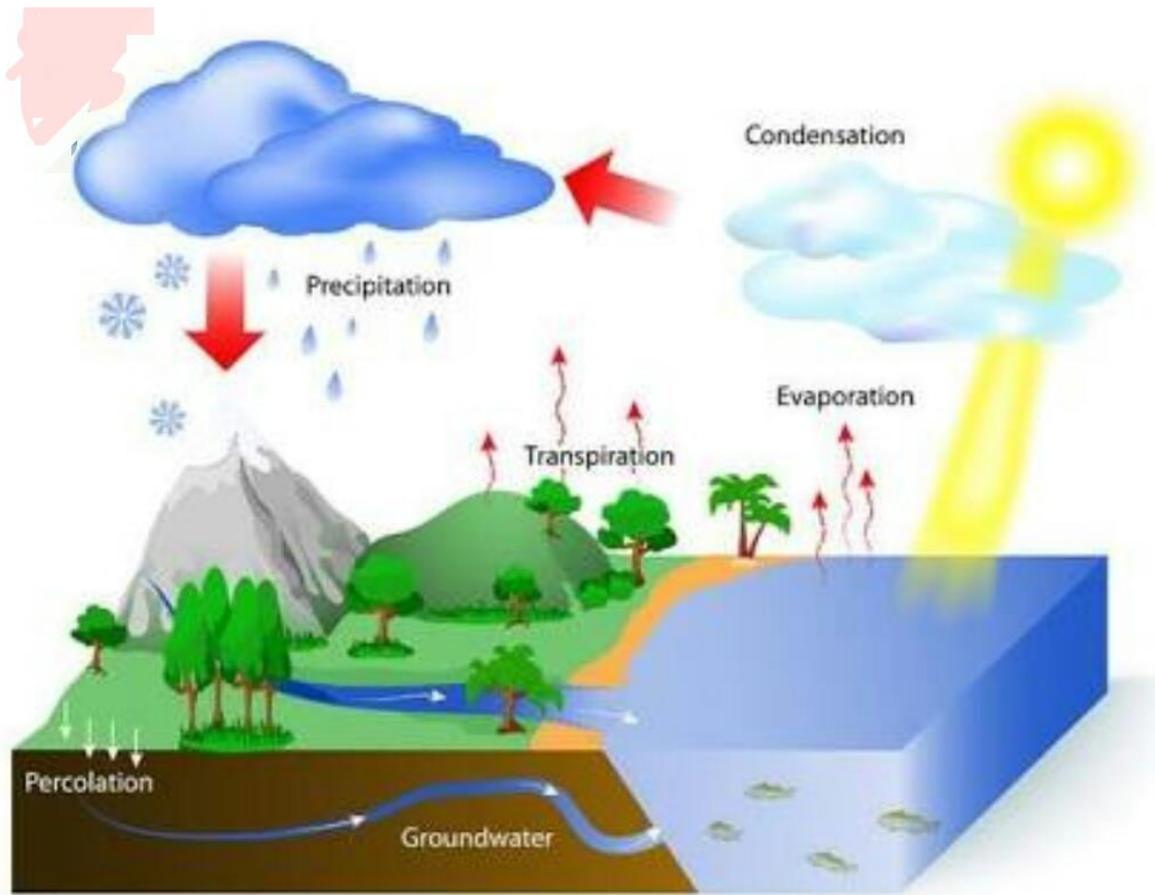
Drip irrigation is a technique of watering plants by making use of narrow tubes which deliver water directly at the base of the plant.

17. Write some water – wise habits.

- Turn off taps while brushing.
- Mop the floor instead of washing.
- Repair a leaky tap immediately.
- Adopting rain water harvesting technique.

18. What is water cycle? Draw its diagram.

A continuous cycle where water evaporates, travels into the air and become part of clouds, falls down to earth as precipitates and then evaporates again is called water cycle.



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CHAPTER – 17, FORESTS: OUR LIFELINE

1. What is a forest?

A forest is a large uncultivated area of land, densely covered with trees, shrubs and herbs. It also has many types of tall grasses, creepers and climbers. Forests provide home to different mammals, birds, reptiles, insects, worms and microbes.

2. What does crown of the tree mean?

Branchy part of a tree above the stem is known as the crown of the tree.

3. What is canopy?

The branches of the tall trees look like a roof over the other plants in the forest. This is called a canopy.

4. What are understoreys in a forest?

Trees have crowns of different types and sizes. These create different horizontal layers in the forest. These are known as understoreys. Giant and tall trees constituted the top layer followed by shrubs and tall grasses, and herbs form the lowest layer.

5. Do we find similar kind of trees in every forest?

No, we do not find similar kind of trees in every forest. Due to different climatic conditions, there are variations in the types of trees and other plants.

6. What is a food chain? Give an example of a food chain.

All animals whether herbivores or carnivores, depend ultimately on plants for food. Organisms which feed on plants often get eaten by other organisms, and so on. The sequence in which a producer is eaten by a herbivore and the herbivore is eaten by a carnivore is called a food chain.

For example – grass is eaten by insects, which in turn, is eaten by the frog. The frog is consumed by snakes.

Grass → Insects → Frog → Snake → Eagle

7. What is humus?

Dark coloured substance formed when microorganisms feed upon the dead plant and animal tissues is called humus.

8. What is the importance of humus to the soil?

The presence of humus in the soil ensures that the nutrients of the dead plants and animals are released into the soil.

9. What are decomposers?

The microorganisms which convert the dead plants and animals to humus are known as decomposers.

10. How nutrients are cycled in the forest?

- The microorganisms convert the dead plants and animals to humus. The presence of humus ensures that the nutrients of the dead plants and animals are released into the soil.
- These nutrients are again absorbed by the roots of the living plants.
- Plants are eaten by the animals.
- After the death of plants and animals, their bodies are acted upon by the microorganisms which results in the formation of humus.

In this way, nutrients are cycled in the forest.

11. Why are forests called green lungs?

Plants release oxygen through the process of photosynthesis. This oxygen is used by animals for respiration. Trees maintain the balance of oxygen and carbon dioxide in the atmosphere. That is why forests are called green lungs.

12. How a wide variety of animals helps the forests to grow and regenerate?

- The animals disperse the seeds of certain plants and help the forest to grow and regenerate.
- The decaying animal dung provides nutrients to the seedlings to grow.

13. The forest is a dynamic living entity. Explain.

By harbouring greater variety of plants, the forest provides greater opportunities for food and habitat for the herbivores. Larger number of herbivores means increased availability of food for a variety of carnivores. The wide variety of animals helps the forest to regenerate and grow. Decomposers help in maintaining the supply of nutrients to the growing plants in the forest. Therefore, the forest is a dynamic living entity – full of life and vitality.

14. How do trees prevent soil erosion?

Roots of trees bind the soil together. So they help to prevent soil erosion.

15. How do forests help to maintain water table?

The forest acts as a natural absorber of rain water and allows it to seep. In this way, forests help to maintain water table throughout the year.

16. How do forests help to reduce noise pollution?

Forests absorb the noise of the nearby areas. Thus they help to reduce noise pollution.

17. What is deforestation?

Cutting down of trees in large number is called deforestation.

18. What would happen if forests disappear?

- If forests disappear, the amount of carbondioxide in air will increase, resulting in the increase of earth's temperature.
- In the absence of trees and plants, the animals will not get food and shelter.
- In the absence of trees, the soil will not hold water, which will cause floods.
- Deforestation will endanger our life and environment.

19. Enlist some uses of forests.

- Forests protect the soil from erosion.
- Forests help in bringing rainfall.
- Forests provide us with oxygen.
- Forests provide habitat to a large number of animals.
- Forests are a source of medicinal plants, timber and many other useful products.
- Forests help to maintain the water table throughout the year.
- Forests help in controlling flood.
- Forests maintain the flow of water in the streams. Forests help in reducing noise pollution in nearby areas.
- Forests maintain the balance of oxygen and carbondioxide in the atmosphere.

SUBJECT – SCIENCE

CLASS – VII

CHAPTER – 18, WASTEWATER STORY

1. What is waste water?

Black brown water that goes down the drains from sinks, showers, toilets, laundries is called waste water. It is dirty, rich in lather and mixed with oil.

2. Enlist some reasons responsible for increasing scarcity of fresh water.

Some reasons which are responsible for increasing scarcity of fresh water are-

- a) Population growth
- b) Pollution
- c) Industrial development
- d) Mismanagement of resources of water

3. What accounts for a large number of water related diseases?

More than one billion of our fellow human beings have no access to safe drinking water. This accounts for a large number of water related diseases.

4. When do we celebrate World Water Day?

We celebrate World Water Day on March 22 every year.

5. What is sewage treatment?

Cleaning of water is a process of removing pollutants before it enters a water body or is reused. This process of waste water treatment is known as sewage treatment.

6. What is sewage?

Sewage is waste water released by homes, industries, hospitals, offices and other users. It is a complex mixture containing suspended solids, organic and inorganic impurities, nutrients, saprotrophic and disease causing bacteria and other microbes.

7. What are contaminants?

Sewage is a liquid waste. Most of it is water, which has dissolved and suspended impurities. These impurities are called contaminants.

8. Enlist some organic impurities present in sewage.

Human faeces, animal waste, oil, urea (urine), pesticides, herbicides, fruit and vegetable waste are some of the organic impurities which are present in sewage.

9. Enlist some inorganic impurities present in sewage.

Nitrates, phosphates, metals are some of the inorganic impurities which are present in sewage.

10. What is sewerage?

Network of big and small pipes called sewers, form the sewerage. It is like a transport system that carries sewage from the point of being produced to the point of disposal i.e. treatment plant.

11. Where are manholes located?

Manholes are located at every 50m to 60m in the sewerage, at the junction of two or more sewers and at points where there is a change in direction.

12. What is sewage dried sludge used for?

Dried sludge is used as manure which returns organic matter and nutrients to the soil.

13. Why should we plant eucalyptus trees all along sewage ponds?

We should plant eucalyptus trees all along sewage ponds because these trees absorb all surplus waste water rapidly and release pure water vapour into the atmosphere.

14. Why should chemicals like paints, solvents, insecticides and medicines not be released in the drains?

Chemicals like paints, solvents, insecticides and medicines may kill microbes that help to purify water. So they should not be released in the drains.

15. Why should used tea leaves, solid food remains, soft toys, cotton, sanitary towels not be thrown in the drains?

Used tea leaves, solid food remains, soft toys, cotton, sanitary towels should not be thrown in the drains because these wastes choke the drains. They do not allow free flow of oxygen. This hampers the degradation process.

16. What is Vermi – processing toilet?

A design of a toilet in which human excreta is treated by earthworms has been tested in India. It is known as Vermi – processing toilet.

17. What are the alternative arrangements for sewage disposal?

- a) Onsite sewage disposal systems – to improve sanitation, low cost onsite sewage disposal systems are being encouraged. Examples are septic tanks, chemical toilets and composting pits. Septic tanks are suitable for places where there is no sewerage system.
- b) Onsite human waste disposal technology – some organisations offer hygienic onsite human waste disposal technology. These toilets do not require scavenging. Excreta from the toilet seats flow through covered drains into a biogas plant. The biogas produced is used as a source of energy.

18. Explain the process of treatment of waste water in Waste Water Treatment Plant.

Treatment of waste water involves physical, chemical and biological processes which remove physical, chemical and biological matter that contaminates the water.

- a) Waste water is passed through bar screens. Large objects like rags, sticks, cans, plastic packets, napkins are removed.
- b) Water then goes to a grit and sand removal tank. The speed of the incoming waste water is decreased to allow sand, grit and pebbles to settle down.
- c) The water is then allowed to settle in a large tank which is sloped towards the middle. Solids like faeces settle at the bottom and are removed with a scraper. This is the sludge. A skimmer removes the floatable solids like oil and grease. Water so cleared is called clarified water.
- d) Air is pumped into the clarified water to help aerobic bacteria to grow. Bacteria consume human waste, food waste, soaps and other unwanted matter still remaining in clarified water. After several hours, the suspended microbes settle at the bottom of the tank as activated sludge. The water is then removed from the top. The activated sludge contains about 97% water. The water is removed by sand drying beds or machines.