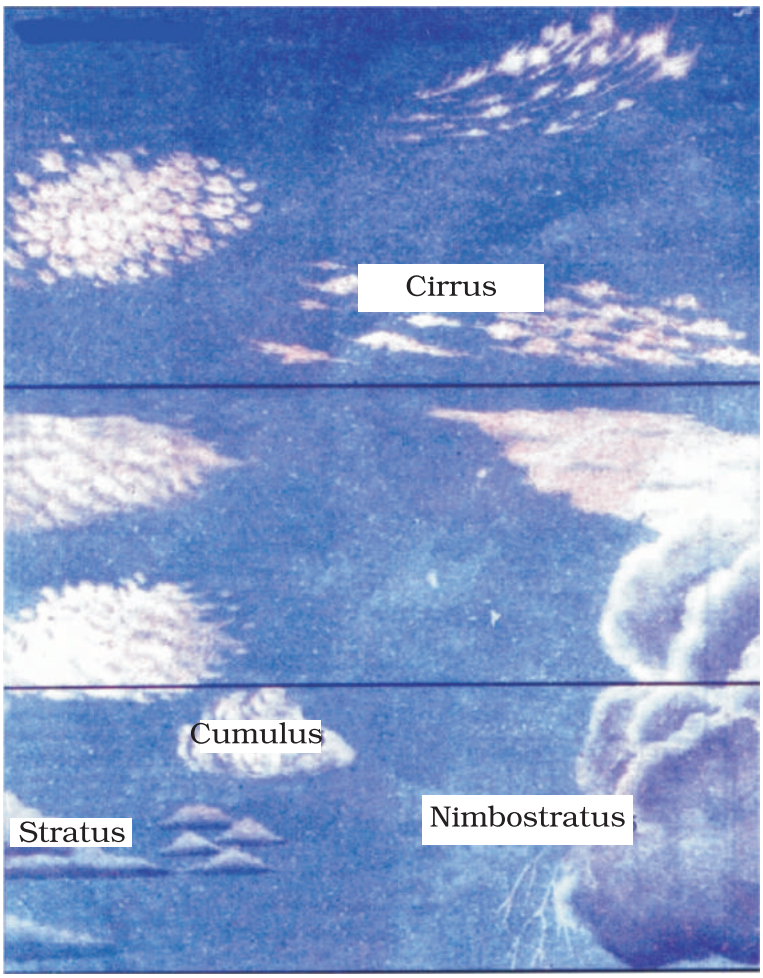


Design 5.10 Forms of clouds

1. **Cirrus** : These clouds are very high in the sky. These appears very light. These are like white feathers.
2. **Cumulus:** These clouds usually appears in summers. These appear as if bales of cotton lying at a place. The upper part of these clouds are dome shaped and have cauliflower heads. These clouds bring rainfall with thundering.
3. **Stratus:** These are also light in colours. They are spread throughout the sky. These are low clouds, which bring drizzle.
4. **Nimbostratus :** These clouds are dense having dark grey colour and are very near to the earth surface, which give us heavy and continuous rain falls.

Dew : At night, grass, leaves and other plants get cold when the cold wind come across with these cold grass, it become even colder, as a

result it cannot hold their humidity anymore and the humidity changes into water droplets. The water droplets cling to the grass and leaves. This is called dew. In the cloudy day it does not happen so because clouds do not allow radiation of the earth. You have felt that the night temperature is also higher during the cloudy night.

Fog : The wind near the surface of the earth get cold as a result of the water vapour comes near to each other and a process of condensation starts. Humidity of the air resting on the dust particles can be seen moving in the atmosphere. The wind gets dusty and condensed. This is called fog. In industrial areas fog mixed with smoke to becomes **smog**.

Frost : It is similar to the fog. The formation of frost is similar to that of fog. The only difference is that when the Fog is more dense it is called Frost. For is formation of both Fog and Frost, it is essential the dust particles to be present in the air.

Snow: When the humid wind rises above in the colder areas, it does not change in water but freezes and falls down on the earth in the form of snow. The snow always fall on high mountains or very cold areas. Snow fall takes place only when there are clouds in the sky.

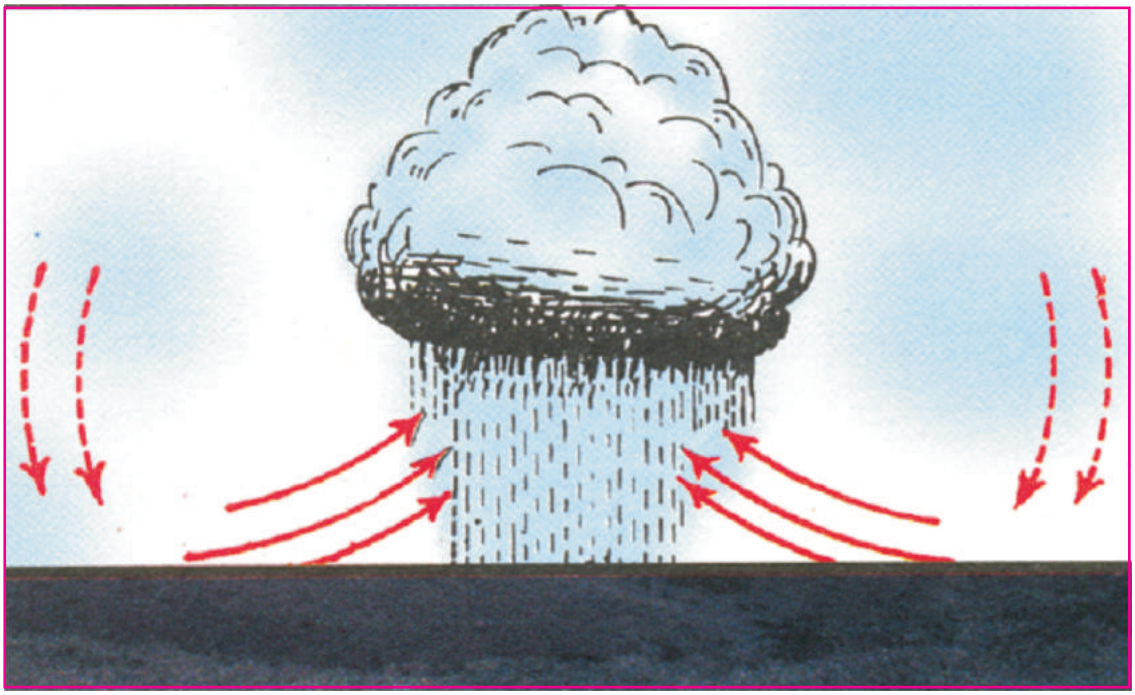
Hailstorm : Sometimes when rain passes through the very colder layer of atmosphere. At some places the temperature is below freezing point as a result this water droplets freezes and fall on the Earth in the form of Hails.

Rainfall (Precipitation): The process of rainfall is called precipitation. When the humid winds rise above they become colder and thus after condensation humidity change into the form of clouds. When the clouds become more colder then their water vapours become so large that these cannot be held up and changing in droplets fall on the earth. This is called rainfall.

Forms of Rainfall (Precipitation) :

1. Convectional Rainfall
2. Relief Rainfall
3. Cyclonic Rainfall

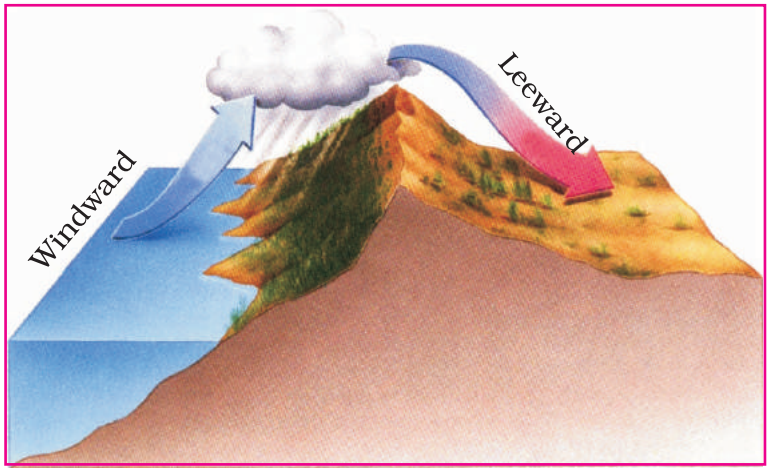
Convectional Rainfall : The sun rays fall directly on the earth surface.



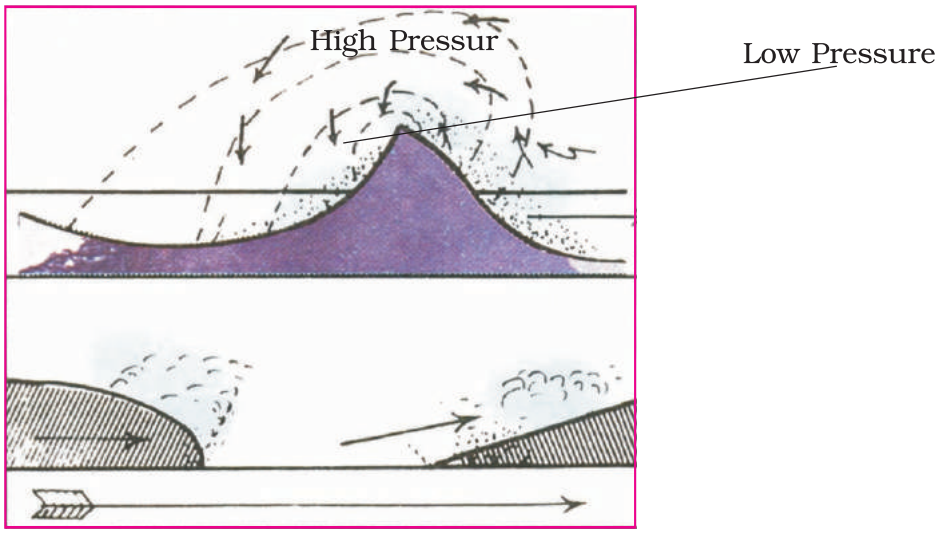
Design 5.11 - Convectional Rainfall

Due to high temperature the air pressure lowers down, winds start rising above after heating changes after rising above the winds become even colder. On changing into the water droplets, these falls in form of rainfall. The convectional rainfall in equatorial areas is a heavy rainfall along with thundering.

Orographic (Relief) Rainfall: Sometimes the mountain come across when the wind blows from the ocean towards the land. Due to the obstruction of mountains these wind rises upwards along the mountain. After reaching at a height the wind become cold and process of condensation starts. These fall in the form of rainfall on the ground.



Design 5.12 - Orographic Rainfall



Design 5.13 Cyclonic Rainfall

In India monsoon rainfall in summers is due to the obstruction casused by Himalayan mountains.

The side of the mountain from where the wind ascends and gets heavy rainfall known as **Windward** side and other side where the wind starts descending and do not rainfall are **leeward** side.

Cyclonic Rainfall: The rainfall which is due to cyclone is called Cyclonic rainfall. There is low pressure in the centre of cyclones.

Therefore wind arises upwards. After reaching at a height wind become colder the humidity of wind changes into clouds and they cause rainfall on the earth. European countries receive rainfall through the cyclonic type of rainfall. The rainfall in Punjab in winters is also of cyclonic type.

Points to Remember

1. Air pressure means, pressure of air at a point which is measured with the help of Barometer. Air flows from high pressure to low pressure.
2. Trade winds, Monsoons, Local Winds, Cyclones, Anti-cyclone etc. originate with flow of wind.
3. Geographic lines identifying and joining regions of same air pressure and same rainfall are called Isobars and Isohytes respectively.
4. Sea Breeze and Land Breeze, Mountain and Valley Winds, Fohn and Chinook are all forms of local winds.

5. Rainfall, Clouds, Dew, Fog, Frost, Snow etc. are forms of moisture found in air.
6. Clouds are generally by four types name; Cirrus, Cumulus, Stratus and Nimbostratus.
7. Percipitation (rainfall) is of three types; Convectional, Relief and Cyclonic.
8. Winter rainfall in Punjab is an example of cyclonic rainfall.

I. Write down the answer of the following question in about 1-15 words.

1. What do you understand by the atmosphere ?
2. What are winds ?
3. Name the instrument used to measure air pressure and temperature.
4. What is a Cyclone ?
5. What is humidity ?
6. What do you understand by evaporation and condensation.
7. How many types of rainfall are there ?

II. Answer the following question in approximately 50-60 words.

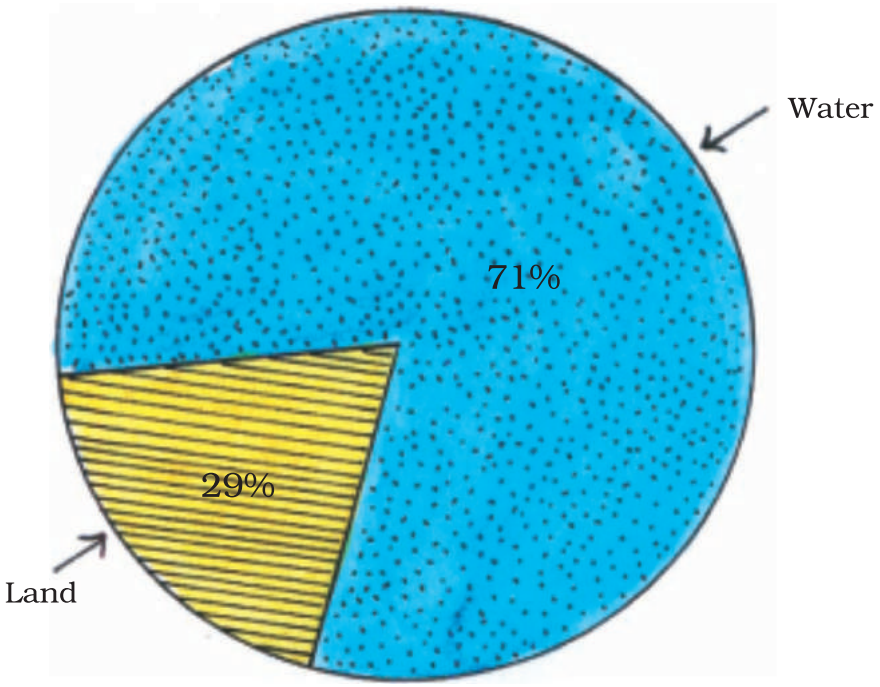
1. What do you understand by Air pressure belts on the earth? Why there is low pressure on the equator ?
2. Differentiate between the planetary and local winds ?
3. Write a case study of destruction caused due to the cyclone that hit in Andhra Pradesh.
4. How many forms of clouds are there. Explain the each type.
5. Give information about Fog, Frost, Dew, snow.

III. Answer the following questions in approximately 125-130 words

1. Explain in detail with illustration, the planetary winds.
2. Write in detail about the monsoon winds.
3. What is rainfall. How many types of rainfall are there ? Write in detail with illustrations.

Make a list of the things that bears dew in the winter season.

There is unequal distribution of water and land on the Earth. The 2/3 of the earth's surface is covered by saline water. It means that the 71% of the total area is covered by water and remaining 29% is only land area of the earth. The great water regions are called oceans. Small water bodies are called seas. It means a huge water body is called ocean, and sea are the limited portion of the water. Arabian sea and Bay of Bengal are two seas in Indian ocean.



Design 6.1 Distribution of land and water on the earth.

There are five oceans on the earth. The Pacific ocean the Atlantic ocean, the Indian ocean, the Arctic ocean and the Antarctic oceans. All these oceans are inter connected. Water of oceans mix with each other. The following is the areas under these oceans:

Oceans	Area (In crore Sq. Kilometers)
1. Pacific Ocean	16.6
2. Atlantic Ocean	8.2
3. Indian Ocean	7.3
4. Arctic Ocean	1.3
5. Antarctic Ocean	---

Pacific ocean is the largest and deepest ocean. It is so deep that world's highest peak, Mt. Everest can be dipped in this ocean. The Atlantic ocean is almost half the size of Pacific ocean.

The name of the **Indian Ocean** is named after our country India. India being a subcontinent and the ocean is in the south of India, the name of ocean is derived from the nation. The smallest ocean is the **Arctic Ocean,** the Ice Land. It remains frozon throughout the year because it is in the extreme north of the Earth around arctic circle. Around the south pole lies the **Antarctic Ocean** which is counted more as a continent.

The oceanic water is always saline because large quantity of mineral salt is dissolved in it.

Fresh and Saline Water

The water on the earth surface is found in the form of rivers, canals, lakes, seas and oceans. Several mineral salts get dissolved in natural water and make it saline. These minerals are very useful for the growth of living beings, plants and trees. The water bodies get water from the different sources like, rainfall and melting of snow etc. and flowing through the rivers it reaches to the plants and other living beings. This water is Fresh Water. Some of the water that seeps in the earth gets filtered in the process and is used for domestic purposes by extracting out of earth by means of tube-wells and hand pumps.

Fresh water

The water we get from, rainfall, melting of ice, rivers, canals, tube-wells etc. is fresh water.

The water on the earth eveporates due to the heat of the sun. The

stagnant water of Lakes, land locked water bodies, seas and oceans gets evaporated continuously and as a result, the amount of salt increase in this water. This is the reason, the common salt making is quite popular occupation along the banks of seas. The amount of salt remains more in oceans because of the carbonate consumed by fish and Marine Organism.

The Saline Water :

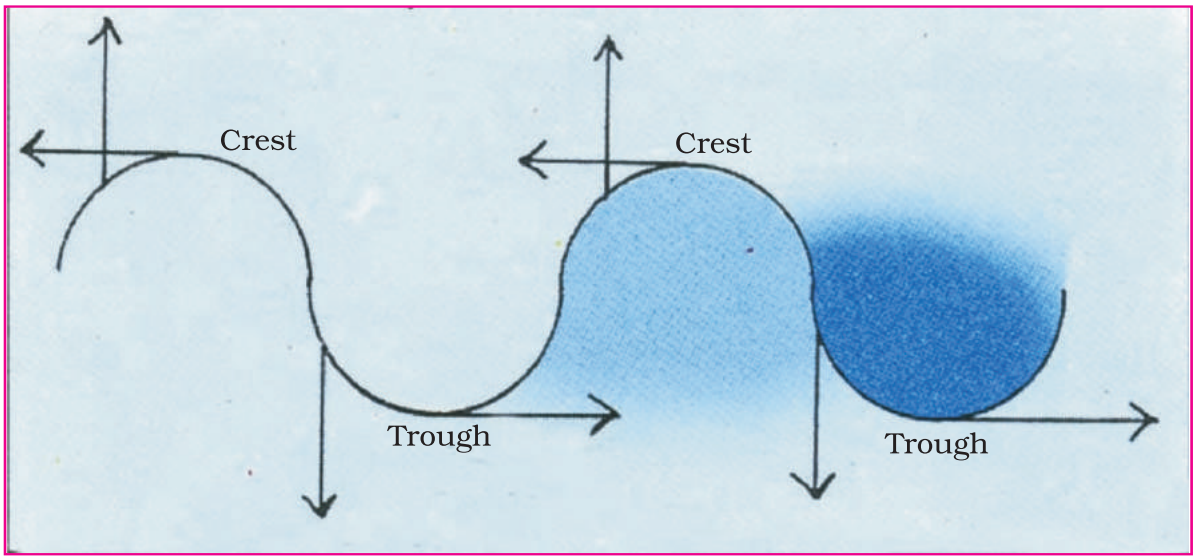
The water of lakes, land locked seas and open oceans is saline. The highest salinity is in the Dead Sea. This sea is land locked. The seas which have high rate of salinity do not let things and even human beings drown. How wonderful it is !

By standing near the bank of the ocean we can observe that the water in the oceans is always moving i.e. it is never calm and still. Its movement is its life. Ocean waters move in the form of ripples, waves, tides and Tsunami. By the wholesome movement of water, the waters of oceans mix with each other. There are three types of movements of water.

1) Waves 2) Ocean Currents 3) Tides

1) Waves : The water of oceans always ripples with the winds over the ocean surface. According to the change in weather, these ripples are high and sometimes these are low. At times the movement is faster and at times it is comparatively slow depending upon the waves arise in the ocean. The ripples or waves arise due to the speed of the wind blowing over the surface of oceans. The water vapours run up & down with which the water start rippling. As shown in design 6.2, upper surface of wave is called **crest** and the lower surface of wave or when the water returns almost to its original position is **trough**. When a cyclone occurs, these ocean waves turn into horrible water splashes. Sometimes they even destroy ships sailing in the oceans. The waves erode the coastal areas and transport the rock material to the ocean floors.

2) Ocean Currents: When the ocean water moves in a particular direction it is called ocean current. The water in the ocean moves very systematically from one place to the other. Due to these ocean currents



Design 6.2 Waves

the waters of all oceans mixup with each other. The speed of current can be slow or fast. Usually their speed is 2 kilometer to 10 kilometer per hour.

The ocean currents are of two types :

1. **Warm water currents** 2. **Cold water currents**

If a current flows from the equator, it carries warm effect along with. But if a current flows from polar area, it carries cold effect. In this way, warm water currents and cold water currents come into existence.

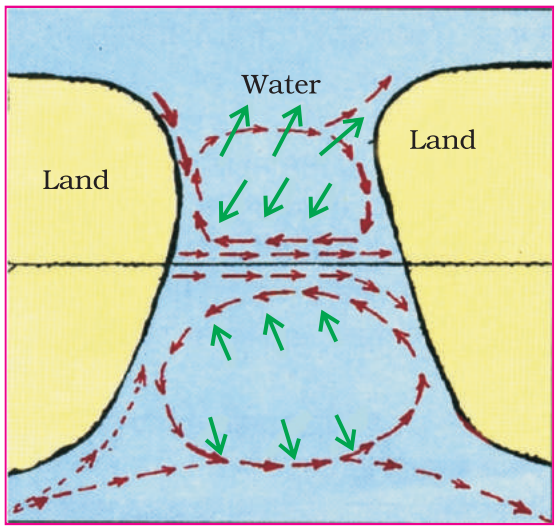
The currents going away from the equator are always warm, and coming towards equator are always cold.

It should always be kept in mind that water of warm current is slightly warmer than the water in adjoining areas. Similarly the water of cold currents is little bit colder than that of water of nearby areas. The warm water current always flow on the upper layer of the ocean where as the cold water current flows underneeth.

Why these currents move ? Who gives the form of stream to the ocean water ? Answer to these questions is with the planetary winds, that blow in a particular direction throughout the year. The trade winds and westerlies while moving in the same direction throughout the year carry

with them the ocean water along with. Therefore, ocean water also moves in the direction of the planetary winds.

The insolation of the sun is not uniform on the whole of the globe. The temperature remains high through out the year in equatorial regions but as we move away towards the poles the temperature starts decreasing. Due to the difference of the temperature and direction of winds, ocean currents originate. As Warm water which is lighter and flows on the upper surface near the equatorial region, the water from the cold areas replaces it and thus starts movement of oceanic waters.



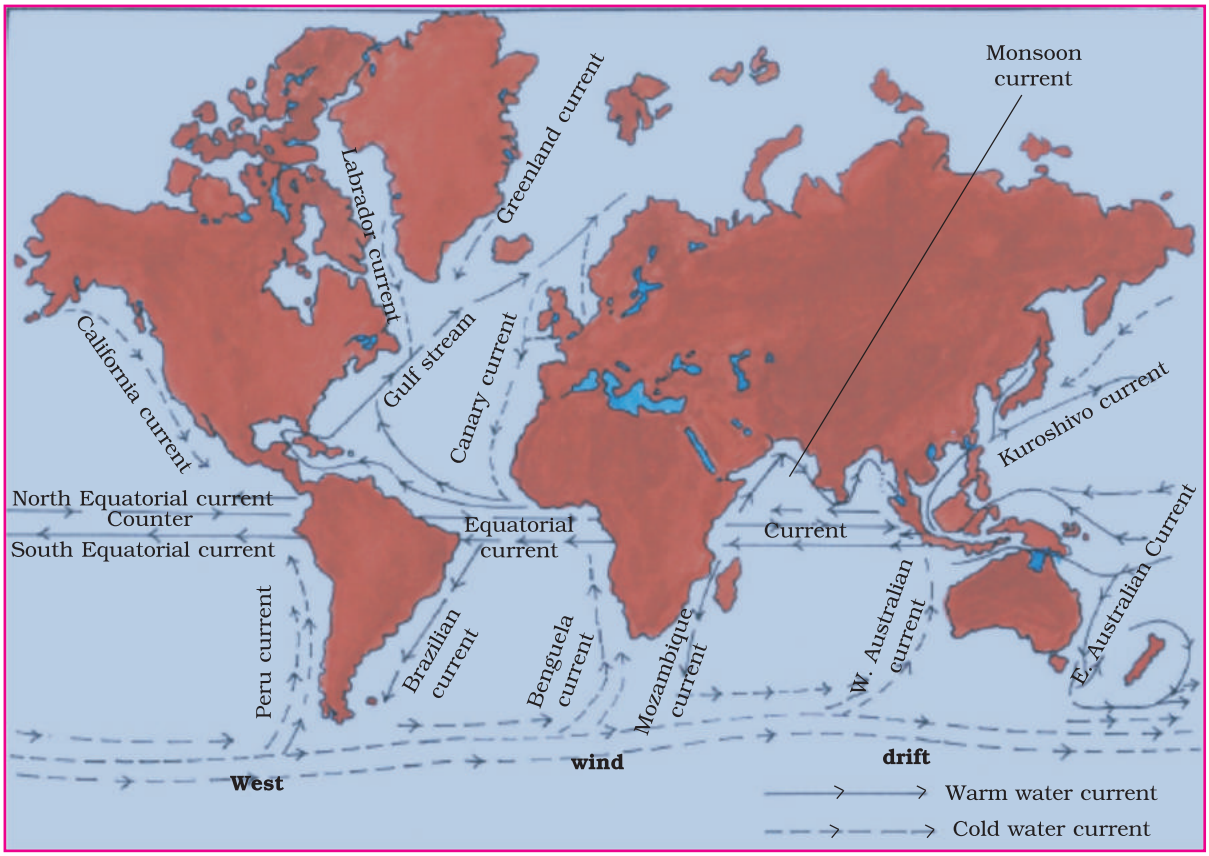
Note :– Green arrows stand for direction of wind while brown arrows show direction of water.

Design 6.3 How ocean currents originate.

Besides, the prevailing or planetary winds and the difference of temperature, salinity of water is also a cause of origin of ocean currents. As all the oceans do not have same quantity of salt. The oceans with higher amount of salt have heavy water and ocean with lesser amount of salt have light water, thus these two types of water came into existence. The lighter water comes up the surface whereas the heavier water tries to flow down the surface of water. Thus the movements of ocean currents originate.

These ocean currents move along the coasts of the continents. Therefore, the shape of the continents also give them directions. The rotation of the earth also affect the speed of these currents.

Look at the map of the world. All the oceans are having water currents. Now we will study these currents according to oceans.



Design 6.4 World map showing main ocean currents

Ocean currents of Atlantic Ocean: Look into the circulation of Atlantic ocean current. You will see that there are two specific circles one in the north of equator and other in the south of equator.

North Atlantic Oceanic Circle: The trade winds blow in equatorial regions. These winds always blow from east direction. Along with the water of ocean in north and south of equator starts moving in the same direction i.e. east to west. The equatorial warm water current flows from Africa to America. It appears to flows along the eastern coast of North America to the north west of north America. Here this is called as Gulf Stream.

The **Gulf Stream** starting from Gulf of Mexico to the Islands of Newfoundland. This is the most important warm water current of the world. Its width is 400 kilometer. Its water flows with a speed of 5 kilometer

per hour. Its warm effect affects the climate of the eastern coast of United States of America. After reaching near the islands of Newfoundland, a cold water current named as **Labrador** mixes with it. Due to the mixing of warm & cold water current a dense fog is formed over there. The Glaciers moving from the poles melt after reaching near the Gulf Stream. In this way they do not create obstruction to ships after reaching down. A cold water current form **Greenland** also mixes with it.

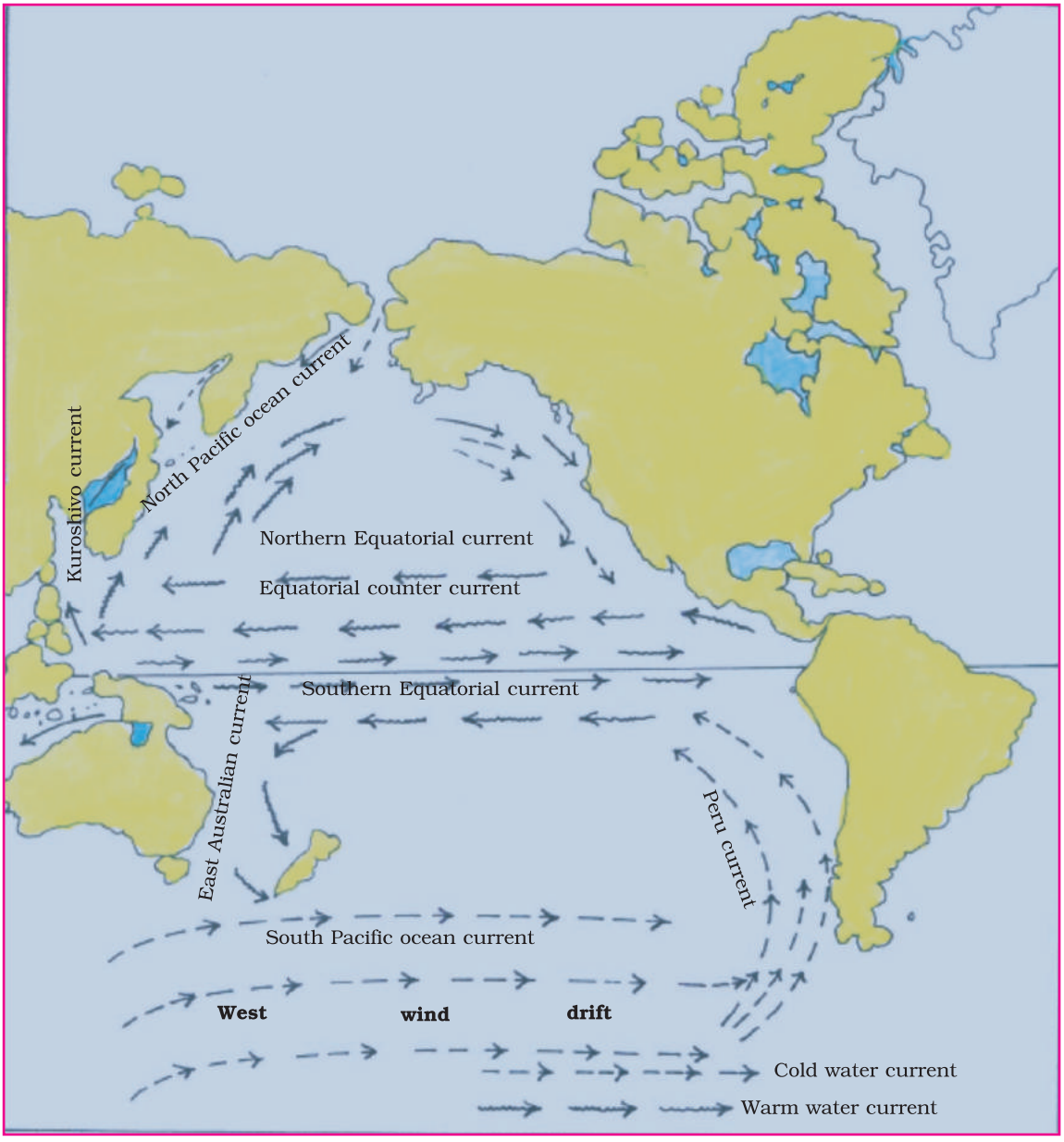
Now this current under the effect of westerlies moves eastward. Now it is called by the name north **Atlantic current**. This warm water currents while flowing across north west of Britain reaches the cold areas of Norway and Sweden. Due to the warm effect of this current the fisherman of Norways go away for fishing. It is also due to the warm effect of this current the ports of European countries remain open even in winter season. If this current does not flow to this area, the ports would have been frozen. From the Europe, **Canary** current flows to the south-ward. It is a cold water current which passes over the North-west coast of Africa. This current by mixing with the equatorial current, completes the cycle. In this way, this cycle is in a clock wise direction. The area enclosed by this cycle is called as '**Sargasso Sea**'.

b) Southern Atlantic Cycle : A difinite cycle of ocean current similar to northern cycle is also in this side. This cycle flows in an anticlockwise direction. The Southern equatorial current when advances towards the east to west then it strike against the elongated part of the north America and is divided into two parts. One of the part joins with northern cycle but the other part flowing along with the coast of America and advances to the south. This is called as **Brazillian current**. A cold water current from the south comes to mix up with it. This is called as **Falkland current**. Now this current under the influence of westerlies. It is called **westwind drift**. This is a cold water current, which circulates around the whole of the Globe. The reason being from the south ward there is an open ocean therefore there is no obstruction in between. A cold water current of South Africa flows northwardly along the western coast this is called **Banguela** current. In between the north equatorial ocean current and southern equatorial there is a **counter equatorial** current that flows from the west to the east.

Pacific ocean currents : These ocean currents also have two types of cycles. The Northern Cycle and Southern Cycle.

a) The Northern Cycle : Under the influence of trade winds along the equatorial line a current flows from east to west is a equatorial ocean current. After reaching near the eastern Archipelago. There this is called by **kuroshivo current**. This is also called **Japan current**.

A cold water, Kamachatka current from the north to the south and merges with kuroshivo current. All this oceanic drainage proceeds towards the east. This is called **north pacific ocean** current. After striking against



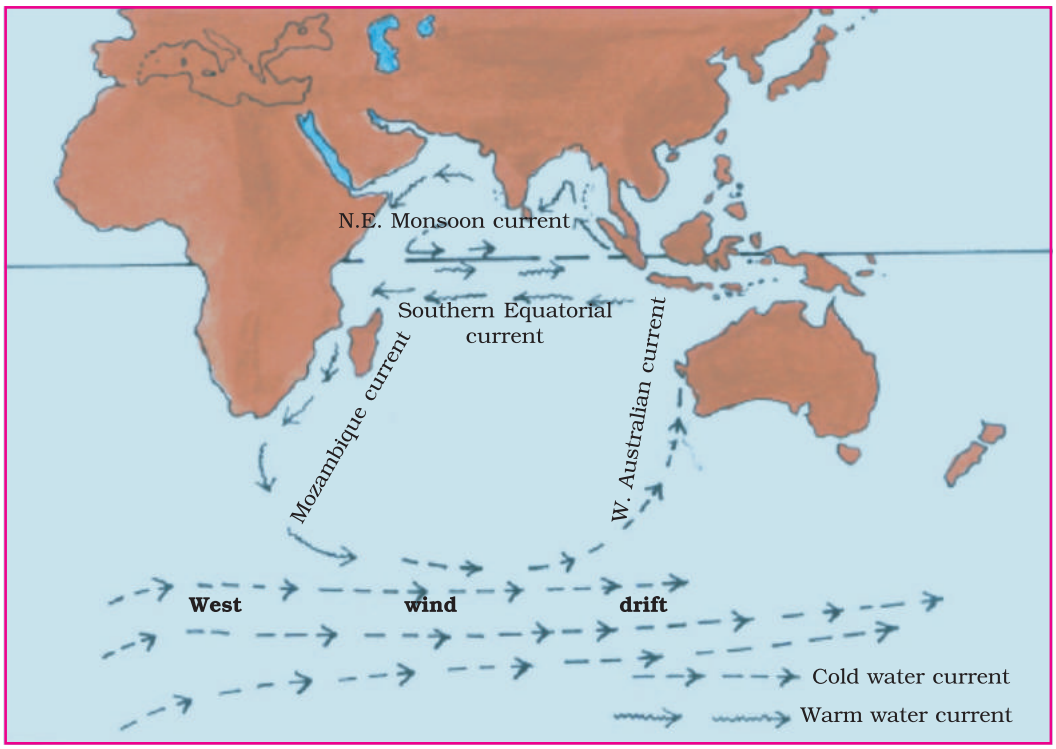
Design 6.5 Pacific Ocean Currents

the western coast of north America it turns southward. It is called as **California current.** As it comes from polar area it is cold water current.

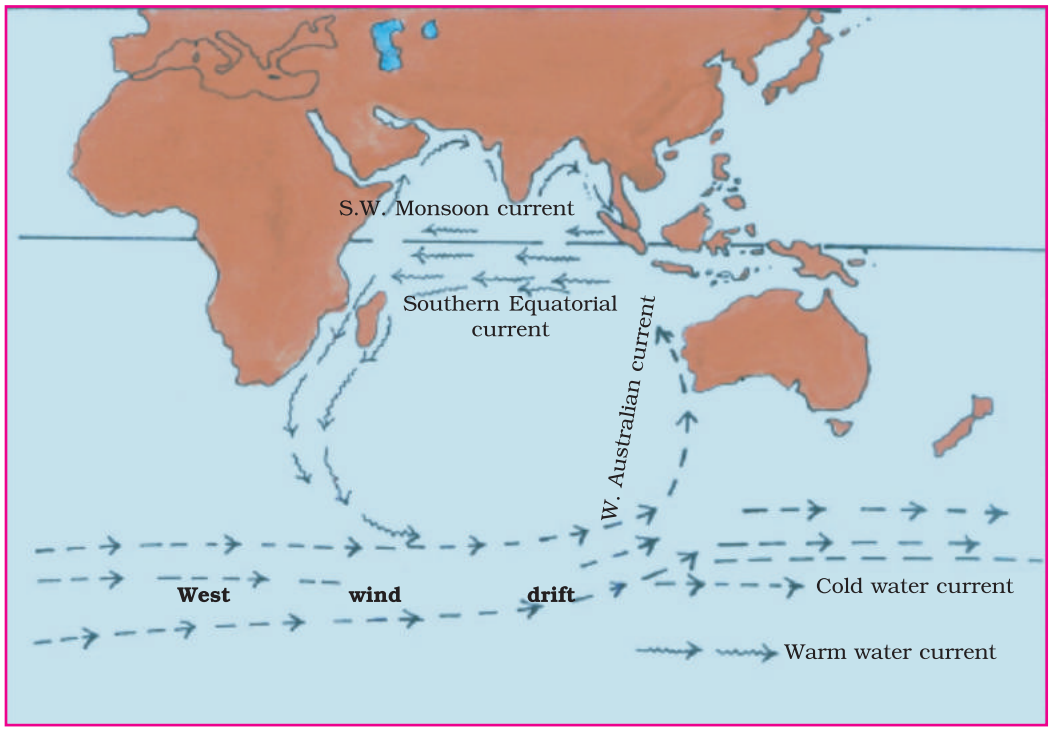
The Southern Cycle: The Southern equatorial current under the influence of trade winds proceeds from South America to the east of the Australia. This eastern Australian current when approaches to the Island of New-Zealand merges with west wind drift. Near South America one branch of this proceeds northward. Here it is called as current of **Peru**. This is also called **Hembolt current**. This is cold water current. This along with equatorial current completes its cycle. Counter equatorial current also flow in Pacific ocean.

Currents of Indian ocean

The Indian ocean currents are not so systematic and permanent as the Atlantic and Pacific ocean. The main reason of this is the seasonal winds that flow in Indian Ocean. These winds blow south west direction in summer season and north eastern direction in winter season. Due to this change the ocean currents also change their direction. In this southern hemisphere the currents are more permanent. The equatorial warm water from the eastern archiplagoe proceeds towards the eastern coast of Africa.



Design 6.6 - The Ocean currents of Indian ocean in winters



Design 6.7 - The Ocean Currents of Indian ocean in Summer

Along this coast, this current goes to southward. Here it is called **Mozambique current**. A branch of this flows from the east of Malagassi. This is known as **Agulahas current**. These two current along with west wind drift proceed toward the east from the west coast of Austrialia, the **western Australian cold current** after proceeding northward merges with equatorial currents.

Effects of Currents on Climate

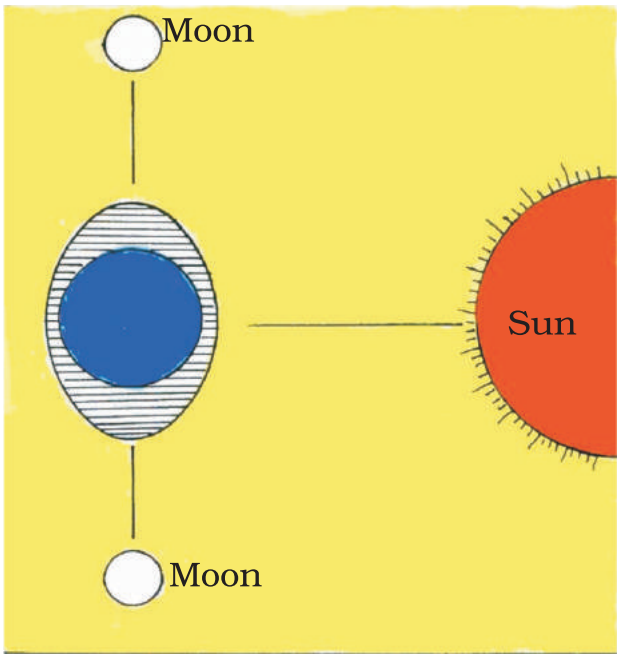
You have studied that there are two types of Ocean currents. Warm water currents and cold water currents. These currents flow along the continents and coastal areas. These currents affect the climate of the adjoining land. The warm current raise the temperature of the places adjoining them and the colder current lower down the temperature of the adjoining area.

When the warm current passes over the surface of water, these absorb enough humidity and when they approaches to the coastal areas these rain heavily. But when a cold currents pass over the water surface. It becomes more colder and dry. When it approaches to the coastal areas then it increases the coldness and dryness. Wherever in the world, the

cold currents flow their adjoining areas have been converted in to the deserts. Find out the name of these deserts. The place where the cold and warm current merges together, they produce dense fog over there. For example the cold water current of Labrador and warm water current of Gulf, merges at the east coast of the North America near Newfoundland to produce dense fog over there. In the design of ocean currents, find out the places where the warm water current and cold water current merges.

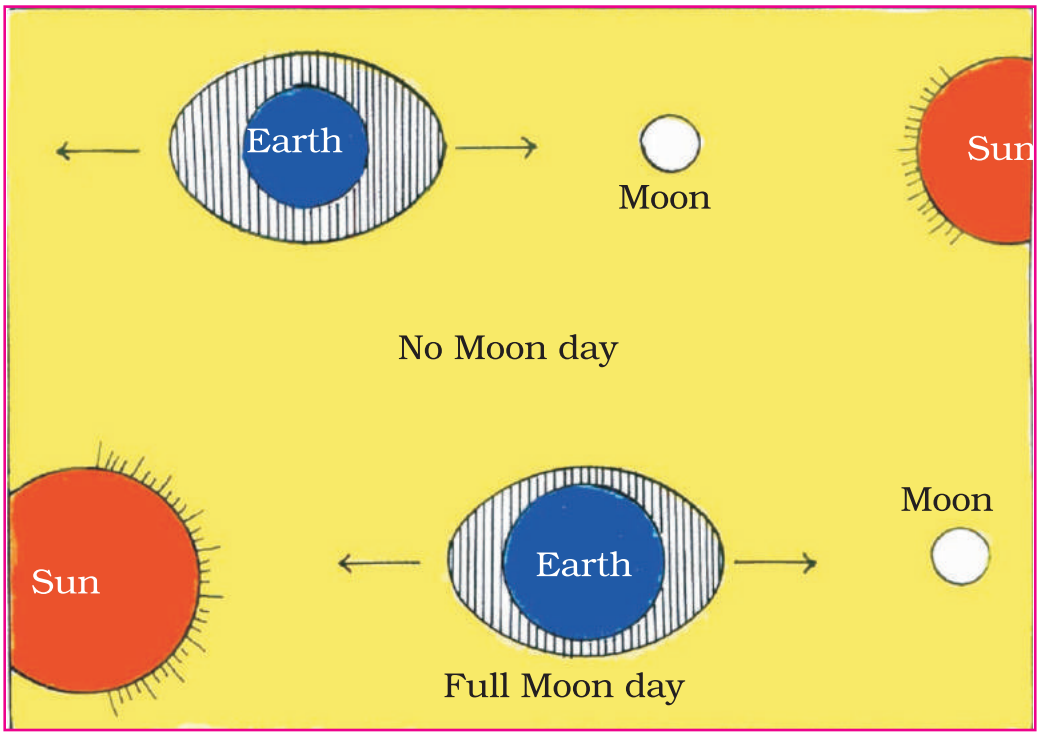
Besides climate these current also affect the oceanic shipping. The shipping is always in the direction of the currents with this their speed increase and thus less feul is consumed. The warm water currents melts the glaciers in this way they do not create hindrance to ships.

3. Tides : The people living near the ocean observe that water rises and fall two times a day systematically. In the coastal areas water continuously rises for some hours. After reaching a definite height it starts falling down. This rise and fall of water repeats two times in 24 hours. The alternate rise and fall of water in oceans is called tides. When the water rises it is **high tide**, and when it falls, it is **low tide**.



Design 6.8 Tide

There are huge oceans on the earth surface. When the moon affects the oceans by its Gravitational pull. The water rises high towards the moon. According to the Geographers and the scientists the main cause of Tide is the gravitational force of moon. Although the sun also pulls water, but it is from a too long distance and it can not make rise in ocean water. But if the pull of moon joins with sun, then rise of water will be very high. The height of the tide is not always the same. Sometimes it is more than average and sometimes it is less than average. When the tide is maximum that is called **Spring Tide**. When the water rises less than average, it is **'Neap tide.'**



Design 6.9 Spring Tide

Spring Tide : During the **Spring Tide** the rise of water is maximum this happens during no moon day and Full moon day. The reason of this is that in both the phases of the sun, the moon and the earth all are in a line. In this phase the sun and the moon both pull the ocean water jointly. Due to their joint pull, the rise of water is very high. Which is called as **Spring Tide**.

Neap Tide : In the Neap Tide, the rise of water is lower than as usual. It is on the 7th and 21st day or the first or the last quarter phase of the moon. In this phase, the moon, earth and sun are right angles to that of the moon. The sun pulls water to its side and the moon pulls towards itself. Due to in nearness of the moon, the water rises towards moon only. But it is not as high, because the pull of sun is working on the opposite direction.

Man and Tide : Tides help us in many ways. Due to the tide the deposits of soil and the debris against the mouth of the river, washed away. Thus the soil do not get deposited on the harbours situated on the coastal areas, and ships can sail up to a great distance inside.

The big ships standing in the deep distant seas, keep on waiting for the high amplitude when there is rise in water, that sail into the harbours. After down loading the ships, cargo again wait for the rise, so that they move again to the seas.

The port of Kolkata on the banks of Hugali river is away from Bay of Bengal. If there were no tide in ocean, the ships could have not even reached in Kolkata harbour. Similarly the port of London is situated at the banks of Thames river. The ships also move in and out of the harbour when tide rise in the ocean.

Now it has been planned to utilize the energy of Tides to fulfill the over increasing demand of energy world over.

4. Tsunami : Tsunami is pronounced as soo-nah-mee. It is a Japanese word, made up of two parts **Tsu** meaning coastal and Nami means a long wave of water. The Tsunami means long waves of water striking to the coastal areas. The long waves arise due to the earthquake on the ocean floors. This is not only a single wave but a series of waves, better known as wave train. It comes one after the other, sometimes these are so intense that the water along the coast of ocean moves with a speed of 800 km per hour. At some places the water rises upto 100 feet and flows with highest speed. In coastal areas there is a great loss to man, animals and property, as things are washed away with Tsunami.

Design 6.10 Destruction due to Tsunami

Case Study of the Tsunami striked on 26th December 2004

On December 26, 2004, a most powerful Tsunami occurred on the coast of Indian ocean. This deadly Tsunami was caused by a severe earthquake of the of magnitude of 9.0 on the ritcher scale on ocean floor. The epicentre was west coast of Indonesia and with in hours the killer waves brought devastation in 11 countries falling in and around Indian ocean. Due to Tsunami many people drowned, washed away and many houses were illiminated. The beaches of Africa to Thailand were heavily affected.

According to the estimate of the Government of India, the loss due to this giant Tsunami was up to thousands of crores. Out of the states of India Tamilnadu suffered the most, followed by Kerela, Andhra Pradesh and Pudduchery. More than 200,000 (2 lakh) people were killed and many more were rendered homeless.

I. Answer the following question in approximately 1-15 words.

1. Why does the Ocean water salty?
2. Why there is a dense fog near Newfoundland?
3. Write down the main ocean currents of south Atlantic ocean cycle.
4. Explain the route of Gulf Stream current.
5. Write down the main ocean currents of North Atlantic Oceans cycle.
6. What do you understand by Tsunami ?

II. Answer the following question in approximately 50-60 words.

1. What is the difference between Spring Tide and Neap Tide ?
2. Differentiate between warm water ocean current and cold water ocean current.
3. Why are the ocean currents of Indian ocean not so definite and systematic ?

4. Give reasons, why are the western harbours of Britain remain open even in winter season where as the eastern harbours of north America situated at the same latitude are remain frozen ?

5. Tide is very useful for ships. How ?

6. Why a spring tide occurs in full moon and no moon days ?

7. How does the Gulf Stream affects the climate of Europe ?

8 What is 'Sargasso Sea' and how does it form ?

9 What is the difference between the ocean waves and the ocean currents.

10 Write down a case study of a place that is affected by Tsunami.

III. Answer the following question in approximateley in 125-130 words.

1. Why do the ocean currents flow ? How do they affect the climate of any country.

2. Explain with illustration on the world map, Atlantic ocean currents.

3. Explain with illustration on the world map, Pacific Ocean currents.

4. How does the Tide occur ? Justify with diagram.

5. What are ocean currents ? What are the causes of their origin.

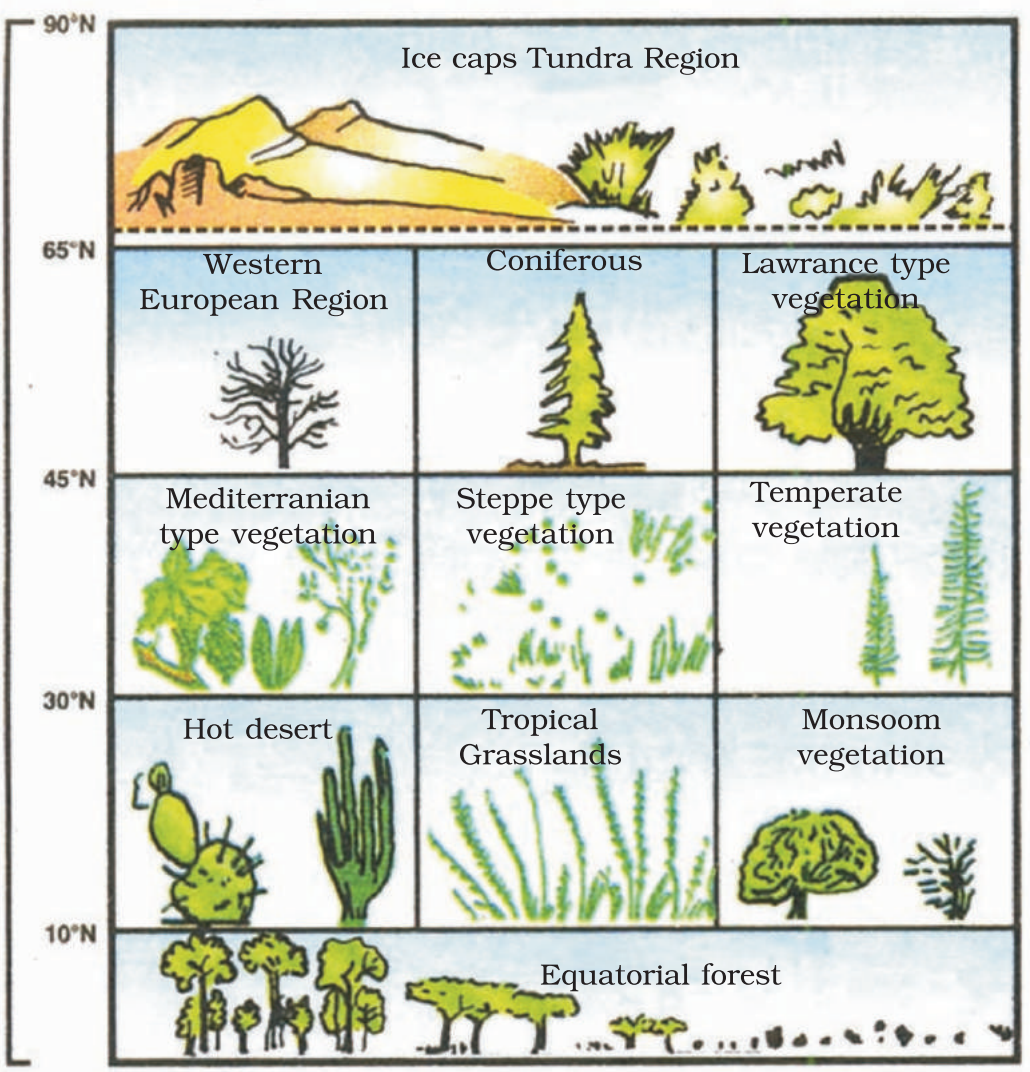
Natural Vegetation and Wild Life

The natural vegetation of a place are the plants, trees and herbs that grow itself, without efforts of mankind. The natural vegetation shows the total effect of topography, type of soil and climate of a place. The natural vegetation is a most valuable resource, besides providing different types of wood. We get bamboos, grass for paper making, gum, resin, turpentines lac, bark for leather colouring, medicinal plants and bushes from woods. A number of industries are based on forest wood, besides timber, it is used for making furniture, sports goods, ships, railway coaches, paper, plywood and boxes for packing purposes.

Forests are helpful to us indirectly also. Forests play a vital role in processes of atmosphere. Trees absorb carbon dioxide and release oxygen to the atmosphere. They help in occurance of rainfall thus check the temperature rise, check floods and soil erosion and help in the seepage of rainwater into the ground. Forests also check the spread of deserts and provide habitat to birds and animals.

About 30 percent of land area of the world is under forests. Some countries are quite rich in this resource and forests play a vital role in their economy. North America, South America and Russia have vast areas under forests whereas Europe, Asia and Africa have lesser forest cover.

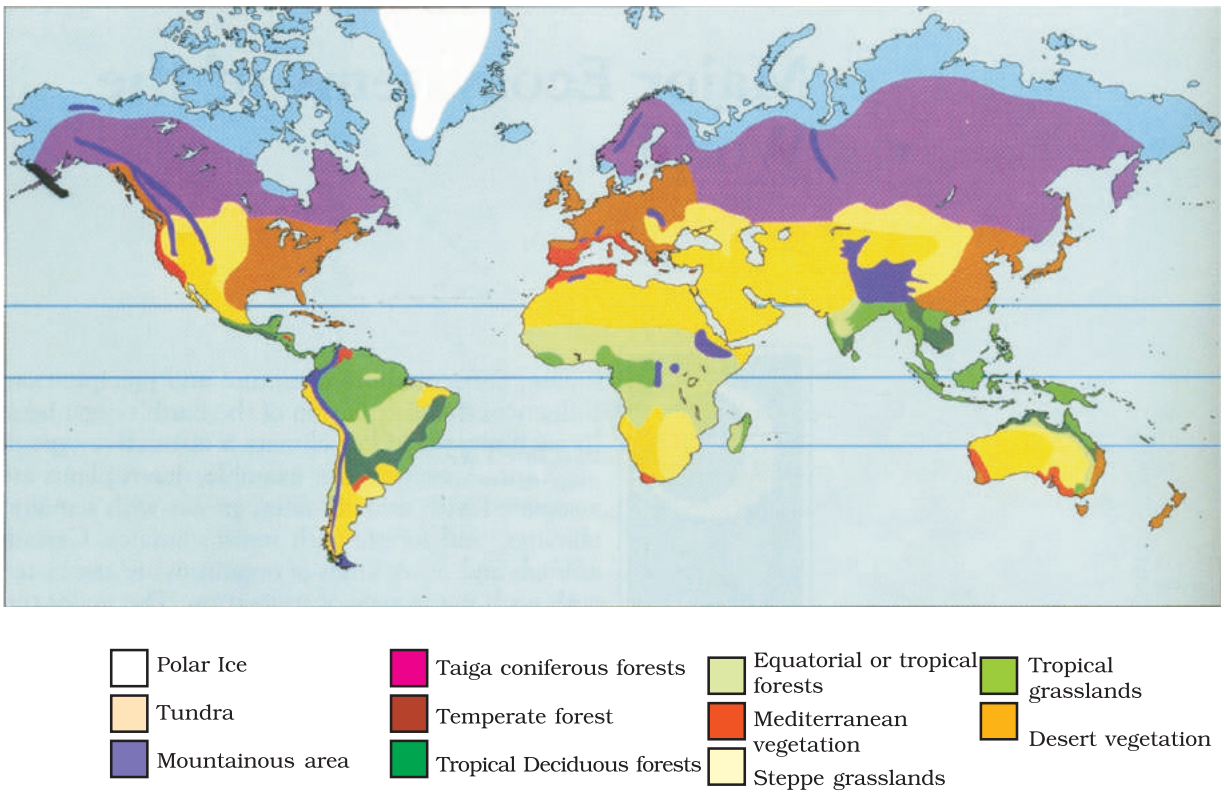
Increasing population of the world is adversely affecting the forests. Man has been cutting the forests to obtain land for cultivation since the pre-historic era. As a result, area under forests is decreasing drastically. If natural vegetation and forests are continuously destroyed with present speed, time will come soon when the whole world would turn into desert. It is therefore, urgent to conserve the forests and plan afforestation while checking deforestation.



Design 7.1 – The types of Vegetation on the earth according to the Latitudes.

After observing the above design, you will find that the distribution of natural vegetation is not the same through-out on the earth. There is a great variation in the distribution of vegetation. With the change in climate there is difference in the type of vegetation, type of trees, density and size of the forests. Due to the variation of climate at different latitudes the vegetation cover also varies. Natural vegetation of the world can be divided into three major types i.e.

1. Forests 2. Grasslands 3. Desert Shrubs



Design 7.2 - World map showing natural vegetation

Forests

Amount of annual rainfall, its seasonal distribution and temperature affect the types of forests. On the basis of the geographical conditions, the forests are further divided into three types.

I. Equatorial type of forests II. Monsoon Type of forest III. The Coniferous (conical) type of forests

1. Equatorial type of Forest

These forests cover approximately 10^0 north and 10^0 south of the Equator and are known as evergreen forests. Due to the continuous high temperature and rainfall, the dense forests grow in this area. The shoots of the tree are so much intermingled with each other that they form a canopy of trees which does not allow the sunlight to fall on the earth's surface. There are different types of trees in this region but these are not useful from economic point of view. The main reason is that it is not easy to pass through the forests and also they cannot be cut.

The large portion of South America, Central Africa, South East Asia, Medagaskar are covered with this type of forests. Small areas of Australia, Central America are covered under these forests. These type of forests are called as '**Selwas**' in the Amazon basin of Brazil in South America.

Lately this type of forests are considered to be **skyscrapers**. The uppermost layer of these forests comprise of 70 metres high trees. On this layer of the trees both light and thin trees are available. Below this is conopy type storey. Which is formed by the intermingling of shoots of trees with each other. A small amount of sunlight is available in this layer of forests, which is useful for fruits and flowers. Below this is a shadow area, in this vines are clinging around the trees and also interwoven with each other. The vines which cannot survive without sunlight grow high and come out to have sunlight. On the lowermost layer of the forest there is shadow area because sunlight does not reach the ground. Therefore the ground floor is covered with decaying leaves, insects and worms and forests are inaccessible. That is the reason that these forests are not economically useful while government efforts are on to develop and these regions and make use of forests.

II. Monsoon or Deciduous forests

These forests are found in sub-tropical latitudes where the rain is mostly confined to one season. These forests have broad leaved trees which grow at places where monsoon rainfall is sufficient. The season, in which there is no rainfall, these trees shed their leaves. That is why these forests are called Deciduous forests. Such forests are very useful economically, but simultaneously the land under these forests is being used for the cultivation of crops after clearing the forests. These forests are less dense as compared to equatorial type of forests and are more accessible also. We get timber from these forests for houses and for fuel.

III. The Coniferous type of forests

These forests are grown in temperate regions. The coniferous forests are also called evergreen forests. In Eurasia the forests are known as '**Taiga**'. From utility point of view these are the most important and precious trees. These forests includes soft wood of Chir, fir and spruce trees, which is used for making paper.

2. Grasslands

There are two types of grasslands : Tropical grasslands and Temperate grasslands.

i. Tropical grasslands

Tropical grasslands are found at 10^0-30^0 latitudes in Northern and Southern hemisphere. These grasslands are also called as '**Savanna**' grasslands. These are called by different names in different regions.

In Africa these are called Parkland. In Venezuela these are called Llanos. In Brazil these are called Campos.

This grass grows upto 5 metre high and after drying, it turns quite hard. There are also small sized trees scattered in these grasslands. Mostly herbivorous and carnivorous animals are reared on these grasslands.

ii. Temperate grasslands

Such grasslands are found in temperate zone. Because of low rainfall regions, the grass is not very high but it is soft and densely grown thus it is useful for animal grazing. The grasslands are also known by different names in different regions.

In Eurasia these are called as Steppes. In North America these are called as Prairies. In South America these are called as Pampas. In South Africa these are called as Veld. In Australia these are called Downs.

Desert Vegetation

There are two types of deserts on the earth : Hot Desert and Cold Desert.

i. Hot Deserts

Sahara and Kalahari in Africa, Arab Iran desert, Thar desert in Indo-Pakistan, Atacama in Southern America, Southern California and Mexico in North America, Eastern Australian desert in Australia are the hot deserts of the world.

Due to high temperature and low rainfall, the vegetation is scanty. Only thorny shrubs, cactus, small herbs and grass grow in such deserts. The nature has made this vegetation to adapt to the hot and dry weather of these areas. The roots of these plants are long and thick enough to secure water from the deep. The bark of the plant is thick and the leaves have thick foliage and are very smooth, so that minimum water may escape during the transpiration.

ii. Cold desert

These deserts are located mostly in the northern most latitude of Canada and Eurasia. (The combination of Europe and Asian continents is known as Eurasia).

Most of the times during a year, these areas are covered with snow. When the snow melts for a month or so colourful flowering plants grow. In the northern areas small grass i.e. lican is grown. The desert type of vegetation is not of great use ecnomically.

Conservation of forest

The forests are of great importance to us because they fulfill our several needs. The great part of the timber from forests is used for fuel. Out of total usable timber 50% is used as fuel and 33% is used for housing purposes and rest of it is used for other purposes i.e. for making paper, railway boggies, sleeper, rayon etc. With the increase in population, The consumption of wood is also increasing, but on the other hand the area under forest is decreasing. Therefore the stress should be laid on the conservation of forests and planting new trees.

Sometimes fire causes great loss to forests. A specific attention should be given regarding the forests. Uncautiousness and carelessness regarding the forests should not be adopted. The cutting of trees should be systematically and besides new trees should be planted simultaneously. It should be kept in mind that the trees should not be destroyed due to mites and diseases. Maximum trees should be planted on the vacant space left along the footpaths, canals, rivers, roads and railway lines. The consumption of timber as fuel should be decreased and alternate

sources of fuel should be adopted i.e. LPG cylinder chullas, solar energy chullas, gobar gas etc. In housing alternate of wood should be encouraged.

Wild Life

With the destruction of forests the number of wild animals are also decreasing at a great speed. The man has been hunting wild animals along with cutting the forests. Man has been hunting animals for the sake of meat, feathers and hides. As a result some of the species of wild animals have gone extinct and some of these are endangered to be extinct.

To maintain the ecological balance the survival of these animals is necessary. By clearing the forests and hunting of these animals, man has brought imbalance to the ecological balance. The nature has created biosphere in such a way that one animal depends upon the other, as small animal is a food for the big animal and the carnivorous depend upon herbivorous animals. In this way absence of even single particular species will create disorder of physical environment. Think a while, if the number of carnivorous animals like lion, leopard is more than the number of herbivorous animals, do you know what will be the result ? There would be an imbalance of ecological balance and the carnivorous would start eating human beings. If the situation is reversed the number of lions and leopards is less than the number of herbivorous animals. Due to over grazing of grass, a time will come when a lush green grasslands will turn into barren deserts. Therefore, soil erosion will be more, it means the disorder of balance. To maintain the ecological balance, efforts should be made.

Wild animals are also a wealth of a country. For this purpose, in many countries hunting is prohibited. There should be strict law to check hunting in India. It has been felt that it is very necessary to protect wild animals. As many of the species have been extincted earlier and many of the rest are endangered to be extincted.

The number of rhinoceros, leopard, lion etc. animals have been decreased. The national parks have been etablished in the United States of America, India and other countries. A natural environment has been provided to protect these wild animals in these parks. There are 20 national parks in India in different parts of the country Corbett, Shivpuri, Cannari,

Design 7.3 The animal species that are endangered to be extincted

Rajdevga, Gir etc. are some of the famous national parks of India. Besides there are reserved centres for the animals and birds. 'Chhatbir' is one of these centres in Punjab. The Savanna grasslands in Africa is one of the largest home of wild animals. The tourists from distant places in world come to visit these places. Zebra, giraffe, antelope, stag, deer, lion, leapard, tiger, elephants, wild buffalo, rhinoceros and different species of animals and insects are present in these regions.

I. Give answer to these questions in approximately 1-15 words.

1. What do you understand by natural vegetation ?
2. In how many types natural vegetation can be divided ?
3. Which are the goods we get from forests ?
4. How do the forest help us indirectly ?
5. What will be the effect of the development of forests ?
6. How man is disturbing the ecological balance ?
7. Name the local names of Tropical Grasslands.
8. Write about the vegetation of cold deserts

II. Answer the following questions in about 50-60 words.

1. Write about the equatorial type of forest.
2. Which are the forests that are economically useful ? Explain.
3. Why are the monsoon forests called deciduous forests.
4. Write about the temperate grasslands.
5. Write about the hot desert vegetation.
6. Why is it necessary to conserve forests ?

III. Answer the following questions in about 125-130 words.

1. Write in detail about the natural vegetation.
2. Write about the care and protection of wild animals. Describe the role of wild animals in ecological balance.

IV. Show the following on the world map

1. Sahara desert vegetation
2. Llanos Grasslands
3. Pampas Grasslands
4. Selwas Forests

Prepare a list of various types of trees grown in your school compound. Plant a few sapplings also, with help of your teacher.

Human environment is an important component of the whole environment. Only human beings have the quality to adapt according to the environment. Due to this quality man has access to the inaccessible places. During this, he has to pass through different stages. Previously man was not stuck to only one place, but he wandered forest to forest in search of fruits. That is why he did not have the permanent place to live. The man was like a nomad at that time. Slowly he started settling down on one place and started cultivating crops. He felt further need to settle down permanently with the industrial revolution and people started living at one place only. Man inculcated the habit of helping each other. In this way man learnt how to lit fire, started clothing himself and made houses to live in.

Previously man started living on the places where he could fulfill his day to day needs easily. For example, man started living along the river valley. There are many reasons, i.e. water for drinking is easily available in these areas. Secondly, due to fertile soil cultivation was very easy, as with a less effort one could have a good production. In this way man started living in from the thatched roof huts to mud houses, from mud houses to pucca houses. Multistoryed and sky scrapper have come in to existence now-a-days.

With the development of professional activities, the man has been shifting from river-valley side to industrial area where the facilities are more. People are also shifting from rural to urban areas. The following are the factors that affect the settlements.

1. **Availability of water :-** The people like to live on the places where the water is easily available. This is the reason the most of the civilizations developed along river-valley i.e. most of the people had

been living in Indus valley civilization. After escavation of some places, evidence of the Kachcha/Pucca houses are found by the archeologists.

2. **Topography :** Topography plays an important role in the establishment of settlements. The area with plain topography always act as a great facility of habilitation. In the rugged topography, there are less number of settlements because of the lack of transport and communication. It is difficult to cultivate crops in these areas. So far it is difficult to construct houses in these areas. On the plain area, it is easier to construct road and lay railway lines for transportation. Secondly it is easy to cultivate crops and it is easier to transport agricultural products to other places. This is the reason that big cities, metropolitans and cosmopolitans developed usually on plain areas. For example, many important cities developed in the plains of northern India.

3. **Natural beauty :** Many cities have been developed due to their natural beauty. These cities have been developed because of their importance as tourism point of view. Because tourism industry is one of the major industries now-a-days. Many people have been employed in this industry. The people from all over the world come to enjoy the beauty of the places like Kashmir, Goa etc. These are the places that have been developed because of their natural beauty.

4. **Means of Transportation and Communication :** The means of transportation and communication also plays an important role in the development of a place. By the the development of means of transportation and communication, it is easier to transport people and goods. Economic as well as social development is also possible due to efficient means of transport. Sometimes we feel, a product of neighbourhood is required far away and more profit can be earned. The areas which find more of such activities become major cultural and commercial centres. Besides, the cities that are located along the main roads, railway lines and ports also become important from cultural and commercial point of view. Technical advancement in means of transport and communication has also taken place. In the previous years people used pet animals as means of transport.

With the technical advancement, the transportation has become more technical and faster. The whole world has become a global village while various means of transport play diverse roles in economic and other types of development.

Road-ways : This facility has been provided from door to door. It is easier and cheaper to construct road than to lay railway lines. As far mountainous areas are concerned roads have also been constructed there but it is difficult to lay out railway lines.

Railways : The important aspect of railways is that these carry a large quantity of goods and large number of passengers. First of all, coal had been used in steam engines to run trains. At present trains are run by electric and diesel engines. The railway network is not only on the surface of the earth but it has been developed underground also, parts of railway network have been layed out over the bridges also. These are known as metro and sub-way railway services. In Delhi and Mumbai it has become popular recently.

In Europe and North America, railway network is widely spread. Now, railways have been layed out along the coastal areas of the continents. The railways of Soviet Union connect Leningrad to Valadivastic. This railway line is called as Trans-Siberian Railway'. This is the longest railway line in the world. There is great importance of rails in Japan, Maximum number of passengers travel on Japanese rails. High speed rails have been manufactured in Japan and France.

The bullet Train of Japan runs at the speed of 500 kilometer per hour.

Water ways : As we already know that man started living along the river side first of all. He got involved in fishing. Then he started travelling from one corner of the river to the other with the help of boats. It means he started transport practices through water. Now-a-days, the oceans, seas, rivers, canals lakes etc. are used by means of transport. The ships, steamer boats etc. are bowing through these and cargo and people are shipped through these. The adventurous people have completed their

voyages through these means of transport. Now, ships are engaged in large scale commercial activities.

Important water ways of the world :

(i) **North Atlantic Ocean Water Way :** This water way is bussiest one which connects western Europe with United States of America and Canada. The maximum trade is conducted through this water way. Dream ship Titanic also used this water way but could not reach its destination in 1912.

(ii) **The Pacific Ocean Water Way :** This water way connects north and south America with Asia and Australia.

(iii) **Cape – Water Way :** This water way was discovered by Vascodigama in 1498. This water way connects European countries and America with southern Asia, Australia and New Zealand. With the construction of Suez canal the importance of this water way in terms of traffic, has been decreased.

(iv) **Suez Canal Water Way :** The suez canal connects mediterranean ocean sea and red sea. This water way connects the European countries with the countries of the southern Asia, Australia and West Africa.

(v) **Panama Canal :** This canal has been constructed in Panama Republic. This canal connects the Atlantic ocean and Pacific ocean. This canal connects western Europe and Eastern United States of America with western United States of America and Eastern Asia.

The important ports : The North Atlantic ocean water way is the busiest waterway and constantly engaged in the shipping transportation. The important ports of India are – Kolkata, Chennai, Kochin, Marmagaon Kandla and Vishakhapatnam. These ports connect India with the rest of the world. Thus, we can say these oceans do not separate the continents from one another but actually these are the bridge between two continents that connects one continent with the other.

The Internal water ways : The large rivers and lakes also act as water ways. For example, Ganga-Brahmaputra river and lakes of Kerala in India work as water ways. The water ways are also used in the other

countries of the world i.e. the Denub river of Europe – Connects the middle and southern Europe to Black Sea. Yangtze Kiang river of China – connect places internally, Amazon river of Southern America, five lakes of Northern America that connects U.S.A. with Canada etc.

Airways : Aeroplanes are also an important means of transport. First of all the Wright Brothers of America made a flying machine in 1903. At last the Aeroplane came into existense.

Airways is the fastest means of transportation but costlier also. Now-a-days approximately all of the countries of world are inter connected through airways. Thus, world has become a 'Global Village'. Travelling through aeroplane saves a plenty of time. Therefore aeroplane have been very popular now-a-days. There are largest airports all over the world. London, Paris, Moscow, Tokio,Dubai etc. are the largest airports of the world.

Airways plays an important role in India. Many of the cities of India are inter-connected through Indian airlines. Vayudoot and some private airways connect. The International flights like, Air India and Indian Airlines of India are engaged in carrying passengers to the big cities of world, Amritsar, Delhi, Kolkata and Chennai are important airports of India.

Pipelines/Electric Grid : Through the pipelines, oil and gas is being transported and electricity is being transported through the electric Grid.

Means of Communication : Besides transportation communication network also played an important role in increasing great link between people. Through which a message of country can be conveyed to many people and country and all over the world at one time. For example, through internet we can be contacted to the world while sitting in one corner of the world. This is also a cheapest communication means. Through the Cyber network services, you can get knowledge about any corner of the world and get guidelines regarding education and any type of knowledge etc. Besides, postal services, telegram, telephone, mobile phone, radio, magazine, newspapers are also best means of communication.

I. Write down the answers of the following questions in approximately 1-15 words :

1. How does agriculture affect human settlement ?
2. Where did people live, first of all ?
3. How does a topography of a place affect the development of human settlement of a place ?
4. How are roadways important ?

II. Write down the answers of the following questions in approximately 50-60 words :

1. Write down the importance of railways while explaining them.
2. Write about the important waterways/ocean routes of the world.
3. Write about the internal waterways ?
4. World has become a Global Village with the development of Airways, illustrate the fact with example.
5. Explain various waterways of the world and name seaports of India.
6. Which are the means of communication, what is the advantage of their development.
7. Write in detaill about Suez Canal.

III. Write the answer to these question in 125-130 words :

1. What are the factors that affect the development of human settlement ?
2. Explain in detail about the water ways.
3. What contribution has the means of transportation towards the development of human settlement.

With the help of Atlas and the Teacher :

1. Show the Suez canal and Panama canal on the world map.
2. Show important airways on the world map.

Lesson 9

Inter-Relationship of Man and Environment

In this lesson we will study about the inter-relationship of man and environment. The changes in the elements of environment affect economic activities of man. In this lesson we will study each case of following physical regions :

1) Life in deserts

2) Life in tropical and subtropical regions

3) Life in warm temperate regions.

Life in Deserts : The deserts are the regions with less rainfall to no rainfall at all. It means the rainfall is not enough that can support vegetation, plants, trees and agriculture. There is extreme type of climate in these areas. There is great range of temperature between days and nights. The temperature rises upto 50^0C during the day and falls to 15^0 celsius during night. Therefore the days are extremely hot and nights are pleasant during summer season. Some places in deserts are such that do not have rainfall for years together. Thus the earth crust or soil is fully dry. Thus no rainfall and dusty storms, With upper fertile crust eroded away. Therefore there is no vegetation. The deserts covers the $1/7^{th}$ part of the land area of the earth.

There are two types of deserts :

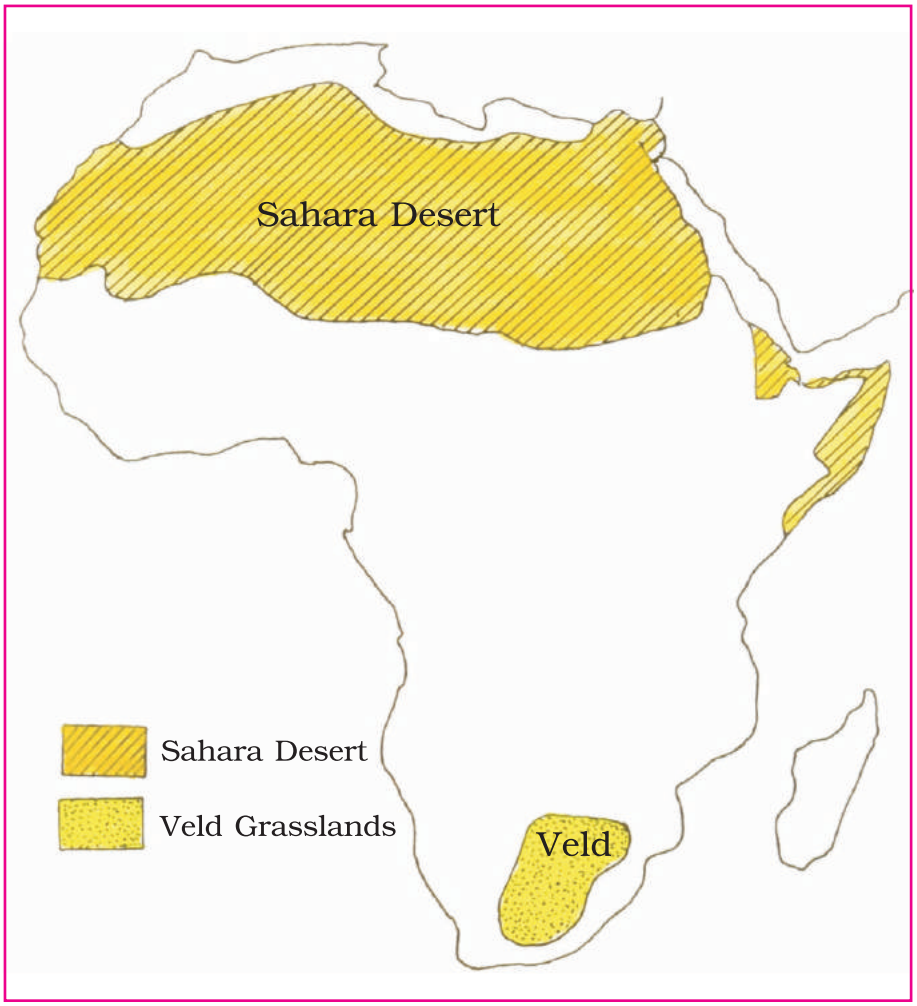
(i) Hot deserts (ii) Cold deserts.

Hot deserts : These deserts extends upto 23^0 north and south latitudes of both the hemispheres. The hot deserts of northern hemisphere are: Sahara, Arab, Thar, California, Arizona, Mexico.

The deserts of southern hemisphere are : Atacama, Kalahari, Western Australia.

In this lesson we will study the biggest hot desert of the world Sahara.

Sahara Desert : This desert is located in Africa. Look at the extension of this desert, how big it is ! The length of this desert is 5600 kilometre from Red Sea to Atlantic Ocean and average width is 2000 kilometre. The sand dunes are the special physical feature of this region. The major part of this region is made up of shifting sand dunes. It means, this soil of these sand dunes is so dry and loose, the same dunes shift in the direction of the wind flow. That is why, these are called shifting sand dunes.



Design 9.1 Africa : Sahara desert and veld grasslands

1. Climate :

The climate of Sahara desert is extremely hot and dry. The temperature rises upto 40^0 to 45^0 celsius in summers. The highest temperature has been measured as 58^0 C at the place of Arizona in Sahara desert.

2. Vegetation :

The vegetation is scanty. Thorny plants (cactus), thorny bushes, date and palm trees etc. grow there. The date when ripe turns into dark brown colour. Both man and animal eat them. The leaves of these are used as fodder for animal. Sometime these are also used for making roofs of the houses. Date is the important tree of the region. The wine is prepared from their plants. Olive, apricot etc. are grown under the groves of date trees.

The deserts are known for their lifeless habitat. But it is not so. No doubt, the water is considered to be an important factor for living. Here we can understand the importance of relationship of landforms and water. As for example the high lands and on the slopes, the water table is very low. Therefore no particular type of vegetation is grown over there. Down the sloping area, where the water collects, plants and animals are available. Their adaptation to environment in desert area, is a conspicuous feature of plants and animals. As in deserts, the plants are deep rooted and with thin leaves, sometimes these leaves are in the form of spikes only. Due to their long deep root, it can absorb water from the deep underground water. Due to their thin leaves, the transpiration is much less.

3. Human Settlements :

The human settlements are also usually developed around the water bodies. These water bodies are called Oasis which may be very big and sometimes small also. In a small Oasis, there is a grove of date trees around a well, which act as rest houses for the travellers. In large oasis agriculture is done, wheat, sugar beat, maize, barley, beans, onion, tobacco etc. are grown. Now, the people have started constructing thick walled houses with small windows in desert regions. This is done so to avoid extreme heat. People have made caves in soft rocked area where animals and people live. For long travel people use tumblers that are made of goat or camel skin. The water remains cool in these containers.

4. Animal Life :

A camel is the most important animal of such regions. It is a thick skinned animal, which can tolerate bad weather. The special feature of

the camel is that they can store water for a long time and for days together they do not need to drink water. Feet of a camels are paddy which help them walk smoothly on the sand while the hump on their back is like store of water which helps them to walk for a long distance without water. Actually hump is made of hydroganic substances which reacting with oxygen, produce water. That is why camel is known as '**desert ship**'. Some carnivorous animals, fulfill their need of water through their food only. Whereas the bird find out water by flying to the distant regions.

Addax, is a big antelope animal of Sahara desert. The light brown colour of its skin reflect light and heat. It means the heat does not penetrate in its body. Its digestive system is such, that it can live on coarse grass and small quantity of water. Besides these jackal, sand rats, foxes, antelopes and different species, insects, crocodile etc. are the habitat of this area.

Design 9.2 Addax

As far as the people are concerned, nomads are the habitants of such regions. The nomads are the people who fulfill their daily needs from animals. By selling the animal product, milk etc. they get money to purchase other things of their daily needs. They do not stick to one place, but they wander where they get grass for their animal grazing. They are

called as the **Torring nomads** of Sahara. They rear camels, horses, sheep and goats.

The cold deserts : There are cold deserts also in the world. The temperature of these areas may fell to - 50° Celsius. In this lesson we will study about Ladhak as a cold desert of the world.

Ladhak –The cold desert : Ladakh is the coldest desert of the world. This is a part of Jammu and Kashmir. It disconnects from the world for approximately six months every year due to heavy snow fall. Ladakh is known as moon land. Because it is not so easy to reach there.

Ladakh is a vast sandy desert with naked stony slopes. Due to the severe weather, it is difficult to live these. The Indus river flows through Ladakh and Indus valley lies in the centre of Leh area. Shyok, Suru and Zangskar are other rivers which flow through Ladakh. They also have carved vallies in the area. There is scarcity of water in cold desert also as it is in hot deserts. The only difference is that the scarcity of the water is due to non availability of water in hot desert. But in cold deserts the scarcity of water because of frozen form of water due to extremely low temperature. Therefore there is dryness in both types the deserts. Natural vegetation does not grow due to dry weather.

There are many mountain-passes to enter Ladakh. Karakuram and Zojila are some of the important mountain passes. When the snow melts apple, walnut, apricot, mulbery trees are grown. In the lower part of the mountains, pencil cidar, Elam, few cypress and willow etc. trees are grown. In the domestic animals; cow, goats, sheep, dogs etc. are reared. In wild animals wild yak, wild sheep, hares, kiang which looks like pong etc. are found in this region. Only the lizard is the scrawling animal that is found in this region. Among the minerals, borax and sulphur is found in large quantities.

For last three decades, the Ladakh has risen to be a centre of attraction for tourists and tourism industry has developed in this area. About 400 hotels have been built in Leh. The opening of Srinagar-Leh roadway has been a doorstep to the other part of the world. Leh is also linked with other part of the world by airways. This development has brought major change in the life style of the people of Leh-Ladakh. The handicraft, particularly pashmina shawls of Leh are famous all over the world.

5. Life in Tropical and Sub-Tropical :

This area is extended on the 5° north and south of the equator. In some places this area extends upto 10° latitudes. Following are the areas that are included in this region.

1. The Amazon Basin of South America
2. Zaire Basin (Congo) in Africa, and Coastal area of western Africa along with the gulf of Gunea.
3. Malaysia in Asia and eastern archiplego.

In this lesson, we will study the life in Amazon valley. This is plain lowland and plain of southern America which is formed by the alluvial brought by Amazon river. The Amazon river is the largest river of the world next to the river **Nile**. From the volume of water flowing point, it is the largest river of the world. The river joins the southern Atlantic ocean after originating out of the snow covered Andes mountain of southern America.

The Amazon basin is consist of alluvial soil which is very fertile. As it is located near the Equator, it is hot and get rainfall throughout the year. That is why it is also known as equatorial rain forest. The life in this region is divided into three parts.

1. Life in rainforest canopy.
2. Life in Amazon river.
3. Human life near the coastal area of Amazon river.

1. **Rainforest canopy :** The life in upper forest part of the rain forest canopy. The shoots of trees are so intermingled with each other to form a canopy. The living beings, birds can never come down on the surface of the Earth. This animal kingdom includes insect eating animal, multicoloured birds like parrots and many species of animals. The habitat of this area, runs from one tree to the other with the help of shoots, they do not come down on the surface of the Earth.

2. **The life in Amazon River :** Amazon river is a huge river, it has thousand tributaries. Some of the channels are very deep and some are very much wide. These tributaries are covered with leaves shed by the trees, these are the home of many kinds of fish.

3. **The coastal life of Amazon River :** The tributaries of huge Amazon river flow through the forests which act as a natural ways of transportation. These forests are also a source of food for the inhabitants. Some of the people still live traditionally. As they live upon hunting, fishing and growing crops. Cannowing (Boating) by hand to move from one place to other. Some of these had made houses in these boats. Still some people join engines to the boats according to the new techniques.

Some people of this area shift to other place after living, hunting animal and taking primary crops for some time. They do so because, by leaving the soil vacant for sometime it may regain its fertility naturally. Now-a-days the rainforests are being cleared at great speed, which is of big concern. The cutting of trees is at high speed, for the sake of constructing buildings, for large farms (land holdings) and cattle rearing. It is not only this, but also the less fertile soil of this region is not fit for cattle rearing and growing crops for a long time. The people use a place for their needs and then move to another place after some time. Thus the cutting of forest is being done continuously and natural fabric is being destroyed.

3. **Life in Subtropical Areas :** The subtropical areas of world extend from latitude 23½° north, tropic of cancer to 23½° south, i.e. the tropic of Capricorn, from the equator. Out of these subtropical areas, we will study about the *plains formed by Ganga –Brahamputra* rivers.

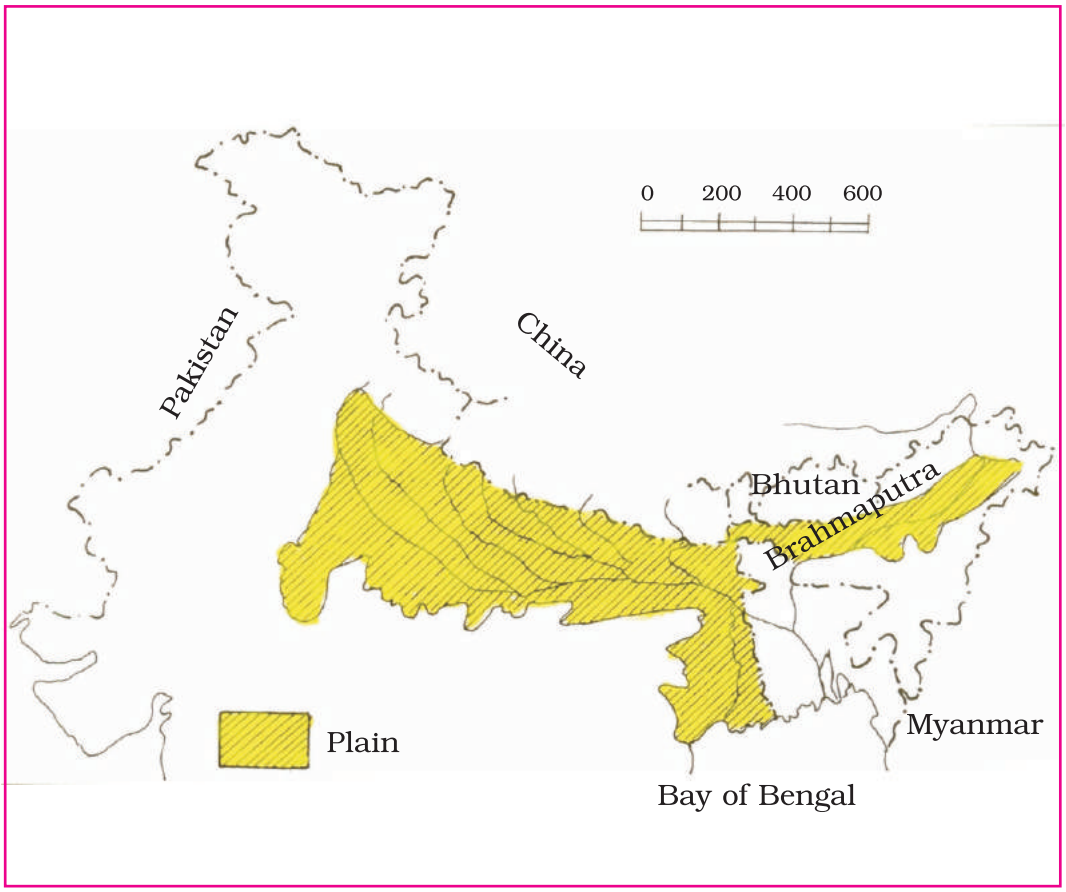
The plain extends upto 2500 km. to the south of Himaliyan mountains. These plains are formed by the two rivers. Ganga and Brahmputra. These are very important plains and high density of people like to live in this area. This region has seen last urban development and due to fertile soil, availability of water and developed means of transportation this has became India's developed region. On the basis of rivers it is divided into two parts.

Plain of Ganga – This includes the states of Uttar Pradesh, Bihar and West Bengal.

Plain of Brahamputra – The major part of the plain is in the Assam State.

In this plain area there is not much variety of relief features. This area is characterised by the meandering paths because of river erosion. At some places the ox-bow lakes are found which are naturally made by the obstruction of water flow. This is the place where the speed of rivers slows down, it gets divided in to different branches while unloading the carried material. Thus the delta shaped (Δ) feature formed at its end. These rivers Ganga Brahmputra form the biggest delta of the world i.e. Sunderban delta with area of 33000 Sq. Km. New Delhi which is capital of India is also lies in plains of Ganga.

The alluvial soil of Ganga-Brahmputra plain is very fertile. It has been deposited by two rivers. Rice, wheat sugarcane, oil seeds, grains, fruit and tea are some of the important crops which are grown over here. Formerly the farmers used to depend on the monsoon showers for their crops. But in the recent years irrigation facilities have been extended to the farmers. Now two to three crops are raised from the same field annually.



Design 9.3 Plain of Ganga Brahmaputra

The rice is an important staple crop of the people of this area. Even fish form an important part of the diet of some areas. Primarily, being an agricultural region, some of the agro based industries have been developing. With the increase in growth of population, the most of the area is being used for building houses and towns. Thus the land under agriculture is reducing here continuously. The hundreds of cities are in this region. Varanasi is an ancient city which is located along the bank of Ganga river. Besides, Haridwar, Allahabad, Patna, Kolkata, Tezpur, Dispur are some the important cities, which are also located in this plain area.

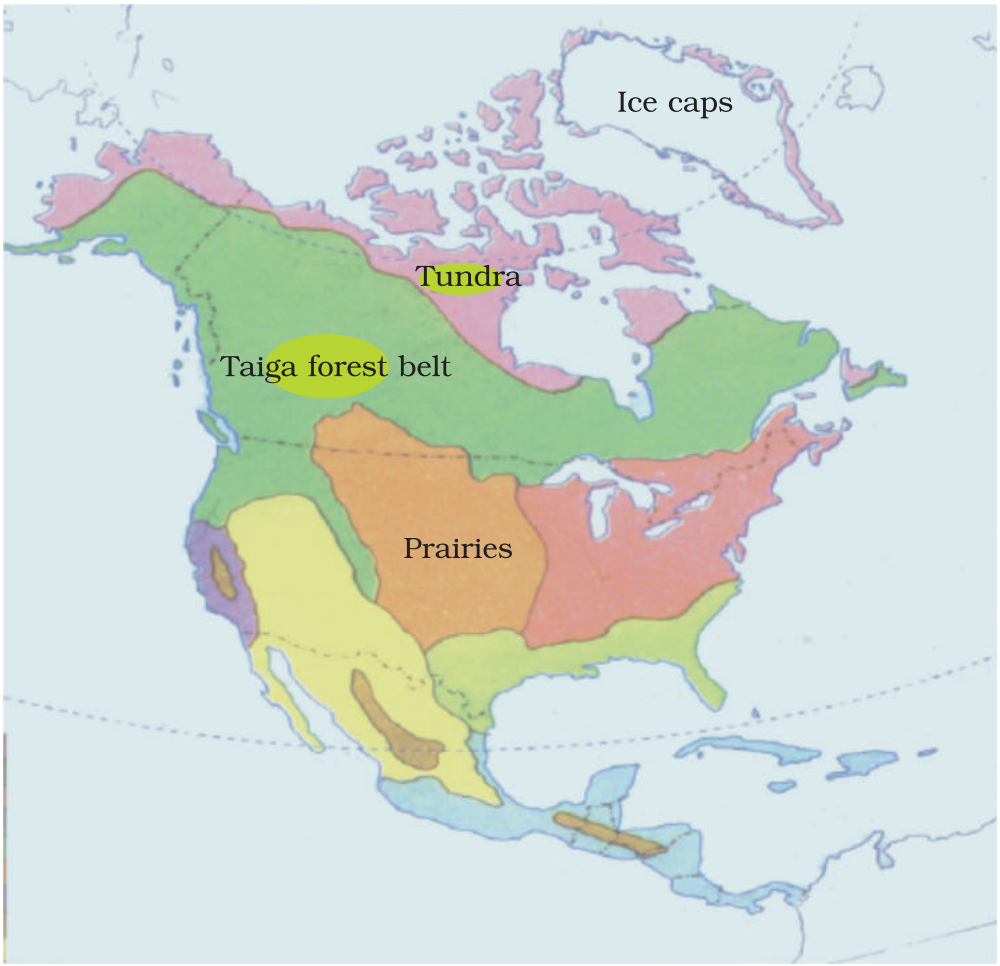
With the rapidly increasing population the smoke emitting means of transport, industries, the water of river Ganga is being polluted. Union Government of India has initiated Ganga-Action Plan. With this plan the idea is to same river Ganga from pollution but lack of public support is causing big hurdle.

The life in Temperate Areas : The temperate areas are located in the middle Latitudes of the both of the hemispheres. These areas are situated to the interior of the continents and away from a maritime (oceanic) influences. There is great range of temperature between summers and winters. The temperature rises upto 20° celsius during the summers and falls down to 20° calsius in winters. The areas of southern hemisphere are not so far away from the ocean. Therefore, the temperature here, does not fall or rise so much as in northern hemisphere and rainfall is also scanty. Due to this reason only grass grows here. The following areas of the world are under these grasslands. These are called by different name in different continents.

1.	North America	-	Prairies
2.	South America	-	Pampas
3.	Europe	-	Steppe
4.	South Africa	-	Veld
5.	China	-	Manchurian Plain
6.	Australia	-	Downs

In this lesson we shall study only about the prairies of North America and veld of Africa.

The life in Prairies grasslands : The prairies are the grass lands of North America, which are away from maritime influence, extend into the interior of continents. The most of the area is in U.S.A. and Canada. The southern part of Prairies makes a boundary between U.S.A. and Mexico In the north it merges with jungle-belt of Canada. Mostly there is no tree in the prairies. Where there are low lands the trees are found in river valleys, where the availability of ground water is sufficient. Because of the river flow the ground water table rises up. The main feature of the plains is that, the grass grows upto two meter high which covers the whole land of this region.



Design 9.5 Prairies of North America

Since people started living over here, the landscape and landuse has changed to a great extent. The human activities like agricultural practices, industries, making houses to live, developing means transportation etc. have changed the land-scape and landuse as well. Usually, the people

from Canada and snow covered areas of Europe have established over here primarily. Canada-Alberta, Saskechwan and lowland Manitoba, etc. are the some of the very fertile areas of this region. After clearing the grass, the agricultural practices have been adopted in these area.

With the construction of the Candian Pacific Railways the transportation has become easier over there. Laying of rails has been a centre of attraction for the people and many people are moving to live here. Most of people are dwelling in 25 km. radius of railways. As in India, cities formed after the towns and for connecting them with each other, railways came into existence. But in other way round, primarily the railways had been constructed and afterwards human settlements, towns and cities developed along the railways tracks in Canada and other regions.

Due to dry weather cattle rearing is very popular in western part of prairies. The cattle grazing is along the slopes of rocky mountains. The important animals, among the domesticated are bison, deer, antelopes and poultry. In winters, the dry wind blow from the west and melts the snow. The summers and autumn seasons the warm winds turns the grass into hay.

Wheat is the main crop of this area. The farms are very big and are not isolated. The mechanised agriculture with modern machines is possible. Besides wheat, barley and oats are also grown here. Wheat is sown in spring season, the showers of late spring and bright sunshine of the summer help wheat to grow quickly. In August, this crop is ready for harvesting. These machines are called cambines, look at the picture of stores of food grains in Prairies.

From these stores, the wheat is being transported through the rail to the other places.

The men had exploited the earth surface in these plains through numerous activities which result into soil erosion. This is mainly through wind. As a result many of the places came under the drought. Thus with the decrease in fertile area the production of crops have also been decreased. Therefore government started taking interest in the agriculture aspect of these areas. The cattle grazing is prohibited in some areas of Prairies.

Design 9.6 Stores of Food Grain in Prairies

The people of Prairies mainly speak French and English. Thick concentration of such people is found in Qubec province of Canda. This province is trying to attain status of independent nation.

Life in Veld Grasslands of Africa : Veld is an extensive grass land of southern Africa. Veld is in the east of South African plateau. It includes eastern part of Cape colony, entire Orange free State and most part of the transwal. As one goes away from the coast to the interior of the continents the climate becomes drier, because the moist winds from the ocean do not reach there. Therefore these regions are known as dry regions. As we go further west, these grasslands almost merges into the desert areas.

The area of high plateau is known as the high veld. Their height ranging from 1120 m to 1670 m. The middle veld is a plateau ranging from 610 m to 1120 m below this lies the low veld. The High veld is a central ridge which forms the water shed of the region. The Zambezi, Limpopo and Sabi rivers flow down the slopes and have created falls and rapids.

The maize is an important crop of this area. Large quantities of maize is being exported to other countries. The map of Africa, showing the veld region is provided in this lesson, study the map of natural vegetation of Africa in the Atlas. In some places, the maize grow naturally. Cattle rearing is also an important occupation in these parts. The wool of the sheep of this area is known throughout the world since earlier times. In many parts of the veld several minerals are found. Gold and Coal are mines are these near Johansberg. The diamond mines are found in Kimberley.

Veld, besides agriculture, is rich universal resources also. That is why, there are industries that are based on agriculture or other universal based. Therefore these industries have given, rise to the growth of towns. For example, Pretoria is an important town because of specified industry of iron and steel, railways and Pharmaceuticals. This development has reduced the grasslands to a considerable extent and has affected the natural environment.

Points to Remember

1. Deserts are of two types : Hot & Cold. Sahara, Arab, Atacama, Kalahari are hot deserts while Ladakh is cold desert.
2. Life in tropical and subtropical regions such as Amazon basin, Congo basin, Gulf of Guinea. Ganga-Brahamputra plains and South eastern islands of Asia matches a lot.
3. In temperate regions, Prairies, Pampaz. Steppies, Vald and Downs have identical life styles.

I. Answer the following questions in about 1-15 words.

1. What are the deserts ? How many types of deserts are there ?
2. Write about the hot desert ?
3. What are cold deserts ?
4. Write down the extension of – Tropical and Subtropical region.

5. Describe the climate of warm temperate region ?
6. Why camel is known as ship of deserts ?
7. Name the rivers that flow in Ladakh ?
8. What do you understand by Oasis ?

II. Write the answer of the following questions in about 50-60 words :

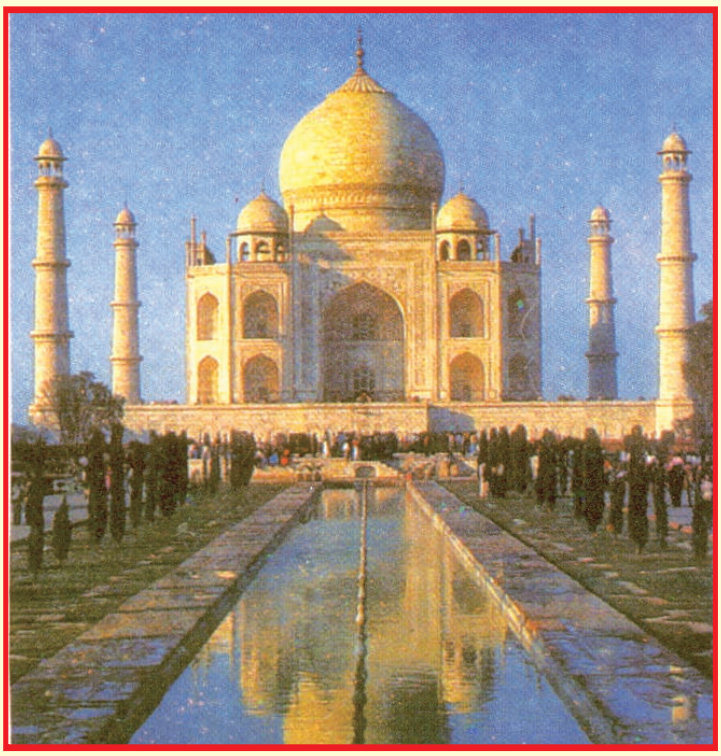
1. Write in brief about the life of people in deserts.
2. Write down the natural vegetation of hot desert Sahara.
3. Write about the extension of Ganga-Brahmaputra Plain and also about the land forms of this region.
4. What type of climate is there in Ganga-Brahmputra plain ? Write about the crops grown in this area ?
5. To what extent is the Amazon basin extended ? Write about the vegetation and main crops.
6. Write in brief about Prairies grass lands, what is the importance of railways in the development of this plan.
7. Write about the vegetation and animals of Sahara desert.
8. Why is Ladakh known as 'moonland' ? Write about the climate and vegetation of Ladakh.
9. Write in brief about Veld Grasslands of Africa.

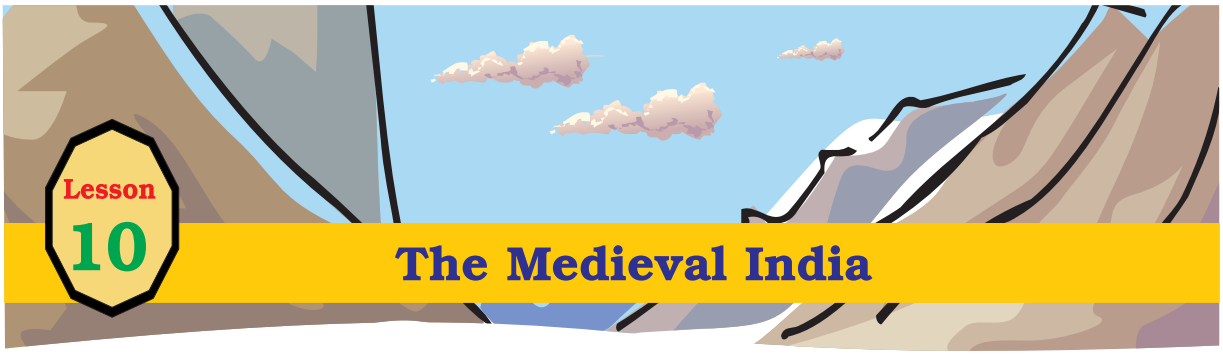
III. Locate or show the following areas on the world map :

1. Hot deserts of the world.
2. Mid Latitude Grass lands.

Unit - II History

Our Pasts - II





Lesson 10

The Medieval India

We have studied in the sixth class that how early man became a gatherer from a hunter. How did human started growing different crops ? How did he establish Mahajanapadas from small tribes ?

In the beginning human beings lived at the banks of rivers but due to increase in population and other sources of water they started living away from the banks of rivers. You can see in the map of India that a subcontinent is a big geographical unit which is different from other subcontinents.

Terms used to describe the Indian Subcontinent:

The Indian subcontinent, comprising the present six countries of Pakistan, Afghanistan, Nepal, Bhutan, Bangladesh and India. In the past it was known as Hindustan or Bharatavarsha.

New and Old Terms :

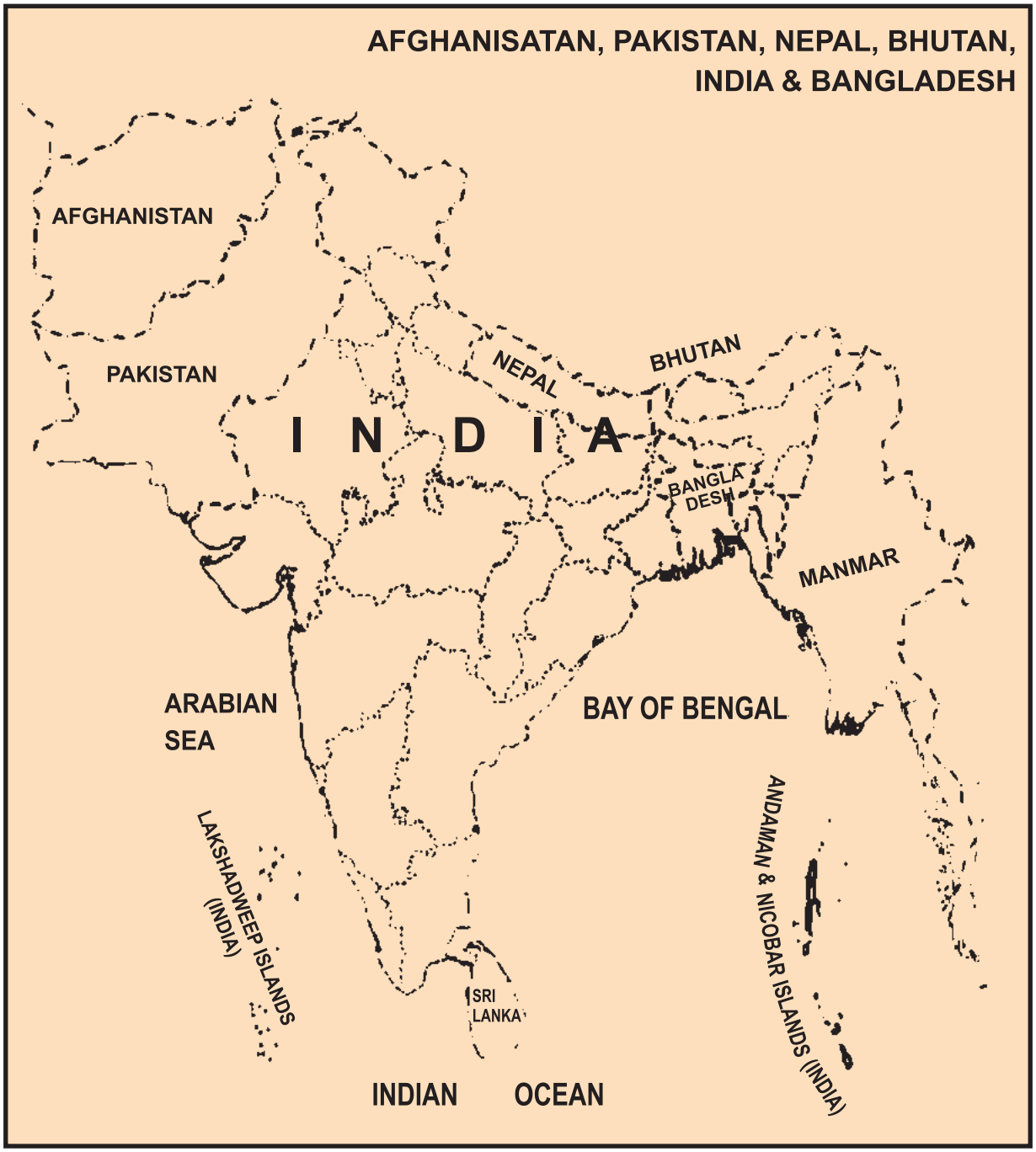
History gave the various names to India in different periods. In Vedic period, it was known as Aryavarta (that means country of Aryans). It was called Bharatavarsha at the name of king Bharat during the time of Mahabharata and Purans.

The Iranians used the term "**Hindu**" for India. The Greeks used the term "**Indus**" for India. In Bible "**Hoddu**" term is used for it.

When Buddhism was introduced in China, the Chinese used the term "**Tien Chu**" for India. After Huin Tsang's visit another term, "**Yin-Tu**" used for India.

Time Frame of the Medieval Period of Indian History :

Generally, the history of every country is divided into three periods - **Ancient**, **Medieval** and **Modern**. The period between the ancient and



Design 10.1 The Indian subcontinent, comprising the present six countries of Afghanistan, Pakistan, Nepal, Bhutan, India and Bangladesh

modern periods of history is known as the medieval period. In India, the medieval period stretches from the eighth to the eighteenth century. The eighth century has been taken as the beginning of the medieval period in India as many changes in society, politics, economy, culture and religion were taking place. Similarly, the break-up of the Mughal empire and coming of the British into power in about the middle of the eighteenth century, which marked the end of the medieval period.

This medieval period is further divided into two parts- early medieval period and later medieval period. The period from the eighth to the beginning of the thirteenth century is regarded as the early medieval period while the period from the thirteenth century onward upto the eighteenth century is regarded as the later medieval period.

Major Historical Trends.

In the medieval period we find certain historical trends which differentiate it from the ancient period.

1. During this period, the coming of the Muslims led to the growth of a composite culture. There was a lot of interaction between the Hindus and the Muslims.
2. Most of the languages, particularly Hindi, Urdu, that we speak even today, developed during this period.
3. In the medieval period, many of our social customs, traditions and religious beliefs have their origin.
4. There was much more contact between India and the world. Trade led to a greater interaction of people from different parts of the world. There was a lot of give and take. India borrowed many things from the traditions of other countries.
5. The Bhakti and the Sufi saints brought about a better understanding of the basic principles of Hinduism and Islam.
6. During this period, there was marked improvement in great expansion in trade and commerce.

Historical Sources

The historians depend on archaeological and literary sources about the information of medieval period.

A) Archeological Sources :

Archeological sources include ancient monuments, temples, inscriptions, coins, utensils, tools, weapons, ornaments and paintings etc.

(1) Ancient Buildings : They include temples (like Khujraho, Bhubaneshwar, Konark etc.) Mosques (like Jama Masjid, Moti Masjid etc.), Forts (Red Fort, Agra Fort etc.) Pillars (i.e. Qutab Minar), palaces (Jiasalmer, Jaipur) etc.

Design 10.2 The Mahadeva temple of Khujraho

2) Inscriptions : Inscriptions provide an important information about different aspects of the Early Medieval Period. They also provide us information about important events, dates, the personal qualities of the rulers about the specimens of art and the administration measures etc. of this period.

Do you know why did the kings engrave their orders on the plates of bronze, inscriptions and the walls of the temples ?

3) **Coins :** Coins, throw light on important historical events, dates and personalities, Some coins give us an information about the economic condition of the country during this period.

Historians depend on literary sources as well as archeological sources to know about Indian medieval period. People used paper to write religious Granths, accounts of rulers, government documents etc. because the price of the paper was reduced in the medieval period.

Design 10.3 Coins of Akbar reign

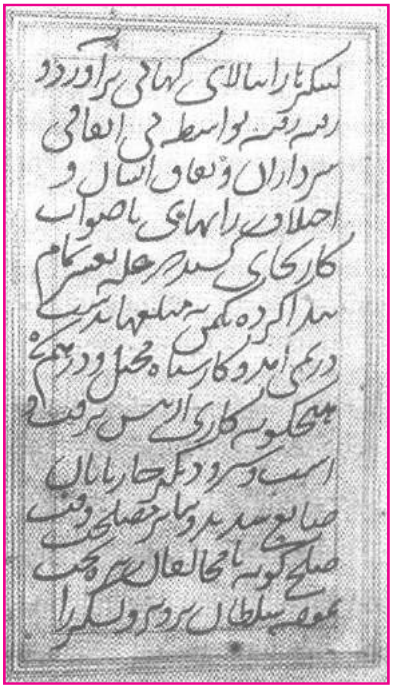
B) Literary Sources

(1) Literary sources include autobiographies and biographies, chronicles of rulers and dynasties, documents etc. These provide us important information about the medieval period.

Do you know why did the literary sources come in existence ?

(2) **Accounts of Foreign Travellers :** Accounts of foreign travellers are also another important literary sources of this period. Muslim travellers visiting India wrote an account of their travels. Iban Batuta's Kitab-ul-Rihla account describes the reign of Muhammad-bin-Tughluq. Al-Beruni also wrote an account about his stay in India. Abdul Razzaq visited the kingdom of Vijayanagar and wrote about the conditions in the kingdom.

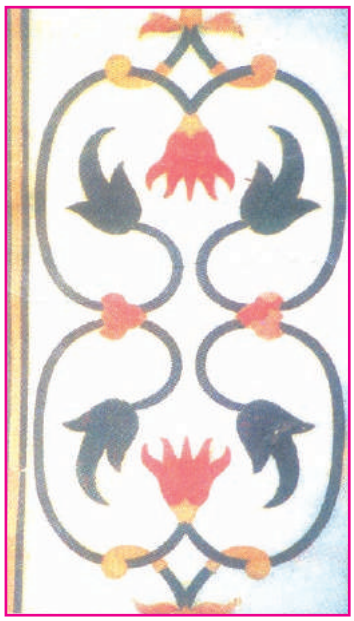
Besides this the accounts written by European travellers throw light on the conditions in India during their visit.



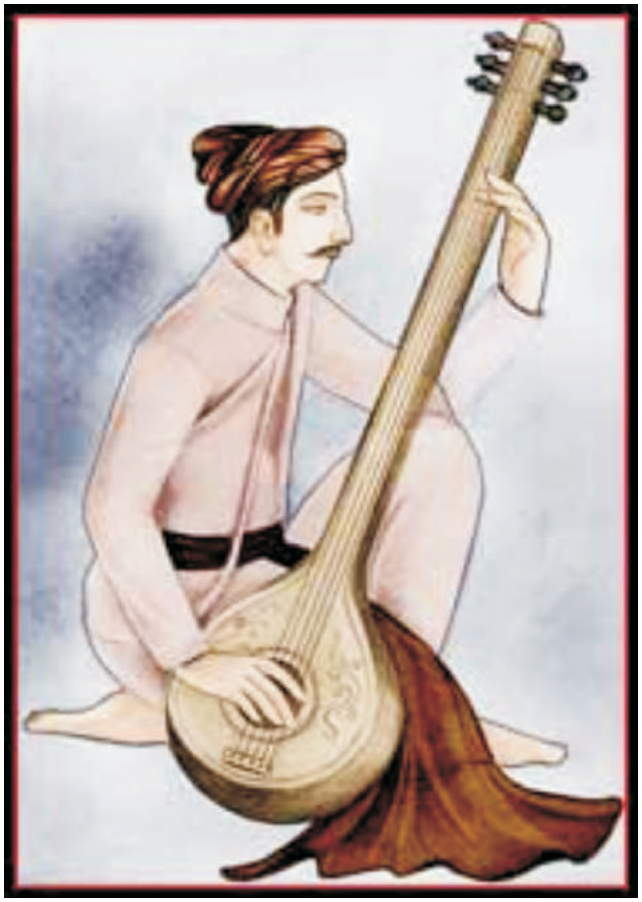
Design 10.4 A literary source

(3) **Painting :** Painting in addition to giving general information, they also give us knowledge about the development of art, especially the art of painting during the medieval period.

(4) **Music :** Along with painting music is also a good source of historical knowledge. The Mughal rulers except Aurangzeb patronized it. Therefore, music developed during their reign. Akbar patronized many musicians. Among them Tansen was a famous musician. Thus music also is a good source of historical knowledge. It points out to the fusion of the Hidnu and Muslim cultures.



Design 10.5 Mughal painting



Design 10.6 Tansen