

# Social Science

## Part I

### Standard VI



GOVERNMENT OF KERALA  
DEPARTMENT OF EDUCATION

State Council of Educational Research and Training (SCERT, Kerala)  
2016

## THE NATIONAL ANTHEM

Jana-gana-mana-adhinayaka, jaya he  
Bharata-bhagya-vidhata.  
Punjab-Sindh-Gujarat-Maratha  
Dravida-Utkala-Banga  
Vindhya-Himachala-Yamuna-Ganga  
Uchchala-Jaladhi-taranga.  
Tava shubha name jage,  
Tava shubha asisa mage,  
Gahe tava jaya gatha,  
Jana-gana-mangala-dayaka jaya he  
Bharata-bhagya-vidhata.  
Jaya he, jaya he, jaya he,  
Jaya jaya jaya, jaya he!

## PLEDGE

India is my country. All Indians are my brothers and sisters. I love my country, and I am proud of its rich and varied heritage. I shall always strive to be worthy of it.

I shall give my parents, teachers and all elders respect, and treat everyone with courtesy.

To my country and my people, I pledge my devotion. In their well-being and prosperity alone lies my happiness.

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Dear Students,

Social Science is a window to the world. It leads you towards immense possibilities in knowledge that informs and fascinates. Golden moments in history are preserved here as travelogues; tokens of the past; eternal symbols of our nation's culture; stories narrated by the land, soil, rain and man; economic activities and constitutional rights. Social Science presents such a world of diverse hues. It will guide you to imbibe history, love nature, understand diversities, and to become responsible citizens. May the discussions, debates, enquiries, and analyses make your classrooms lively.

With warm regards,

**Dr. P.A. Fathima**  
Director  
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**Certain icons are used in this  
textbook for convenience**



**For further reading (Need not be  
subjected to assessment)**



**Questions for assessing the progress**



**Learning activities**



**Summary**



**Significant learning outcomes**



**Let us assess**



**Extended activities**



**Self assessment**

1



## Medieval India: The Centres of Power

*Friends,*

*I am the River Yamuna.*

*You might have heard of me. I am one of the tributaries of the Ganga, the longest river in India. I originate from the Yamunotri in Uttarakhand. Delhi is one of the important cities on my way .*

*The Qutb Minar, the Iron Pillar of Mehrauli, the Juma Masjid, the Red Fort, the India Gate....Many such majestic historical monuments can be found here. Delhi has witnessed the rise and fall of several dynasties.*

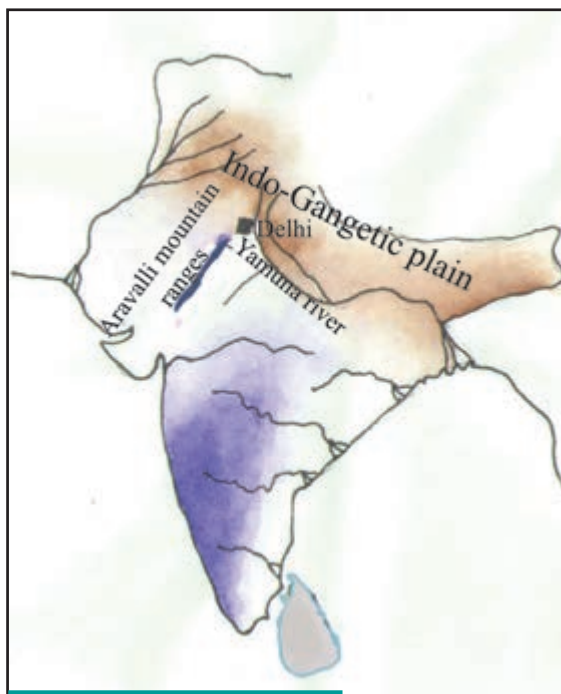
Haven't you listened to what the Yamuna spoke about Delhi? Shall we journey into the medieval history of Delhi?

The period between CE 8th century and 18th century is generally known as the medieval period in Indian history.

## Across the topography of Delhi...

Observe the map (map 1.1) given below.

What all information can you gather from it?



Map 1.1

● Indo-Gangetic plain



You have seen that Delhi is situated in the Indo-Gangetic plain. The fertility of the region has been favourable for agricultural progress.

Observe the location of the Aravalli mountain ranges marked on the map. These mountain ranges helped Delhi to resist the invasions of enemies. The massive rocks of this mountain range supplied the stones for the construction of forts and buildings. The river Yamuna

facilitated water transportation and ensured enough water supply for Delhi. It was these geographical features that attracted the rulers to Delhi.



What were the geographical features that motivated the rulers to opt Delhi as the centre of their power?

## Delhi as a seat of power

It was under the Tomar kings, who were Rajputs, that Delhi first became a seat of power in CE 8th century. Back then, Delhi was known as 'Dhillika'. Following the Tomars, the Chauhan dynasty ruled Delhi. Prithviraj Chauhan was the last king of the Chauhan



dynasty. Muhammad of Ghor (in the present Afghanistan) defeated Prithviraj Chauhan and established his domination over Delhi.

Qutbuddin Aybak was his Commander-in-chief. After the death of Muhammad of Ghor, Qutbuddin established his rule in CE 1206 with Delhi as the seat of power. This dynasty is known as the Mamluk dynasty (Slave Dynasty). Four major dynasties ruled Delhi after the decline of the Mamluk dynasty and their rule lasted until CE 1526. The rulers of Delhi between CE 1206 and CE 1526 are known as Sultans and the period of their reign is known as the Sultanate period.

Look at the flow chart given below. It chronologically lists the dynasties and the respective major rulers during the Sultanate period.



## Rajputs

The Rajputs were the kshatriyas of the central and north-west India. The Tomars and the Chauhans were prominent among them.

Complete the table given below based on the flow chart

Dynasties of the Sultanate period	Major rulers
<ul style="list-style-type: none"> <li>• Mamluk dynasty</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>	<ul style="list-style-type: none"> <li>• Qutbuddin Aybak, Iltutmish, Balban</li> <li>•</li> <li>•</li> <li>•</li> <li>•</li> </ul>



The coins of Iltutmish

Let us discuss the expansion of power of the Delhi Sultans to other parts of the Indian subcontinent.

Iltutmish was the ruler who assumed power after Qutbuddin. He conquered Multan, Lahore, Bengal, etc. He introduced a uniform monetary system in the regions under his control. Tanka and Jital were the newly introduced coins.

Balban was the major ruler who rose to power after the reign of Iltutmish.



Map 1.2



### Sultana Raziyya

Sultana Raziyya was the only woman ruler of the Delhi Sultanate. She was the daughter of Iltutmish. She lost her power owing to the protest from some nobles.

## The expansion of the Sultanate

The Khalji dynasty succeeded the Mamluk dynasty. Alauddin Khalji was the most prominent among the Khalji rulers. It was during his reign that the south and west regions of India came under the Delhi Sultanate. Gujarat was the first region that came under his control.

Identify Gujarat in the given map 1.2.

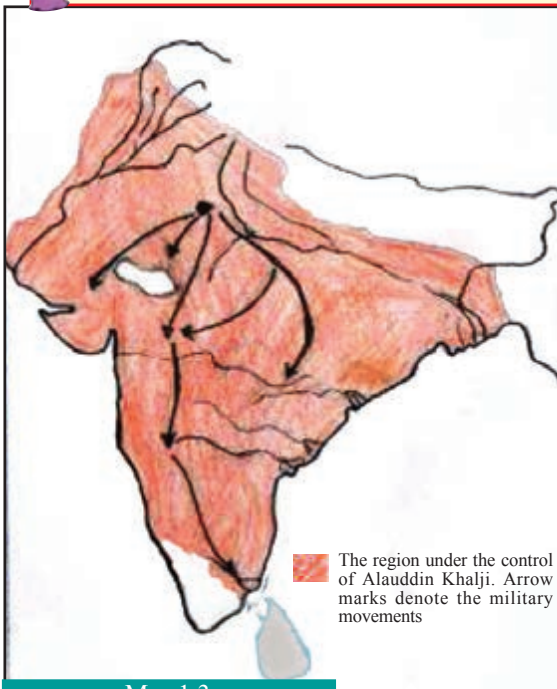
What are the geographical peculiarities of Gujarat?

You can find that the long coastline is a peculiar feature of Gujarat. Therefore, several seaports exist here.

With the conquest of Gujarat, these sea ports came under the control of Alauddin Khalji. He could import fine horses from Iraq through these ports. This strengthened his military power and he conquered the regions in the southern and western India.



How did the domination over Gujarat strengthen the military of Alauddin Khalji?



Map 1.3



Map 1.4

The Khalji dynasty was succeeded by the Tughluq dynasty. Muhammad Bin Tughluq was an important ruler of the Tughluq dynasty. To rule more efficiently he shifted the capital from Delhi to Devagiri and renamed the latter as Daulatabad. Observe the location of Daulatabad in map 1.4. Daulatabad was situated almost at the centre of the expanded state. Muhammad Bin Tughluq thought that all the regions could be controlled effectively by shifting the capital from Delhi to Daulatabad. Later he found that shifting the capital was not practical and withdrew the decision. The rulers of the Sayyid and the Lodi dynasties who succeeded the Tughluq dynasty were weak. The Sultanate rule began to decline with the end of the Tughluq dynasty.

## Delhi under the Mughal rule



Battlefield of Panipat - An illustration

26th April 1526...

The armies of Sultanate ruler Ibrahim Lodi and Babur, the ruler of Kabul (in Afghanistan) fought at Panipat near Delhi.

Since the army of Babur made use of cannon and gunpowder, they could easily defeat the army of Ibrahim Lodi. Babur ended the Sultanate reign and established a new rule known as the Mughal rule with Delhi as the capital.



Let us see the names of the major Mughal rulers with the help of the flow chart given below.



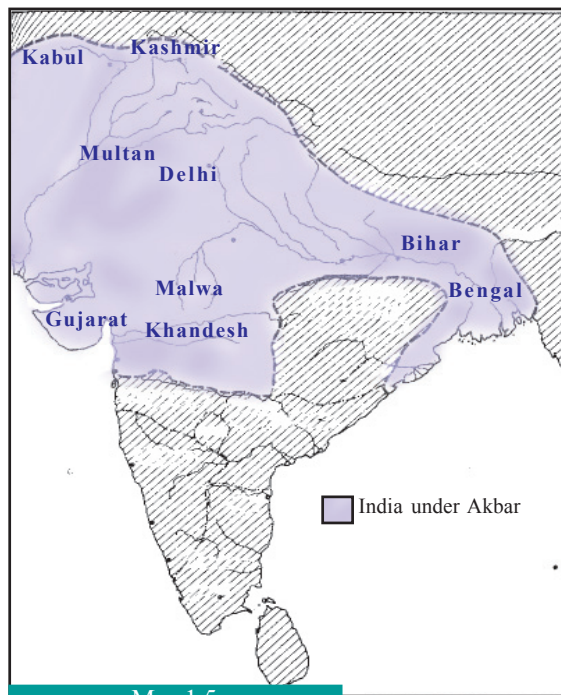
The Mughal rule established by Babur was later extended. Akbar played an important role in the expansion of the Mughal empire. He formed a huge army. To maintain it, he adopted a special system known as Mansabdari. Under this system, every officer was liable to maintain a specific number of soldiers. Raja Man Singh, Raja Todar Mal, Birbal, Raja Jay Singh, etc. were the prominent Rajputs who held important office during the Mughal period.

Observe the map 1.5 and complete the diagram.



### Sher Shah Suri

Delhi was ruled by Sher Shah Suri of the Sur dynasty from CE 1540 to CE 1545. He rose to power by defeating the Mughal ruler Humayun. His successors were weak. Hence, Humayun could recapture Delhi in CE 1555.



Map 1.5

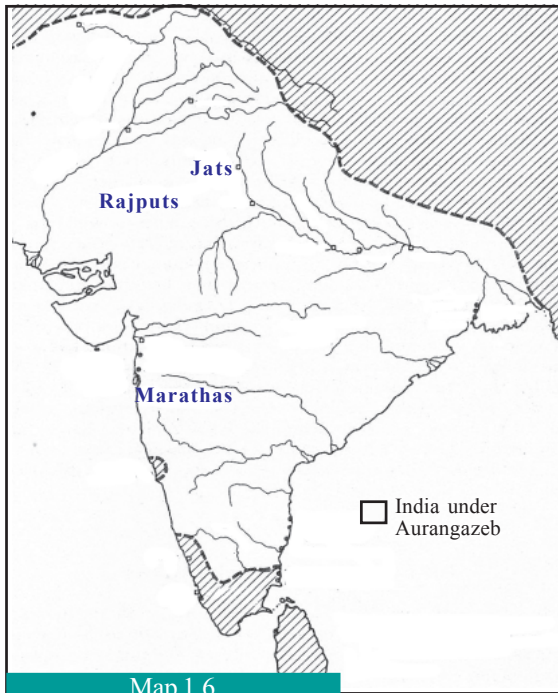
The region under the Mughal empire

Khandesh



### Akbar Nama and Ain-i-Akbari

*Akbar Nama is a work on history written by Abul Fazl, a courtier of Akbar. The work is in three volumes. The first volume deals with Akbar's ancestors, the second with the events during Akbar's reign, and the third with Akbar's administration. The third volume is also known as Ain-i-Akbari.*



Map 1.6

The Mughal empire expanded the most during the reign of Aurangzeb. (Observe map 1.6). He ruled for fifty years. Though the empire began to decline after Aurangzeb, it lasted until 1857.



*Prepare a seminar paper on 'The expansion of the Sultanate-Mughal rule in medieval India'.*

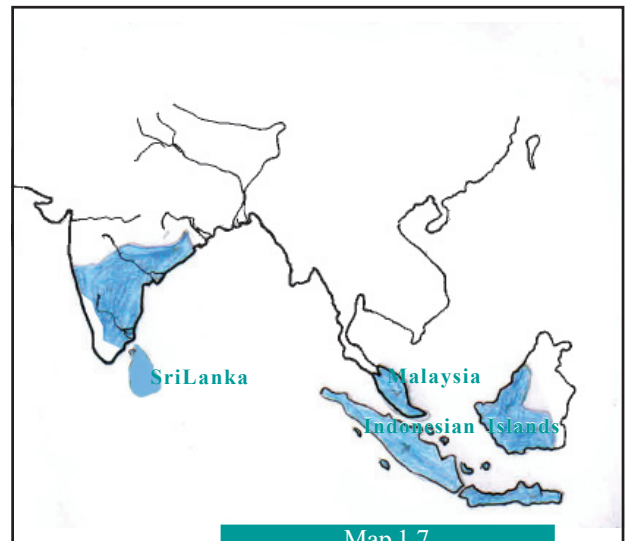
## Centres of power in southern and western India

We have discussed the growth of Delhi as a seat of power in medieval India. The other important kingdoms that prevailed in southern and western India during the period are given below.

Kingdom	Region
Chola	Southern India
Vijayanagara	
Bahmani	
Maratha	Western India

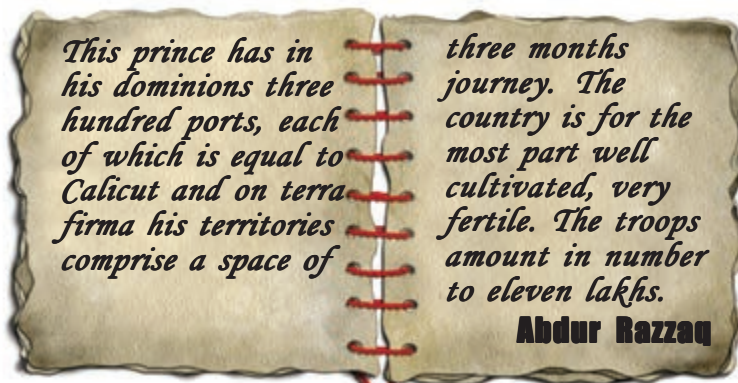
## Chola kingdom

The Chola dynasty became powerful by CE 9<sup>th</sup> century. Raja Raja Chola and Rajendra Chola were the prominent Chola rulers. The Cholas had a powerful navy. The influence of the Cholas was extended even to countries like Malaysia and the Indonesian islands. Observe the map 1.7 and locate the nations outside India that were under the dominion of the Chola rule .



Map 1.7

## Vijayanagara kingdom



This is an extract from the description of the Persian traveller Abdur Razzaq. What information can you obtain from it?

- There were many ports in Vijayanagara.



The Vijayanagara kingdom was established by Harihara and Bukka in CE 14th century. Krishnadeva Raya was the major ruler of Vijayanagara.

## Bahmani kingdom

Alauddin Hasan Bahman Shah was the founder of the Bahmani kingdom. The Raichur region located between the Tungabhadra and the Krishna rivers was fertile. It was known as 'the rise bowl of South India'. The rulers of Bahmani and Vijayanagara frequently engaged in wars to gain control over the Raichur region.

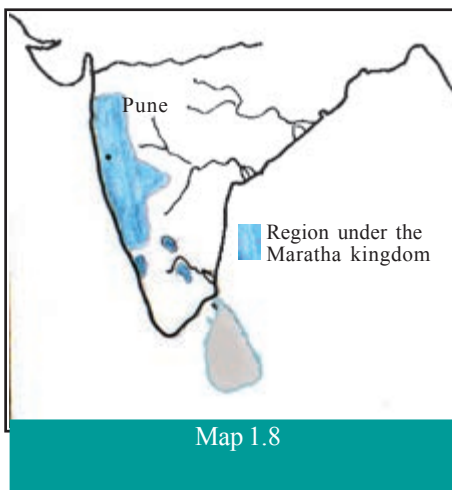


*With the help of a map, locate the present Indian states where the Raichur region is situated.*



What are the factors that motivated the Vijayanagara and Bahmani rulers to engage in battles for the Raichur region?

## Maratha kingdom



It was in CE 17th century that the Marathas became a prominent power. The geographical features of the region helped the growth of the Marathas. The Vindhya- Satpura mountain ranges and the Narmada-Tapti rivers separated the Maratha region from the nearby regions. These geographical features offered natural protection to it. The Marathi language and literature instilled a sense of unity among the Marathas.





What were the factors that helped the growth of the Marathas?

Shivaji was the major ruler of the Maratha kingdom. He adopted the title 'Chatrapati'. The Marathas had strong army and navy. It helped them to be a major political power. Pune was the capital of the Maratha kingdom.

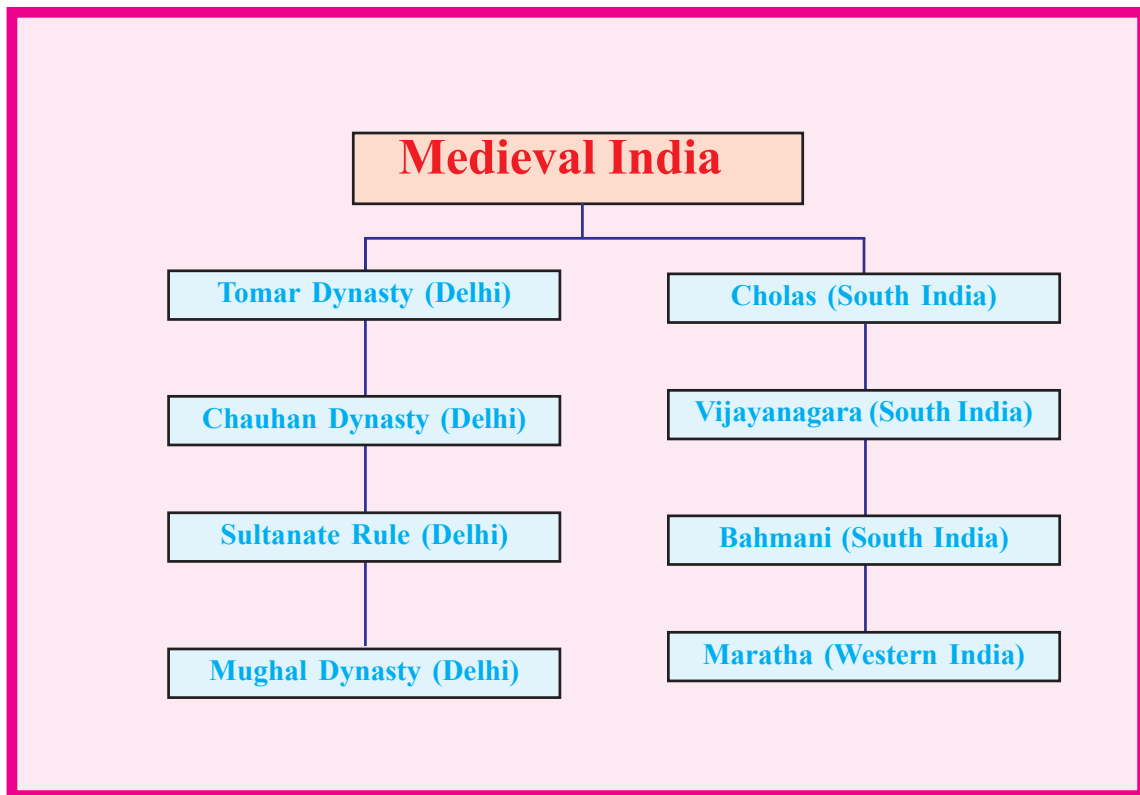


*In addition to Delhi, various centres of power existed in different parts of India during the medieval period. Prepare a note on them.*



## Summary

- It was the geographical features that inspired the rulers to opt Delhi as a centre of power.
- It was under the Tomar kings that Delhi first became the centre of power.
- The Sultanate rule was established with Delhi as its capital.
- The Sultanate rule expanded further during the reign of Alauddin Khalji and Muhammad Bin Tughluq.
- Babur who defeated Ibrahim Lodi in the battle of Panipat in 1526 established the Mughal rule.
- Akbar and Aurangzeb played an important role in the expansion of the Mughal empire.
- Different centres of power existed in western and southern India during the medieval period.




## Significant learning outcomes

The learner :

- explains the topographical features that helped Delhi to become a centre of power.
- analyses the growth and expansion of the Sultanate and Mughal dynasties .
- analyses the influence of the topographical features in the growth of the dynasties.
- explains the various centres of power that existed in southern and western India.



## Let us assess

- Which are the geographical factors that contributed to Delhi becoming a centre of power?
- The battle of Panipat was crucial in the history of India. Substantiate.
- Analyse the policy adopted by Akbar in the expansion of the Mughal empire.
- The rulers of Vijayanagara and Bahmani frequently engaged in wars for the possession of the Raichur region. Based on this statement, examine the features of the Raichur region.
- Which are the geographical factors that helped in the rise of the Maratha kingdom?
- Match column 'A' with 'B'

A	B
Iltutmish Krishnadeva Raya Muhammad Bin Tughluq Babur Akbar	The battle of Panipat Mansabdari system Jital coin Vijayanagara Shifting of capital



## Extended activities

- Collect the proof for the cultural relations between southeast Asian countries and India.

- Prepare an Atlas incorporating the maps of the regions under the control of the different dynasties in the medieval period.
- The southeast Asian countries are the major releasing centres for Tamil films. Find out the reason.



### Self assessment

	Completely	Partially	Need improvement
Can identify the geographical features of Delhi			
Can identify the dynasties that made Delhi their capital			
Can analyze the expansion of the Sultanate rule			
Can identify the regions under the control of the Sultanate rulers			
Can identify and explain the importance of the battle of Panipat			
Can analyze the policies of Akbar in the expansion of the Mughal empire			
Can explain the different centres of power that originated in various parts of medieval India			



2



## Medieval India: Society, Resource, and Trade

*Hindustan is a wonderful land. Compared to other countries, it is entirely different. The mountains, rivers, forests, and deserts here are unique. The animals, plants, people, languages, rain, and wind are all diverse...*

**Babur Nama**

The description given above is taken from Babur Nama, the memoir of the Mughal emperor Babur. What information can you gather about India from it?

Babur speaks about the diversity and resources of India. It is this diversity and prosperity that attracted the foreign travellers to India during the medieval period. Their travelogues help us to comprehend the socio-economic conditions of that period.

## Agriculture and artisanship

*For farming cereals and grazing cattle, land revenue and grazing tax were to be paid to the rulers. Similarly, tax was to be paid on income from trade. One sixth of the income was to be spent for the protection of the country.*

**Al-Biruni**

Given above is an extract from the travelogue of Al-Biruni, a traveller who reached India from Central Asia. What are the occupations and taxes mentioned in this description?

Agriculture was the chief occupation of the people of medieval India. Cotton, cereals, pulses, indigo, sugarcane, etc. were the major crops.

In this period, there was plenty of cultivable land in India that was kept uncultivated. Those who first cultivated in such land were granted its ownership right. The hardworking farmers tried to win the ownership of such lands in this way.

Let us see the steps taken by the rulers for the progress of agriculture.

- Arranged irrigation facilities
- Supplied seeds
- Granted tax relaxation

In the medieval period the officers were given land as wages. This system was known as Iqta during the Sultanate period and Jagirdari during the Mughal period.



*What were the factors that promoted the progress of agriculture during the Sultanate and the Mughal periods? Discuss.*

In addition to agriculture, many occupations for making agricultural tools existed in villages. What might be they? Discuss.

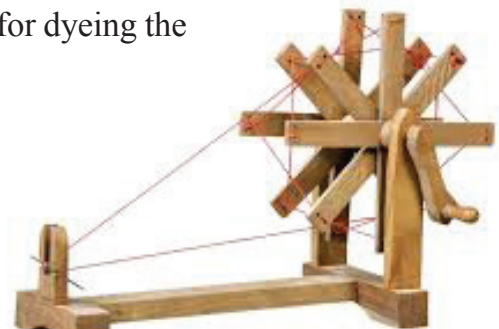
● Metal work



Weaving and other handicrafts were the major occupations in towns. The cotton, indigo, and silk produced by the rural folks enriched the textile industry. The Indian weavers produced garments of different colours and quality. The garments made of silk, cotton, and wool were important among them. New tools like spinning wheel and looms were used for weaving. Indigo and colour mixtures were used for dyeing the textile. Indian textile won world acclaim.



A water wheel used for irrigation



Spinning wheel



*Discuss how the agricultural sector promoted the growth of the textile industry.*

## Towns and trade

*The great town Vijayanagara is situated near steep mountain ranges. There are attractive gardens and groves in this town. The markets of this prosperous town are full of costly goods.*

**Nicolo Conti**



Nicolo Conti



Have you read the description about Vijayanagra by Nicolo Conti, the Italian traveller who visited India?

The agricultural progress created favourable conditions for the prosperity of trade and commerce. Indian spices, textiles, leather,

gems, sandal, metals, pearl, ivory, etc. were in great demand in foreign countries. These commodities attracted traders to India. Several traders from different parts of the world reached India in the medieval period.

The foreigners who engaged in trade with India.

- Chinese
- Arabs
- Portuguese
- Dutch
- English
- French



### Calico and Calicut

*Cotton textiles were exported from Calicut. These textiles were known as Calico in the European market. Kozhikode was called Calicut by the Europeans.*

Haven't you listened to the descriptions of Indian towns by Ibn



Ralph Fitch

*The towns in India are highly populous and wealthy. The streets of the cities were flooded with diverse goods. Delhi and Daulatabad are colourful cities.*

**Ibn Battutah**

*Agra, Fatehpur Sikri, and Ahmedabad are bigger than London, the biggest city in the world. Delhi is a big and wealthy city.*

**Ralph Fitch**



Haven't you listened to the descriptions of Indian towns by Ibn Battutah, the Moroccan traveller, who visited during the Sultanate period and Ralph Fitch, the English traveller, who visited during the Mughal period?

What information can you gather from them about the Indian towns of that period? Discuss.

Towns developed around the production centres and markets. Dacca, Paithan, Kanchipuram, Urayur, Madurai, etc. were the towns that developed this way. Artisans, traders, officers, servants, slaves, and so on constituted the urban population.



*Find out the major trade centres of medieval India from the given map.*

*Discuss the common geographical features that helped the progress of the South Indian trade centres.*



Bernier

## Workshops

*Big rooms where Karkhanas function are found in many places. Embroiderers working under a supervisor are found in one room. Goldsmiths in another... Dyers and cobblers work in different rooms...*

**Bernier**

Given above is the description by Bernier, the French traveller, about the workshops and the occupational groups.



Karkhana in the Red Fort: A painting

Karkhanas were the centres that produced and supplied goods for the palaces of the Mughal kings and nobles.



Which occupational groups could be found in the Karkhanas?

## Social life

Listen to the description about the social life in India by Tavernier, the French traveller, who visited India during the Mughal period.

*The lifestyle, dressing, and food habits are extensively varied across India. Extravagantly colourfully dressed people and those sparsely clad were also found here.*

**Tavernier**



Tavernier

What information about the social life of the period can be obtained from this description?

Social and economic inequalities existed among the people back then. Let us see what they were.

- Social status was determined on the basis of caste, occupation, and wealth.
- Kings, lords, priests, officers, etc. enjoyed higher social status.
- Those who engaged in agriculture and handicraft belonged to lower social strata.
- Each caste had its own customs and rituals.
- Evil customs like the sati and child marriage prevailed.

## India, the abode of knowledge

*We, the Indians can speak any language. But it is difficult for others to master our language. Indians do not go abroad in search of knowledge. It is the people from other countries who come to India. Chess, the Panchatantra stories, and Mathematics are the contributions of India to the world.*

**Amir Khusrau**

These are the words of Amir Khusrau, the poet who lived during the Sultanate period.

What can you comprehend from this description about the advancement in learning in India?

We have discussed Nalanda University in the previous class. Several educational centres existed in medieval India as well. Students from different parts of the world flocked to these centres in search of knowledge. The educational centres in Banaras, Agra, Lahore, Kanchi, Mathura, and Delhi were remarkable among them.

Astronomy and Mathematics advanced during the period. Lilavati by Bhaskaracharya was a famous work in Mathematics. Observatories were established in Jaipur, Delhi, Ujjain, and Banaras. Several texts were translated into Persian.



*Organize a seminar on the topic 'The socio economic conditions and the advancement of learning during the medieval period'.*



## Summary

- The travelogues of the foreigners provide information about medieval India.
- During the medieval period several foreigners came to India for trade.
- The rulers facilitated the progress of agriculture and trade.
- Handicrafts and trade centres developed during the medieval period.
- Karkhanas were the centres that produced and supplied goods for the palaces of the Mughal kings and nobles.

- Social and economic inequalities existed during the medieval period.
- India attained economic progress along with advancement in learning.



## Significant learning outcomes

The learner :

- recognizes the importance of travelogues as a source of history.
- analyses the social and economic life in medieval India.
- evaluates different kinds of economic activities that favoured the growth of towns.
- explains the advancement in the field of learning in medieval India.



## Let us assess

- The agricultural activities in medieval India were admirable. Explain.
- How did the spread of weaving and trade facilitate the growth of towns?
- What were the factors that attracted the travellers and traders to medieval India?
- Examine the progress attained by medieval India in the field of learning.





## Extended activities

- Prepare a travelogue based on your study tour.
- List the major trade centres in medieval India and the present states where they are located.
- Read various travelogues and prepare notes.
- List the names of the travellers and their works that you have familiarised in this unit.



## Self assessment

	Completely	Partially	Need improvement
Can recognize the travellers who came to India during the medieval period			
Can analyze the social life in the medieval period from travelogues			
Can recognize the socio-economic conditions of medieval India			
Can comprehend that agriculture was the foundation of prosperity of medieval India			
Can recognize that weaving and trade were the foundation for the growth of towns.			
Can recognize the progress in the field of learning during the medieval period			

3

## Kerala: The Land, the Rain, and the People



"Way... way please..." The porters weighed down by goods from the lorries were shouting. In my journeys to the town with my father, this is the first time that I have come across such a big market.

Pumpkins and cucumbers are heaped. Snake gourd, carrot, cabbage, banana, lady's finger, bitter gourd... How diverse are the vegetables!



As it was the day after a holiday, the market was busy. Where do these vegetables come from? My father mentioned the names of a few places such as Mysuru, Ooty, Mettupalayam, Cumbum,



Theni, Oddenchatram, and Nagercoil. The lion's share of our staple food, rice, comes from far off places like Seemandhra and Odisha. I realized that most items like chilly, coriander, and pulses come from other states. What about flowers? Flowers like jasmine, chrysanthemum, marigold, and lotus that are sold in Kerala also come from beyond the border.

Why do we have to bring most of the vegetables, flowers and cereals that we need from other states? Previously, such a trend was confined to the towns alone. But now, it has become common in rural areas as well. Can't we cultivate these vegetables, flowers and cereals?

What are the essential factors required for their cultivation?

- Fertile soil
- Favourable climate
- Availability of water
- Manpower

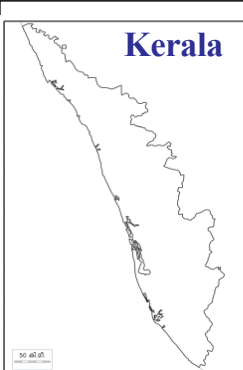



You may add more to this list.





## A comparison with our neighbouring state

Tamil Nadu is one of the lead supplier of vegetables, flowers, and groceries to Kerala. Shall we compare the agricultural situations in Kerala and Tamil Nadu? The comparison may be done based on the factors that we have identified earlier. Look at the following tables.

Major soil types		Availability of water	
 <p><b>Kerala</b></p>	 <p><b>Tamil Nadu</b></p>	 <p><b>Kerala</b></p>	 <p><b>Tamil Nadu</b></p>
<ul style="list-style-type: none"> <li>Alluvial soil</li> <li>Laterite soil</li> <li>Forest soil</li> <li>Red soil</li> </ul>	<ul style="list-style-type: none"> <li>Red soil</li> <li>Black soil</li> <li>Laterite soil</li> <li>Coastal alluvium</li> </ul>	<ul style="list-style-type: none"> <li>• Annual rainfall 300 cm</li> <li>• 44 rivers</li> <li>• As rainfall is sufficient, irrigation is not necessary in most places.</li> </ul>	<ul style="list-style-type: none"> <li>• Annual rainfall 95.9 cm</li> <li>• 14 rivers</li> <li>• As rainfall is scanty, irrigation is essential.</li> </ul>

Kerala and Tamil Nadu have almost the same soil types. But alluvial soil, which is ideal for agriculture, exists in Kerala. In the amount of rainfall received as well, Kerala is far ahead of Tamil Nadu. What other inferences can be made?

Aren't you convinced that Kerala is suitable for agricultural practices? We used to utilize these favourable conditions well. In Kerala the conditions are favourable for the growth of not only coconut, paddy, tapioca, yam, and elephant foot yam, but also spice crops like pepper, ginger, and cardamom.

Let us examine the physiographic characteristics and the resultant agricultural diversity of Kerala.

### The physiographic diversity and agriculture in Kerala

You have learned in the previous classes that Kerala can be physiographically divided into highland, midland, and lowland based on the altitude. The crops cultivated in each of these

physiographic units have certain peculiar features. Our physiography is suitable for the cultivation of a variety of crops.

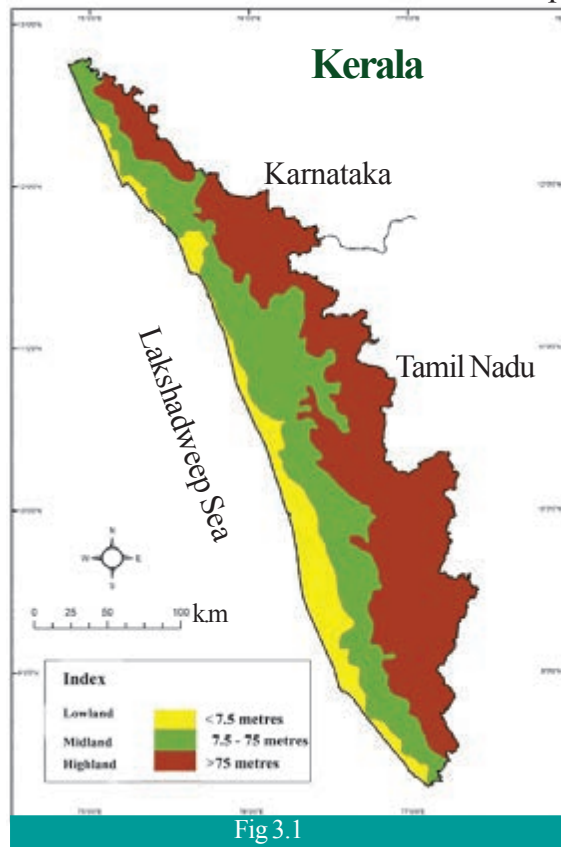


Fig 3.1



## Highland



Fig 3.2

Rain, mist, and cool weather prevail in our eastern highlands. This region is part of the Sahyadri ranges, lying well above the sea level. The picture (Fig 3.2) shows cardamom and tea, the crops cultivated here. The following are the geographical factors required for the cultivation of these crops

- Temperature below 30° Celsius
- Abundant rainfall
- Well drained soil

Identify the location of the highland from the given map (Fig.3.1). Here the climate is favourable for the growth of tea, coffee, and spice crops like cardamom, pepper, ginger, and turmeric. History tells us that it is the fame of these spice crops that made Kerala the favourite destination of foreigners. But the changes in climate of Kerala and land use have affected the agricultural production in this region.



### John Joseph Murphy



(1872 -1957)

*This Irish man is considered as the father of rubber cultivation in India. Along with some friends, he started cultivating rubber on the banks of the Periyar near Aluva in 1902. Later he began cultivating rubber on a commercial scale at Yendayar near Mundakkayam in Kottayam district. Mr. Murphy was not merely a planter. Apart from arranging pensionary benefits for the labourers, he built places of worship, and schools for the villagers.*



Which are the crops that the highland region is suitable for?  
Make a list.  
Why can these crops be cultivated in the highland?

## Midland

The midland is sandwiched between the lowland and the highland. This region in Kerala is characterised by the most diverse crops. Cereals, vegetables, tuber crops, etc. are part of this diversity. Observe the figure (Fig.3.3) and identify the other prominent crops of the midland.



Fig. 3.3

Abundant rainfall, moderately thick layers of alluvial soil in the river basins, and laterite soil along the hilly tracts are the favourable geographical factors for the crop diversity in the midland region. This region is suitable for the cultivation of rubber, which is a chief commercial crop of Kerala. Extensive cultivation of rubber in this region began in the first quarter of the twentieth century. Till then, the region was largely devoted to the cultivation of tubers like tapioca, yam, elephant foot yam, and vegetables. Plantain cultivation was also prominent. But the crop diversity in the midland is fast giving way to rubber. Even small landholdings are now used for rubber cultivation. Once planted, the rubber crop has the merit of long-lasting yield.



*Farmers are turning to rubber cultivation instead of traditional crops. What could be the reason? What changes could this have brought in their lifestyle? Discuss.*

## Lowland



Fig. 3.4

The lowland lies close to sea level. What are the major crops of lowland? Observe the above picture (Fig.3.4). The deposits of alluvial soil in the lowlands are ideal for paddy cultivation and the saline alluvial soil along the coastal stretches, for coconut trees. Such regions where these crops were once widely cultivated gradually got transformed into settlements. This led to a significant reduction in agricultural land. The hike in the price of seeds, fertilizers, and the cost of labour made agriculture less profitable. As a result the farmers were forced to switch to other sectors of employment.



*Haven't you understood that the physiography, climate, availability of water, and fertility of soil in Kerala are ideal for the cultivation of a variety of crops? Still our agriculture faces set backs. Discuss the situation that led to this.*

## A land that embraced agriculture

Kerala was the centre of an agrarian culture. You have learned in the previous classes about the different festivals and customs that prove this. Listen to these proverbs.

*'Kumbhathil mazha peythal kuppayilum manikyam'; 'Kumbhathil nattaal kudatholam chena, meenathil nattaalo meenkanninolan'; 'Thirimuriyaathe thiruvathiranjattuvella'.* These proverbs give evidence to the profound influence of agriculture and climate on our culture.



*Collect proverbs related to agriculture and prepare notes on them.*

## Changing landuse... changing lifestyle

The following table shows the variations in the land area of some important crops in Kerala over the past 50 years.

Crop	Year		
	1961	1987	2011
	(Area in lakh hectares)		
Paddy	7.5	6.04	2.08
Tapioca	2.37	1.72	0.75
Coconut	5.05	7.75	8.21
Rubber	1.33	3.59	5.40

Source: Farm Guide, Dept. of Economics and Statistics



- Identify the crops that recorded a reduction in land area.
- Identify the crop whose land area decreased the most.
- Identify the crops whose land area increased.

What conclusion do you arrive at by analyzing the table based on the above questions?

- Rubber cultivation increased while that of paddy and tapioca declined.
- 
- 

The general landuse of the state has also undergone drastic changes nowadays.

Reclamation of paddy fields and ponds for other uses, destruction of hills, unscientific agricultural practices along the hill slopes, etc. have now become widespread in Kerala.



*How does the reduction in cultivable land area affect the agricultural sector? Discuss.*

### Changing lifestyle

Our elder generations worked hard in farms and fields. As new employment arenas developed, the new generation's affinity towards agriculture declined. As these sectors offered better returns, agriculture got neglected. Keralites slowly shifted from agriculture which generally demands more physical exertion. This caused many changes in healthcare and lifestyle of the people.



Changes in lifestyle are said to be the chief cause of many new generation diseases such as hypertension, heart disease, diabetes, etc. These are collectively known as lifestyle diseases.



List the changes that occurred in the lifestyle of Keralites who shifted from the agro-based culture.

Today waste disposal is one of the major problems faced by the Keralites who shifted from the rural life to an urban one. Even in villages the waste disposal measures are insufficient.

It is high time we prepared and executed plans to transform the bio-degradable waste generated at home, into organic manure. This can be used in our vegetable gardens and farms.

Today there are many ways to treat waste without the stench. The bio-degradable waste generated at home can be used for making vermicompost. Consult with the nearby Krishibhavan for more details on this.

Making biogas from bio-degradable waste is another method. The government provides subsidy for constructing biogas plants.

### Let us find alternatives

You might have seen that Kerala gave up its agro-based culture instead of making use of the potentials of its geographical peculiarities. Is a complete reversal possible? Never. But we can have some alternatives. Here are a few models (Fig.3.5, 3.6).

**പെയിന്റ് ടിന്നിൽ ബാലുവിന്റെ കുട്ടികൃഷി**

സംസ്ഥാന കൃഷിവകുപ്പ് സമഗ്രപച്ചക്കറി വികസനം ലക്ഷ്യമിട്ട് വിദ്യാർത്ഥികൾക്ക് വിതരണം ചെയ്ത പച്ചക്കറിവിത്ത് തിരുവനന്തപുരം പരുത്തിപ്പള്ളി ഗവൺമെന്റ് വി.എച്ച്.എസ്.എസിൽ ആറാം ക്ലാസിൽ പഠിക്കുന്ന ബാലുവിന്റെ കുട്ടിയുടെമേൽ. കുറ്റിച്ചൽ തച്ചൻകോട് ദിലീപ്കുമാറിന്റെ മകൻ ബാലു വീട്ടിലെ ഒഴിഞ്ഞ പെയിന്റ് ടിന്നുകളിലും പഴയ ചാക്കുകളിലും നടീൽമിശ്രിതം നിറച്ചാണ് വിത്തു വിതച്ചത്. വീട്ടുതൊടിയിൽ സ്ഥലം കുറവായതിനാൽ ടെറസിലായിരുന്നു ചാക്കും ടിന്നുകളും തിരഞ്ഞിരുന്നത്. മണ്ണിടുകമ്പോസ്റ്റും, ചാവേറും, ചാണകപ്പൊടിയാണു് നൽകി കർഷകൻ കുടിയായ അച്ഛനും ബാലുവിനു പിന്തുണ നൽകി അമ്പതു ദിവസമാകട്ടെ വെള്ളവിപുത്തു, പടവലും, പാട്രോ കോവർക്കുമായി കൂടെ



**കൊച്ചു സിയയ്ക്ക് മാതൃക അമ്മ**

പുഴാതി നോർത്ത് യു.പി. സ്കൂളിലെ അമ്മാം ക്ലാസ് വിദ്യാർത്ഥിനി സിയാ മോഹൻ പച്ചക്കറി വിൽ മാതൃകയാക്കിയത് അമ്മാണിയ. പുഴാതി കൃഷിഭവനിലെ മിക്ക കാർഷിക പദ്ധതികളിലും അതുപോലെ സജീവ സാന്നിധ്യമുണ്ട്. അതുകൊണ്ടുതന്നെ സ്കൂളിൽ നിന്ന് വീട്ടുവള്ളിലെ കൃഷിയ്ക്കായി പച്ചക്കറി വിത്ത് നൽകിയപ്പോൾ കൊച്ചു സിയയ്ക്ക് വീടിനുചുറ്റും സ്ഥലമില്ലെന്ന് ഒട്ടും വ്യാകുലപ്പെടേണ്ടി വന്നില്ല. മട്ടുപ്പാവിൽ ചാക്കിലും ചട്ടികളിലും മണ്ണുനിറച്ച് പാകിയ ചീര, വെണ്ട, തക്കാളി, വഴുതന, പച്ചമുളക്, ക്യാബേജ്, കോളിവിളവ് എന്നിവയ്ക്ക് നൂറുമണി നൽകി പുഴാതി കൃഷി ഓഫീസർ ബിനുവിന്റെ നേതൃത്വത്തിലുള്ള വിദഗ്ദ്ധസംഘവും.



**അവിതന്റെ അടുക്കളത്തൊട്ടം**

കണ്ണൂർ പാട്ടം കൊട്ടത്തോടി പുത്തലത്ത് ഹൗസിൽ അവിത്ത് അടുക്കളത്തൊട്ടം കരോൽ ആരും നോക്കി ഒഴിഞ്ഞുപോകും. കൊട്ടത്തോടി എൽ.പി. സ്കൂൾ വിദ്യാർത്ഥിനായ അവിത്ത് സ്കൂളിലെ കാർഷിക കൃഷി അഗാധമാണ്. സമഗ്ര പച്ചക്കറിവികസന പദ്ധതിയുടെ ഭാഗമായി സ്കൂളിൽ നിന്നു ലഭിച്ച ചീര, തക്കാളി, വെണ്ട, പടവലും വിത്തുകൾ വിദ്യാർത്ഥികൾ മുതിർന്നവരുടെ സഹായത്തോടെ നട്ടുപിടിപ്പിച്ചപ്പോൾ ഇത് വിജയമാകുമെന്ന് അവിത്ത് ഒരിക്കലും പ്രതീക്ഷിച്ചില്ല. എന്നാൽ അച്ഛനമ്മമാരുടെ പിന്തുണയും കൃഷിവകുപ്പ് ഉദ്യോഗസ്ഥരുടെ മാർഗനിർദ്ദേശങ്ങളും കാർഷികകൃഷി അനുഭവങ്ങളും അടുക്കളത്തൊട്ടത്തിൽ വീഴ് സമൃദ്ധി ഒരുക്കാൻ അവിത്തിന് സഹായമായി.

കൃഷി അറിവ് വേറിട്ടൊന്നുവെക്കാനാവാതെ വിദ്യാർത്ഥികൾക്ക് സമ്പാദനം കൃഷിയിലേക്കുമാറ്റി മാറ്റി കൃഷിപഠനത്തോടു കൂടിയ പഠനത്തോടു കൂടെ വികസനവും ആഗോള ഉണർത്തിയെന്നും അവിത്ത് സന്തോഷപ്പെടുന്നു. വെണ്ടയെ കളിച്ചുകളയുന്ന സമയത്ത് ചുറ്റുമുറുമാൽ കൃഷിപ്പണിയിലേർപ്പെട്ടപ്പോൾ കൈനിയമ കിട്ടിയത് വിഭജിച്ചാൽ നാൽ പച്ചക്കറികൾ.

Fig. 3.5





## Alternatives and possibilities



### Why cry for land!



*I would like to cultivate... but no land. This is one of the frequent complaints among urban dwellers. Hydroponics is a solution. Here the required nutrients are dissolved in water and given to the plants. Husk, gravel, etc. can be given for the spread of roots.*

*Vertical net farming is helpful for people with very little space available. In this method low-cost nets are vertically tied to poles or bamboo. As the pulses and bitter gourd grow vertically, space won't be a problem.*

## From file to field



Fig 3.6



### Bumper yield from ecofriendly farming

*Mr. P J Thomas is a pioneer eco-friendly farmer in the Kuttanadu region. His agricultural experiments were on paddy cultivation. Don't you want to know more? Listen.*

*Cow dung, cow's urine, soil from the paddy field, etc. are mixed in a particular proportion and kept enclosed for a few days. This mixture is sprayed in the paddy field. As it is an organic mixture, it won't do any harm. The process was repeated three times at an interval of 15 days. The healthy rice plants gave a good yield. While other fields yielded 2.5 tons of rice per acre, Mr. Thomas harvested 3 tons of rice!*

Can't we adopt some of these? Such actions would be helpful in sustaining soil. It would be beneficial if we could retain the moisture of the soil and coolness of nature.

### Government incentives

The government has designed various programmes and schemes to reclaim Kerala's agricultural heritage. Vegetable and Fruit Promotion Council, Kerala (V.F.P.C.K.) is one such endeavour.

The State Horticulture Mission functions with the aim of promoting the cultivation of different varieties of fruits, vegetables, spice crops, mushroom, and medicinal plants. Promotion of beekeeping is also an aim of this Mission.

The agriculture department, Kudumbasree mission, and several other agencies help the government in promoting agriculture.



### Modern agricultural techniques

#### **Greenhouse farming**

*In severely cold regions, crops are grown in glass-roofed rooms in order to protect them. This method is known as greenhouse farming.*

#### **Precision farming**

*This is the method of giving adequate care (water, manure, etc.) for each crop and soil type precisely at different stages. Any region having ample sunlight and well-drained soil is suitable for precision farming.*

#### **Fertigation**

*Fertigation is the method of giving water and manure drop by drop. As the chemical fertilizers used are completely soluble in water, the plants can fast absorb them.*





## Farmer's Day

**Chingam 1 is the Farmer's Day.  
How do you plan to celebrate Farmer's Day in your school this year? Discuss.**

## Green Kerala

The physiography, soil, and climate of Kerala are favourable for agriculture. We Keralites have to change our lifestyle into one that utilizes these.

Each family cultivating vegetables in their courtyard for their need... The vegetables required for the noon meal programme in the school are grown in the school compound itself... Poison-free cereals and vegetables everywhere... As the people work hard in the fields and farms they don't have lifestyle diseases...

We need such a tomorrow. We can achieve this with ease, if we all work together.

Let us join our hands to revive the agro-based culture of our land whose physiography, soil, climate, rain, and rivers provide ideal conditions for agriculture.



## Summary

- The physiographic diversity of Kerala provides favourable conditions for agricultural diversity.
- Changes in landuse have occurred in Kerala. This has influenced the extent of agricultural land.
- Use of bio-fertilizers is a truly eco-friendly method of cultivation.
- We have to chalk out plans to reclaim our agro-based culture.
- There are several government programmes to encourage agriculture.



## Significant learning outcomes

The learner :

- identifies and present the fact that Kerala depends on the neighbouring states for food.
- identifies and presents the idea that the geographical factors in Kerala are favourable for agriculture.
- recognizes and explains that the diversities in Kerala's physiography, climate, and soil types are the reason for its agricultural diversity.
- is able to explain the changes in Kerala's agricultural landuse.
- develops an attitude to involve in measures for self-sufficiency in food.



### *Let us assess*

- Do the diversities in Kerala's physiography, climate, and soil types influence its agricultural diversity? Explain with suitable examples.
- Each one has to work for self-sufficiency in food. As a student what measures can you adopt for this?



### *Extended activities*

- Encourage farmers to engage in joint cultivation in the fallow lands. Discuss in the class the merits of joint labour in irrigating, weeding, and manuring.
- Collect information on new farming techniques by interviewing the Agricultural Officer.

# 4



## Production Process

You may remember that in ancient times our ancestors lived in caves, gathered fruits, and hunted animals. Can we imagine such a life today? Now we produce goods ranging from paper pins to artificial satellite. List the names of the goods you frequently use in a day.

- Pen
- Book
- 
- 

What is meant by goods? Those things which are visible and tangible and can satisfy human wants are regarded as goods. See whether the products you listed above have these features.



We use the service of a large number of people for the production and distribution of the goods you listed. What is meant by service? Let's see an example. The books you use might have been printed in a distant press. This book reaches you as the result of the involvement of many people. Who could they be?

- Labourers
- Transporters
- Book distributors
- 

All these people provide services. Services are invisible and intangible but can be experienced. Teaching is such a service. We also receive services from doctors, bank officers, etc.

If we prepare a list of the goods and services we use daily, it will be a long one. All these goods and services are used to satisfy our wants. So we have to produce them.

## What is production?

Production is the process of creating goods and services to satisfy human wants. Product is the result of the production process. Find out the stages involved in producing paddy from figure - 4.1

- Ploughing
- Sowing seeds/planting seedlings
- Weeding
- Manuring



Fig. 4.1

- Harvesting
- Threshing
- Collecting rice grains

What are the factors involved in the process of paddy production?

- Labourers
- Natural resources (land, water,...)
- Man-made goods (fertilizers, seeds, agricultural equipments,...)

Haven't you understood that the production process can be completed only with the involvement of many factors? Such factors involved in the production process are called factors of production.

## Factors of production



Fig. 4.2

The given collage (Fig 4.2) includes the picture of a shoe factory. Which are the factors involved in the production of shoes?

- Buildings
- Machinery
- Workers
- Electricity
- Entrepreneur
- 

Discuss how these factors help in the manufacturing of shoes. The factors of production can be classified into four:

- Land
- Labour
- Capital
- Organization

Let us examine the features of each.

### Land

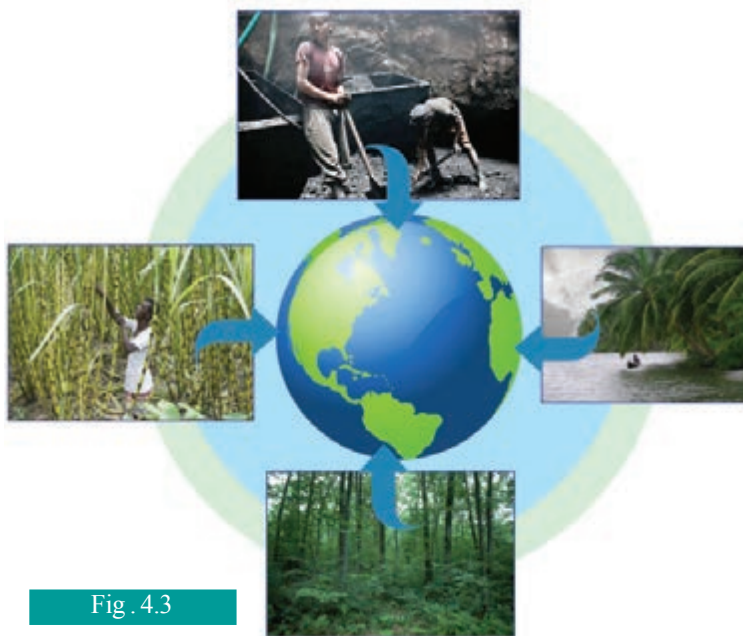


Fig. 4.3

The term land as a factor of production is used in a broad sense. All natural resources used in the production process are implied in the term land. All resources on earth are regarded as land.

What all natural resources are included in 'land' as a factor of production? Try to list them.

- Soil
- Water
- Forest
- Air
- Coal
- 
- 

Discuss the features of land as a factor of production based on the indicators given below.

- Which are the natural resources included in land as a factor of production?
- Can we increase the area of land in accordance with our requirements?
- Can we enhance the fertility of land? If so, how?
- Can we shift land from one place to another?

All the factors involved in the production process get rewards. Land as a factor of production gets rent as its reward.

### Labour

Labour is an active factor in the production of a product. The labourers use their manpower in the production process. We can see how the laborers use their manpower if we visit a coir production unit. (Fig 4.4)





Fig . 4.4

- To make coconut fibre suitable for coir manufacturing
- To dye suitably
- To operate the machinery
- For product distribution
- 

We can see that the physical, mental, and intellectual skills of the workers are used here. If the use of these skills to produce goods and services is rewarded, it is called labour. Since family members engaged in household activities do not generate rewards, it is not regarded as labour.

Wage is the reward for labour. This is mostly paid in cash. Sometimes, instead of cash, goods are given as rewards. For example, occasionally coconuts are given as reward for plucking them.



Fig. 4.5

Manpower is used for any labour. The manpower wasted today will be lost. It cannot be saved for tomorrow. The manpower of the labourers can be enhanced through education or training.

## Capital

Capital is essential for the production of a product and for providing the basic facilities for the same. It is necessary for establishing a factory, buying equipments, paying wages to labourers, buying raw materials for production and the like.

Tangible and visible man-made things used for production are called capital. Computers, vehicles, and machines which can be used in production are also considered as capital.



## Knowledge Capital

*Today we live in a knowledge society. Information technology and knowledge play a very important role in production. The effort to acquire knowledge capital is now prevalent in the world.*

## Features of capital



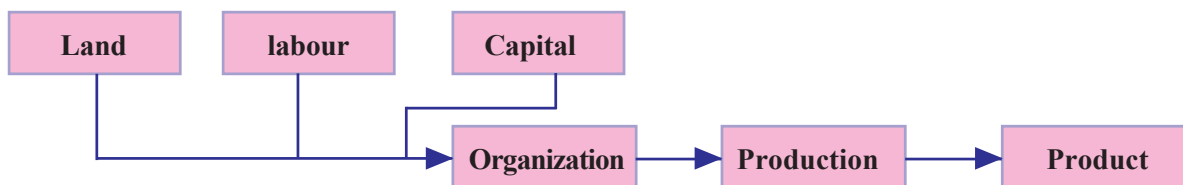
Fig. 4.6

- Capital helps the other factors of production.
- Capital enhances the production skills of the labourers.
- Capital has mobility.

Like other factors of production, capital also gets reward. Interest is the reward for capital.

## Organization

Organization implies the co-ordination of various factors of production like land, labour, and capital. The person who co-ordinates is called an organizer or entrepreneur.



You have seen the chart depicting the role of an organizer in the production process. Do you now realize that the organizer plays a very vital role in the production process?

Profit is the reward for the organizer. Find out the features of the organizer based on the indicators given below.

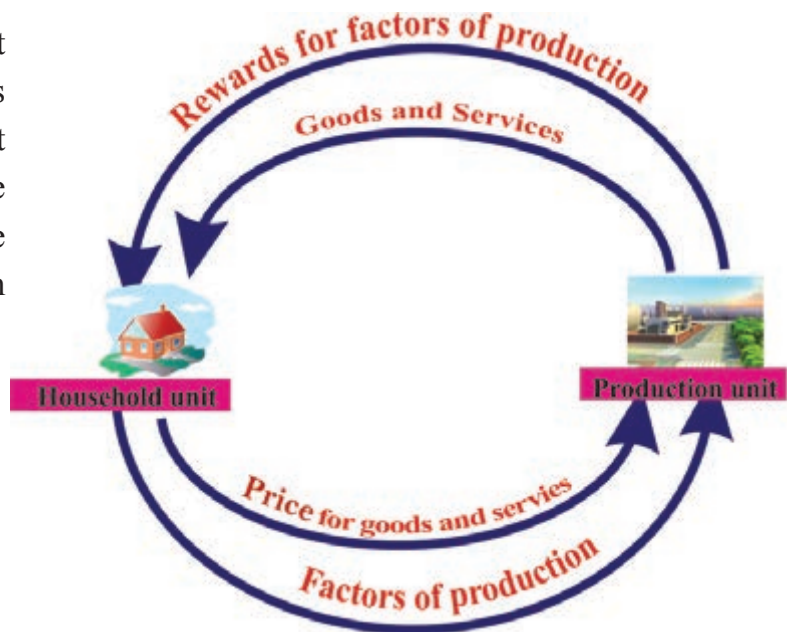
- What is the objective of an organizer?
- What are the responsibilities of an organizer in the production process?
- What are the factors that the organizer should co-ordinate?
- How can the skill of a co-ordinator be enhanced?

The co-ordinated functioning of the factors of production leads to production, which is an economic activity and results in products. To satisfy human wants, products are essential. This makes production a continuous process. Let us see how it becomes a continuous process.

## Circular flow of economic activities

See the figure (Fig 4.7) given below depicting the circular flow of economic activities.

Here the production unit produces goods and services and the household unit consumes them. We have seen that the products are consumed to satisfy human wants.





Human wants are many. When we satisfy one want, another emerges. With change in wants, goods and services also change correspondingly and they need to be produced. Hence, this process is continuous. What all can be found out from the figure above? (Fig 4.7)

- The household unit supplies the land, labour, capital, and organization to the production unit.
- The household unit is given rent, wages, interest, profit, etc as reward by the production unit.
- The production unit supplies goods and services to the household unit.
- In exchange for the goods and services received, the household unit pays price to the production unit.

Since production and consumption are continuous, the economic activities follow a circular pattern.



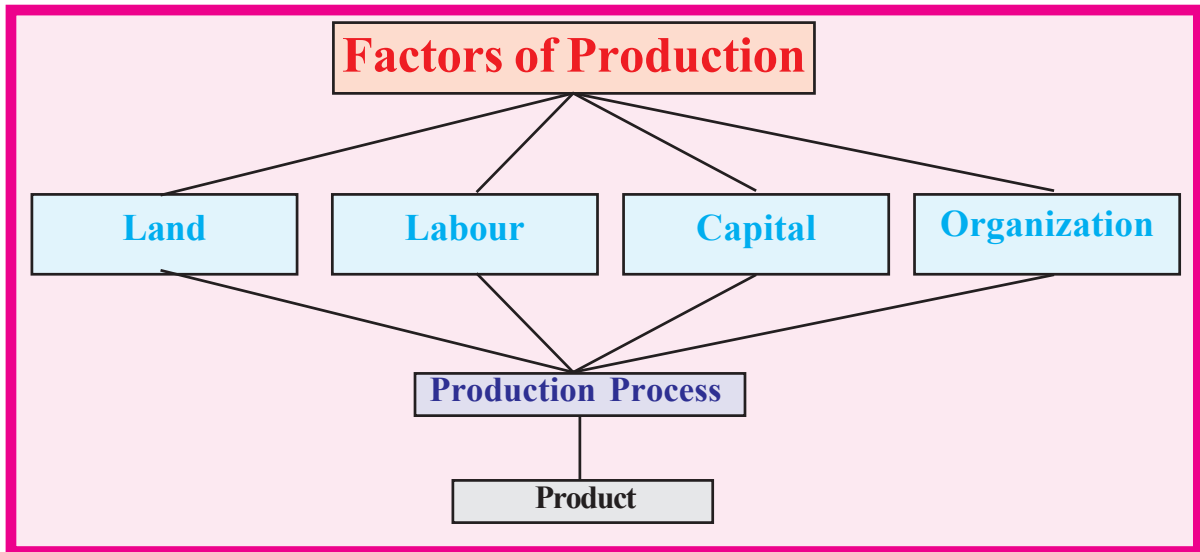
*Visit any production unit in your locality and prepare a note on how each factor of production helps in the production process.*



## Summary

- Goods are things that are tangible and visible and are used to satisfy human wants.
- Services also satisfy human wants but are intangible and invisible.
- To consume goods and services in accordance with our requirements, we need to produce them.
- Land, labour, capital, and organization are the factors of production.
- The characteristics of each factor of production are different.
- Rent, wage/salary, interest, and profit are the rewards for the factors of production land, labour, capital, and organization respectively

- The continuous process of production and consumption results in the circular flow of economic activities.



## Significant learning outcomes

The learner :

- categorises the features of goods and services which are used to satisfy human wants.
- presents through different means the features of the factors of production land, labour, capital, and organization
- recognizes and describes the rewards for the factors of production.
- explains the circular flow of economic activities.



## Let us assess

- Goods and services are used to satisfy human wants. How do they differ from each other?
- The responsibility of an organizer is to co-ordinate the other factors of production. Substantiate.
- Prepare brief notes on the following factors of production.
  - Labour
  - Capital
- Explain the circular flow of economic activities with the help of a diagram.



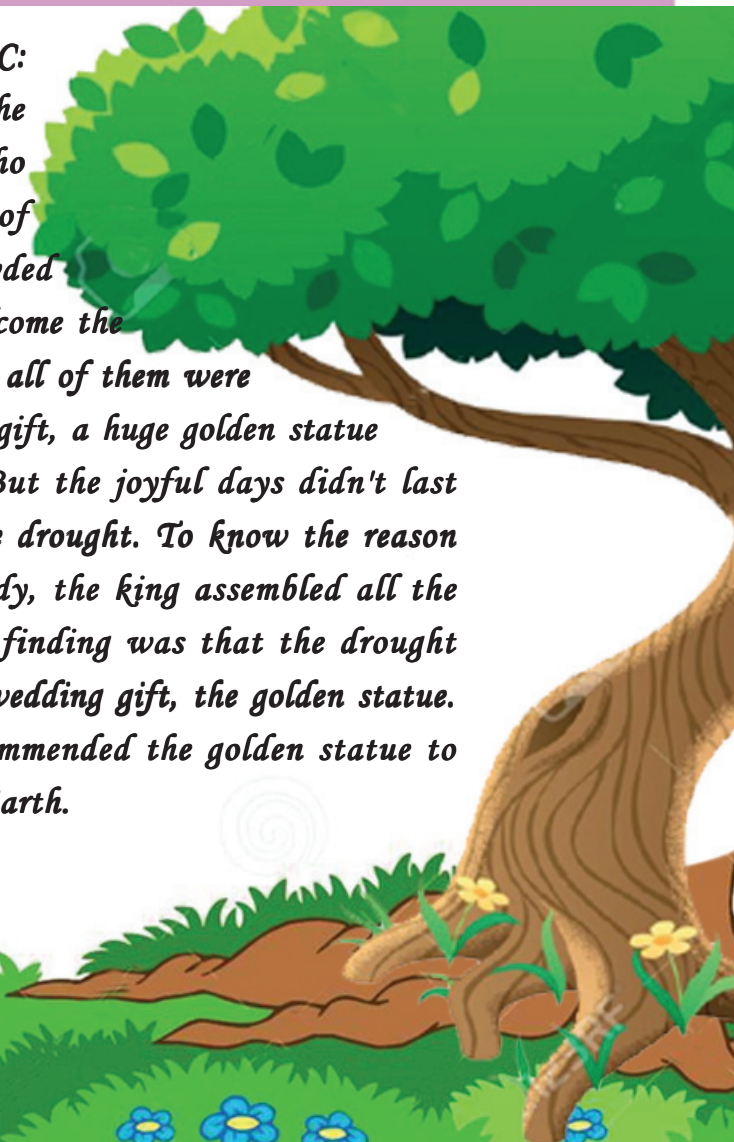
### Self assessment

	Completely	Partially	Need improvement
Can differentiate between the goods and services which are used to satisfy human wants.			
Can explain the production process with examples.			
Can explain the circular flow of economic activities with the help of a diagram.			



## The Earth: Myth and Reality

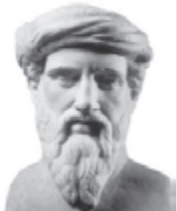
*An ancient town in the 2nd Century BC: The people are celebrating the day of the marriage procession of their prince, who got married to the beautiful princess of the neighbouring country. People crowded on either side of the royal path to welcome the prince. Rather than seeing the princess, all of them were curiously viewing the prince's wedding gift, a huge golden statue with human head on a horse's body. But the joyful days didn't last long. The town was struck by a severe drought. To know the reason for the drought and to prescribe remedy, the king assembled all the great astrologers of the land. Their finding was that the drought was brought about by the prince's wedding gift, the golden statue. To remedy the situation, they recommended the golden statue to be thrown from the edge of the Earth.*







Thales



Pythagoras



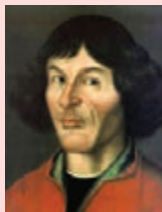
Aristotle



Aryabhata



Magellan



Copernicus



Issac Newton

Haven't you read the story? Do you think they could throw the statue from the edge of the Earth?

For a long time the Earth was believed to be flat. The concepts related to the shape of the Earth were confusing right from the ancient times. Quite often, the stories then prevalent about the shape of the Earth were highly imaginative and interesting.

### Shape of the Earth: Beliefs to reality

- The concept of a spherical Earth was first put forward by the Greek philosopher Thales in the 7th century BCE. However, he believed that this sphere floated on water.
- The Greek philosophers Pythagoras and Aristotle established that the Earth is spherical in shape. The period saw numerous oppositions against this view. Later Copernicus strongly supported this concept.
- Aryabhata, the Indian astronomer strongly believed the shape of the Earth to be spherical and that it spins on its own imaginary axis.
- Years later Magellan's voyage round the world proved that the Earth is spherical.
- Sir Issac Newton proved that the Earth is not truly spherical in shape, but slightly flattened at the poles and bulged in the middle.

The spherical shape of the Earth which is slightly flattened at the poles and bulged at the Equator is known as Geoid. The word Geoid means 'earth-shaped'.

Nowadays the shape of the Earth is quite evident from the satellite images.

## How big the Earth is!

How far is your school from home? How long will it take to cover this distance on foot? Do you know how long it took Jean Beliveau, the Canadian explorer to trek and sail round the world?

About 11 years!

Now can't you imagine how big the Earth is? The circumference of this sphere on which we live is about 40000 km.



## Where on Earth am I?

Have you ever thought about your position on the Earth? Your answer may be - in Asia, in India, in Kerala and so on. There are exact locations for each and every feature or place on the Earth. It is determined on the basis of certain measurements.

Let us see how the location of a feature or a place is determined.

Try to note down the position of your seat in the classroom. Note down the position of each student with reference to the table in the class



### Do you know who first attempted to find out the size of the Earth?

*Solely based on the angle of incidence of the Sun's rays, Eratosthenes, the Greek philosopher calculated the circumference of the Earth to be 2,50,000 stadia (the then commonly used unit for distance in Greece), which is surprisingly close to its real circumference. Remember that there was no modern means to measure the same during that period.*



For example, who sits third on the second bench, right to the table?



Fig 5.1

### Let us play and learn

We can play an interesting game with a board with named grids and a button as shown in the figure (Fig 5.1). Two students can sit, on either side of the board. Let player A name a cell. For example, B3. If player B places the button on the exact cell, he/she gets one point. Now you can switch

roles. Player A can also score a point by placing the button correctly. Each student can have ten attempts. Make sure that the grids are located in a stipulated time.

How can we find out the position of a thing or region on this spherical and extensive Earth. Is it by drawing lines?

See the figure of the ball given (Fig 5.2). How can you describe the location of the picture pasted on it?



Fig 5.2

- At the top
- At the bottom
- In the middle
- Along the edge

None of the above answers are correct as the shape of the ball is spherical. How can we determine the exact location? Shall we try drawing vertical and horizontal lines on the ball?

Look at Fig 5.3 and try to find out the position of the picture on the ball with the help of the lines drawn.



Fig 5.3

## Lines on the Earth

The location of any region on the Earth can be determined based on such lines. Let us see how. These lines are drawn at exact angular measurements on the spherical surface.



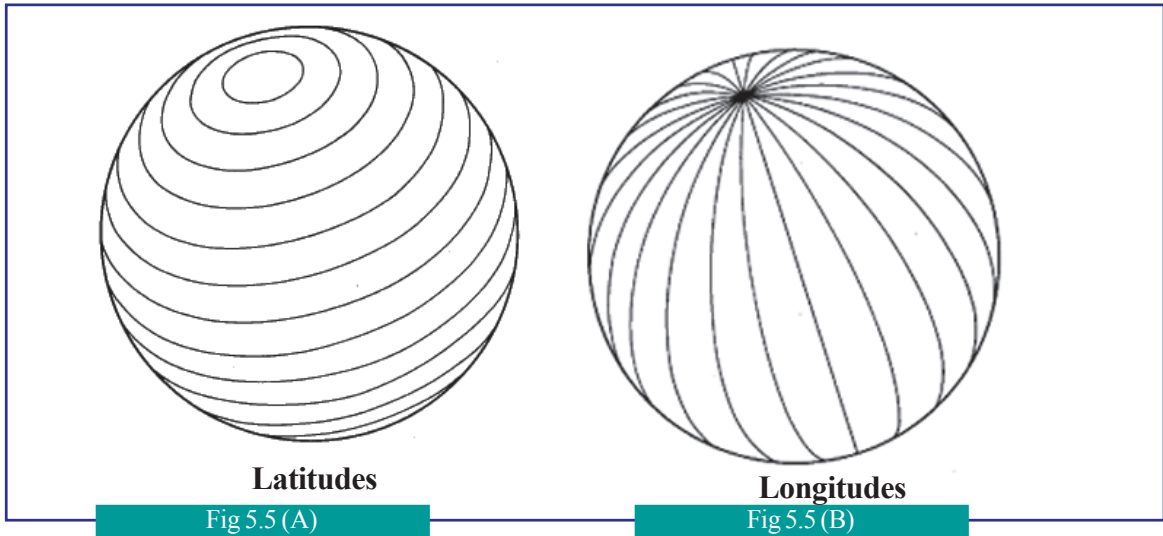
What is the angular measurement of a circle?



Fig 5.4



Observe Fig 5.4. Can't you see the vertical and horizontal lines marked on the globe? The vertical lines are called longitudes and horizontal lines are called latitudes. Such lines shown on the globes and maps are imaginary lines.



## Latitudes

Latitude is the angular distance to any point on the surface of the Earth from the centre. By joining the same angular distances, we get the lines of latitudes.



## Axis

North Pole



*Insert a straight pole through the centre of a ball and let it spin. This pole is the axis of the ball. Imagine there is a straight pole passing through the centre of the Earth. This imaginary line is the axis of the Earth. The Earth rotates on this tilted axis.*

## Let us draw the latitudes

Take a ball which is not hollow and cut it into two equal halves. With the help of a protractor can't you label the angular distances as shown in the picture?

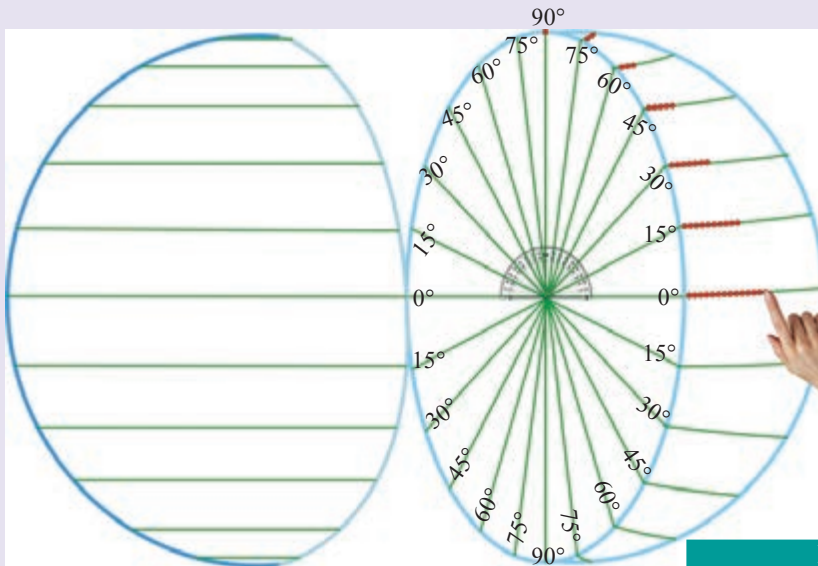


Fig 5.6

After marking the angular distances from  $0^\circ$  to  $90^\circ$  join the same angular distances by sticking dots along the surface of the ball as shown (Fig 5.6). Now lines can be drawn instead of dots to join the same angular distances (Fig 5.7). Repeat the same procedure on the other half of the ball as well.

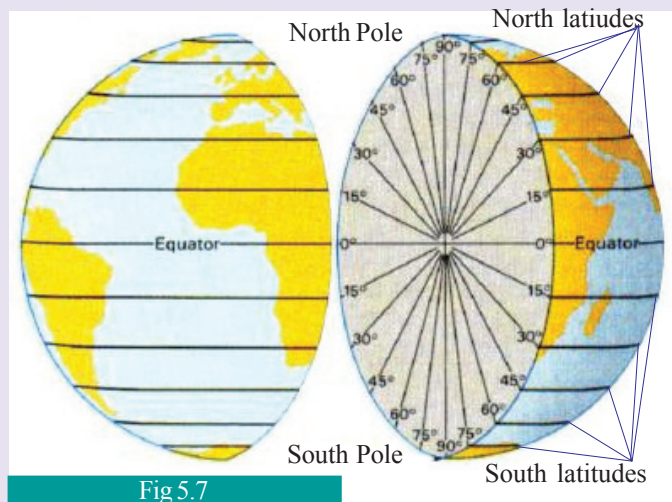


Fig 5.7

By joining the two halves of the ball you will get a sphere with circles marked on them. It is based on this mathematical principle that the imaginary lines of latitudes are drawn on the globe.

Observe the globe (Fig 5.8). You can see that the size of the circles decrease with their position away from the centre. Haven't you noticed that the number of dots along the latitudes at same angular distances decreased gradually? The latitudinal line along the middle of the globe is the longest one. This line of latitude is called the Equator. The angular measurement of the Equator is  $0^{\circ}$ . Check whether the latitudes at  $90^{\circ}$  North and  $90^{\circ}$  South of the equator are circles. These points are known as the North and South Poles respectively. All the other lines of latitudes are circles drawn parallel to the Equator. Observe Fig 5.8 and identify the important lines of latitudes.

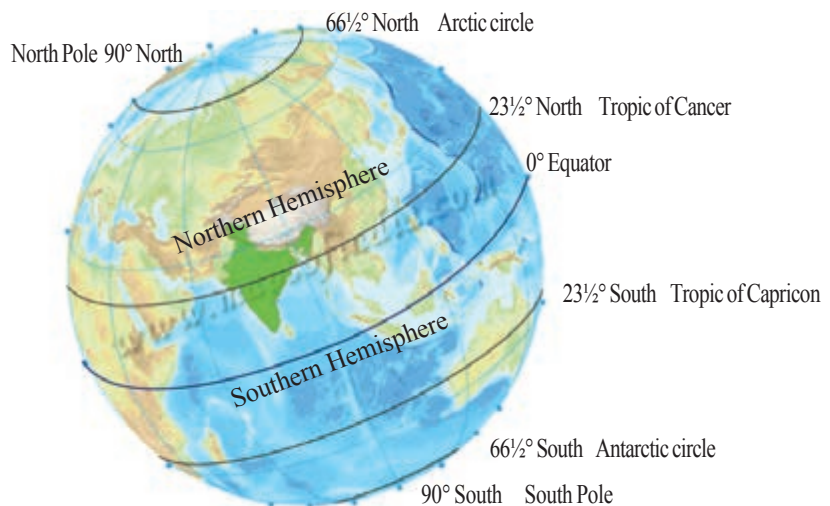


Fig 5.8

*Find out the following:*

- Line of latitude dividing the Earth into two hemispheres
- Hemisphere to the north of the Equator
- Hemisphere to the south of the Equator
- The biggest circle of latitude



Latitudes in the northern hemisphere are called north latitudes and those in the southern hemisphere are called south latitudes.

## Longitudes

See the lines connecting both the poles on the globe. These are the longitudes. These are curved lines perpendicular to the latitudes.

### Let us draw the lines of longitudes

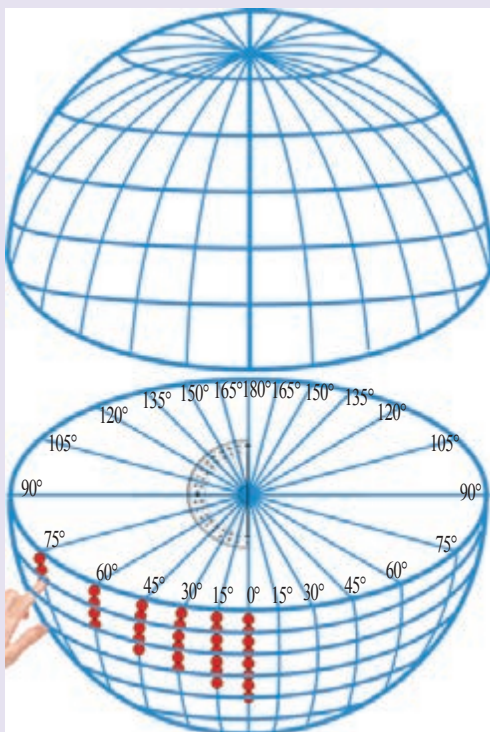


Fig 5.9 (A)

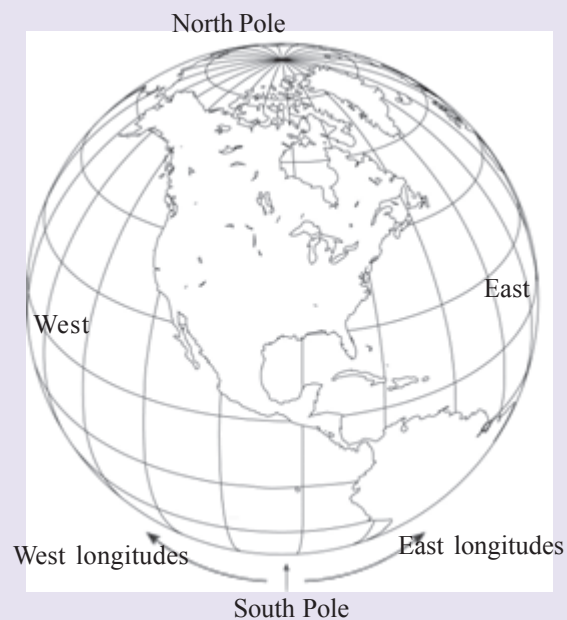


Fig 5.9 (B)

Draw a line connecting the North and South Poles on the same ball on which the latitudes are drawn. The line passes perpendicular to the Equator. Cut the ball into two equal halves as shown. Considering the line you have drawn as  $0^\circ$ , mark the angular distances towards the left and right using a protractor (Fig 5.9 A). Join each angular distance to the pole by sticking dots on the ball. Now lines can be drawn instead of the dots. After repeating the same procedure over the other half, rejoin the two halves. You will get a sphere with curved lines connecting both the poles (Fig 5.9 B). These lines are called longitudes.  $0^\circ$  longitude is known as the Standard Meridian.



Longitudes are angular distances east and west of the Standard Meridian. Lines of longitudes are imaginary lines connecting the same angular distances with reference to the Standard Meridian. Observe the figure (Fig 5.10). All the lines of longitudes converge at both the poles. There are 180 degrees of longitudes on either side of the Standard Meridian.

Identify the Standard Meridian in the figure below. What is the angular distance between the Standard Meridian and the line of longitude opposite to it?

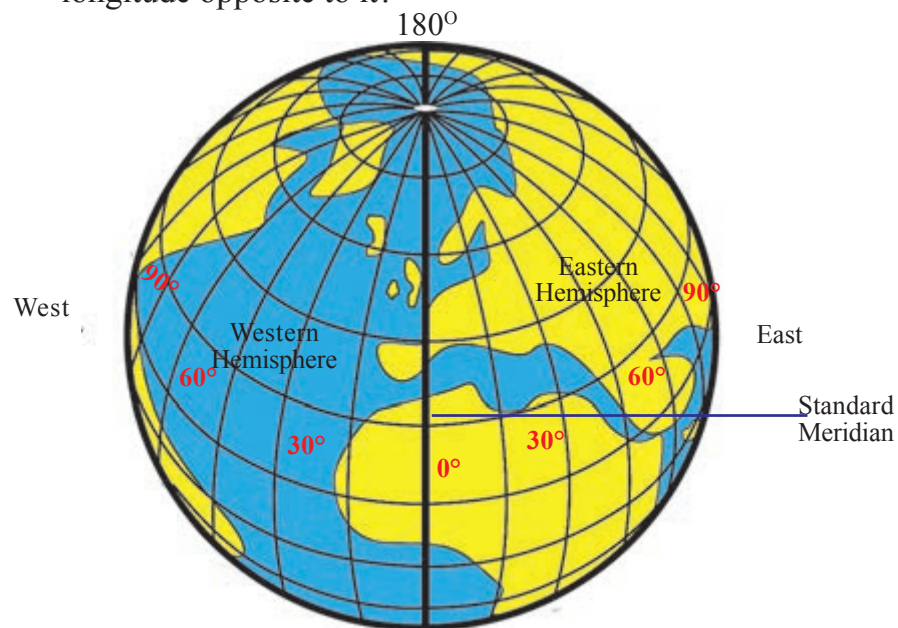


Fig 5.10



*Identify the lines of longitudes which divide the Earth into eastern and western hemispheres.*

The longitudes along the eastern hemisphere are called the east longitudes and those along the western hemisphere are called the west longitudes.

### Try again....

In the earlier part of the unit you were asked to state the location of the picture on the ball. Will you be able to do the task now?

The exact location of places on the Earth is determined based on the latitudes and longitudes.

Identify the location of India from the given map (fig 5.11) in terms of latitudes and longitudes.

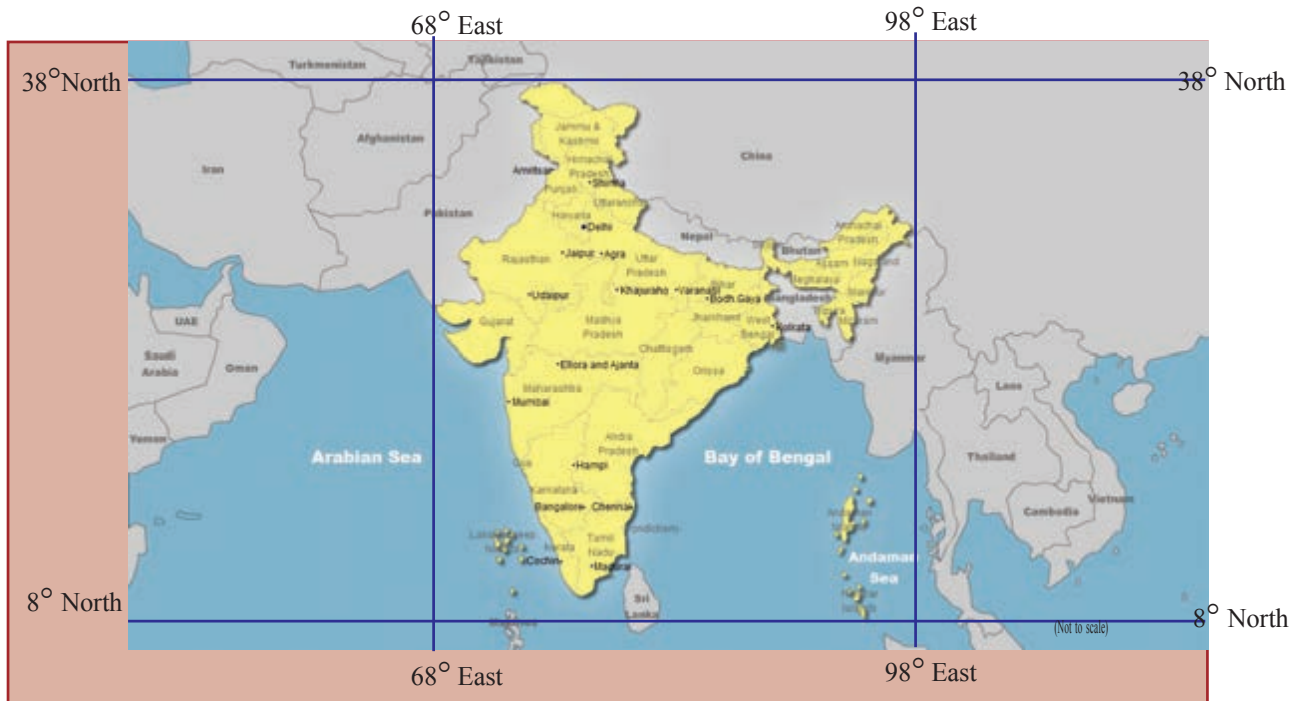


Fig 5.11

Complete the following table with the help of the globe and the world map.

Country	Latitudes	Longitudes
1. India	Between 8° North and 38° North	Between 68° East and 98° East
2. Nepal		
3. The USA		
4. China		

## Day and night



Fig 5.12

Look at the figure 5.12. Aleena and Ammu are two children living at places located on almost opposite faces of the Earth. Aleena lives in California in the USA and Ammu lives in Kerala. From the globe you can understand that these places are located on opposite faces of the Earth. While Ammu goes to school in the morning, Aleena is sleeping at night. While Aleena goes to school in the morning, it will be night at Ammu's place. When it is day on one face of the Earth, the opposite face experiences night. Thus day and night are experienced one after the other. Let us see how this happens through a simple experiment.



Fig 5.13

As shown in the picture (Fig 5.13) place a globe against any source of light. Now one face will be illuminated and

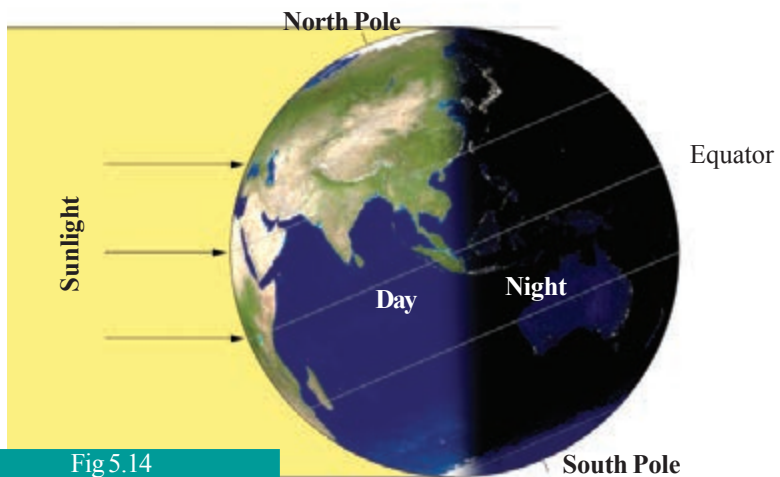


Fig 5.14

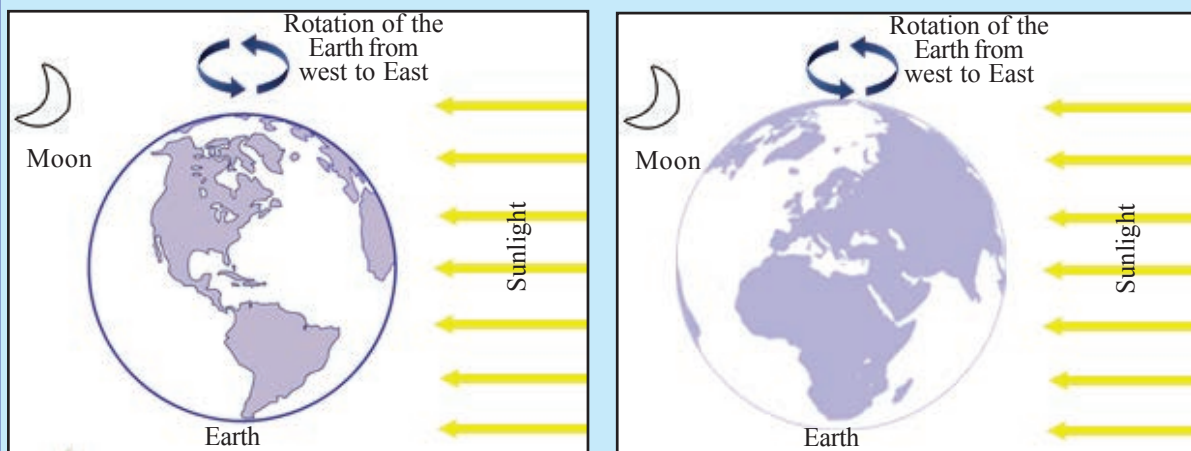
the other will be in the dark. Turn the globe. You can see that the illuminated face turns dark and the dark face turns illuminated (Fig 5.14).

It is in the same manner that day and night occurs on the Earth. Don't you know the source of light for the Earth is the Sun? You have already learned that the shape of the Earth is spherical and that it spins on its own axis. The spinning of the Earth on its own axis is called rotation. The part of the Earth facing the Sun due to rotation gets illuminated and experiences day. As the opposite face does not get sunlight, night is experienced there. Day and night is experienced one after the other due to the rotation of the Earth.

The Earth takes 24 hours to complete one rotation. It is considered as a day.

See whether the face of the Earth where you live is now facing the Sun or not.

### Work sheet



In the above pictures colour the face of the Earth experiencing day with yellow crayon and the face of the Earth experiencing night with black crayon.



## Sunrise and sunset

The change in the position of the Sun is experienced due to the rotation of the Earth.

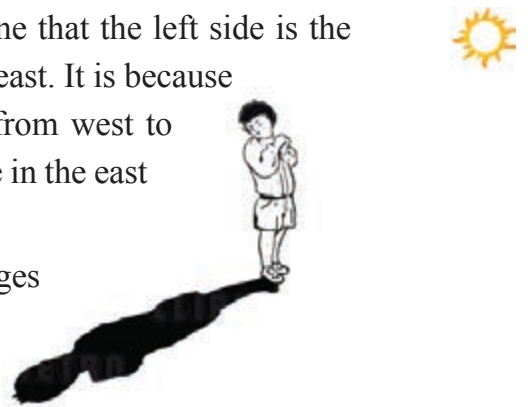
You might have noticed that the trees and buildings seem to move in the opposite direction while we travel in vehicles. Do they really move? Similarly, the Sun which is far away from the Earth seems to rise in the east and set in the west.

Turn a globe placed on the table from left to right as shown in the picture (Fig 5.15). Imagine that the left side is the west and the right side is the east. It is because of the rotation of the Earth from west to east that the Sun seems to rise in the east and set in the west.

Haven't you noticed the changes in the shadows over the day?



Fig 5.15



### Work sheet

Draw the Sun at the proper positions with reference to the shadows given.



## Changing seasons

Along with the rotation on its axis, the Earth also moves around the Sun. The movement of the earth around the Sun is called revolution.



Do you know why these seasonal changes occur?

It is due to the revolution of the Earth that we experience different seasons.

You have learnt in the previous class that all the planets in the Solar System revolve around the Sun. Look at the picture (Fig 5.16)

Do you know how long it takes for the Earth to complete one revolution around the Sun? Actually it will take  $365\frac{1}{4}$  days, which is considered as a year.

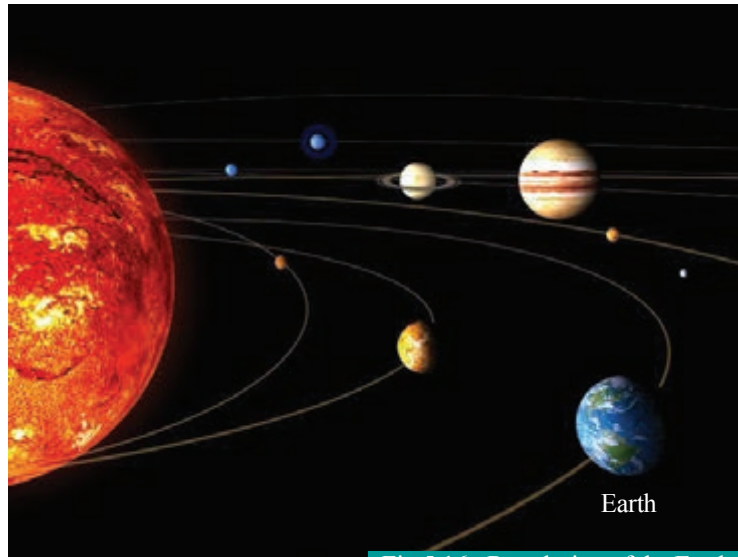


Fig 5.16 - Revolution of the Earth



### Wow...What a speed!

*Do you know the average speed of an aeroplane? It is about 560 km per hour. But the speed of revolution of the Earth is 96000 km per hour.*



### Leap Year

*To complete one revolution, the Earth takes  $365\frac{1}{4}$  days. But a year normally has 365 days. The remaining  $\frac{1}{4}$  part of a day will be considered as a full day once in every four years. Thus every fourth year has 366 days and is called a Leap Year*



*Think, what might happen if I stop revolving around the Sun*

*Oh! That is why I have birthday only once in every four years as I was born on 29th February.*



You can see the 'Rotation and Revolution' in  
Eduubuntu-School Resources - K Star

## The Earth: My lifelong friend

<p>1. The things you like on the Earth</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>2. The country you like the most and its location based on the latitudes and longitudes</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>
<p>3. Problems faced by the Earth</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	<p>4. Suggestions to overcome the problems</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>

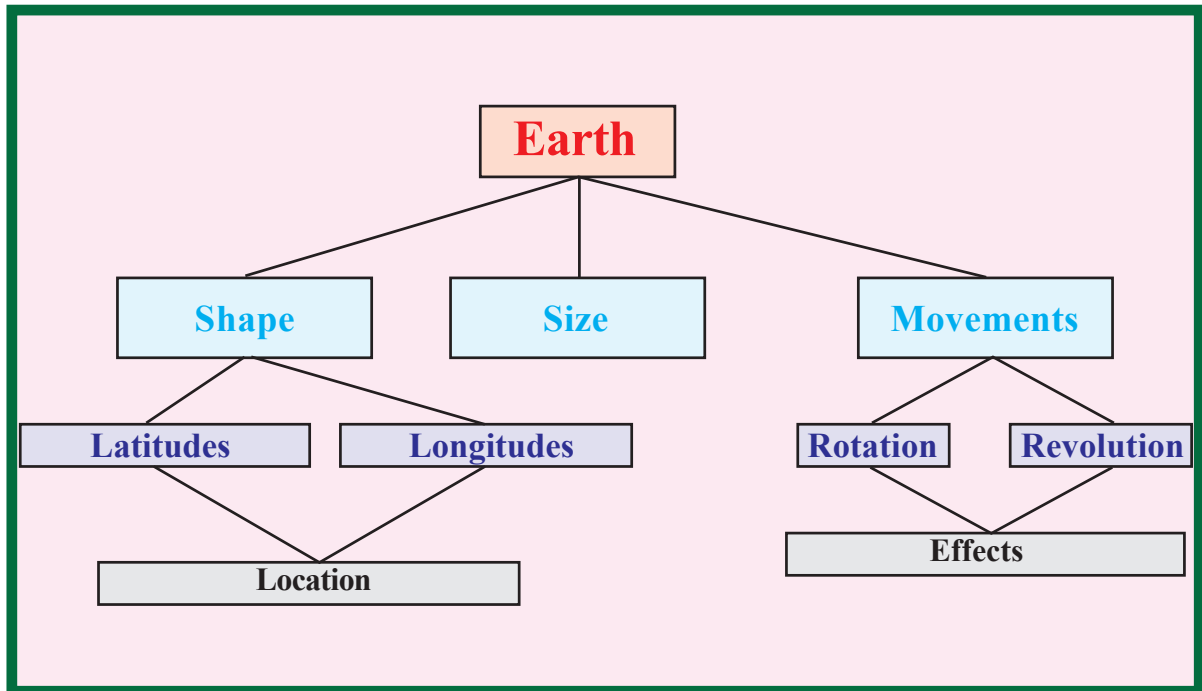


### Summary

- The unique shape of the Earth is called Geoid
- The latitudes and longitudes are imaginary lines drawn based on the angular distances from the centre of the Earth.



- The locations on the Earth are determined based on the lines of latitudes and longitudes
- Day and night are caused by the rotation and seasons are caused by the revolution of the Earth



### Significant learning outcomes

The learner :

- explains the shape and characteristics of the Earth.
- makes inferences regarding the size of the Earth.
- illustrates the latitudes and longitudes as angular distances from the centre of the Earth.

- locates the features, places, etc. on the Earth based on the latitudes and longitudes.
- describes the effects of the rotation of the Earth.
- describes the effects of the revolution of the Earth.



### Let us assess

- Name the unique shape of the Earth. Explain the characteristic features of this shape.
- Rotation and revolution cause varied effects. Explain the effects.
- If one longitude is drawn for every one degree of angular distance, how many longitudes will be there on Earth?



### Extended activities

- Make a model to prove that the lines of latitudes and longitudes are angular distances from the centre of the Earth and display it in the Social Science class.
- Make working models demonstrating the rotation and revolution of the Earth as part of group activity in the class.



### *Self assessment*

	Completely	Partially	Need improvement
Can explain the shape of the Earth			
Can explain the size of the Earth.			
Can illustrate the latitudes and longitudes			
Can locate the places			
Can explain rotation			
Can explain the effects of the Earth's rotation			
Can explain revolution			
Can explain the effects of revolution			

6



## World of Diversities



Have you seen the pictures? You might have noticed that the vegetation types shown in them are entirely different. What could be the reason? Diversities exist not only in the flora but also in fauna, human life, etc. These diversities have evolved in accordance with the climatic characteristics of each place. Regions on the Earth's surface that share almost similar climatic characteristics are known as climatic regions.

You have learnt about the continents in the earlier class. Each of these continents has different climatic regions. Let us see a few of them.



## Hot and rainy lands



Fig 6.1

The picture (Fig 6.1) depicts the Pygmies, getting ready to hunt. They usually have a short stature and dark complexion. Cassava (tapioca) is their staple food. They also eat hunted meat and gathered fruits. They often wear deer skin or leaves as clothes. They build semi circular houses out of branches of trees and broad leaves (Fig 6.2). They dearly love and care for the forest.



Fig 6.2

How does the nature influence the Pygmies' lifestyle?

Let us see some peculiar features of the Congo basin in Africa where the Pygmies mainly dwell.

- High atmospheric temperature throughout the year and daily afternoon showers with thunder and lightning.
- Dense evergreen vegetation consisting of big trees, climbers, thick undergrowth, moss, vanda, and so on.
- Diverse fauna

What may be the cause for the above mentioned peculiarities in the Congo basin?

You have already learnt that the distribution of sunlight is not uniform everywhere. It is the proximity of these regions to the Equator that causes the above mentioned climatic peculiarities. This in turn causes the luxuriant plant and animal diversity here. Shouldn't there be equatorial regions with similar characteristics in other continents as well?

Similar characteristics prevail in the Amazon river basin in South America, and in southeast Asian countries like Malaysia and Indonesia.

The aboriginal tribes of the Amazon river basin in South America, the Semangs of Malaysia, and the Kubus and Dayaks of Indonesia are also forest dwellers like the Pygmies.

The above mentioned places are all located between  $10^{\circ}$  North and  $10^{\circ}$  South of the Equator. This region is known as the Equatorial Climatic Region.



*Identify the places belonging to the Equatorial Climatic Region with the help of an Atlas.*



The Equatorial Climatic Region is generally sparsely inhabited. Why?





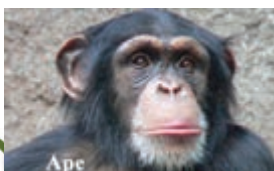


Download the pictures of the aboriginal tribes of the Equatorial Climatic Region such as Pygmies, Semangs, etc. from the Internet and save in a separate folder.

The Equatorial Climatic Region is characterised by dense forests with hardwood trees like mahogany, ebony, rosewood, etc.



Fig 6.3



The trees in these forests do not shed their leaves owing to high atmospheric temperature and copious rainfall. Hence these forests are called equatorial evergreen forests (Fig 6.3). Collecting forest resources is a major livelihood in the Equatorial Climatic Region.

The fauna here is diverse with simian species like apes, lemurs, orangutans; reptiles crawling from tree to tree; animals like hippopotamus and crocodile that mostly dwell in water; and birds like parrots, hornbills, etc.





Most of the animals in equatorial forests are tree dwellers. Why?



*Collect the pictures of the birds and animals in the Equatorial Climatic Region from the Internet and save in a separate folder.*

All places in the Equatorial Climatic Region are not forest lands. In some places like Brazil, Malaysia, and Indonesia which fall in this climatic region, agriculture, mining, and industrial activities are effectively practised. These places have been transformed into big cities (Fig 6.4).



*Try to find out the major towns or cities belonging to the Equatorial Climatic Region with the help of an Atlas.*



## Biodiversity in the Amazon basin

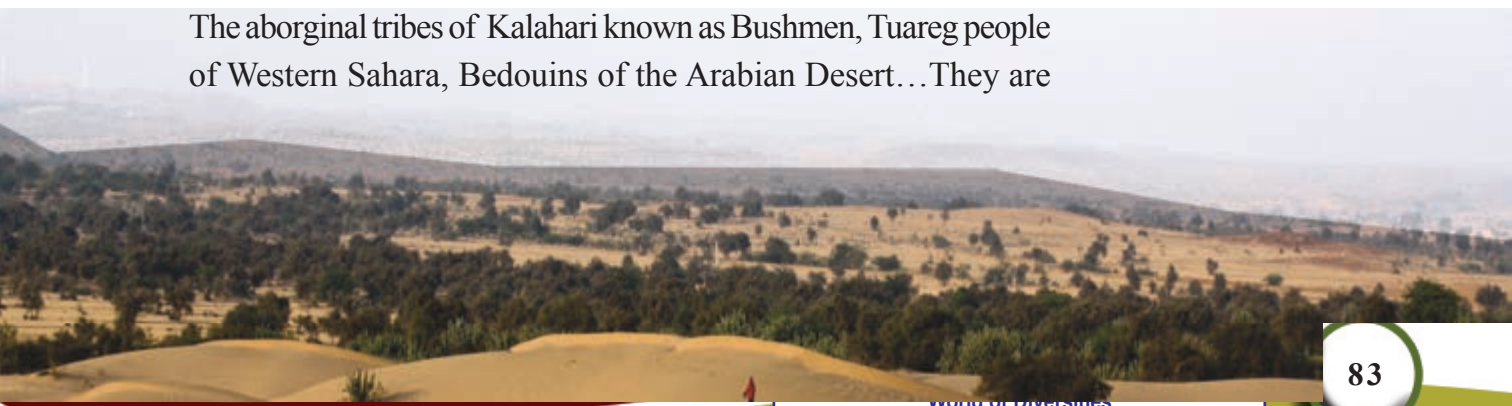
*World's most expansive rain forests rich in biodiversity belong to the Amazon river basin in South America. Very high day temperature and abundant rain foster the region's rich biodiversity. Innumerable species of vegetation ranging from tall hardwood trees to moss are the speciality of the region. Infinite species of micro organisms, insects, different types of monkeys, amphibians, reptiles, birds, etc. also add to the biodiversity of this basin.*



Fig 6.4 - Kuala Lumpur city in Malaysia

## Dry sandy stretches

The aboriginal tribes of Kalahari known as Bushmen, Tuareg people of Western Sahara, Bedouins of the Arabian Desert... They are







the inhabitants of the hot deserts spread over the different continents of the world. The lifestyle of these groups is in accordance with the climatic characteristics of this region.



*Collect pictures of Bushmen, Tuaregs, Bedouins, etc. from the Internet and save in a separate folder.*

The hot deserts are located along the western margins of continents on both the hemispheres between  $20^{\circ}$  and  $30^{\circ}$  latitudes.



*With the help of an Atlas complete the table by identifying the continents where the hot deserts are located.*

Hot deserts	Continents
Sahara	Africa
Kalahari	
Arabian Desert	
Thar	
Great Australian Desert	
Atacama	
Mohave	

Do you know the common climatic characteristics of hot deserts?

Though the day temperature is very high, nights are cool here. Summers are very hot, but very low temperature is experienced in winters. The amount of rainfall is very less here.



Fig 6.5



Cacti, acacia, etc. form the common vegetation in these dry lands with very high temperature and dry winds (Fig 6.5). The cacti have no leaves, only fleshy stem. Why is it so? Find out.



A few species of animals, adapted to the physical conditions of hot deserts, are seen here. Camels, donkeys, horses, foxes, snakes, scorpions, lizards, etc. form the fauna here.





*Collect the pictures of common plants and animals of the hot deserts from the Internet and save in a separate folder.*

Hunting and cattle rearing is the major livelihood of the aboriginal tribes of the hot deserts. Meat, milk, millets, dates, etc. form their diet.



Agriculture is sparse in hot deserts. Why?

Permanent settlements are found only around oases in hot deserts.



Fig 6.6 - Oasis

Oases are the places where water is available in hot deserts. Plants, animals, and human habitations are largely concentrated in and around these water bodies (Fig 6.6).

The Nile river basin in Africa is an example for regions with permanent settlements in hot deserts. Agriculture and animal rearing are the major human activities in the Nile basin. Wheat, maize, fruits, vegetables, cotton, etc. are the major agricultural crops here.



## Egypt: The Gift of Nile



*Egypt is aptly called the Gift of Nile. Most regions here are deserts. The only exception is the Nile basin. The Nile basin has not only witnessed the emergence of the early civilization, but it also provides water and fertile soil, which enables agriculture in the country. The Nile basin is one among the most densely populated areas in the world. Nile is also described as the life blood of Egypt.*



Most of the hot deserts are rich in mineral deposits.

The mining of these minerals led to the development of these regions. This development attracted people from other parts of the world. All the major cities in the desert regions



Fig 6.7 - Riyadh city in Saudi Arabia

of the world have evolved in this manner (Fig 6.7). The cities of the Arabian countries are of this kind. As you know, it is the petroleum deposit which has contributed to the development of these cities.



*Gather information about the climate and life of the people in the Arabian countries from your relatives employed there.*

Light coloured loose fitting garments are commonly worn by the desert dwellers. Turbans partially covering the face are another speciality of their dressing (Fig 6.8).



Fig 6.8



Why do the desert dwellers commonly use such dresses?



### Ship of the desert



*Camels are the common animals of the deserts. Camels are largely relied on for travelling and for carrying load. That is why camels are described as 'the ships of the deserts.' The camels survive in the hostile desert conditions thanks to their capacity to store water within the body and to maintain a moderate body heat. Joined toes help them from sinking in sands. Double eyelids and long eye lashes protect them from the sandy winds.*



## Land of eternal snow



Fig 6.9 - Igloo

Look at the picture (Fig 6.9). This is a temporary house called 'igloo' built by the Inuit tribes. Inuits are the dwellers of the permanently snow covered regions in the northern part of North America and Eurasia. The region is characterised by extremely long days and nights, each lasting about six months. Inuits are adapted to the adverse climate and the lack of resources. Hunting and fishing are the means of life. They live in small groups and never settle anywhere permanently. Essential commodities are exchanged with other groups on the way. They also make houses using the bones of whales, rough rocks, and leather.



Why don't the Inuits make permanent settlements?

During summer they hunt seals, reindeers, polar bears, etc. They consume the flesh of the hunted animals, clothe themselves with their skin and make weapons from their bones and horns. They never leave the igloo during the winter, which lasts for about six

months. To survive this period, they store food in advance.

Airtight leather shoes and double layered jackets and trousers made of fur are the common costume of the Inuits (Fig 6.10).



Fig 6.10 - Inuits



Why do the Inuits have a different style of dressing?

Inuits travelling on flat sledges driven by tamed dogs is a common scene in the region (fig 6.11). This climatic region lying to the north of the Arctic Circle ( $66\frac{1}{2}^{\circ}\text{N}$ ) and extending around the North Pole is known as the Tundra Climatic Region. This region characterised by very low rainfall, scarce vegetation, and extremely low population is actually a cold desert. The rarely experienced  $10^{\circ}\text{C}$  in June is considered as the highest temperature here.



Fig 6.11



*With the help of an Atlas, identify the continents where the Tundra Climatic Region exists.*

The major vegetation that survives the extreme cold climate comprises of moss and lichens. Small flowering plants and shrubs can be seen only during short summers. Tall trees are rare here. The major fauna includes polar bears; reindeers; and sea animals like whales, seals, and fishes.



*Collect more pictures and information about the plants and animals as well as the human life of the Tundra region and save in a separate folder.*

Write down the features of the climatic regions you have discussed in the following table.

Regions	Extent of latitude	Flora	Fauna	Human life



*Now you can prepare a digital album incorporating the pictures you have already collected on the life forms in the different climatic regions and display it in class.*

You have come across the three different climatic regions of the world. There are a few other climatic regions as well. Enquire about those climatic regions. What may be the basis for the formation of these regions?

Look at the picture (Fig 6.12) and find out the temperature zones marked in it.

- Tropical zone
- 
- 

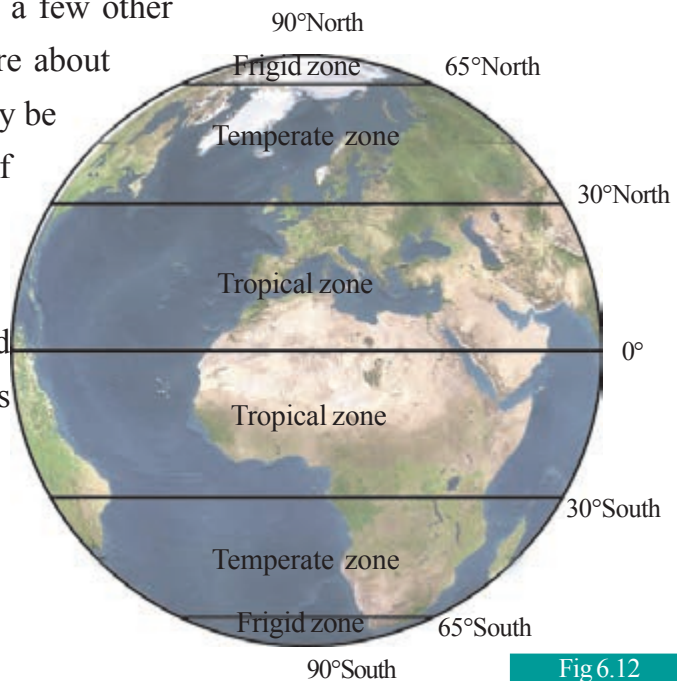


Fig 6.12



The temperature zones are classified from the Equator towards the poles on the basis of the variation in the availability of sunlight.

Within these temperature zones there exist different climatic regions. The location, nearness to sea, altitude etc. are the factors contributing to the formation of climatic regions.



*Complete the table by identifying the temperature zones to which the given climatic regions belong.*

Climatic region	Temperature zone
Equatorial Climatic Region	•
Hot Deserts	•
Tundra Climatic Region	•



*Diversities are the  
real beauty and  
wealth of the Earth*  
It is our responsibility to safeguard them



## Summary

- The regions sharing almost similar climatic characteristics are known as climatic regions.
- Each climatic region possesses unique characteristics.
- Based on the distribution of sunlight, the Earth's surface can be divided into different temperature zones.
- Different climatic regions are formed within each temperature zone in accordance with factors like its location, nearness to sea, and altitude.
- The climate of each region has a decisive influence on the human life.



## Significant learning outcomes

The learner :

- identifies and explains the basic reasons for the evolution of climatic regions.
- compares the climatic regions and draws inferences on the unique characteristics of each.
- analyses the human life in each climatic region and draws inferences on the influence of the climate on human life.
- prepares a digital album by collecting from the Internet the pictures of plants and animals as well as human life of the different climatic regions.
- explains the resource diversity of different climatic regions.
- classifies the climatic regions based on the temperature zones.



## Let us assess

- Human habitation is less in the equatorial climatic region. Give an account of the contributing factors.
- To which climatic region does each of the following areas belong?
  - Amazon river basin
  - Atacama

- Climate has a strong influence on the dressing habits. Justify it with reference to the dressing habits of the desert dwellers.
- The influence of nature is evident in the human life of different climatic regions. Explain on the basis of any one climatic region you have familiarised.

Hints: -

- Food
- Shelter
- Dressing



## *Extended activities*

- Using different colours, mark the different climatic regions you have familiarised on a world map and display it in your classroom.
- Collect from reading materials or the Internet more information about the climatic regions other than the ones you have come across in this chapter.
- Prepare a pictorial edition on the plant and animal life as well as the human life of different climatic regions.





### *Self assessment*

	Completely	Partially	Need improvement
Have understood that the temperature zones on the Earth are formed in accordance with the availability of sunlight.			
Can explain that the world climatic regions are areas having almost similar characteristics within the temperature zones.			
Can explain the characteristics of different climatic regions.			
Have realized that the unique features of different climatic regions are to be conserved.			