



Government of Tamilnadu

# Social Science

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Department of School Education

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# 1

# OUR GOLDEN PAST

## ANCIENT TAMIL KINGDOMS AND KINGS (SANGAM AGE)

Have you heard of any ancient Tamil kingdoms?

When we mention the words “Ancient Tamil Kingdoms and Kings” we at once think of the Cheras, Cholas and Pandya.

Do you know that the history of Tamil kingdoms starts from the Sangam Age?

It is generally believed that the Sangam age dates from **300 B.C. to 300 A.D.** There were many kings in various parts of Tamil Nadu. During this period, Tamil people were largely farmers, hunters and fishermen. There were groups of poets who sang songs about the kings, about life in this period and were called **Sangam poets**. Hence these 600 years are known as the **Sangam age**.

## ANCIENT TAMILNADU

The history of ancient Tamils is said to be more than two thousand years old. The extent of the Tamil land was from Tirupati then called Vengadam in the north to Kanyakumari in the south and from the Arabian Sea in the west to the Bay of Bengal in the east.

How do we know about the ancient Tamils?

Tamil poetry and writing from those times give us very vivid images of the life and society of the ancient Tamil people. This literature is called Sangam literature. Apart from **Sangam literature**, there are other sources of information.

We get information about ancient Tamil Nadu from the **inscriptions of Asoka** and the **Arthashastra of Chanakya**.

A Greek book called [Periplus of the Erythrean Sea](#) also talks about Tamil Nadu during the Sangam age. From the Roman coins, beads and pottery found in Arikamedu near Puducherry, we learn that Tamils and Romans had traded with each other. Pottery and other materials found in Adichanallur and other places were used by people who lived during the Sangam Age.

## THE THREE SANGAM ERAS

Sangam means [association](#). Sangams of Tamil writers, poets and scholars were supported by various kings. From all the evidence we have today, we find there were three great Tamil Sangams. The first kingdom was in the ancient Thenmadurai which was submerged under the sea.

The second was in Kapadapuram which was away from the seashore. But even this was washed away by the sea.

The third Sangam kingdom was established in a region which is today's Madurai.

There were three major kingdoms in the early and later Sangam Eras. They were as follows:

1. Chera

2. Chola

3. Pandya

Other than the kings there were many chieftains and smaller kings under them ruling the land. They were [Velirs](#), [Kosars](#), [Adhiyamans](#) and [Gungers](#).

The kings were known for their valour. They were great patrons of fine arts. Poets were held in high esteem. The kings were just, generous and brave. Their aim was to have a happy safe kingdom where the subjects were protected and contented.

The Sangam period produced many great works of literature. But much of it has been lost. What is left has been compiled in two collections namely [Pathupattu](#) and [Ettuthogai](#). These poems tell us about the life of the people, their values and the greatness and benevolence of the kings and chieftains of that time. The book "[Tholkappiam](#)" spelt out all the grammatical elements of Tamil.

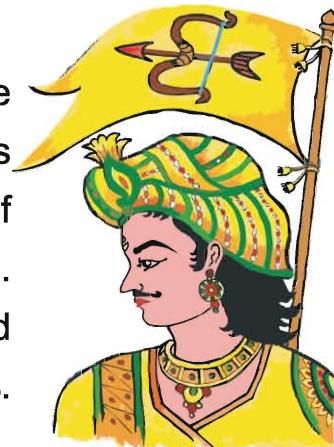
The following table will give us an idea of the significant aspects of the three major Tamil Kingdoms.

Kingdoms	Capitals	Flags and Emblems	Ports	Areas of rule
<b>Chera</b>	Vanji	Bow and Arrow	Thondi, Musiri	Today's Kerala, Salem, Coimbatore
<b>Chola</b>	Uraiyur	Tiger	Kaveri poompattinam	Chittur, North and South Arcot, Chengalpet, Thanjavur, Trichy
<b>Pandya</b>	Madurai	Fish	Korkai,Kayal	Madurai, Pudukkottai, Ramanathapuram, Tirunelveli

Now we shall read about three outstanding kings of this age – one from each kingdom.

### CHERAN CHENGUTTU VAN

Have you heard of the famous literary masterpiece *Silappadikaram*? Do you know who wrote it? It was *Elango Adigal*. Cheran Chenguttuvan was the brother of this great writer. He was the greatest of the Chera kings. He is remembered as a great warrior, a generous and kind-hearted ruler and a great patron of Tamil poets. Many poems celebrate his glories in the battlefield.



#### Do you know?

*The Sangam poets Paranar and Seethalai Sathanar were present in his court.*

The Chera kingdom was near the Arabian Sea. So Cheran Chenguttuvan had a strong navy. He put down the sea pirates who had been troubling merchant ships. So sea trade grew during his rule. Cheran Chenguttuvan went on a military expedition to North India. After defeating all the kings who opposed him on his way, he reached the Himalayas. There he gathered a stone for making a statue of *Kannagi* and returned home. He had a statue made and placed it in the temple of Kannagi which he built to celebrate her greatness.

## KARIKALA CHOLAN

Karikalan was a great warrior and the greatest Chola king of the Sangam Age. He defeated the Chera and the Pandya kings of his time at [Venni](#) near Thanjavur. The defeated kings accepted his supremacy. There are several songs in Sangam literature praising his greatness.



Karikalan's greatest contribution was the improvement he made to the Kavery delta irrigation system. To prevent flooding of rice fields he built dams across river Kaveri. Important among these was the check dam built at [Kallanai](#) which diverts the flood waters from the [Kaveri to Kollidam](#).



Kallanai is the first masonry dam built in the world and it remains strong even now.

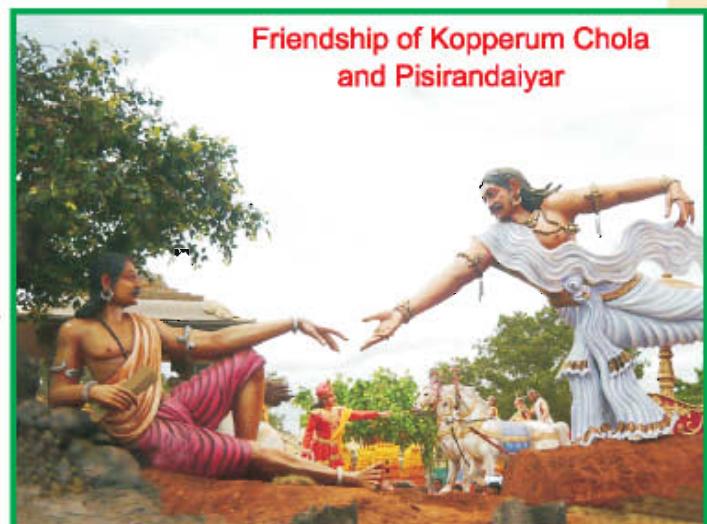
Karikalan encouraged art and literature. Great poets like [Mudathamakkanniar](#) and [Uruthirankannanar](#) adorned his court.

Do you know what these two poets wrote?

Mudathamakkanniar wrote '[Porunaratrupadai](#)' and Uruthirankannanar wrote '[Pattinappalai](#)'.

Both are great Sangam Tamil works.

Another great Chola King was [Kopperum Chola](#). He was renowned for friendship. The great poet called [Pisirandaiyar](#) and this king were examples of a strong friendship. The special aspect of this bond was the fact that they had never met each other.



## PANDYAN NEDUNCHEZHIAN

Nedunchezhan was a great king of the Pandyas. At a place called **Thalaiyalanganam** he defeated the combined armies of the Chera and Chola kings with the support of five chieftains. With this victory he established his supremacy. After this he assumed the title **Thalaiyalanganathu Cheruvendra Pandyan**. He is referred to by this name in Sangam literature.



With the patronage of Pandyan Nedunchezhan the Tamil Sangam was held at Madurai. He was a liberal patron of Tamil poets and scholars.

## OTHER KINGS OF THE SANGAM AGE

The kings who ruled smaller areas were known as Velirs. They were loyal to the three great Tamil Dynasties. **Adiyaman** was the most famous among them.

### Something for you

*The poems Purananooru, Agananooru, Kurunthogai and Natrinai praise his greatness.*

## ADIYAMAN

The first Auvaiyar was a Sangam poet. She was supported by a King Adiyaman Neduman Anci of Takatur. This area is in present day Dharmapuri in TamilNadu. She sang his praises. A Nelli plant with special powers to prolong life grew in a crevice on the summit of an ancient mountain that was hard to climb. Adiyaman brought it for her and prolonged her life. This is an example of how much the ancient Tamil kings valued poets.

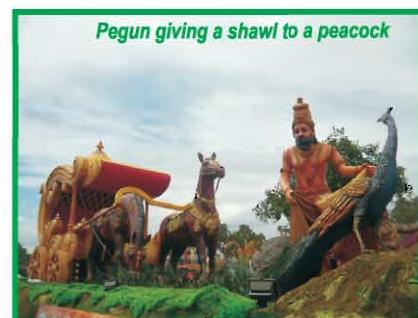
Adiyaman was also renowned for his valour. Having no idea of his power, a king called Thondaiman tried to attack Takatur. Auvaiyar went as an ambassador and spoke to Thondaiman about Adiyaman's bravery and strength. Due to this Thondaiman gave up his plans to wage a war.



## KADAIEZHU VALLALGAL

There were some kings called Kadaiezhu Vallalgal. **Thirumudi Kari, Paari, Valvil Oari, Adiyaman, Perumpeyar Pegun, Aai Andiran and Nalli** were known as the Seven Vallalgal.

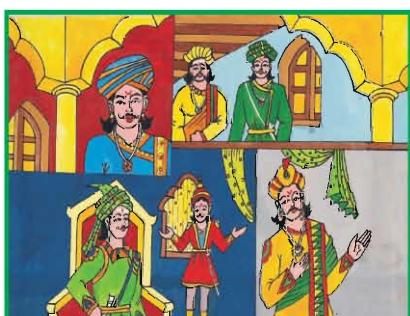
1. Thirumudi Kari gave his horse and kingdom to Iravalas a tribe.
2. Paari vallal gave his chariot to support a creeper.
3. Valvil Oari gave his kingdom to the artists of Kollimalai.
4. Adiyaman gave a nelli fruit to Auvaiyar.
5. Pegun gave a shawl to protect a peacock from exposure to cold.
6. Aai Andiran gave the rare dress he obtained to Lord Shiva.
7. Nalli helped people who came to him for help in the forest without revealing his true identity.



They were generous, benevolent kings who felt that service to the people was their duty. They were the seven greatest philanthropists of the last Sangam era.

## GREAT POETS OF THE SANGAM AGE.

Notable among the great poets were Kapilar, Paranar, Nakkirar and Pisirandaiyar. Among women Auvaiyar, Angavai and Sangavai were famous. Many of the kings themselves were talented poets.



How would we describe the great kings?

During the Ancient Sangam Age the kings were just and compassionate. They cared about the welfare of their subjects and did their utmost for them.

Agriculture, industry, crafts and trade flourished during this time thus spreading prosperity all around. Foreign trade with Rome, Egypt and Arabia flourished. Roman coins found in many parts of Tamil Nadu are proof of this. Foreign ships bearing gold, halted at Tamil ports and took back pepper, spices, pearls and fine textiles made of cotton and silks.

A special aspect was the great friendships between the kings and scholars. The scholars even advised the kings when they were going wrong.

### SOME SALIENT FEATURES

The ancient Tamil kings were very much people oriented. They did not build palaces or monuments for themselves but built temples, forts, dams, ships etc. which were useful for their subjects. They displayed sound **technical and engineering** knowledge in their buildings. There was great artistry also in them. A Chola speciality is their **metal craft** where they combined five metals to make idols and statues.

### INTERESTING FACTS

- In ancient days Tamil Nadu was known as Tamilagam.
- The ancient Tamils were highly civilized, they lived in villages and fortified cities.
- The ancient Tamils lived a life of harmony with their natural surroundings.
- The river Kauveri was also called **Ponni** in ancient times.
- The ancient Chola kingdom was called **Ponnivalanadu**.
- People fondly called Karikala Cholan, "**Karikal Peruvalathan**"
- A popular account about Karikalan's name says that "**Kari**" in Tamil means elephant and "Kala" means destroyer. Thus this name refers to the destroyer of the elephant forces of his enemies.
- Another version says that when Karikalan was young, his enemies set fire to his tent and consequently he got burns in his legs. This earned him the name "Karikalan"
- **Pearl fishing** was the chief industry of the Pandya Kingdom.

## Exercise

**1. Recall and fill up this table**

Kingdom, Flag, Emblem of the three ancient kingdoms.

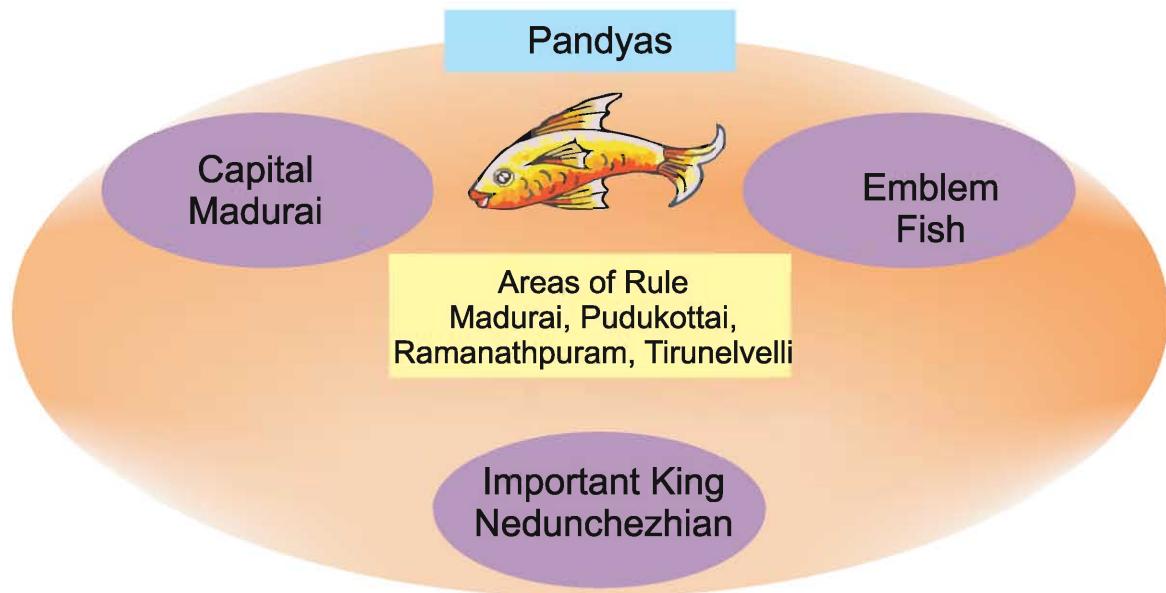
**2. Match the following.**

- |                      |                     |
|----------------------|---------------------|
| 1. Mudathamakkanniar | a) Thirukkural      |
| 2. Elango Adigal     | b) Porunaratrupadai |
| 3. Uruthirankannanar | c) Silappadhikaram  |
| 4. Thiruvalluvar     | d) Pattinappalai    |
3. Name any two collections of poems that praise Pandyan Nedunchezhan
4. State whether these statements are true or false.
- Karikalan was also known as Thalaiyalanganathu Cheruvendra Pandyan.
  - Karikalan built the dam at Kallanai.
  - Paranar and Seethalai Sathanar were present at the court of Karikalan.
  - Pandyan Nedunchezhan built a temple of Kannagi.
5. Draw the flags of the Ancient Cholas, Cheras and Pandyas.
6. Find out about Paari vallal and narrate the story.
7. With which king or kingdom would you associate these places?  
Madurai, Trichy and Kerala?
8. If you were a child living in Poompuhar during the ancient times what would you have seen?

## Project

- Enact the story of Kannagi.
- Make crowns, jewels, flags etc. with cardboard or paper.
- Find out about the flowers and plants associated with the ancient Tamil Kingdoms.

4. Complete the mind maps for the other two kingdoms looking at the example below

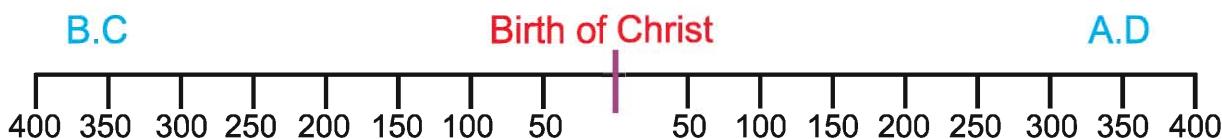


### For your information

We date events based on the year of the birth of Christ.

The years before the birth of Christ are referred to as B.C.

The years after the birth of Christ are referred to as A.D.



We count backwards for the years before Christ.

We count forward for the years after Christ.

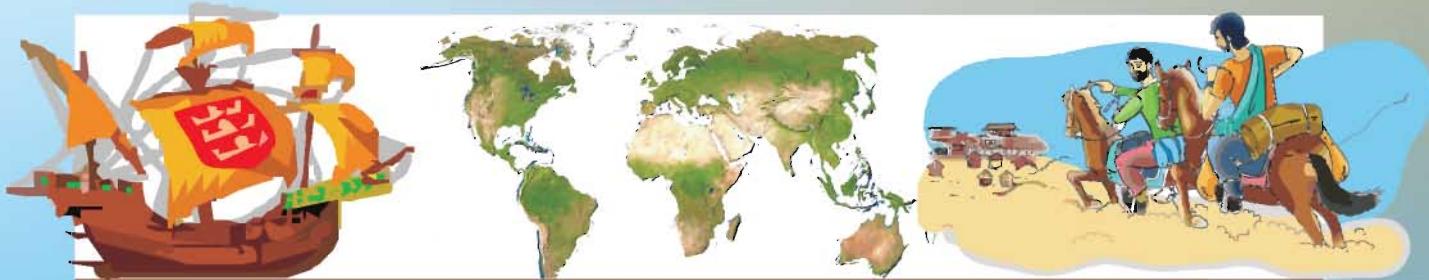
#### Do you Know

B.C - Before Christ

A.D - Anno Domini (In the year of the Lord)

### For Teachers

North Arcot is today's Vellore and Tiruvannamalai District. South Arcot is now Cuddalore District. Teachers can relate the other places of the ancient kingdoms to the present-day districts and explain to the students.



## 2

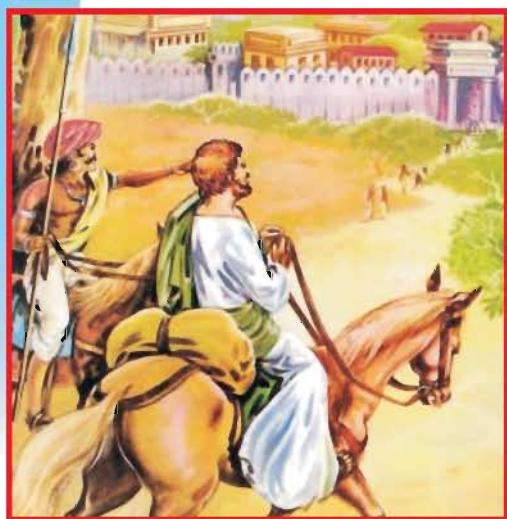
## GOING ON TRIPS

It is human nature to be interested in new things. People have a desire to explore. From early days people looked for new places and new routes by land and sea. During the **Sangam Age** in ancient times, people of TamilNadu had trade relations with **Greece, Rome, Egypt, Arabian lands, Malaysia, East Indian islands, Srilanka and China**. Historians have stated that around 120 ships would travel between Greece and India every year. Many kings of the Sangam Age have themselves travelled to different lands for maritime trade. Similarly many people from different lands travelled by land routes and sea routes to India. Some explorers set out for faraway lands for personal thrill.

### PEOPLE WHO CAME BY LAND ROUTES

India was the golden land of ancient times. It was renowned for its spiritual, cultural and material wealth. People of different countries wished to visit India to learn about its rich heritage.

Travellers came to India for trading, pilgrimages and to find out about the social, political and economic conditions of people during that time. They have given interesting accounts of their experiences regarding the above in their books. These explorers were from countries across the seas.



We shall now read about the famous travellers who came to India from different countries in the world. They came by land routes.

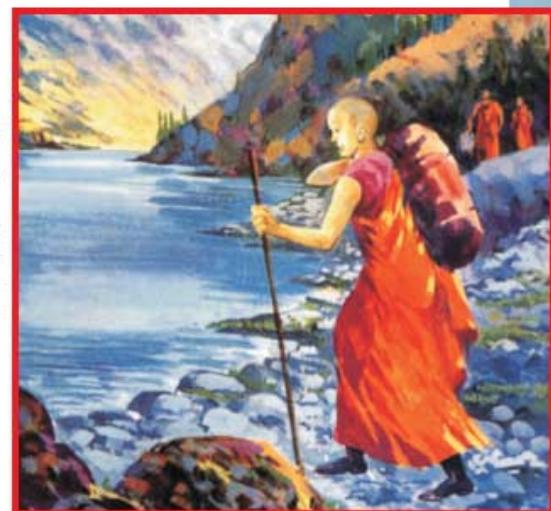
## MEGASTHENES (B.C 350-290)

Megasthenes was a Greek traveller and geographer. He became an ambassador of Seleucus I of Syria to the court of Chandragupta Maurya, in Pataliputra, India. He entered India through the region of Punjab and proceeded from there by the royal road to Pataliputra which is now known as Patna.

There are accounts of Megasthenes having visited Madurai, the capital of Pandiya kingdom. His observations were recorded in "Indica". This book served as an important source to many later writers. He describes the natural beauty of the Himalayas and Srilanka. His book regarding his travels around India of that time was one of the first accounts of the country available to the west.

## FA-HIEN(B.C 422-337)

Fa-Hien was a Chinese Buddhist monk. He visited India during the reign of Chandragupta II. He gathered Buddhist scriptures from India. He travelled extensively to see Buddhist monasteries, sculptures and inscriptions.



## HIEUN -TSANG(A.D 603-664)



Hieun - Tsang was one of the outstanding Chinese scholars who visited India in search of knowledge. He came to India through the Kashmir valley during the reign of Harshavardhana.

He spent 12 years in the famous Nalanda university. During this time he enlarged his knowledge of Buddhism, literature, grammar, logic, medicine, crafts and the Vedas.

## **IBN BATUTA (1304 -1368 A.D)**

Ibn Batuta from Morocco was the **first Muslim** traveller to India. He came to India through the South west Canal during the reign of **Tughlaq**.



While he was in India he served as a judge in Delhi for seven years. For nearly 30 years he travelled far and wide on horseback, on camels, by boats and by land. During his lifetime he visited around 44 countries.

He observed the political and social systems of the **Delhi Sultanate** keenly and wrote about them in his book. He has also described the geography, natural resources, and the lifestyle of the people of the countries that he visited. He travelled widely to observe the social and political state of different areas. His travels have contributed significantly to geography.

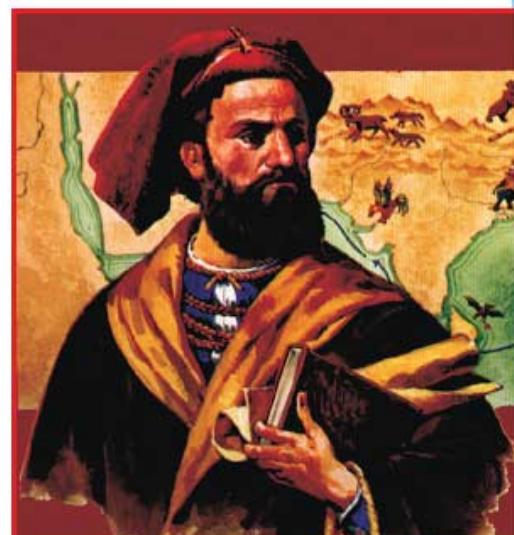
## **PEOPLE WHO CAME BY SEA ROUTES**

Exploration by sea was both adventurous and informative. Many of the explorers of different countries travelled by sea to find routes to India and to go around the world. This led to the discovery of some new lands as well as the knowledge of the earth being round.

We shall now study about the voyages and routes of some prominent explorers.

## **MARCO POLO (1254 – 1324 A.D)**

Marco Polo was born in Venice, in Italy. He travelled to China with his father in his childhood. First they reached the Persian Gulf. Then they travelled by land crossing the Gobi Desert in West Asia to reach **Hungwai, the capital of King Kublai Khan**.



He had a good knowledge of the lifestyle, trade, natural features and the formation of cities of the places that he visited. He served as Governor of a territory in Kublai Khan's Kingdom. He was also an ambassador of that place. He gave Kublai Khan some tips about **Western Warfare**. This helped Kublai Khan to achieve victory.

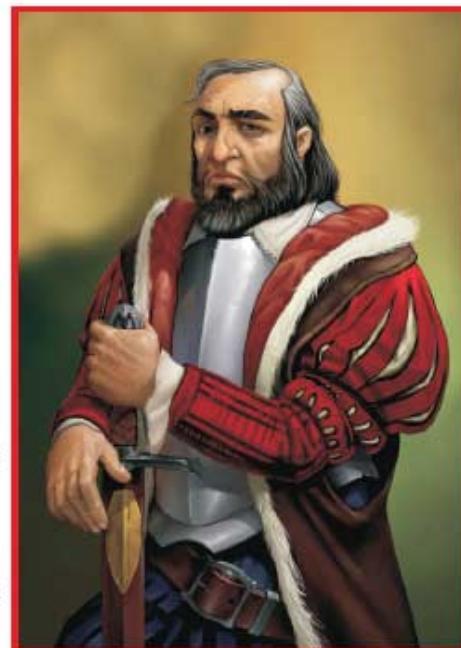
Marco Polo collected many interesting articles during his 16 years in China. He exhibited his precious collections of Chinese clothes, jewels, copper articles and diamonds on his return. He spoke with great admiration of the specialties of Eastern countries. He has recorded his experiences in his book "**Millione - II**".

### BARTHOLOMEW DIAZ (1450–1500 A.D)

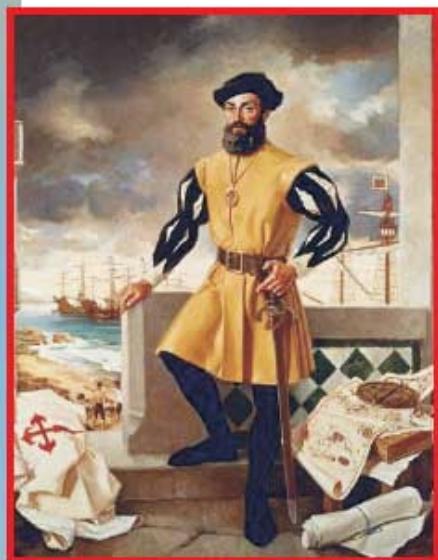
Bartholomew Diaz was a **Portuguese sailor**. He was a knight at the court of **King John II of Portugal**. In 1487 A.D. he set out on a voyage with three ships. When he reached the tip of Africa, there was a heavy storm. Due to this he called this place "**Cape of Storms**" and returned to his homeland. Later, **King John II changed this name to "Cape of Good Hope"** because it represented the **opening of a route to the east**.

Bartholomew Diaz was the **first European to sail to the Cape of Good Hope** on the southern tip of Africa. The discovery of the passage around Africa was significant, because , for the first time, **Europeans could trade directly with India and the other parts of Asia**.

Using his experience with explorative travel, Diaz helped in the construction of the ships used by Vasco-da-Gama to circumnavigate the Cape and continue the route to India.



## MAGELLAN (1480 – 1521 A.D.)



The credit of going round the world by the sea route for the first time goes to the **Portuguese sailor** Magellan. Accompanied by 270 sailors he set out westwards on his voyage from Spain. He reached the tip of South America through the Atlantic Ocean. He called this place **Magellan Strait**. Later, he sailed via the Pacific Ocean. As it was a calm and peaceful ocean he gave it the name of Pacific Ocean. (**Pacific means peaceful**).

At the end of his voyage he reached the island of **Philippines**. He died on his way back. Some of his companions returned to Spain.

Magellan went round the world in **3 years**. This voyage proved that the earth was **round**. He made a map of his voyage with details of directions in it. Magellan was the first to bring out the importance of a map. His voyage proved to be a guide to later travellers and traders.



Magellan's Circumnavigation of the world 1519-1522

## CHRISTOPHER COLUMBUS (1451 – 1506 A.D.)

Columbus was a European sailor. He was inspired to undertake a sea voyage after reading the book of Marco Polo. In those days people went only by land routes for trade between Europe and Asia.



His aim was to reach India through the western route. In 1492, under the patronage of the Spanish king he sailed in the ship called Santa Maria from Spain.

After 50 days of sea travel he reached the islands of West Indies situated in the eastern seaside of North America.

He thought he had reached India. He also thought the natives there were Red Indians. In 1520 A.D. another sailor called Amerigo Vespucci discovered that the land that Columbus had reached was not India but a new land. It was later called America after him.



Christopher Columbus' First Journey 1492

## VASCO-DA-GAMA (1460 – 1524 A.D)



Vasco-da-Gama was a Portuguese sailor. He began his voyage from the port of Lisbon in Portugal and reached the Cape of Good Hope in Africa. He crossed the Indian Ocean with the help of an Indian merchant. Following this he travelled via the Indian Ocean and reached Calicut on the west coast of India on May 20, 1498.

He was the first person to discover a sea route from Europe to India. This helped sea trade from India to other lands. It also laid a foundation for the establishment of European colonies.



Vasco-da-Gama's route map 1497-1498

## Uses of Travel

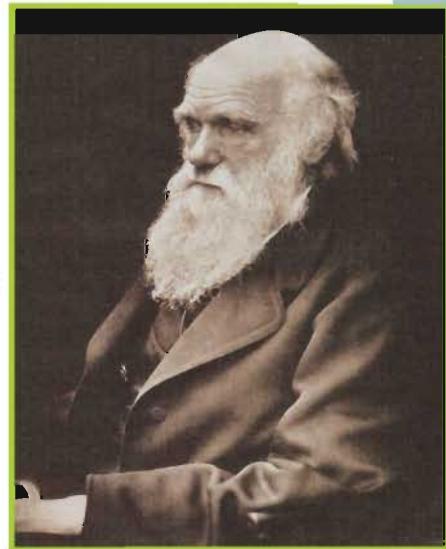
1. Travel can be through many ways namely land, water and air. This was established through the experiences of various explorers.
2. Modes of transport increased and improved due to these travels.
3. Through sea voyages we have obtained maps, knowledge about the weather, and the **Mariner's compass**.
4. We have learnt about the culture and lifestyles of different lands.
5. Travel has helped to establish friendship between different countries.
6. People travel to various countries to enlarge their knowledge and improve their education.

### Do you know?

**Ptolemy was the first person to draw a map.**

## CHARLES DARWIN

He sailed in a ship called **Beagle** around the world. He studied the different species in the world and wrote a book on them. He said that man had originated from the Ape in his book "**Origin of Species**".



### Do you know?

**Ptolemy's map was the model followed by later cartographers.**

## Interesting Facts

- ★ The distance in the sea is measured in "**nautical miles**".
- ★ The speed of a ship is measured in '**knots**'.
- ★ "**Victoria**" was the name of the ship that sailed around the world.

## EXERCISES

### I. Complete the following:-

1. Going from one place to another \_\_\_\_\_.
2. The book of Hieun Tsang \_\_\_\_\_.
3. Vasco – da – Gama landed here in India \_\_\_\_\_.
4. Book of Megasthenes \_\_\_\_\_
5. Ancient University in India \_\_\_\_\_

### II. Pick out the right answer.

1. The traveller who visited India during the rule of Chandragupta II was:-  
a) Fa-Hien                  b) Hieun Tsang                  c) Marco Polo
2. The sailor from Venice was:  
a) Magellan                  b) Marco Polo                  c) Viramamunivar
3. Megasthenes visited Madurai during the rule of  
a) Cheras                  b) Pallavas                  c) Pandyas

### III. Answer briefly

1. State two purposes of travel
2. What did Hieun Tsang learn in India?
3. Write two sentences on Megasthenes.
4. Write two sentences on Bartholomew Diaz.

## Project

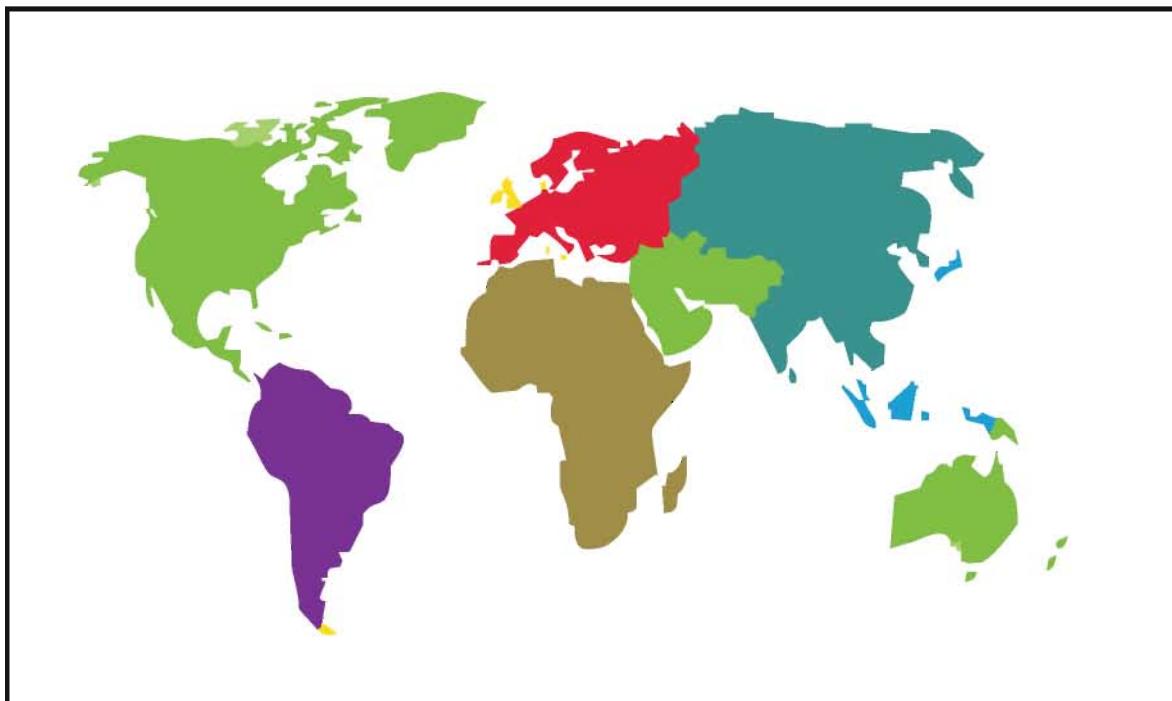
- I. Find out about 2 more travellers of the world who have contributed to the development of knowledge.
- II. Write about your locality as though you are a traveller who is seeing it for the first time.

**I. On the given map, mark the following using the colours suggested.**

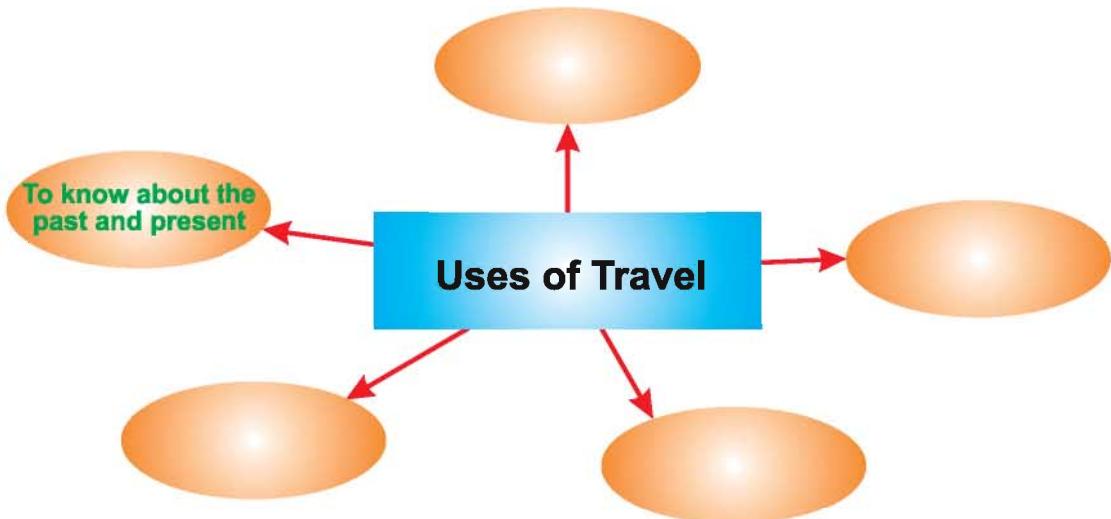
**A.**

- a) Route of Vasco-da-Gama in green.
- b) Route of Columbus in black.
- c) Route of Magellan in red.
- d) Colour the seas blue.

**B. Who took the longest route?**



**II. Complete the following mind map:**





### 3

## OUR WORLD

**"Mother Earth provides enough to satisfy every man's need, but not every man's greed".**

**M.K.Gandhi.,**

Our Earth is a **unique planet** in the solar system. It is the fifth largest planet in the solar system and the third planet from the sun. Since, our planet is at a convenient distance from the sun, it is neither very hot like Mercury nor very cold like Pluto. It is the only planet in the solar system which supports a variety of life.

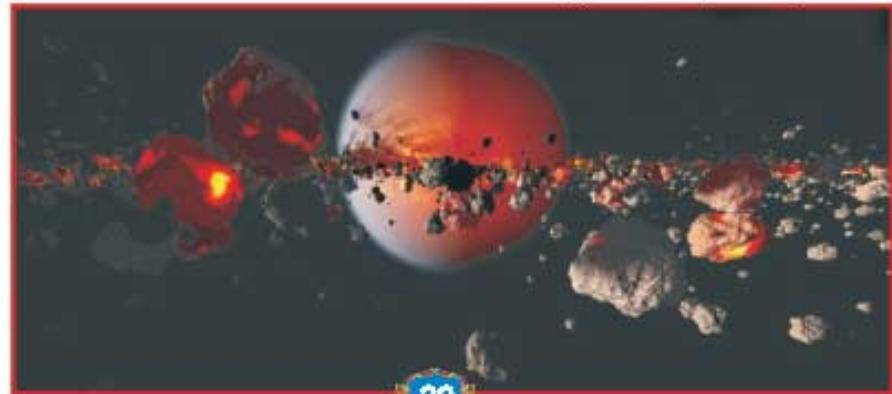
### WHY IS LIFE POSSIBLE ON THE EARTH?

Life is possible on the Earth because of the following reasons:

1. Our Earth has an **atmosphere** which is composed of many gases which are necessary for life.
2. **Water** which is essential for life is available on the Earth in abundance. Water is found in oceans, rivers, lakes and also under the ground.

### HOW WAS THE EARTH BORN?

Before the solar system was formed, matter was floating in a cloud of dust and gas. Part of the cloud contracted to form the Sun. The rest of the cloud substance contracted more to form large clumps of particles of ice and rock.



These particles gradually fused together to form planets such as the Earth. According to scientists planet Earth was formed around 4,600 million years ago. The Sun and other planets were also formed around the same time.

### Do you know?

Our planet is about 8,000 miles (12,800 kilometres) in diameter and 25,000 miles (40,000 kilometres) in circumference.

## FOUR REALMS OF THE EARTH

The life zone on the Earth's surface is known as Biosphere. Biosphere is dependent on Lithosphere, Hydrosphere and Atmosphere. These are known as Realms of the Earth.

### LITHOSPHERE

The entire surface of the Earth consisting of its crust, which is made up of solid rocks is known as Lithosphere. Continents and Landforms constitute the Lithosphere.

### HYDROSPHERE

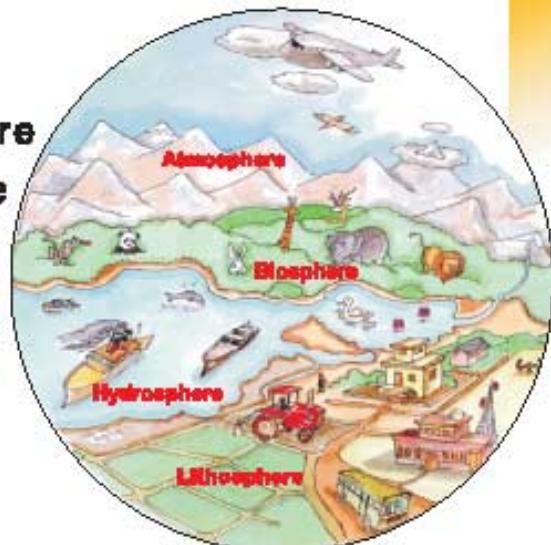
The major water bodies like oceans, seas, lakes, ponds etc constitute hydrosphere. 'Hydro' refers to water.

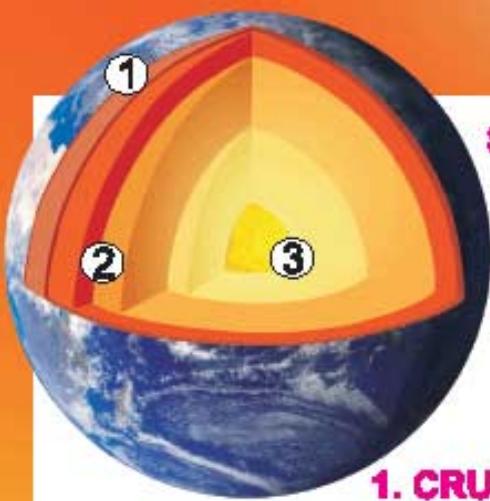
### ATMOSPHERE

The blanket of air surrounding the Earth's surface is known as atmosphere.

### BIOSPHERE

The narrow contact zone where Lithosphere, Hydrosphere and Atmosphere come into contact is called Biosphere. The plants, animals and human beings are a part of Biosphere.





## STRUCTURE OF THE EARTH

The Earth consists of three layers. They are

1. Crust
2. Mantle
3. Core (Inner Core, Outer Core)

### 1. CRUST

It is the outer most layer of the Earth.

Continents and oceans lie in this layer.

It is made up of rocks.

It contains everything that is essential for life.

### 2. MANTLE

This layer is below the crust.

Its upper part is made of solid rock, whereas the lower part consists of molten rocks.

It is from here the magma (molten rock) comes out when a volcano erupts.

It contains a lot of iron and magnesium.

### 3. CORE

It forms the centre of the Earth.

Outer core contains iron and nickel in a molten state. Some sulphur is also present.

The Inner core is a solid ball almost entirely made up of Iron.

#### Do you know?

Aryabhatta, one of the great astronomers of ancient India was the first to say that the Earth is round and it rotates around its axis. At the young age of 23 he wrote a book on astronomy called *Aryabhatiya*.

## LANDFORMS AND WATER BODIES OF THE EARTH

71% of the earth's surface is covered by water and 29% by land.

The large masses of land are called continents. The large water bodies are called oceans.

## THERE ARE SEVEN CONTINENTS

- Asia
- Africa
- North America
- South America
- Europe
- Antarctica
- Australia

### Do you know?

- Asia is the largest continent
- Africa is the second largest continent
- Australia is the smallest continent
- Antarctica is an icy continent

These continents are also called landforms of the first order. Due to the extreme cold temperature, no life exists in **Antarctica**. Therefore Antarctica is called the **Dead continent**.

All the above continents have within them different kinds of landforms. These are landforms of the second order. They are:-

### MOUNTAINS

Masses of land higher than the surrounding areas.

### HILLS

Areas of high pieces of land but not as high as mountains.



(eg)

1. The Himalayas
2. Andes
3. The Alps
4. Rocky Mountains
5. Kilimanjaro

- Asia
- South America
- Europe
- North America
- Africa

## PLATEAUS

Level areas of elevated land.



Plateau

(eg)

1. Tibetan Plateau — East Asia
2. Deccan Plateau — Asia (India)
3. Colorado Plateau — North America

## PLAINS

Areas of land having very little difference between the highest and lowest points.



Plains

(eg)

1. Indo – Gangetic Plains — Asia (India)
2. Liyanas — South America
3. Lombardy Plains — Europe

## VALLEYS

Narrow pieces of land between two mountains.



Nile Valley

(eg)

1. Nile Valley — Africa
2. Grand Canyon — North America
3. Indus Valley — Asia

## PENINSULA

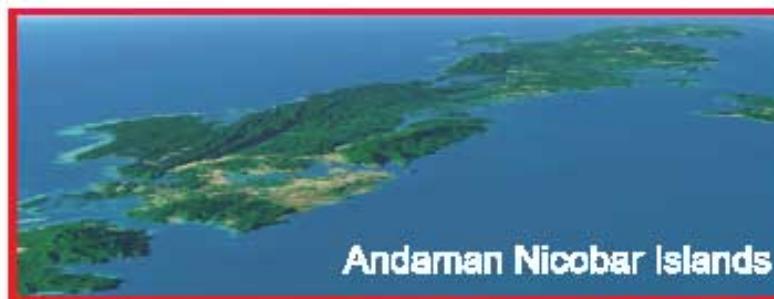
Land surrounded by water on three sides and land on one side.

The Indian sub-continent is called a Peninsula since it is surrounded by the Bay of Bengal in the east, the Arabian Sea in the west and the Indian Ocean in the south. On the northern side alone it is a stretch of land.



## ISLANDS

Pieces of land surrounded by water on all sides.

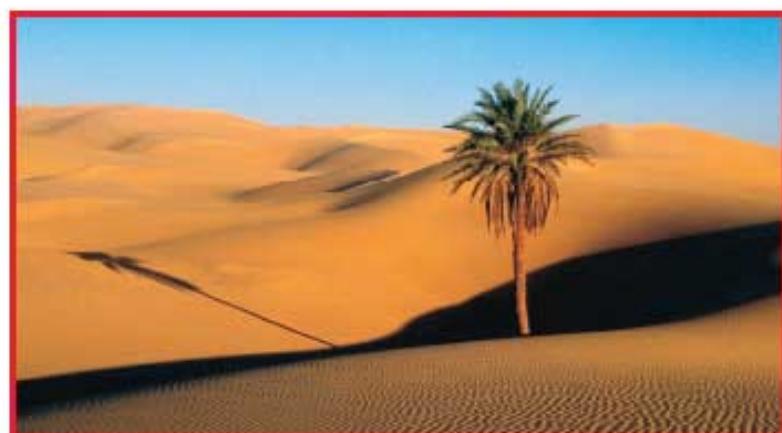


Andaman Nicobar Islands

(eg) Sri Lanka, Andaman Nicobar Islands, Lakshadweep.

## DESERTS

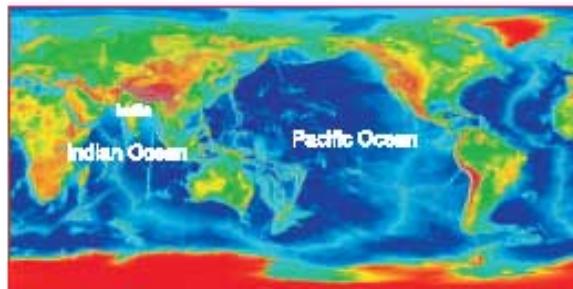
Large stretches of arid land where no vegetation except cactus and date palms is found.



(eg) Thar — India  
Sahara — Africa  
Arizona — North America

The large water bodies are called oceans and seas. There are four large oceans on the Earth. They are

- The Pacific Ocean**
- The Atlantic Ocean**
- The Indian Ocean**
- The Arctic Ocean**



#### **Do you know?**

The Pacific Ocean is the largest ocean which covers more than one-third of the Earth's surface.

The Atlantic Ocean is the second largest ocean.

Only the Indian Ocean has been named after a country.

Besides these, there are the Antarctic sea, the Mediterranean sea, Caspian sea and Black sea which are also large water bodies.

#### **OTHER WATER BODIES ARE:**

- |            |   |  |
|------------|---|--|
| Waterfalls | — | Large volumes of water come gushing down from a height to areas below. |
| Rivers     | — | Huge areas where water flows along the surface of the land.            |
| Streams    | — | Small areas of water.  |
| Lakes      | — | Areas of water surrounded by land on all sides.                        |

#### **INDIA AND ITS LAND FORMS**

The landform of our country is divided into five regions based on the height and structure of the land. They are:

1. The Northern Himalayas
2. The Gangetic Plains
3. The Thar Desert
4. The Southern Peninsular Plateau     -(Deccan Plateau)
5. The Eastern and Western Ghats.

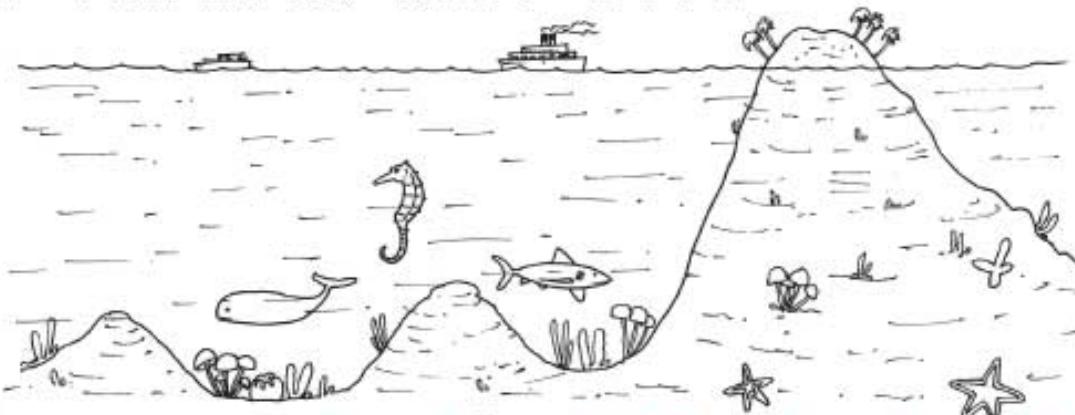
The Southern part of India is known as Peninsular India.

Examples of Islands are the Andaman and Nicobar islands and Lakshadweep.

Now you have an idea of our planet Earth and the different land and water forms on it.

### THE OCEAN BED/ THE SEA BED

The Ocean bed is not level ground. Even here we can see mountains, hill ranges, and mounds as on land. The earthquakes and volcanic eruptions under the ocean bed are the reasons for this. As these happen under the ocean/sea bed, they are not visible to us.



Can you see mountains on the sea bed? If yes, colour them suitably.

### ONE LAND MASS

During the formation of the Earth there was a large land mass called **pangaea**. This land mass moved slowly and in the course of thousands of years continental plates were formed.

The continental plates kept moving. Gradually portions separated to form some continents. It is believed that these land forms are still moving.

#### The Seven Continents formed on the Continental Plates are

1. Asia
2. Africa
3. North America
4. South America
5. Europe
6. Australia
7. Antarctica

North America, South America, Asia, Europe and Africa are connected to each other. Australia is surrounded on all four sides by water. Antarctica is totally covered by ice.

## SAVE OUR PLANET

The earth is our real wealth. Let us not do anything to destroy it. It provides all the natural resources like water, land, climate etc. for the maintenance of life. In the process of technological and industrial development, human beings have started destroying the natural resources. This has resulted in dangerous effects like the increase of the hole in the Ozone Layer, global warming, rise in the average temperature, melting of glaciers, volcanic eruptions, earthquakes and pollution.



The responsibility of saving our earth lies in the hands of human beings. We must take steps to reduce pollution so that the future generations will live peacefully.

### Some Interesting Facts

- The point at which the sky and the Earth appear to meet is called the **horizon**.
- The place where the land and sea meet is called the **coast**.
- Atmosphere protects the earth from **meteorites**, which are small rocks moving about in space.
- A large mass of ice formed by snow, a mountain that moves very slowly down a valley is called a **glacier**.
- Asia is the most populous continent of the world. Australia is known as the land of **Golden Fleece**. Australia is also an island.
- Ports and harbours have been developed along the Atlantic coast. The world's busiest trade routes cross the Atlantic ocean.

## **EXERCISES**

### **I . Fill in the blanks**

1. The large masses of land are called \_\_\_\_\_
2. \_\_\_\_\_ is the biggest continent.
3. \_\_\_\_\_ is named after a country.
4. \_\_\_\_\_ refers to water.
5. \_\_\_\_\_ is the outermost layer of the Earth.

### **II. Answer in a sentence or two**

1. Name the continents on the Earth.
2. What is an ocean?
3. Name the five landforms of India.
4. Which is the largest ocean that has been named after a country?
5. What are lakes?

### **III. Define the following**

1. Mountain
2. Plain
3. Peninsula
4. Water Falls
5. Islands

### **IV. Answer briefly**

1. Four realms or layers of the Earth.
2. The structure of the Earth.
3. Why is life possible on the Earth?
4. The Ocean bed.

### **V. Activity**

On a Map of the world mark the four large oceans on the Earth.

## **VI. Guess who I am**

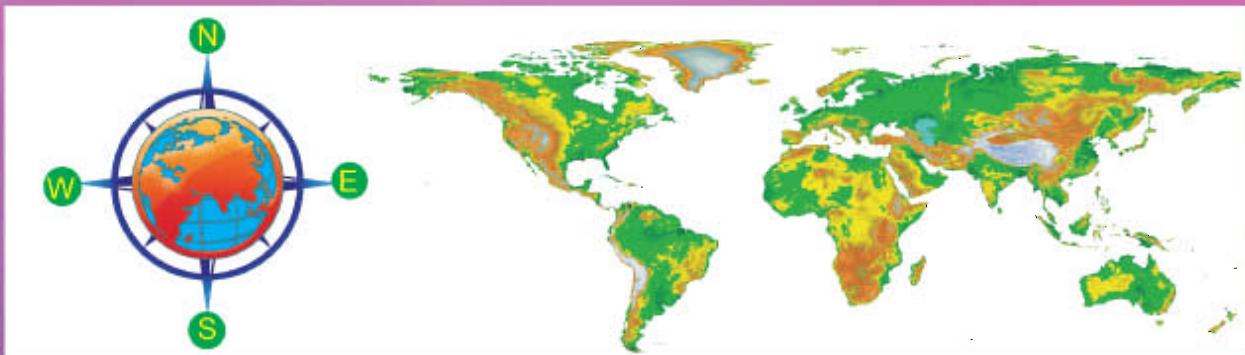
1. I am a continent. I am also an Island. People call me the land of Golden Fleece. Who am I? \_\_\_\_\_
2. I am the most populous continent. India is a part of me. Who am I? \_\_\_\_\_.
3. I am a big ocean. I cover one-third of the earth's surface. Who am I?

## **VII. Project**

1. Prepare a landscape on a piece of cardboard. Show a hill, a stream, land, trees and a house. Make models using clay, cardboard, colours etc.
2. On a map of the world using the colours suggested mark the following.



	Oceans		North America
	Asia		South America
	Africa		Australia
	South Africa		



## 4

# REPRESENTATIONS

You have learnt about the Earth in the previous lesson. You must be interested in knowing how the earth looks. In order to help us to know clearly about the earth, its shape and what covers its surface, there is an instrument called the **Globe**.

### A GLOBE

A globe is a small model of the Earth which gives us an accurate picture of the Earth's surface for general reference. It shows us the oceans, seas and continents of the Earth on a small scale.



Look at a globe. It is a spherical ball that spins round a rod with two ends. The earth rotates on an imaginary line called **Axis**. The northern most point on the axis is called the **North Pole** and the Southern most point is called the **South Pole**.

### MAP

Another representation of the Earth is a Map.

The map is a drawing of the whole or a part of the earth's surface on a flat sheet. Maps give more specific and detailed information as compared to a globe. Maps depict signs, directions and locations of regions, countries, oceans etc.

A book of maps is called an **Atlas**. (Picture – world map showing the continents, oceans, equator etc.,)

Map making is called Cartography. Map makers are Cartographers



## DIFFERENT TYPES OF MAPS

- i. Relief Maps — Show the physical features of the world.
- ii. Political Maps — Show Countries, States, Districts, Capitals etc.
- iii. Climate Maps — Show the different types of climate in the world.
- iv. Minerals — Show the minerals and the places they are found in
- v. Transport Maps — Show the location of places and the routes to them.
- vi. Agriculture — Show the different crops and the regions they grow in.

### Something Interesting

Every map has a key which indicates what the colour and symbols used in the map stand for.

**Eg.** : 1) Green stands for low land,      2) Blue stands for oceans.

Similarly a dark dot indicates a city and a boundary can be shown by dark lines.

## THE IMPORTANCE OF MAPS

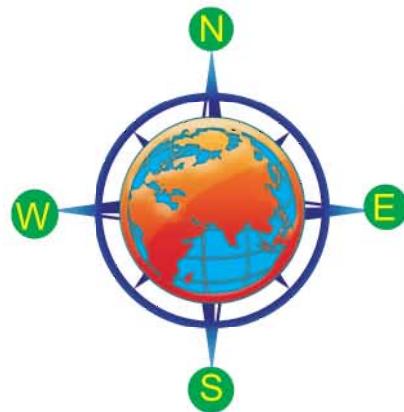
Maps are useful for **geographers** as well as **historians**. They help us to understand the physical features and different aspects of any place. They are essential for sailors and the armed forces to locate or identify places. **Tourists** use maps to follow directions.

Colours	Places
Blue	Oceans, Seas, Rivers, Lakes
Green	Plains
Yellow	Plateaus
Brown	Mountains, mountain ranges, hills



## DIRECTIONS

We need to know directions to understand the locations on the maps. North, South, East and West are the basic four directions.



## SYMBOLS

Man has created symbols to depict places on the map.

Eg.



River



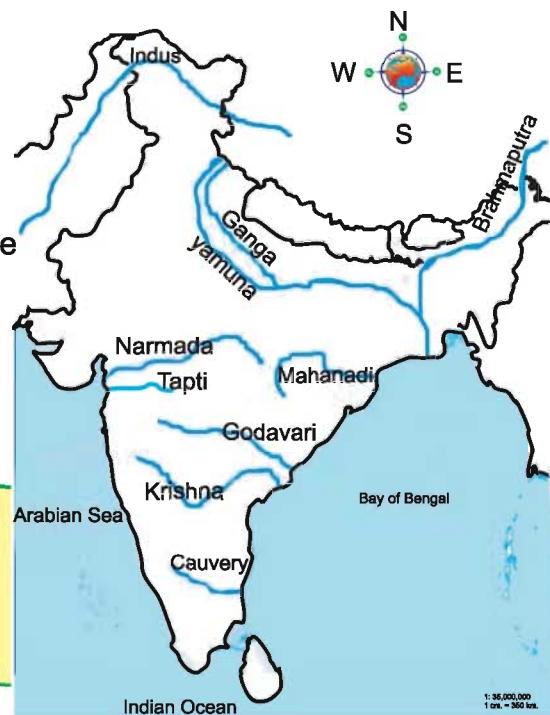
International Boundary line



State boundary line



Capital



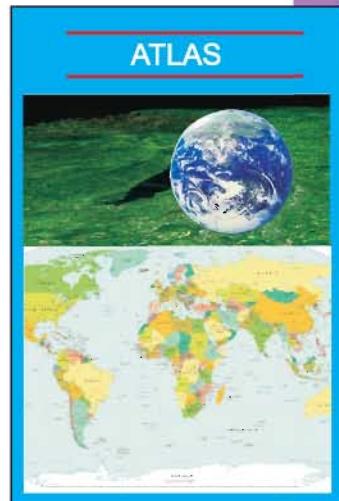
Rivers have been shown on the map of India. Find out the use of other symbols from the atlas.

Globe	Map
Round	Flat
Reflects the shape of the earth.	Reflects the surface
Shows the entire features.	The map shows either the whole or in parts.
We can see one part at a time when we rotate the globe.	We can see the entire world in a spread out manner.
Difficult to carry it around	Can be easily carried to different places.
Minute details cannot be seen	All the details can be presented.

## THE ATLAS

A book of maps is called an **Atlas**. We can find out about the different land forms and continents on the Earth. At the end of the book information is given in alphabetical order. This helps us in identifying things from the maps.

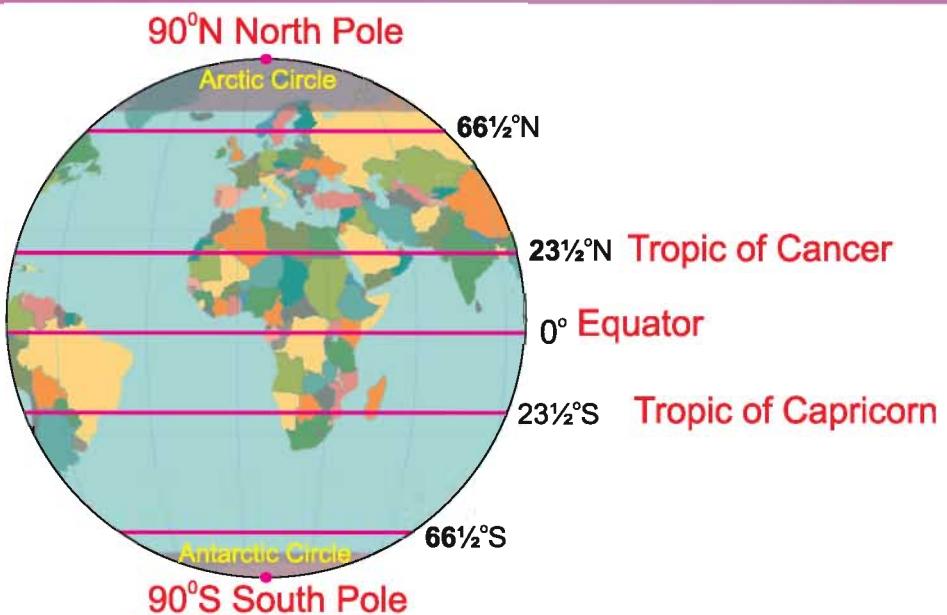
Using the atlas is necessary while learning about the different countries, landforms, resources, road and waterways. Maps help us to understand the different land and water forms in the world.



## LATITUDES

In the map, some imaginary lines are drawn horizontally and vertically. The horizontal lines are called **latitudes** and the vertical lines are called **longitudes**.

Latitudes are imaginary circles running from east to west. One such imaginary line of latitude is the **Equator**. The Equator divides the earth into two equal halves known as **hemispheres**. The northern part of the earth above the equator is known as the **Northern Hemisphere**. The southern part of the earth below the equator is known as the **Southern Hemisphere**. Latitudes are measured with the unit “degree” ( $^{\circ}$ ). Latitudes are also called **parallels**.



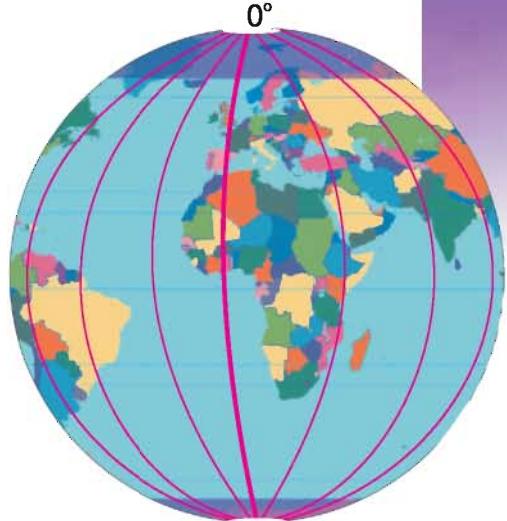
### IMPORTANT LATITUDES OF THE EARTH

1. The Arctic circle  $66\frac{1}{2}^{\circ}$  N.
2. The Tropic of Cancer  $23\frac{1}{2}^{\circ}$  N.
3. Equator  $0^{\circ}$
4. The Tropic of Capricorn  $23\frac{1}{2}^{\circ}$  S.
5. The Antarctic Circle at  $66\frac{1}{2}^{\circ}$  S.

### LONGITUDES

Besides latitudes, there are also circular lines running through the North Pole and the South Pole. These lines are called **Longitudes** or **Meridians**. The central longitude that divides the earth into the **Eastern Hemisphere** and the **Western Hemisphere** is known as the **Prime Meridian**. The prime meridian runs through the **Royal Observatory** at Greenwich in London in the United Kingdom. It is also known as the **Greenwich Meridian** which helps us in calculating the time.

The countries to the east of the Prime Meridian will face the sun first. Gradually, as the earth moves, the countries in the Western Hemisphere will face the sun. That is why the countries like Japan face the sun first and America faces the sun last.



The time at Greenwich is observed as the mean time and hence it is called the **Greenwich Mean Time** (GMT). Local time of a particular country can be calculated based on the **GMT**.

### Do you know ?

**Latitudes and Longitudes help us to define the location of any place in the world. Latitudes and Longitudes intersect each other at right angles forming a Grid. This network is helpful in locating the different places on the map (or) the globe.**

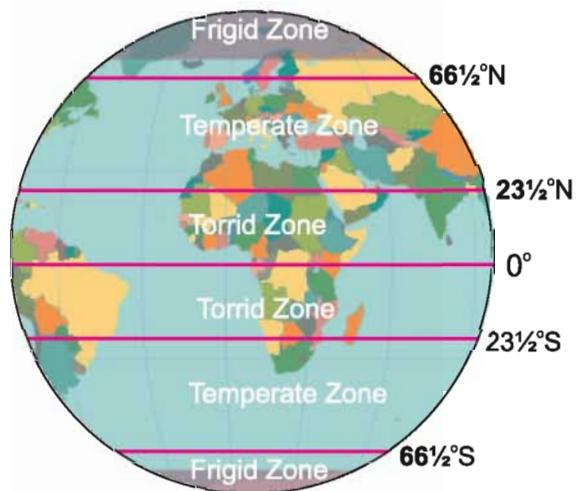
**India is located to the east of the Prime Meridian and it is the seventh largest country in the world.**

### Activity

Take a ball and pierce a knitting needle through it like the axis. Wind a wool yarn touching North and South Pole. You will create longitudes.

## DIFFERENT ZONES OF THE EARTH

The Earth is like a ball tilted on an **axis**. Therefore when the earth goes round the sun it is found that direct rays of the sun fall on the **Equator**. At this time, the distance of the **Sun** is closest to the **Earth**. Away from the Equator on the other latitudes the rays of the sun are slanting. Thus we have different **zones** of the Earth.



- 1) The Torrid zone (or) the Tropical zone is the hottest part of the earth.
- 2) The Temperate zone lies above the Torrid zone. It receives slanting rays, so it is cooler.
- 3) The Frigid zone lies around the poles. They receive very little slanting rays for half of the year and the other half of the year receive no light at all. This is a very cold zone.

### **Do you know ?**

***Direct rays hit a small area making it very hot. Slanting rays hit a larger area so the heat is less.***

## **WEATHER AND CLIMATE**

There is constant change in the atmosphere that surrounds the Earth. The changes in a particular area make the **weather** of a place. In other words weather is the condition of the atmosphere at a particular place and time. It may change from **day to day, time to time and place to place**. Weather affects us in many ways. For eg. we choose our clothes according to the weather. Weather also affects our daily activities.

Climate is the average weather condition of a place over a long period of time. Climate influences things like our clothing, housing, transportation and the food we eat. The factors that influence climate are latitudes, altitude, ocean currents, wind pattern etc. The presence of high mountains, oceans and deserts in an area also affects the climate in and around that area.

### **Do you know ?**

***People who study the climate are called climatologists.***

***People who forecast weather are called meteorologists.***

## **MOTIONS OF THE EARTH**

Rotation and Revolution are the two motions of the earth.

### **ROTATION OF THE EARTH**

It means the spinning movement of the earth on its own axis. It completes one rotation in 24 hours. This is called a **solar day**. Rotation causes day and night.

### **REVOLUTION OF THE EARTH**

Revolution is the movement of the Earth around the sun on an **elliptical orbit**. The earth completes one round in 365 and  $\frac{1}{4}$  days. It is because of this revolution of the Earth that we have changing seasons.

## Some Interesting facts

- \* Wind is caused by uneven heating of the air around the Earth.
- \* Humidity is the presence of moisture in the air. Wind blowing over the sea collects moisture and makes the climate in the coastal areas very humid. Humidity makes us sweat a great deal.
- \* The farther we are from the Equator, the colder the climate.
- \* The Equator divides the Earth into two equal parts. Hence it is called the great circle, while all other latitudes are called small circles.

## EXERCISES

### I. Fill in the blanks

1. A book of maps is called \_\_\_\_\_.
2. \_\_\_\_\_ divides the earth into two equal halves known as hemispheres.
3. \_\_\_\_\_ maps show the physical features of the world.
4. The Earth rotates on an imaginary line called \_\_\_\_\_.
5. The \_\_\_\_\_ zone lies around the poles.

### II. Answer in a sentence or two

1. What is a globe?
2. What is the Rotation of the Earth?
3. Who is a climatologist?
4. Why is the Frigid zone very cold?
5. What are the two motions of the Earth?

### III. Define the following

1. Weather and Climate
2. Revolution of the Earth.

### IV. Answer briefly

1. Difference between a globe and a map.
2. Latitudes and Longitudes.

## V. Guess who I am

- I am the central longitude that divides the earth into the Eastern and Western Hemispheres. What am I known as ? \_\_\_\_\_
- I am a colour. I represent the oceans on maps. Who am I?

## VI . Activity

Take a ball. Stick a world map around it. Mark the following on it:



Northern Hemisphere



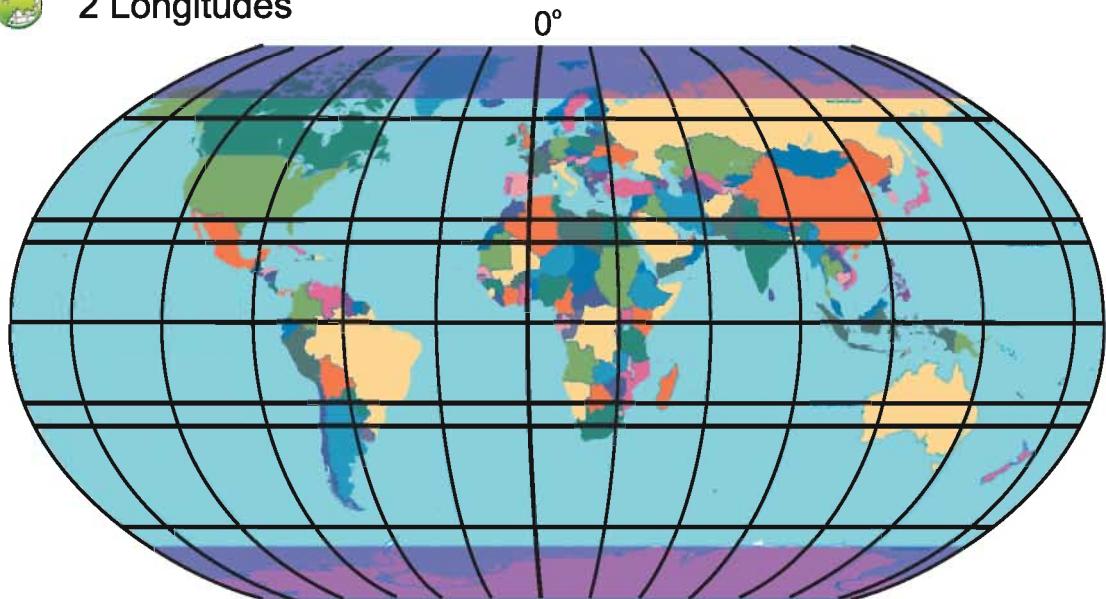
Southern Hemisphere



2 Latitudes



2 Longitudes



## VII. Project

- Take a ball. Use some pieces of thread. Stick the thread around it showing:
  - Equator
  - Tropic of Cancer
  - Tropic of Capricorn
- Find out why we have a leap year.

## Activity: Something Interesting

Take a torch. Hold it in one hand and turn the globe with the other hand. Can you see the longitudes moving towards the sun and then further away? This is how we determine time.



## 5

# THE GROUND UNDER OUR FEET

Land provides **soil** for **agriculture** and **forests**. **Fertile soil** and **uniform plains** support thick **human settlement**.

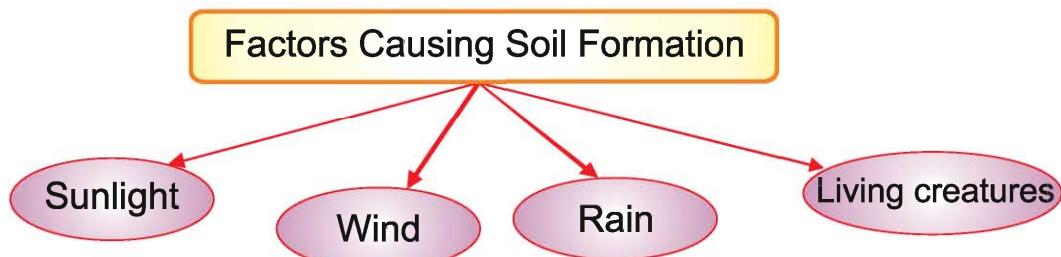
In this lesson, we are going to learn about different types of soil and forests and how they are useful for people and the development our country.

## WHAT IS SOIL?

Soil is a **thin surface layer** of the earth mixed with **minerals** and **vegetative materials**. Agricultural activities and growth of plants and trees depend on the **fertility** of soil.

## HOW WAS SOIL FORMED?

Formation of soil is a very **long** process. Due to the heat of the sun the force of winds and rains, big rocks broke into tiny particles which came together to form soil. The growth of **vegetation** depends on the **type** of soil.



## MAJOR TYPES OF SOIL

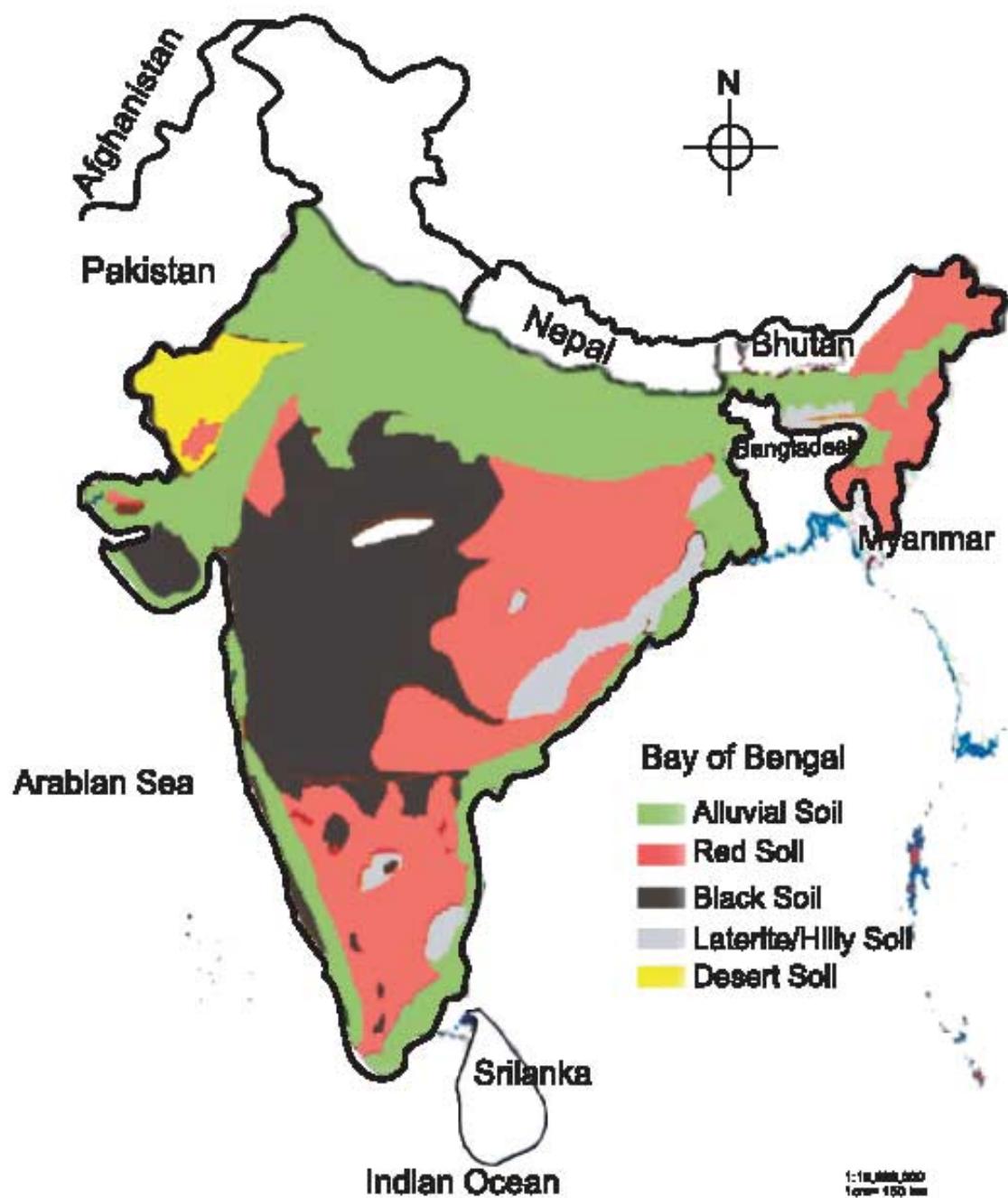
Look at the soil map of India, you can see different colours in different areas which indicates that India has various types of soil.

**Alluvial soil**, **Black soil**, **Red soil**, **Laterite soil**, **Forest and hilly soil** and **Desert soil** are the important types of soil found in India.

### Do you know?

***It takes 1000 years for a centimetre of soil to be formed.***

## India - Soil Resources





### ALLUVIAL SOIL

Alluvial Soil can mostly be found in northern parts of India and East Coastal Plains . The soil is very fertile and soft in nature. This soil is pushed by the waters of rivers and settles in plains. Rice, Wheat, Sugarcane and Pulses grow well in this soil.

#### Do you know ?

*River basins grow rice in abundance .So these places are known as Rice Bowls of India.*

### BLACK SOIL

This soil is also known as Black Cotton soil because cotton grows well in this soil. Black soil is formed in the Deccan Plateau because of volcanic activities which happened thousands of years ago.



#### Do you know ?

*In villages, children play with this soil and make a number of toys because it is sticky in nature and retains moisture (wet condition) for a long time.*

*Cotton and sugarcane grow well in the black soil.*



### RED SOIL

The reddish colour in the soil is due to the presence of iron oxides that are mostly found in the Eastern side of India. Most parts of Tamil Nadu, Andhra Pradesh, Karnataka, East Rajasthan and Orissa have red soil.

Groundnuts, ragi, pulses, chillies, tobacco, vegetables and fruits are cultivated in the red soil.

## LATERITE SOIL

Laterite soil is found mainly in plateaus and mountain slopes of India in Assam, Nilgiris and Chota Nagpur. Most of its minerals are washed away by rain water. Therefore, this soil needs fertilizers and water for agriculture.



Tea, rubber and coffee plantations are found here. Cashewnuts, pepper, cloves and cardamom are also grown here.



## FOREST AND HILLY SOIL

The Himalayas, Western and Eastern Ghats of South India have forest and mountain soil. This soil is very rich in humus and organic matters because of the abundance of trees found in this region. Humus refers to the dead and decayed parts of animals and plants.

Tea, Coffee, Rubber and spices are the major plantation crops grown here.

## DESERT SOIL

The Thar Desert is located in the western side of Rajasthan. The desert has infertile, dry soil called desert soil. The desert soil in Rajasthan, parts of Gujarat and Punjab is not suitable for agricultural activities. Only date palms and cactus can be found here.



## IMPORTANCE OF SOIL RESOURCES

Soil is the most important natural resource for agriculture and forest wealth.

Food crops like wheat, rice, millets and cash crops like sugarcane, cotton, Tea, Coffee and Rubber need soil for growth. They directly and indirectly help the growth of our National Income and provide employment or work for nearly 75% of the people of India.

Forests depend mainly on soil wealth. Forests provide us with many goods and support wild animals and attract thousands of tourists.

Therefore we should take care of our soil resources.

## WHAT IS HAPPENING TO SOIL RESOURCES NOW?

Day by day the population is increasing rapidly. Soil resources are improperly used by man.



Man has destroyed the major parts of forests for construction of roads, railways, dams, industries and human settlement. Cutting down trees is called **Deforestation**. As a result the upper

layer of soil is eroded, taken away by flood, therefore the fertility of the soil is lost. Removal of top soil is called **Soil Erosion**.

To get more food production, chemical fertilizers are used which increase the chemicals in soils, therefore, underground water is polluted in most parts of India.

**Activity:** You taste your well water and ask your parents how the taste of the water was ten or fifteen years ago. They will explain the reasons.

## How do we conserve or protect our soil resources?

Here are some important methods:

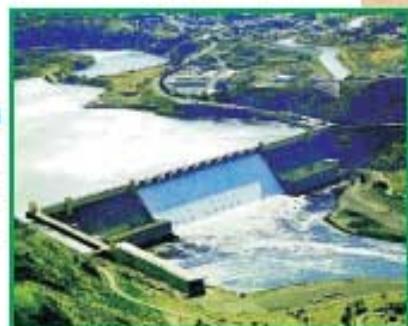
### 1. Planting trees



Planting a large number of trees in the vacant land in a line and around our houses. This activity is called **Afforestation**. Roots of the trees will prevent soil erosion.

### 2. Constructing small dams / check dams

Across rivers and in the farm lands, making small mounds, so that rain water can be stopped and soil erosion can be controlled.



### 3. Contour ploughing

Ploughing farm lands in Circular Method to stop the flow of water.



### 4. Terrace farming

To prevent soil erosion.



#### Activity

Next time you go for a picnic, look around and note the colour of soil and crops cultivated.

#### Interesting Facts

- Soil is made of 45% rock particles, 25% water, 25% air and 5% leaves.
- India is the largest producer of pulses in the world, both in quantity and variety.
- Regar is the name of black soil in India.
- 20% of the soil of India has been affected by erosion.
- Hungarian Paprica is the type of chilli grown in abundance in India.
- 24% of the soil of India is alluvial soil.
- The Green Revolution has led to many improvements in agricultural methods and irrigation.

#### Exercises

##### I. Fill in the blanks

1. \_\_\_\_\_ is necessary for the growth of vegetation.
2. Soil is formed due to the heat of the \_\_\_\_\_, the force of \_\_\_\_\_ and \_\_\_\_\_.
3. Alluvial soil is \_\_\_\_\_ and \_\_\_\_\_.
4. \_\_\_\_\_ soil retains moisture.
5. Grow more trees to prevent soil \_\_\_\_\_.

## **II Choose the correct answer**

1. Cotton grows well in \_\_\_\_\_ soil.  
(Black soil, Desert soil, Red soil)
2. \_\_\_\_\_ is very rich in humus and organic matters.  
(Laterite soil, Alluvial soil, Hilly soil)
3. Planting a large number of trees in vacant land is called \_\_\_\_\_.  
(Deforestation, Afforestation, contour farming)
4. Rajasthan desert has infertile, dry soil called \_\_\_\_\_.  
(Desert soil, Black soil, Alluvial soil)
5. Rice and wheat grow well in \_\_\_\_\_ soil.  
(Black, Laterite, Alluvial)

## **III Match the following**

- |               |   |                   |
|---------------|---|-------------------|
| 1. Tea        | — | a) Rajasthan      |
| 2. Cotton     | — | b) Karnataka      |
| 3. Wheat      | — | c) Assam          |
| 4. Groundnut  | — | d) Punjab         |
| 5. Date palms | — | e) Deccan plateau |

## **IV. Answer briefly**

1. Define soil and name the different types of soil.
2. How is soil useful to us?
3. Explain the term Deforestation.

## **V. Answer in a paragraph**

1. Why is there need to conserve our soil resources? Explain the methods of soil conservation.

## **VI. Activity**

1. When you go to different places collect samples of soil and write down your observations.
2. Discuss with your friends about the soil found in your area and the plants and trees that grow there.

### **Project**

Display the samples of soil you have collected in packets on a poster with a few details on them.



## 6

# OUR GREEN COVER

## NATURAL VEGETATION

Just as soil is important for agriculture and human settlement, natural vegetation is important for rainfall and wild life.

Natural vegetation in India is not uniform. Climate, soil type, amount of rainfall and the competition with other organisms, influence the growth of plants in distinctive forms.

## MAJOR TYPES OF FORESTS

Indian forests are broadly classified into five types. They are

1. Tropical Evergreen Forests
2. Tropical Deciduous Forests (Monsoon forests)
3. Mangrove Forests
4. Thorn Forests
5. Himalayan Forests

## TROPICAL EVERGREEN FORESTS

These forests are found in the areas of the Western Ghats, the North-eastern States of Himalayas and Andaman and Nicobar Islands which receive more than 200 cm rainfall.

Ebony, Mahogany, Bamboo, Rubber, Rose Wood and Sandalwood are the important trees grown here.

Tiger, Rhinoceros, Bears, Leopards, Pythons and Swamp deer are found here.



## TROPICAL DECIDUOUS FORESTS (MONSOON FORESTS)

Peninsular India and the Northern parts of India are covered by monsoon forests. These areas receive 100 cm rainfall.

Teak, Sandalwood, Sal, Deodar, Bamboo and Ebony are some of the important trees grown here. These trees shed / drop their leaves during summer because of less rainfall. These forests are called deciduous forests.

These types of wood are used for making furniture.



### Do you know?

**Very little wild life can be found here as the forests are not dense .**

## MANGROVE FORESTS

Mangrove forests are seen in the Indian coastal line, in the Ganga delta and Brahmaputra region, in some backwater areas and salt marshes.

The roots of the trees of most forests are found usually under the ground. But salt water trees have aerial roots which are above the water in order to survive in the salt water. These prevent soil erosion and prevent fertile soil from being washed away into the ocean.



Vedaranyam and Pichavaram areas in TamilNadu have mangrove forests.

Pichavaram forests protected many people from Tsunami waves in 2004.

### Do you know?

**Deltas are formed when sand mounds are formed by wind and waves.**

## THORN FORESTS

Thorn forests are found in the areas which receive less than **50 cm rainfall**.

Parts of Deccan Plateau, South Punjab and Thar Desert have thorny trees like acacia, babul and palmyra.



## HIMALAYAN FORESTS

The Himalayan Forest types are varied according to the height of the slopes.

The leaves of the trees found here are **conical** in shape so we call these coniferous forests.

The lower Himalayas have evergreen forests. The Middle Himalayas have temperate forest trees like Pine, Birch, Cedar, Oak, Chestnut, Walnut and Apple.

You can see some of these trees in Ooty, Upper Nilgiris and Kodi Hills.

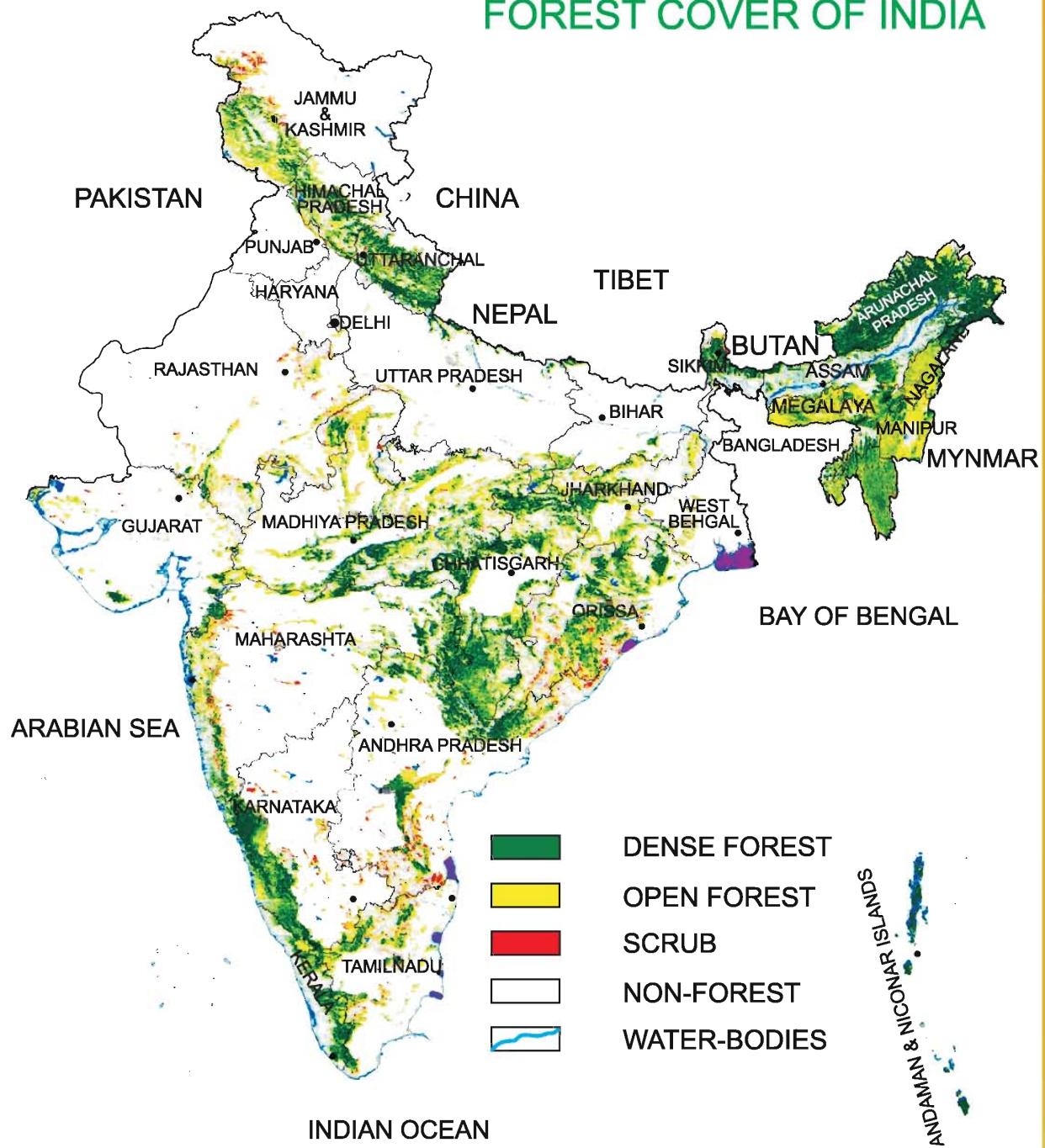


### Activity

The next time you visit these areas, observe them and get more information from your teachers.

Compare the trees of other forests with respect to size, shape and structure of the leaves etc.

## FOREST COVER OF INDIA



**Think:** How can we increase the forest cover in India?

## THE USES OF FORESTS

- ★ Forests provide oxygen for living things.
- ★ Forests provide timber / wood for various types of construction work from house to ship building.
- ★ Forests give us firewood, fruits, nuts and medicinal leaves (herbs).
- ★ Forests have their own value; forests bring rainfall, control soil erosion and purify the air by providing Oxygen and Nitrogen cycles.
- ★ Forests give revenue to the Government and employment opportunities to people
- ★ Forests provide shelter for wild animals like Lion, Tiger, Elephant, Bison, Deer and hundreds of birds and wild creatures.
- ★ The dry leaves combine with the soil and change into manure thus adding fertility to the soil.
- ★ Forests are used to produce paper, gum, resin, olive oil and natural dyes.

### But children

Nowadays the benefits have declined considerably... Do you know why?

This is because of all our activities. The growing population has reduced the forests to less than 17 % of our country's total area.

Remember, a country should have more than 33% of area under forest cover to get the maximum benefits from forests and for remarkable economic development.

Man has cleared the forests for human settlements, industrial purposes, construction of roads, railways and dams. Clearing of forests is called **deforestation**.

Other than this, valuable trees are illegally cut down and animals are hunted by poachers.

In this way we have lost a lot of our forest wealth.

Results of that ....

- ★ We receive unseasonal, irregular rainfall.
- ★ The earth's temperature is gradually increasing "Man cannot tolerate the Earth's temperature after 300 years" say US Climate Agencies 2010.
- ★ We have lost our rare variety of plants and animals which are our country's rich heritage.
- ★ Our National animal Tiger is facing the danger of extinction.

### Do you know?

**Over half the world's wild tigers live in India, Nepal and Bangladesh.**

- ★ To protect some endangered animals there are some sanctuaries.
- ★ Gir forest in Gujarat for lions.
- ★ Mudumalai forest in TamilNadu for elephants.
- ★ Kaziranga in Assam for the rhinoceros.

**"Grow more trees Save the Earth"**

### CHIPKO Movement

CHIPKO movement for the protection of trees began in Chamoli a place in Uttarakhand .The people here are very keen that trees should not be cut. If all Indians have a similar aim the future generations will benefit.

### Song of a tree

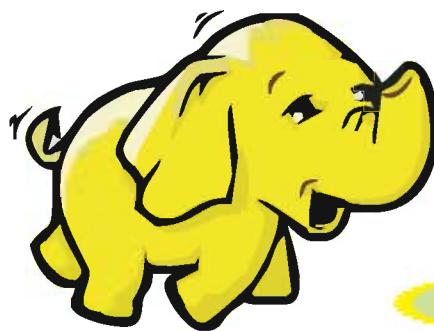


I am a tree , a tree ,  
A useful thing am I ;  
I give you oxygen free  
And the air I purify.  
  
My leaves, flowers and fruits  
Give shade, give food, as you can see  
The soil is held tight by my roots  
Animals and birds find homes in me.  
  
I give wood, I bring rain  
I protect weather naturally;  
Please don't give me pain!  
Don't cut me! Don't cut me!

Sudha Vyas

## Interesting Facts

- ★ 19.39% of the total area of India is covered by forests.
- ★ 90% of the land of Andaman and Nicobar Islands is covered by forests.
- ★ Assam is the largest producer of Tea in the world.
- ★ Uttar Pradesh is the largest producer of Sugarcane in India.
- ★ The major hill stations of India namely Nainital, Missourie, Almoda and Ranikhet are in Uttar Pradesh.
- ★ Kodaikanal and Ooty are the summer hill resorts of Tamil Nadu.
- ★ The Indian state of Kerala accounts for 90% of the rubber production in the country.
- ★ Sikkim exports medicinal herbs.
- ★ Punjab stands first in the cultivation of wheat.
- ★ Manipur has a valley filled with flowers.
- ★ Meghalaya is the only state with a museum of butterflies.



## Exercises

### I. State whether each of the statements is true or false

1. Natural vegetation is uniform.
2. Evergreen forests have trees that shed their leaves.
3. Thorn forests are found in desert areas.
4. Mangrove forests have trees with aerial roots.
5. Forests bring rainfall.

### II. Mention any two crops or trees that grow in these forests

1. Tropical evergreen forests
2. Monsoon forests

### **III. Match the following**

- |                     |   |                       |
|---------------------|---|-----------------------|
| 1. Vedaranyam       | - | a) Deciduous forests  |
| 2. Andaman          | - | b) Coniferous forests |
| 3. Peninsular India | - | c) Thorn forests      |
| 4. Middle Himalayas | - | d) Mangrove forests   |
| 5. Thar             | - | e) Evergreen forests  |

### **IV. Write a note on conservation of forests and wild life.**

#### **Project**

##### **I. Let us grow more trees-Save Nature**

Name of student :

Class :

Date of Birth :

Name of the parents :

Address :

Phone number:    Mobile number:

Sir/Madam,

Subject:-Tree plantation

My son/daughter will plant a tree (type of tree)

\_\_\_\_\_ on \_\_\_\_\_ at (place) as a part of the project

“Conservation of trees”.

Signature of parent

Date:

Place:

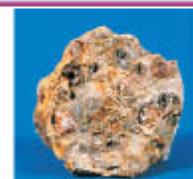


## 7

## TREASURES UNDER THE GROUND

Among the following things pick out those we use for purposes like cooking, travelling and making ornaments.

petroleum	gold	cotton	wool
coal	copper	aluminium	leather



We call products like petroleum, coal, copper and gold minerals.

**Minerals** are products that are found in **rocks** and under the **ground**. The **mining industries** are responsible for obtaining minerals . A **mine** is an **excavation** in the earth from which **ores** of minerals can be extracted. Due to the minerals many industries are established which contribute to the development of a country.

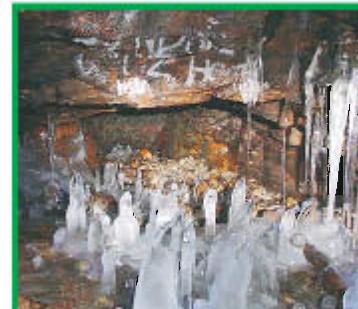
India is rich in mineral wealth. **Minerals** are of **two kinds** namely **Metallic and Non-metallic**. Iron, manganese, bauxite, copper and gold are the important metallic minerals while petroleum and coal are the important non-metallic ones. Most of these minerals are found in the Deccan Plateau and Chota Nagpur Plateau of India.

### Do you know?

**Iron**

*The study of minerals is called Mineralogy*

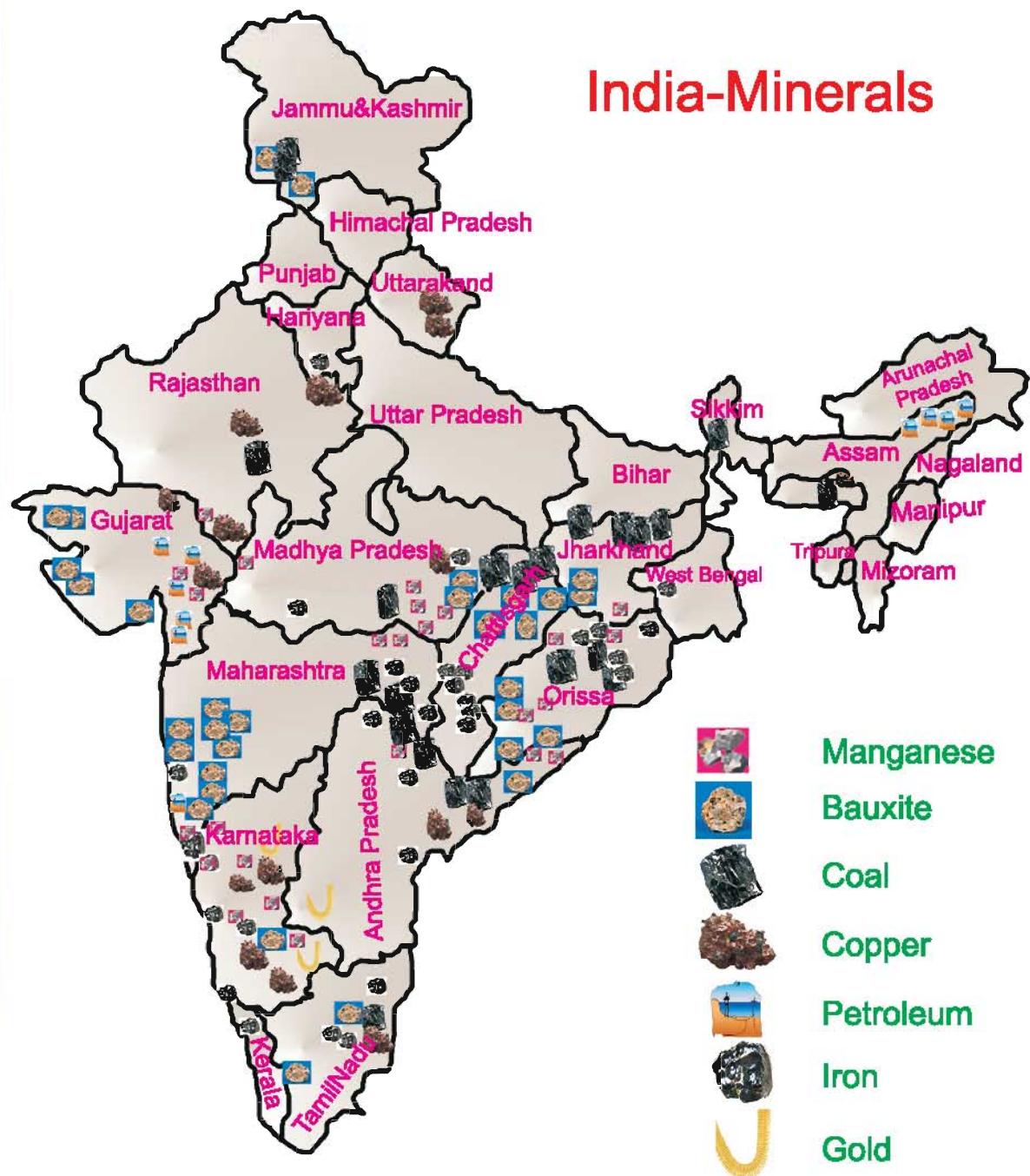
**Iron** is called the **key** mineral. Industries are mainly dependent on it. The best variety of iron ore is found in India in the states of Bihar, Orissa and Karnataka. Iron is also found in Jharkhand, West Bengal, Madhya Pradesh, Tamil Nadu and Maharashtra.



## USES OF IRON (eg.)



## India-Minerals



One fourth of all the iron ore in the world is found in India. Iron is useful to us in many ways. We make different vehicles and machines using iron. It is also used in buildings and bridges.

Iron is one of the major exports of India. Through the ports of Paradweep in Orissa and Vishakapatnam in Andhra Pradesh it is exported to different foreign countries.

## EXPORT AND IMPORT

When we send products from our country to other countries we export. When we bring products from other countries to our country we import.

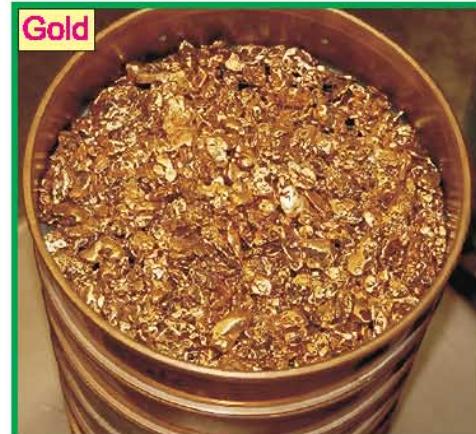
More export and less import will contribute to the progress of our country.

## GOLD

Gold mine



Gold



Gold enjoys great popularity in India. Indians love gold ornaments and objects made of gold. The gold industry is booming in India .It is even importing gold.

Gold was primarily found in the mines of Kolar in Karnataka and a few places in Andhra Pradesh.

## MANGANESE

Manganese is found in abundance in India. This is used in making iron products and in the glass industry.

Manganese is largely found in Orissa. It can also be found in Madhya Pradesh, Andhra Pradesh, Goa and Karnataka.



Manganese

## BAUXITE



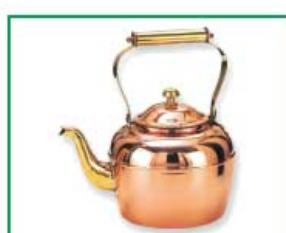
Bauxite is an **ore** of aluminium. Aluminium is **light** in nature. It is used in making vessels, electrical wires, automobiles, machines and aircraft.

It is found in the following states: Tamil Nadu, Orissa, Madhya Pradesh, Bihar and Andhra Pradesh.

## COPPER

Copper was the **first metal** to be used by **human beings**.

It is widely used in **electrical equipments**. Copper is mined in Uttarakhand, Jharkhand, Madhya Pradesh and Rajasthan.



## COAL

Coal is one of the **most important** minerals found underground.

Coal is primarily used as **fuel**. Asia accounts for **one-third** of the extent of coal found in the world. Railway engines, iron factories, industries and houses use coal as fuel for industrial use and cooking.



Coal mine



Coal is largely found in Madhya Pradesh, Bihar, West Bengal, Orissa, Tamil Nadu and Andhra Pradesh. Neyveli in Tamil Nadu has a number of coal mines.

## PETROLEUM

Petroleum is a **natural resource**. It is believed that petroleum was formed over millions of years from many landforms and creatures buried underground.



The **by products** of petroleum are **petrol, diesel, and kerosene** all of which are used for generating energy and as fuel. Petroleum gel or paraffin is also another by product.

Petroleum is found in large quantities in Digboi in Assam and Ankleswar in Gujarat. It is also found in the offshore station of Mumbai under the sea.

Petroleum is purified in Mumbai, Chennai and Cochin and many by products are derived from it.

These two underground **Non-Metallic Minerals, Coal and Petroleum** play a **vital** role in the industrial development of India.

## CONSERVING OUR MINERALS



Our minerals are being consumed so rapidly that there is a danger of their running out. We must learn to save them by using them wisely.

**Alternate sources of energy and fuel** are being considered, chief among them being **solar and wind energy**. This aims at conserving the available mineral resources from being rapidly depleted.

### Points to remember

- \* Minerals are found in rocks and underground.
- \* Through mines these minerals are obtained.
- \* Iron, copper and gold are the most used minerals in India.
- \* Coal and petroleum are non-metallic minerals.
- \* Conserve the minerals and use them wisely.

### **Some interesting facts:-**

- ★ Karnataka is the only state where mercury is found.
- ★ Bihar is the only state in India where pyrite is found.
- ★ Platinum has been discovered in Namakkal District recently.
- ★ Some years ago, dentists used gold to fill cavities in teeth.
- ★ Gypsum is found in the state of Himachal Pradesh in India.

### **Exercises**

#### **I. Do you agree?**

1. Gold was found in Karnataka.
2. Half of the Coal in the world is found in Asia
3. Copper is found in Rajasthan
4. Aluminum is heavy
5. Solar energy is a natural resource

#### **II. Answer the following questions**

1. What are minerals?
2. Name the major minerals found in India
3. How was petroleum formed?
4. What is the state of minerals in the world today?
5. What are the alternate sources of energy?

#### **III. Activity**

1. Find out if there are any minerals found in your area. Tell your friends about them.
2. Form two groups and find out what minerals are used at home and in your school and for what purposes.
3. Write a small report of your findings and read it out.

### **Project**

1. Bring samples of some minerals. Display them on a table. Label them and appoint students to speak about each of the minerals.
2. Make a model of a plane or engine or car using some of the minerals and cardboard.