

**13**

India : Earth Surface, Climate, Vegetation and Wild life

India is a country of vast geographical area. At the same time it has geographical diversity. This diversity amazes us. The high peaks of Himalayan mountain range in the north are snow covered through out the year. The Bay of Bengal is in the east, Arabian sea is in the west and Indian Ocean lies in the south of India.

The area of India is 32.8 lakh sq. km. It is estimated to be 3214 km from Kashmir in the north to Kanyakumari in the south and it extends 2933 km from Arunachal in the east to Kutch in Guajrat in the west. Different landforms such as long sea coast, high mountain ranges, river plains, the plateaus and the Islands away from the shore are seen here. The diversity of cultures and languages along with the climate and flora (vegetation) attract us. Diversity is seen in our customs and traditions also. This diversity and the feeling of one country give us a unique identity.

Physical Division of India

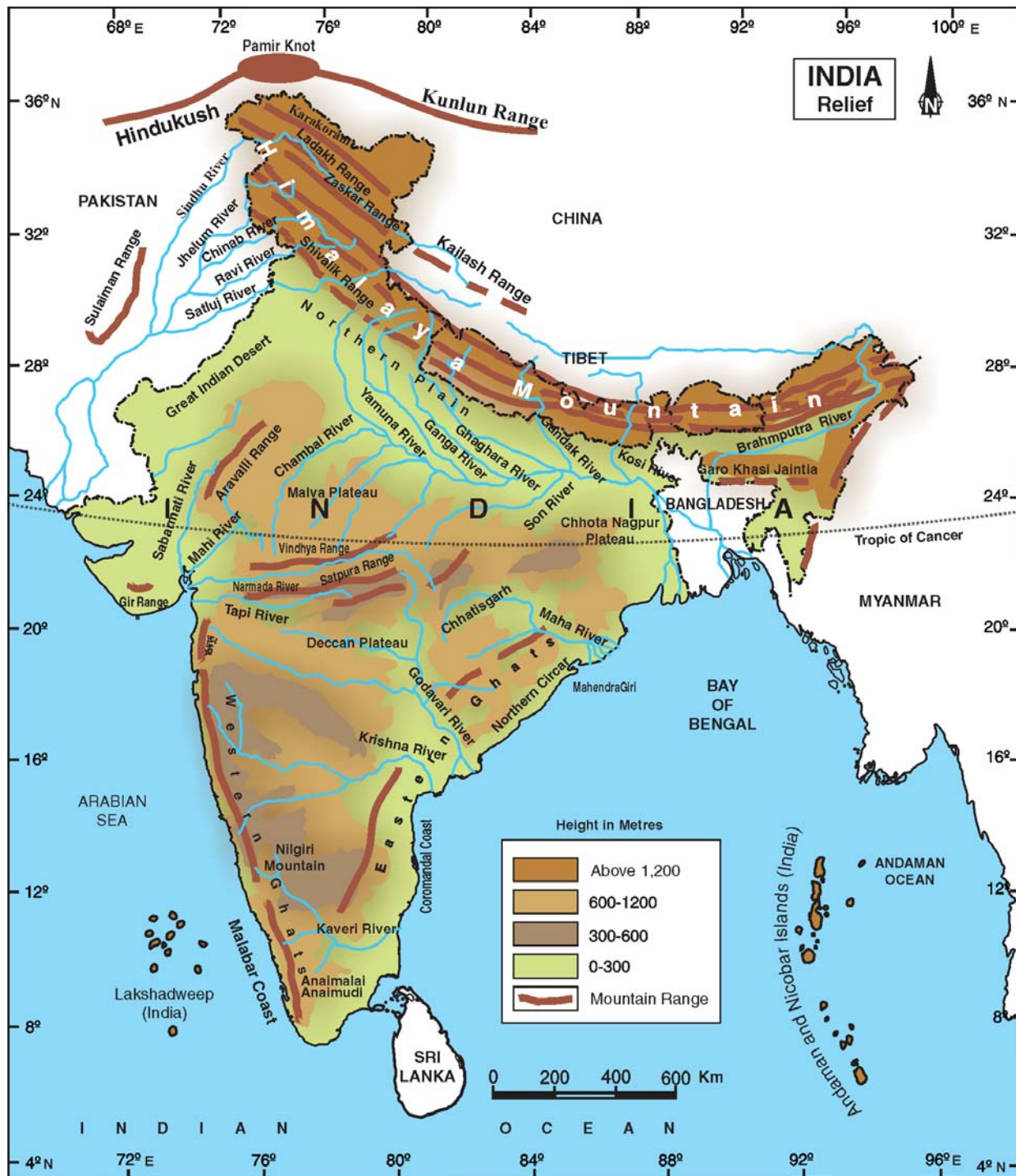
Physical divisions are made on the basis of earth's surface. The Himalaya mountain is mostly situated in the north to guard our boundary. Its parallel north-south mountain range is divided into three parts. The Greater Himalaya or Himadri Mountain Range is located in the extreme north, the highest mountain peak of the world Mount Everest lies here. To the south of it lies the Central Himalayas or the Himachal Mountain range, where many tourist spots and places of pilgrimage are there. To the south of it lies mountain range known as Shivalik or outer Himalayas.

To the south of Himalaya lies Ganga, Satluj, Yamuna, Brahmaputra and vast fertile plains made up of alluvial deposited by the rivers and their tributaries. The flat plains made-up by the rivers are very fertile. High density of population is seen over there due to more agricultural production.

To the west of India lies great Thar desert. It experiences more heat and less rainfall. Sometimes it does not rain for three-four years continuously. Very less vegetation is seen in this area.

To the south of northern plains there is an inverted triangular plateau of south. The land surface of that area is uneven, some parts of it are higher while some parts of it are of less height. There are many mountain ranges and hilly regions in this area. There is Aravalli mountain range to the north west region of this area which is the most ancient mountain range of the world. Vindhya and Satpura mountain ranges are located to the south-east of it. Narmada and Tapi rivers flow here from east to west and meet the Arabian sea along after flowing through the Vindhya and Satpura mountain ranges. Eastern ghat is situated to the east of southern plateau and western ghat is situated in the west-side of southern plateau. The western ghats are in row while eastern ghats are intermittent. Since these plateaus are made of volcanoes, minerals have been found in ample quantity.

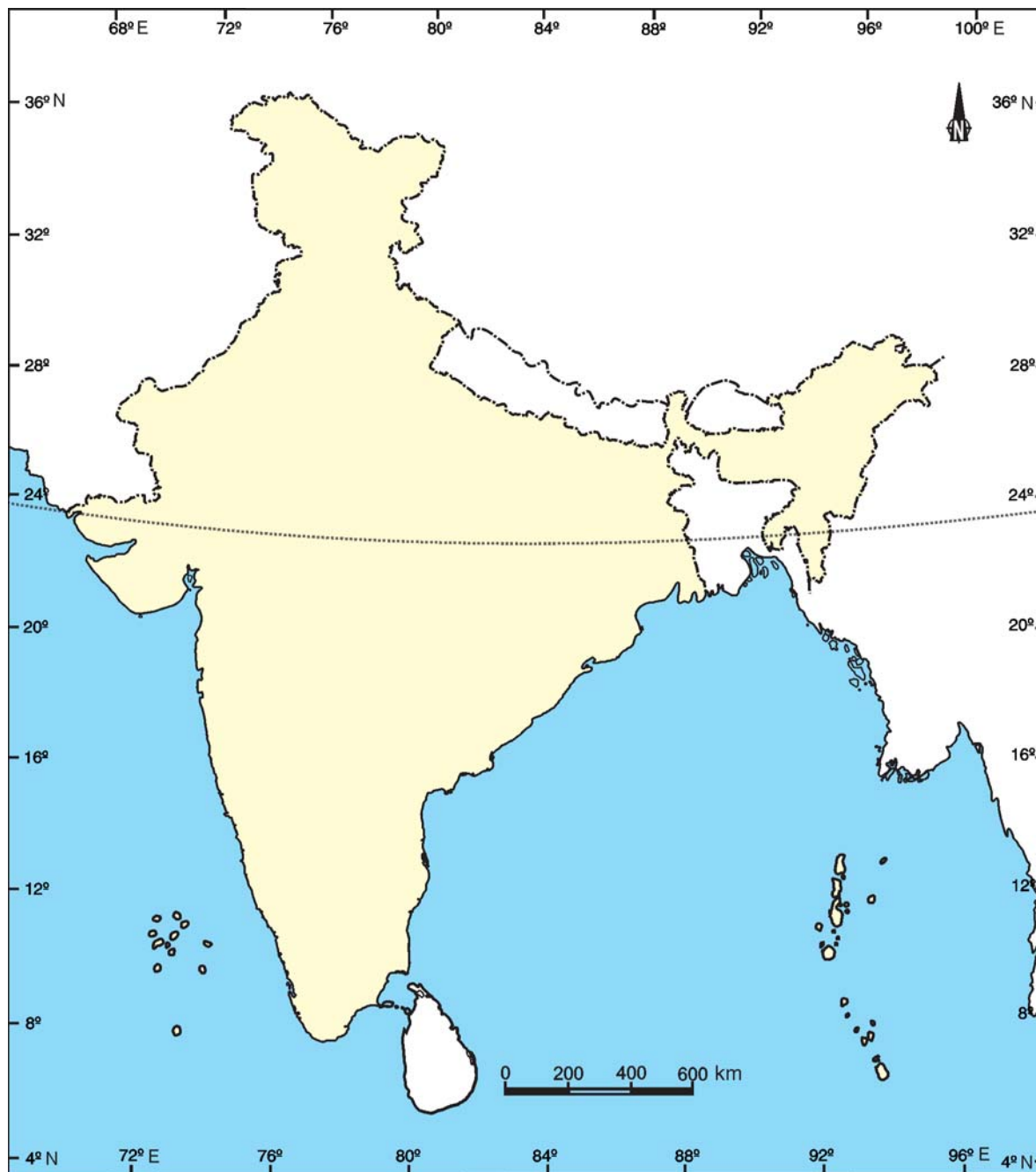




13.1 India (Physical) Natural

Eastern Coastal Plain is located to the east and western Coastal Plain is located to the west of southern plateau. Western Coastal Plains are comparatively narrower than the Eastern Coastal Plains. Godavari, Mahanadi, Kaveri and Krishna flow towards east and forms fertile delta region and meets the Bay of Bengal. Brahmaputra and Ganga form a vast delta of Sundarban in the Bay of Bengal.

There are two Island group in India. Andaman and Nicobar Islands to the south-east of Bay of Bengal and Lakshadweep Islands made of corals, in the Arabian sea lie to the west coast of Kerala. Indian ocean is in the extreme south of India.



13.2 Outline Map of India

Activity

- Show the following details in the outline map of India :
 1. Great desert of India
 2. Ganga plain
 3. Himalaya
 4. Narmada River
 5. Eastern Ghat
 6. Western Ghat
 7. Eastern coastal plain
 8. Western coastal plain
 9. Andaman and Nicobar Islands
 10. Lakshadweep Islands
 11. Arabian sea
 12. Bay of Bengal
 13. Indian Ocean.



Climate of India

Daily changes in the atmosphere are called weather. Climate is the average weather condition of any place for about thirty years. You may have noticed that some times the heat increases, sometimes it is cold and sometimes the sky is covered by clouds and the sun is covered behind the clouds. The details of winds you might have learnt from radio or TV. Following seasons are experienced in India :

No.	Season	Month
1.	Winter	December to February (Winter season)
2.	Summer	March to May (Summer season)
3.	Monsoon	June to september (Monsoon season)
4.	Season of retreating mansoon	October to November (Autumn)

Winter : Winter is a cold season. Since the sun-rays fall diagonally and occasionally snowfalls so the temperature drops in the northern plains and the Himalaya mountain region. The areas of Northern parts of Gujarat experience more cold than other parts of the state. Days are shorter in this season.

Summer : Summer is the season of tropical heat. Temperature rises very high as sun rays fall vertically during these days. Temperature remains low in the areas near the sea coast in comparision to the continental parts of the country. Dry and hot winds blow in the noon time which is called 'Loo'. Northern part of Gujarat and Western part of Rajasthan experience more heat during this season. Days are longer than the winter during this season.

Monsoon (Rainy) Season : Monsoon is a season of rain. The south west winds flowing from the sea side are humid. These winds bring rain. One of the current of these winds advances above the Arabian sea to Kerala, Maharashtra, Gujarat and Central part of India. While other current of these winds advances towards the Ganga plains through Bay of Bengal, Andaman and Nicobar Islands and eastern India. When both the winds currents advance, they meet with eachother and bring rain to western Uttar Pradesh, Haryana, Punjab and Eastern Rajasthan. With the advent of rain, the peasants are activated to do agricultural work. When winds are obstructed by mountains they give more rain.

The rainfall in Gujarat starts from the second or third week of June and by first week of July. It arrives all over Gujarat. Gujarat does not have large mountains in the way of these winds, so less rainfall is there. Since most of the cultivation in India is dependent on rain-fall. So it is considered that good monsoon means a large crop in agriculture. This season is very important for agriculture.



• Activity •

- Find out correct option of season and festivals from those blanks in the bracket :

(Uttarayan, Dushera, Dhuleti, Janmashtami, Christmas, Sharad Poonam, Chetichand, Rakshabandhan)

Sr.	Season	Festival
1.	Winter	
2.	Summer	
3.	Monsoon	
4.	Retreating monsoon wind season	

Retreating monsoon wind season : Winds blow from land to sea in this season. It is seen that this condition is absolutely opposite to the monsoon season. These winds blowing from north-east blow from land so they are dry. Hence, they do not give rain. Sky is clear without clouds in these days. Temperature increases gradually which adversely affect the human health. Temperature starts decreasing as october ends and semi cold is experienced in the early mornings of November.

Since these winds pass over the Bay of Bengal, they are humid and gives rain in TamilNadu and Andhra Pradesh situated on the eastern side of India.

Distinct difference of season is experienced in the climate of India. Due to these peculiarities, generally it is called monsoon climate.

• Think about it •

- If the season remain perenial through out the year, consider the following points that will affect your life :
 - Food
 - Attire
 - Farming

Vegetation (Types of Forest) :

Various types of plants and grass is seen in our surrounding. Some of the vegetation are thorny while some are beautiful with flowers. Some trees are dense with leaves while some are short and with sparse leaves. Different types of vegetation is found in the different regions. Climatic difference is responsible for this diversity. Vegetation is divided in the basis of climate. Percipitation is the main cause for this diversity of vegetation. The types of forest are as follows :

Tropical Rain Forest : Tropical rain forest are found where there is more rainfall. The trees of these forests are so dense, thick that the sun rays can not reach the surface. Variety of trees, creepers and ferns are seen there. Autumn season does not affect all the trees at once but affect at different times in a year, so trees appear lush green.

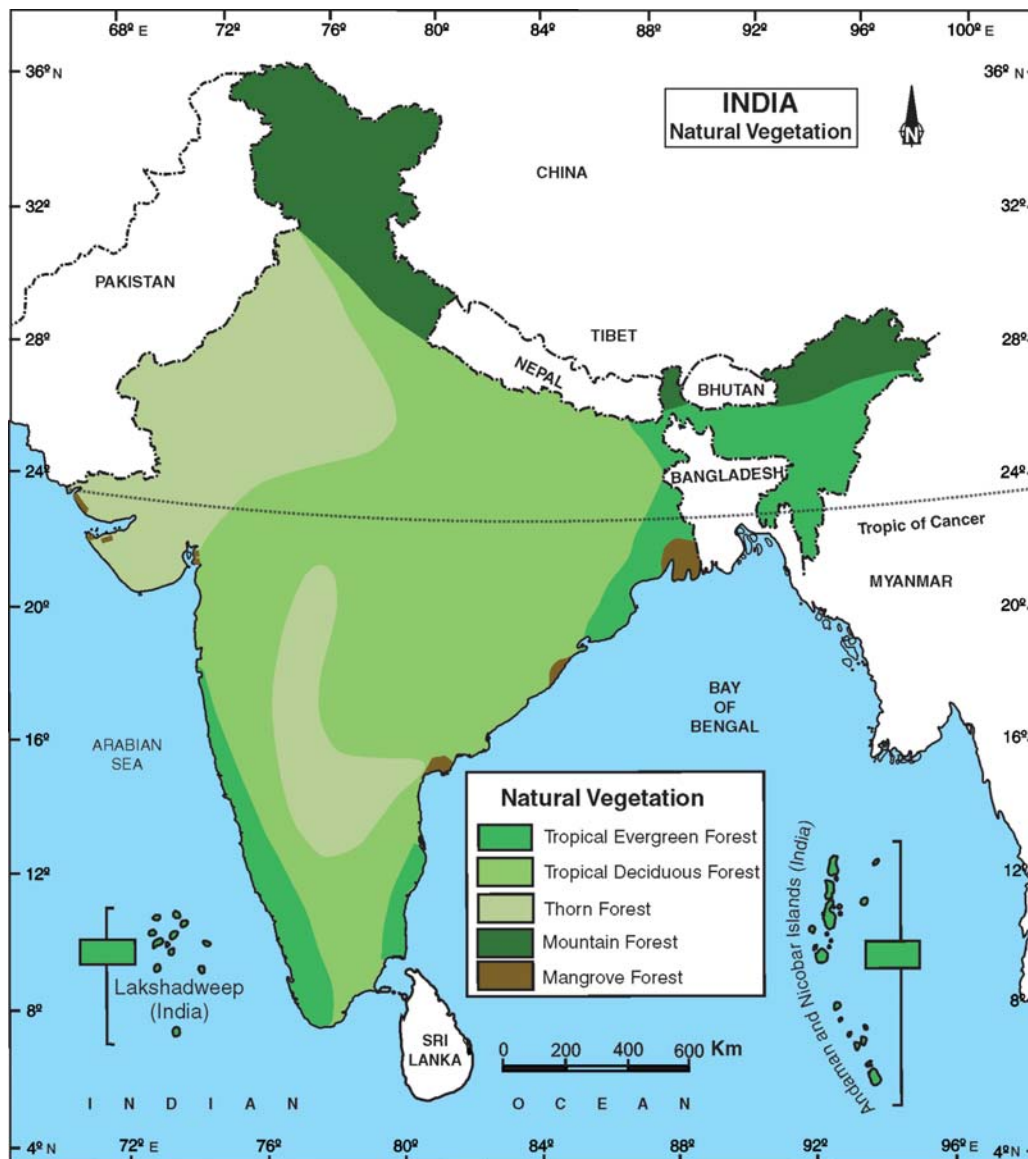
Autumn season does not affect all the trees at once but the effect at different times in a year, appear lush green.



These types of forests are found in slopes of Western Ghats in the form of strip and in Andaman and Nicobar Islands and in some parts of North-East India. Mahogany, Rosewood and Wicker etc. trees are seen here.

Tropical Deciduous Forest : Majority part of Indian land is occupied by this type of forests. Trees of these forests are less dense. They shed leaves during autumn season. So they are known as an autumn forest. Trees like Saal, Bamboo, Mahudo, Neem etc. are seen in this type of forests.

Dry and Scrub Forest : This type of forests are seen in the region receiving less rainfall. The trees are thorny here. Trees like cactus, khair, palm, acacia, jujube are the main trees. These forests are seen in Rajasthan, Haryana and on the slope of Western Ghats and Gujarat etc.



13.3 India Natural Vegetation

Montane Forest : According to their name this type of forests are seen in the mountainous region. In the mountains, a variety of plants and different species of plants grow at different heights. Vegetation growing at the height of 1500 m to 2500 m from sea level, is conical in shape or its leaves are needle shaped. On the basis of its shape this vegetation is called Coniferous Vegetation. Trees like Chid, Deodar, Pine etc are this kind of vegetation.

Mangrove Forest : This type of forest grow in brackish water [salty sea water] in the salty water of sea. This type of forests are seen in West-Bengal, Gujarat and on the shore of Andaman and Nicobar Islands. Sundarvan in delta region of Ganga has this type of forest. This name has been taken from the tree named 'Sundari'. Cher trees are seen in forests along the coastal region of Gujarat, which is used as a fuel by the local people.

• **Activity** •

- Write the required details in the blank on the basis of this chapter.

Prepare the list of the trees seen in this type of forests :

- | | | | |
|--------------------------------|-------|-------|-------|
| (1) Tropical Rain Forests | _____ | _____ | _____ |
| (2) Tropical Deciduous Forests | _____ | _____ | _____ |
| (3) Dry and Scrub Forests | _____ | _____ | _____ |
| (4) Montane Forests | _____ | _____ | _____ |
| (5) Mangrove Forests | _____ | _____ | _____ |

Importance of forests : Our various wants are fulfilled by forests. Let us understand the advantages of forests with the help of this given table.

Advantages of Forest	
Environmental Advantages	Economical Advantages
<ul style="list-style-type: none"> ● Keeps environment clean ● Brings rain ● Prevents soil erosion ● Natural habitat for wild life ● Conservation of underground water 	<ul style="list-style-type: none"> ● Fuel and ornamental wood ● Medicines ● Raw material for industries ● Fodder ● Forest products like lac, resin and glue

• **Activity** •

- Understand the use of vegetation as medicine from those which are grown in your surrounding with the help of your teacher or elderly people.
- Which things of the school are prepared from the raw material obtained from the forests. Discuss with your friend and make the list.
- If the deforestation of forest will not stop its effects what will be incoming time, plan a speech competition as per your convenience.



Variety of wildlife reside in the forest of our country. These include mammals, birds, creatures, aquatic-animals, amphibians, insects, reptiles, bugs etc. Tiger is seen in the various parts of our country and it is our national animal. Wild goat in Himalayas and Nilgiri mountains, Elephants and one-horned Indian rhinoceros in the forest of Assam are seen moving freely. Forests of Kerala and Karnataka are known for elephants. Gudkhar (wild ass) is found in the dry region of Kutch, Surendranagar and Patan. Asiatic lions are only seen in the Gir forest of Gujarat in the world.

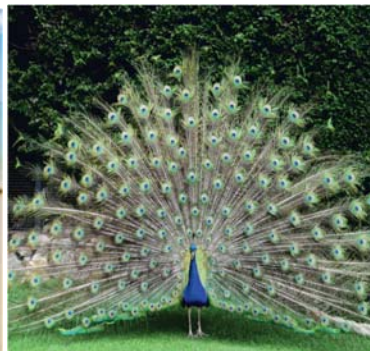
Things to know



Lion

Lion is seen only in the Gir forest and it is a state animal of Gujarat. Number of Lions increased due to the efforts of conservation. Forest department organizes the program of seeing lion for the tourists.

Variety of bird species like-crane, duck, cuckoo, parrot, ghorad, chibri, kabar, samadi, vulture, eagle, owl etc. are seen in India. Peacock is our national bird. Apart from this turtles come to the sea shore to lay eggs in the states like Gujarat and Odisha in India. Various species of snakes are there in our country, maximum out of them are non-venomous species.



13.4 Wild-Life of India

The birds come in winter from far of the colder regions to breed in the reservoirs and wet land areas of our country. Thousands of foreign birds come to the region of Nalsarovar. Khijadiya, Thor, Chhari Dhand in Kutch of Gujarat during winter and return to their native as winter gets over. These birds are called tourists or migratory birds.



Things to know



Flamingo

Flamingo is seen in Nalsarovar, Rann of Kutch, marshy or wet land areas. It has long legs and white-pink shaded body. It makes its nest only in Kutch in India. In the alkaline and muddy soil on the ground, it makes a small round heap of mud and lay eggs on the top of it after making a soak in it.

Sanctuaries, National Parks, Bio Reserve Zones

For the purpose of protecting wildlife, some areas are exposed to special legal provisions. Let us get main details of that.

	Sanctuary	National Parks	Bio-Reserve Zone
Establishment	By state Government	With combined efforts of state and central Government	According to the international criteria
Other details	Grazing is allowed after taking permission	Complete restriction on the grazing of domestic animals	All outside human activities are absolutely prohibited.
Examples	<ul style="list-style-type: none"> ● Balaram Sanctuary ● Nalsarovar bird Sanctuary 	<ul style="list-style-type: none"> ● Gir National Park ● Velavadar National Park 	<ul style="list-style-type: none"> ● Partial area of Rann of kutch ● Nilgiri area (South India)

It is our moral duty to protect wild life and vegetation. We all are bound to follow the Laws made by government and to implement the prohibition which have been put up by the government.

Activity

- Invite the officers of forest department to deliver information regarding vegetation and wild life seen in your surroundings.



Exercises

1. Match the following pairs :

A

- (1) One horned-rhinoceros
- (2) Sea Turtles
- (3) Migratory birds

B

- (a) Sea shore of Odisha
- (b) Wet land region
- (c) Assam
- (d) Dry region of Kutch, Surendranagar and Patan

2. State whether the given statements are true or false :

- (1) Besides Gir, Lion is also seen in Nalsarovar.
- (2) West coast plain is narrower than east coast plain.
- (3) River Kaveri make delta region named Sundarvan.

3. Answer in one-two lines each :

- (1) Which rivers have formed the plain to the south of Himalaya ?
- (2) From where do migratory bird come to Gujarat ?

4. Answer in 3-4 lines each :

- (1) What do you know about Mangrove forests ?
- (2) Give information about Montane forests.

5. Give the explanation of the word :

- (1) Migratory birds
- (2) Autumn season

6. Short note :

- (1) Types of forests
- (2) Climate and seasons of India

● Visit the following websites to know more :

www.wti.org.in
www.oocities.org
www.downtoearth.org.in
www.nationalgeographic.org