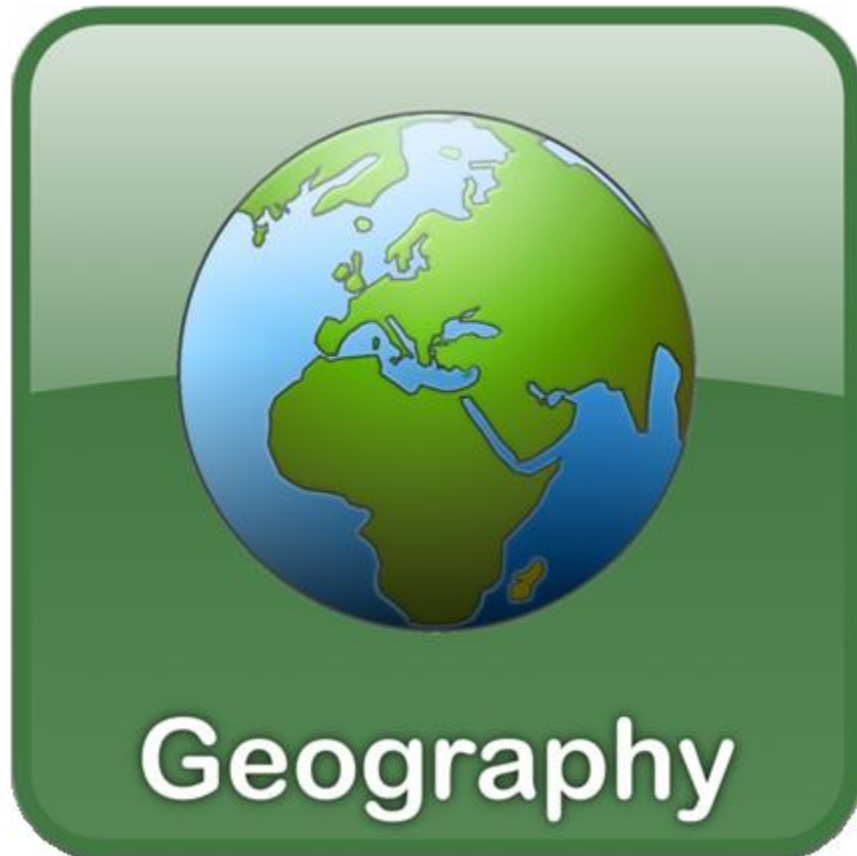


GEOGRAPHY

Chapter 5: Water

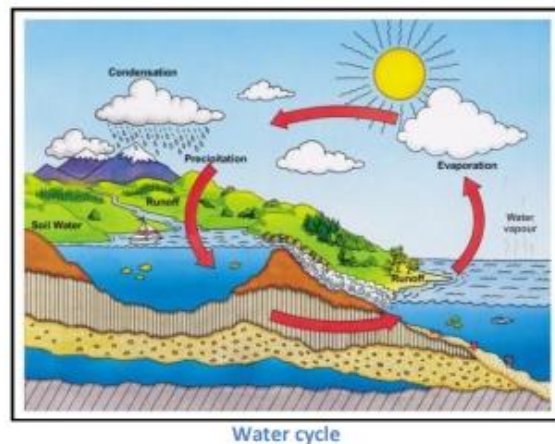


Water

Water is essential for the survival of all living beings. We cannot imagine our lives without water. Water is not only used for drinking but also for the cultivation of crops, for domestic and industrial use etc. 22 March is celebrated as World Water Day.

Water Cycle

- The water cycle includes the process of evaporation, condensation and precipitation. The heat of the Sun evaporates the water resulting in the formation of water vapour. When water vapour cools down, it condenses to form clouds.
- Water from the clouds precipitates in the form of rain, hail, snow etc. This process through which water keeps on changing its form and circulates between the oceans, atmosphere and land is known as the water cycle.
- Though water may change its form, its quantity remains constant. Rivers, springs, ponds and glaciers are sources of fresh water.
- Ocean water is not fit for any use as it is saline, i.e. it has large quantities of salt in it.
- Salinity is the amount of salt which is present in every 1000 grams of water. The average salinity of the oceans is 35 parts per thousand.
- The Dead Sea in Israel has salinity of 45 parts per thousand. Due to this humans can float on it as its high salinity makes the sea dense.



Distribution of Water Bodies :

The table below shows the distribution of water in various water bodies.

Water Bodies	% of water present
Oceans	97.3
Inland seas and salt lakes	0.009
Glaciers	02.0
Fresh water lakes	0.009
Rivers	0.0001
Atmosphere	0.0019
Ground water	0.68

Oceans

Let us take a look at three main movements which take place in an ocean. These are in the form of waves, tides and currents.

Waves :

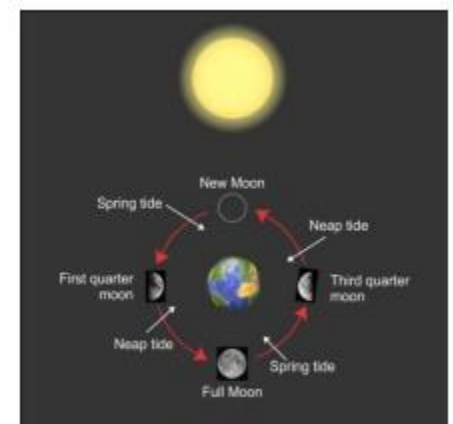
- Waves are produced when the water in the oceans rises and falls. During a storm, winds blow at a very high speed forming huge waves.
- When an earthquake or a volcanic eruption occurs under the sea floor, it can displace large amounts of sea water. Due to this, huge waves or tsunamis are formed which are as high as 15 metres.
- Since tsunamis travel at a very fast pace, they can cause a lot of destruction in the near by areas.
- The tsunami which hit the coast of India in 2004 caused large scale destruction in many coastal areas of South India.
- This tsunami was caused due to an earthquake which occurred in the Indian Ocean and measured 9.0 on the Richter scale.



Sea wave

Tides :

- The rise and fall of the ocean water twice in a day is called a tide.
- During high tide water rises to its highest level while during low tide, it falls to its lowest level.
- Tides are caused due to the strong gravitational pull exerted by the Sun and the Moon on the surface of the Earth.
- When the Sun, the Moon and the Earth are in the same line, the tides are at their highest and are called the spring tides.
- When the Moon is in its first and the last quarter, the ocean water gets pulled in the direction opposite to that of the Moon by the Sun's and the Earth's gravitational force causing low tides. These tides are also known as neap tides.



Sea tides

Importance of Tides :

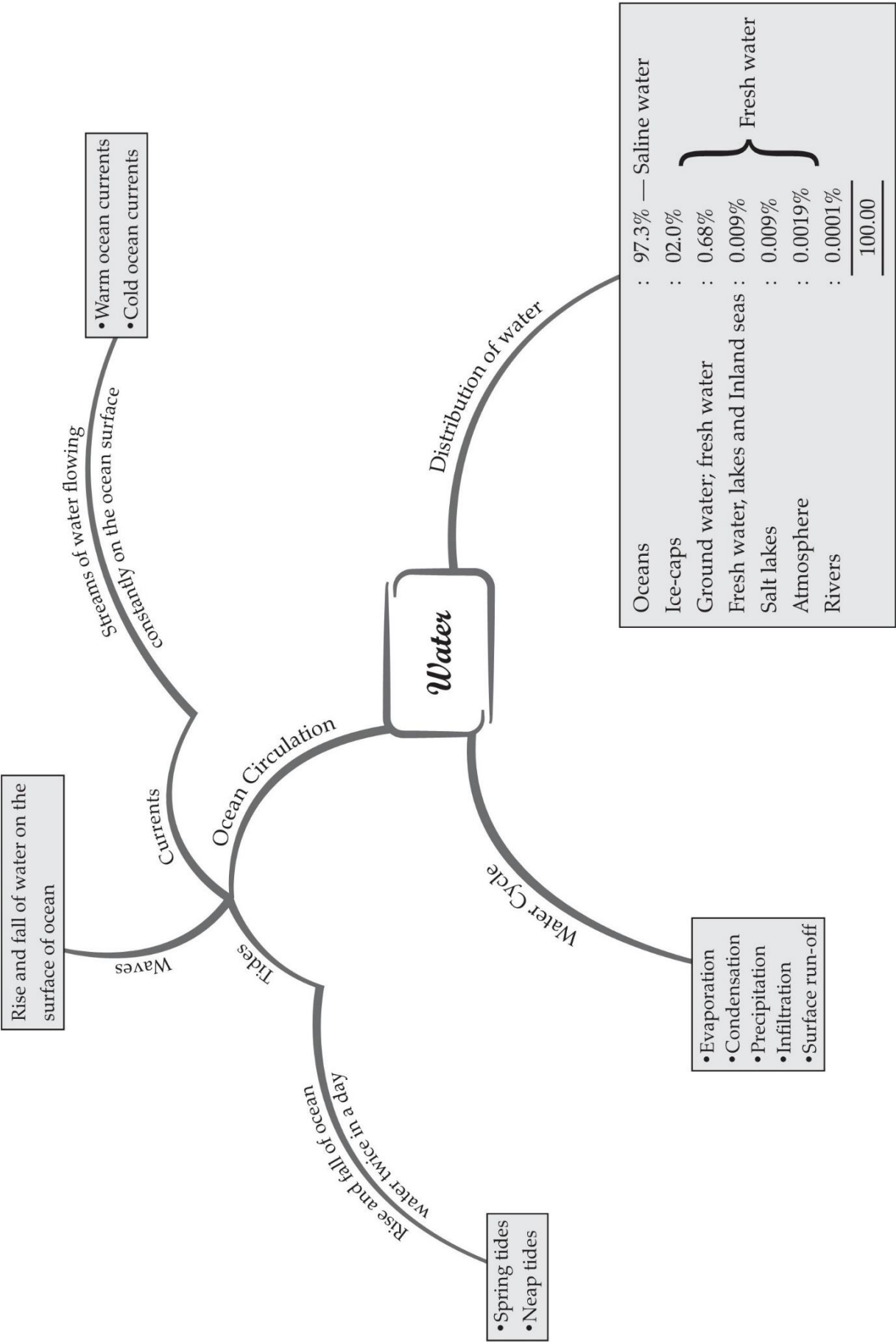
- High tides help in navigation. Since high tides raise the water level close to the shore, the ships can arrive into the harbour easily.
- High tides also help in fishing. This is because many fishes come to the shore during high tide.
- The rise and fall of water due to tides is used to produce of electricity.

Ocean Currents

- The streams of water which flow constantly on the surface of the ocean in a specific direction are known as ocean currents.
- There are two types of ocean currents, warm ocean current and cold ocean current.
- A warm ocean current originates at the Equator and flows towards the Poles. A cold ocean current originates at the Poles and flows towards the Equator.
- The Labrador Ocean current is a cold current while the Gulf Stream is a warm current.
- A warm ocean current raises the temperatures of the coastal areas across which it flows. A cold ocean current lowers the temperatures of the coastal areas across which it flow.
- The meeting point of the warm and cold ocean currents creates ideal surviving conditions for the plankton.
- Planktons are small organisms which are eaten by fishes and thus help fishermen in catching fishes. Seas around Japan and the eastern coast of North America are areas where the warm and cold currents meet.
- In places where warm and cold currents the weather is foggy. This makes navigation difficult.

MIND MAP : LEARNING MADE SIMPLE

CHAPTER-7



➤ **Multiple Choice Questions :**

Question 1. Ponds are source of:

- (a) Fresh water
- (b) Saline water
- (c) Hard water

Question 2. Ground water constitutes the portion of the world's distribution:

- (a) 1%
- (b) 1.5%
- (c) 0.68%

Question 3. The rhythmic rise and fall of ocean water twice in a day is called:

- (a) Wave
- (b) Tide
- (c) Salinity

Question 4. Spring and neap are kinds of:

- (a) Wave
- (b) Earthquake
- (c) Tides

Question 5. What percentage of ice caps are found in the world?

- (a) 2%
- (b) 2.5%
- (c) 3%

Question 6. The largest tsunami ever measured was:

- (a) 120m high
- (b) 150m high
- (c) 250m high

Question 7. The waves travel at a speed of more than _____ km per hour.

- (a) 700
- (b) 600
- (c) 800

Question 8. The gravitational pull exerted by the sun and the moon and the earth's surface causes the:

- (a) Tides
- (b) Waves
- (c) Earthquake

Question 9. _____ tides help in navigation.

- (a) Low
- (b) High
- (c) Very low

Question 10. Oceans contain large amount of dissolved:

- (a) Magnesium
- (b) Iron
- (c) Salts

Question 11. What is water cycle?

- (a) Process by which water continually flows
- (b) Process by which water continually changes its form
- (c) Process by which water never changes
- (d) None of these

Question 12. Where do warm ocean currents originate near?

- (a) Tropic of Cancer
- (b) Equator
- (c) Poles
- (d) None of these

Question 13. What is called the rhythmic rise and fall of ocean water twice in a day?

- (a) Tides
- (b) Ocean Currents
- (c) Waves
- (d) All of these

Question 14. Where do cold currents originate?

- (a) Equator
- (b) Poles
- (c) Tropic of Cancer
- (d) Tropic of Capricorn

Question 15. Which water is salty in taste?

- (a) River's water
- (b) Pond water
- (c) Sea water
- (d) Rain water

➤ **Fill in the blanks :**

1. _____ part of the earth surface is covered by water.
2. _____ water keeps moving continuously, it never stops.
3. During a _____ the winds blowing at very high-speed form huge waves.
4. The sun's heat causes evaporation of _____.
5. The ocean bodies and the seas contain _____ water.

➤ **Write true (T) or false (F) :**

1. When air is heated, it expands, becomes lighter and goes up.
2. Three-fourth of the earth surface is covered by water.
3. The low tides also help in fishing.
4. High tides help in navigation.

➤ **Very Short Questions :**

1. What is terrarium?
2. Which type of water do the ocean bodies and the seas contain?
3. What do you mean by salinity?
4. What is the average salinity of the oceans?
5. What is the salinity of Dead sea?
6. Why do swimmers float in Dead Sea?
7. What is the significance of World Water Day?
8. What is Tsunami?
9. What happens during high tide?
10. What happens during low tide?

➤ **Short Questions :**

1. Define salinity.
2. Define vertical distribution of sea water.

3. What is ocean wave?
4. What is flood tide and ebb tide?
5. Why ocean bodies and sea contain salty water?

➤ **Long Questions :**

1. How are spring and neap tides formed.
2. How are high tides important?
3. Give an account of ocean currents
4. Write a brief note on Tsunami.
5. Write a note on the importance of water.

ANSWER KEY –

➤ **Multiple Choice Answer :**

1. (a) Fresh water
2. (c) 0.68%
3. (b) Tide
4. (c) Tides
5. (a) 2%
6. (b) 150m high
7. (a) 700
8. (a) Tides
9. (b) High
10. (c) Salts
11. (b) Process by which water continually changes its form
12. (c) Poles
13. (a) Tides
14. (b) Poles
15. (c) Sea water

➤ **Fill in the blanks :**

1. 3/4
2. Ocean
3. storm

4. water
5. salty

➤ **Write true (T) or false (F) :**

1. True
2. True
3. False
4. True

➤ **Very Short Answer :**

1. It is an artificial enclosure for keeping small house plants.
2. They contain salty water.
3. Salinity is the amount of salt in grams present in 1000 grams of water.
4. The average salinity of the oceans is 35 parts per thousand.
5. The salinity of Dead sea is 45 parts per thousand.
6. Swimmers float in Dead sea because the increased salt content makes it dense.
7. On the occasion of World Water Day (22nd March) the need to conserve water is reinforced in different ways.
8. Tsunami is a Japanese word that means 'Harbour Waves' as the harbours get destroyed whenever there is Tsunami.
9. During high tide waves rise high and water covers much of the shore.
10. During low tide water falls to its lowest level and recedes from the shore.

➤ **Short Answer :**

1. Salinity is amount of salt in grams present in 1000 gm of water. The average salinity of the ocean is 35 parts per thousand.
2. When surface water gets heated by sun, water evaporates and increases the concentration of salts. Surface water becomes denser sinks and sub surface water rises up. Thus, salinity of sea water causes vertical circulation.
3. When the water on the surface of the ocean rises and falls alternatively they are called waves.
4. The rise of sea level is called the flood tide and fall is called the ebb tide.
5. Because it contains the large amount of dissolved salts. Most of the salt is sodium chloride.

➤ Long Answer :

1. During the full moon and new moon days, the sun, the moon and the earth are in the same line and the tides are highest. These tides are called spring tides. But when the moon is in its first and last quarter, the ocean waters get drawn in diagonally opposite directions by the gravitational pull of sun and earth resulting in low tides. These tides are called neap tides.
2. **High tides are important for various reasons:**
 - They help in navigation.
 - They raise the water level close to the shores. This helps the ships to arrive at the harbour more easily.
 - The high tides also help in fishing. Many more fish come closer to the shore during the high. This enables the fisherman to get a plentiful catch.
 - The rise and fall of water due to tides is being used to generate electricity in some places.
3. Ocean currents are streams of water flowing constantly on the ocean surface in definite directions. The ocean currents may be warm or cold. The warm ocean currents originate near the equator and move towards the poles. The cold currents carry water from polar or higher latitudes to tropical or lower latitudes. For example the Labrador Ocean current is cold current while the Gulf Stream is a warm current. The ocean currents influence the temperature conditions of the area.

Warm currents bring about warm temperature over land surface. The areas where the warm and cold currents meet provide the best fishing grounds of the world. For example seas around Japan and the eastern coast of North America. The areas where a warm and cold current meet also experience foggy weather and therefore navigation becomes difficult.
4. Tsunami is a Japanese word that means 'harbour waves' as the harbours get destroyed whenever there is tsunami. An earthquake, a volcanic eruption or underwater landslides can shift large amounts of ocean water. As a result tsunami occurs which may be as high as 15 m. The tsunami of 2004 is still in our mind. It caused huge death and destruction in the coastal areas of India. The Indira point in the Andaman and Nicobar Islands got submerged after the tsunami.

Water is life. Without water, we cannot think of life. Its scarcity may create numerous problems but its absence would definitely lead to non-existence of all the living beings on the earth. It is a precious resource of the nature. We drink water whenever we feel thirsty. We use

water in numerous activities such as washing clothes, cleaning house floors, watering garden etc. Industries also need water for their functioning. Thus, water is very essential and therefore we must conserve it. Our careless use of water has created several problems. Whatever water is there, it is not of good quality. We should think about the ways of its conservation for our own sake.