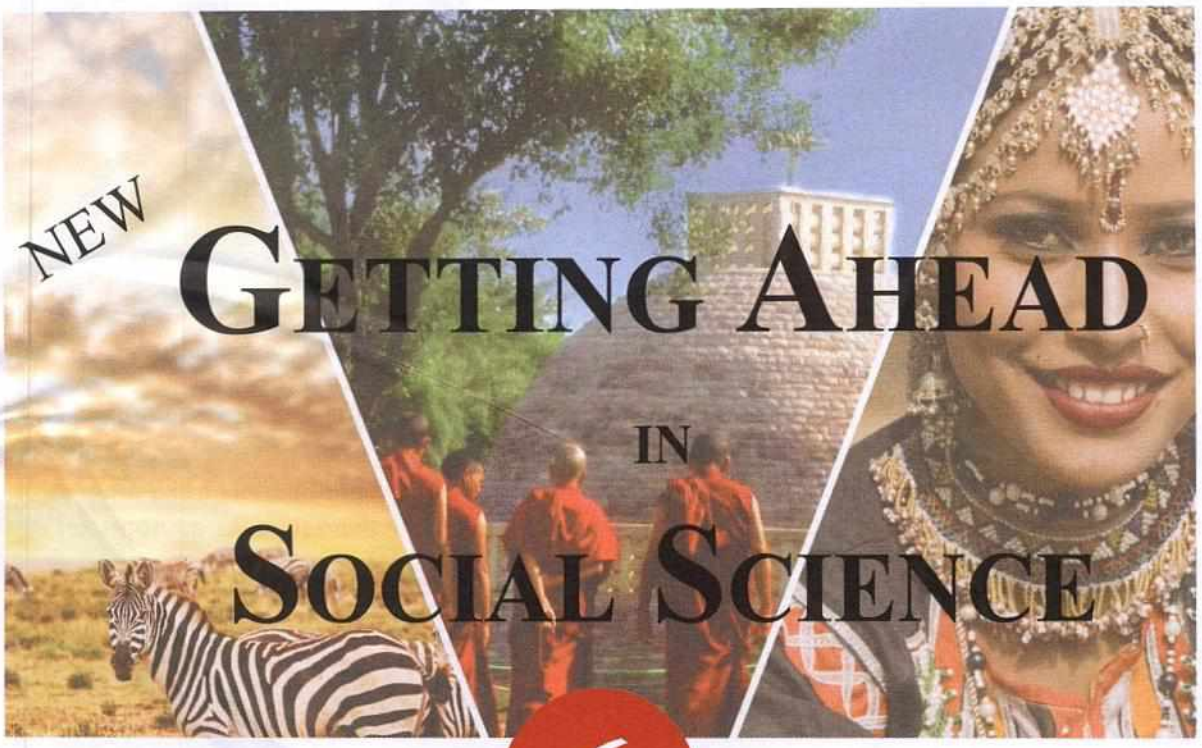

NEW GETTING AHEAD IN SOCIAL SCIENCE

6

History, Geography, Social and Political Life

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Carefully graded exercises that test the student's understanding of the chapter; they include ***true or false, fill in the blanks, multiple choice questions, and long and short answers***

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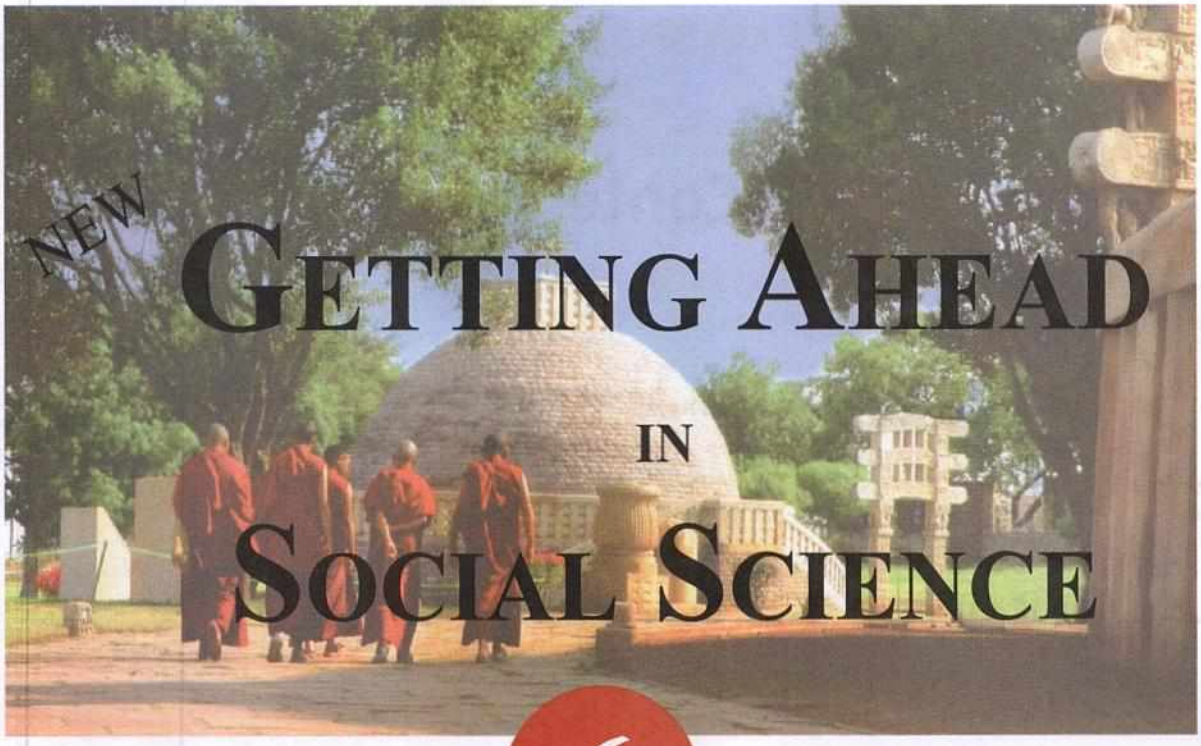

NEW GETTING AHEAD IN SOCIAL SCIENCE

6

History

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Contents

1. When, Where and How

1 million years ago
Early humans learnt to use tools made of stone.
They were hunters and gatherers.

8,000 years ago
Humans learnt to cultivate plants.
This marks the beginning of agriculture and the rise of permanent settlements.

7,000 years ago
The first great civilisations of the world began.
Writing was invented.

200 years ago
The steam engine was invented.
India came under British rule and Europe was ready for war.

This is a timeline. A timeline is one way of depicting events of the past. The timeline above shows you at a glance a few major events that occurred over the past 1 million years. Timelines are, therefore, useful tools for the study of **history**. But then, what *is* history?

WHAT IS HISTORY?

History is the study of our past. History is about what people did and how they lived in the past; about their economy, occupations and their eating habits; about their rulers and the battles they fought. History also studies how past events have affected the lives of the people. It tries to understand and explain events of the past by examining a variety of related factors.

In history, we learn how human beings have interacted with the elements of nature to create rich cultures and civilisations; and how at times nature, and sometimes humans themselves, have destroyed all that people have created.

This figure, popularly known as the priest-king, was made by an artist who lived in the north-western parts of the Indian subcontinent around 4000 years ago. Who were these people who created such beautiful works of art so many years ago? Do you want to know more about them? When you try to find out more about the people who lived in the past, you enter the world of history.

WHY DO WE LEARN HISTORY?

You might have heard children say—'Why should we learn about long-dead kings and their battles?' But history is not only about kings and battles.

We learn history for many reasons.

- History teaches us to carefully examine and question facts before accepting them as the truth.
- History educates us. We can learn from mistakes made in the past. It thus helps us make better decisions in the present and for the future.
- A study of the past can give us a sense of identity—it teaches us who we are and who our ancestors were.
- We need to know our past to be able to understand our present. Thousands of people fought and gave up their lives to make India independent. We will value the freedom we now enjoy better when we know the cost at which we obtained it. For that, we need to study the past.
- A study of history is meant to make us more tolerant and open-minded about other people and their cultures.

HISTORY AND PREHISTORY

To make it easier to study, history is divided into two main parts—**prehistory** and **history**. Prehistory is the study of events that happened before humans learnt to write. History, on the other hand, is a written account of events of the past. As humans learnt to write at different times in different parts of the world, it is difficult to give an exact date for the beginning of history and the end of prehistory. But in general we can say that history began around 5,000 years before the present.

TIME AND DATES IN HISTORY

In history, it is important to learn how to tell the dates of significant events.

Usually, historians count the years forward or backwards from the year in which Jesus Christ is believed to have been born. The period before the birth of Christ used to be known as BC (Before Christ). The period after that, as AD (*Anno Domini*, i.e., 'in the year of our Lord' in Latin). Nowadays, however, the terms BCE and CE are used in place of BC and AD. BCE stands for 'before common era', and CE stands for 'common era'. The term *circa* (or *ca* in short) is used when the date of an event is not known for sure. Sometimes, Before Present or BP is also used.

Look carefully at the timeline below. You will notice that in the period before the birth of Christ, you count the years backward. So, 2 BCE comes after 4 BCE. However, in the period after the birth of Christ, you count forward, so 2 CE comes before 4 CE.

Some other terms you come across quite often in history are decade, century and millennium. A **decade** is a period of 10 years, while a **century** is a span of 100 years, and a **millennium** refers to a period of 1,000 years.

Naming centuries

When we say an event occurred in the 12th century CE, we are naming the century. This name is different from the actual date on which the event occurred. For example, the years from 1100 CE to 1199 CE fall in the 12th century. We say India became independent in the 20th century, though the exact year was 1947. You live in the 21st century,

though the year may be 2020 or 2017. For example, 1446 CE is said to be in the 15th century CE, and 361 BCE is in the 4th century BCE.

THE GEOGRAPHICAL FRAMEWORK

The geography of a land often has a powerful impact on its history. Geography was one of the important factors that influenced the location of early settlements around the world. All the early civilisations, namely those of Egypt, Mesopotamia, the Indus and China, were located in and around river valleys. Locate these places on a map of the world.

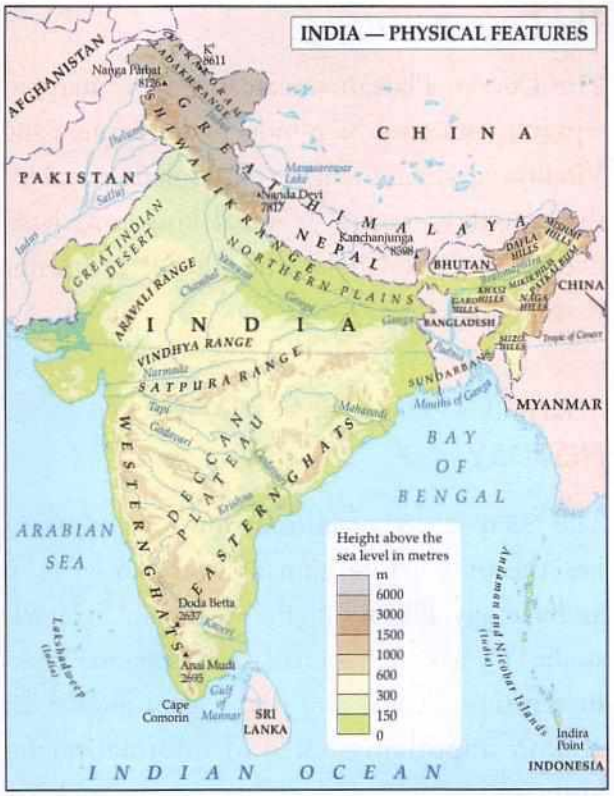
ENRICHMENT ACTIVITY

Make a presentation or chart on any one of the river valley civilisations. Include in it a map showing the location of the civilisation, and pictures of the art and architecture, the script and other unique features of the civilisation.

The history of the Indian subcontinent has also been influenced by the physical features of the land. Study the physical map of India given on this page.

The Himalayas

As you can see in the map, the immensely high ranges of the Himalayas stretch across the north of India. They have acted as a barrier against invading forces from the north. However, people have travelled in and out of India freely through low-lying points, called passes, along the north-western portions of the Himalayas. While many of these people were traders and travellers, invaders have also entered India through these passes.



The oceans and seas

The seas that surround India on three sides have protected peninsular India from attacks. The long coastline with its natural ports and harbours has also encouraged trade, for thousands of years, with distant lands like Rome, Mesopotamia (present-day Iraq), Egypt and South-East Asia. The kingdoms of South India were able to develop strong navies and establish overseas colonies in South-East Asia and Sri Lanka.

The Northern Plains

The northern plains, lying between the Indus and the Ganga rivers (look at the map and locate this feature), is a vast expanse of fertile land. The fertile nature of the plains encouraged the growth of agriculture. This, in turn, led to the establishment of many powerful kingdoms and empires here, like those of the Mauryas and the Guptas.

The Deccan Plateau

The Deccan Plateau (locate it on the map) is separated from northern India by the Satpura and Vindhya mountain ranges. This isolation enabled the growth of several regional kingdoms here, like those of the Cholas, the Chalukyas and the Rashtrakutas.

SOURCES FOR THE STUDY OF HISTORY

The main source of information for prehistory, i.e., the time before humans learnt to write, is **archaeology**. History, on the other hand, is largely studied from written sources, such as **manuscripts**, **inscriptions**, **coins** and **seals**. **Monuments** are also an important source of information for historians.

Archaeology

Archaeology is the study of the remains of human life in the past. Archaeologists carefully **excavate** (dig up) places where ancient people lived. They collect and examine human-made objects like tools, ornaments, weapons, toys and pottery. Such human-made objects found at archaeological sites are called **artefacts**. Artefacts provide vital clues to how people lived in the past.

Archaeologists excavating a site.

Often these sites also contain human and animal bones and the seeds and remains of plants. By studying such remains carefully, archaeologists can tell us what the people ate, what occupations they followed, with whom they traded, what gods they worshipped, how they dressed and how they treated their dead.

Sources of History

This is a Neolithic comb-patterned jar, dated around 3,000 BCE, from the west coast of Korea, and is now at the Kyonghui University Museum. Its height is 40.5 cm. The jar is made of sandy clay and is reddish-brown in colour. Four rows of deeply cut slanting lines decorate its rim, and herringbone patterns cover the body and base.

What do you think it was used for? (Keep in mind the size mentioned above—it is a little more than a foot long.) Do we use such large clay pots nowadays? Have you seen people cooking in clay pots? In some parts of Kerala people still cook in clay pots called *mannu chattis* or *mannu kalams*. It is believed to give additional flavour to the food being cooked.

Manuscripts

Manuscripts are an important source of information for historians. Manuscripts are documents that have been written by hand. Originally, they were written on stone or clay tablets. In India, early manuscripts were written on the dried bark of trees, thinly beaten copper plates and dried palm leaves.

Later around the 8th century CE, in the Middle East and Europe, people started writing on **parchment**

A 11th century manuscript from Nepal of the Devimahatmyam written on palm leaf in the Bhujimol script of Sanskrit

(the dried skin of goats and sheep). Paper became a popular medium for manuscripts only after the 15th century CE.

In India, manuscripts were usually written in Sanskrit, Prakrit or Pali. Tamil was one of the languages used in South India.

All written sources of ancient Indian history are basically of three types—religious literature, secular literature and the accounts of travellers.

Religious Literature

Religious literature like the ***Vedas***, the ***Ramayana*** and the ***Tripitakas*** provide a wealth of knowledge about India's ancient past. By studying these books, historians are able to understand the nature of society, religion and politics at that time. The *Vedas* gave historians information about a period in history about which nothing was known—the beginning of the Vedic Age from around 1500 BCE.

Secular Literature

Secular literature refers to writings on subjects other than religion, like politics, grammar, medicine and law. Biographies like ***Harshacharita*** by Banabhatta, written in the 8th century CE, give us an insight into the social, economic and political conditions during the reign of Harsha, one of the famous kings of ancient India. The ***Arthashastra*** by Kautilya, written in the 4th century BCE, is a treatise (or manual) on government, economic policy and military strategy.

Travellers' Accounts

Accounts left by travellers are also an important source of information for historians. People from different parts of the world have visited India at various times. Xuanzang (Hieun Tsang) visited India during the rule of Harsha, in the 7th century CE. The account he left behind is a description of Central and South Asia during that time. Megasthenes, a Greek ambassador to the court of the Mauryan king Chandragupta, wrote a detailed description of Mauryan rule in his book ***Indica***. These writings are especially precious as there are very few written sources of information for this period of Indian history.

Sources of History

Below is an extract from the writings of Faxian (Fa Hien), a Chinese traveller to India in the 5th century CE.

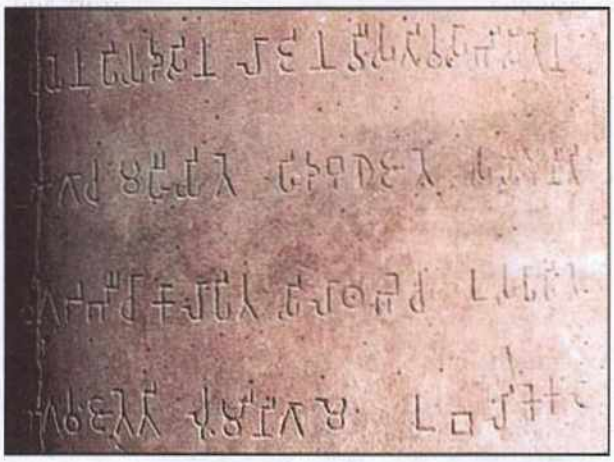
All south from this (Mathura) is named the Middle Kingdom. … The people are numerous and happy; ... Criminals are simply fined, lightly or heavily, according to the circumstances (of each case). ... Throughout the whole country the people do not kill any living creature, nor drink intoxicating liquor, nor eat onions or garlic.

Source: Project Gutenberg E-text of *A Record of Buddhistic Kingdoms*, by Faxian, translated by James Legge, March 2000

Imagine you are a traveller from another country to modern-day India. Write a short paragraph describing any two features of this land that you found most surprising/fascinating/disturbing.

Inscriptions

Inscriptions are words written or engraved on rocks, pillars and the walls of temples, palaces, forts, etc. They tell us about the victories of rulers in battle, or donations made by people or rulers to temples and other places of worship. Some inscriptions contain messages from rulers to their subjects. The process of reading and understanding the script used in inscriptions is known as **decipherment**, and the study of inscriptions is known as **epigraphy**.



Inscriptions on an Ashokan pillar

Just outside Junagadh in Gujarat, is a granite rock measuring around 7 m by 10 m. Three rulers have inscribed their messages on this rock over a span of several centuries. The first to inscribe his message on the rock was Ashoka in the 2nd century bce. The second was Rudradaman, a Saka satrap, who inscribed the list of his achievements in around 150 ce. Finally, in the mid-5th century ce, Skandagupta had his achievements carved into the rock. This inscription is of great importance, as it records the extent of the Mauryan and the Gupta empires.

Discover more...

Some of the most famous inscriptions of Indian history are the edicts of Emperor Ashoka carved into caves, iron pillars and rocks. They are found all over the country.

Coins and seals

Coins and seals are an important source of information for historians. Coins were issued by the ruler of a country to enable people to buy goods and services. Often, the name of the ruler and the year in which the coin was issued were engraved on the coin. Some coins also had battle scenes, faces of kings and queens, or scenes from

Gold coin issued by Kumara Gupta showing a goddess

the life of the ruler engraved on them. Coins were made of different metals like gold, silver, copper, etc. The study of coins is known as **numismatics**. Historians use the information found on coins to get information and counter-check facts.

Seals, like those found at Indus Valley civilisation

An Indus Valley seal showing the figure of a yogi—the figure has been called Pasupati

sites, often show animals and figures of gods. They also contain inscriptions from which archaeologists can get information, when it has been completely deciphered.

Study the seal shown on the previous page. What conclusions can you draw from it?

Some historians, after studying the seal, have concluded that the figure shown is that of a yogi. They have called the figure Pasupati, the lord of animals, and say that the people of the Indus Valley civilisation worshipped an early form of Shiva.

Historians have tried to piece together India's ancient past using all the sources mentioned above.

Glossary

history: a written account of events of the past
prehistory: the study of events before humans learnt to write
archaeology: the study of the physical remains of human life in the past
manuscript: a document written by hand
inscription: writing or engraving on rocks, pillars, stone
excavate: to dig
artefact: human-made objects like tools, ornaments, pieces of pottery, found at an archaeological site
epigraphy: the study of inscriptions
numismatics: the study of coins

In Brief

- History is the study of our past.
- History is divided into two main parts—prehistory and history.
- The period before the birth of Christ is known BCE and the period after, is known as CE.
- A decade is a period of ten years, while a century is a span of 100 years, and a millennium refers to a period of 1,000 years.
- The geography of a land often has a powerful impact on its history.
- The main source of information for prehistory is archaeology.
- History is largely studied from written sources, such as manuscripts, inscriptions, coins and seals, and monuments.

Exercises

I. Fill in the blanks.

1. The study of events that happened before humans learnt to write is called _____.
2. In the period before the birth of Christ, historians count the years _____, and in the period after the birth of Christ, they count the years _____.
3. The main source of information for prehistory is _____.
4. Banabhatta wrote _____ in the 8th century CE.
5. Xuanzang visited India during the rule of _____, in the _____ century CE.
6. The process of reading and understanding inscriptions is known as _____.

II. True or false?

1. History teaches us to carefully examine facts.
2. The term *circa* is used when the date of an event is not known for sure.
3. The year 1823 is in the 20th century.
4. In India, early manuscripts were written on paper.

5. The *Vedas* and the *Tripitakas* form part of secular literature.
6. Kautilya was the Greek ambassador to the court of Chandragupta Maurya.
7. Seals often show animals and figures of gods.

III. Answer in brief.

1. What is prehistory? How is it different from history?
2. What is archaeology?
3. On what materials were ancient manuscripts written?
4. Mention two secular sources of literature used to study Indian history.
5. How do coins help us study history?

IV. Answer in detail.

1. Why do we need to study history?
2. How do we tell dates in history?
3. How does archaeology help us find out more about the past?
4. Write in detail about the different sources of literature available to students of Indian history.

Enrichment Activities

- **Map work:** On an outline map of India, mark its important physical features.
- **Write right:** Use the key words given below to write a paragraph on how you think geography has influenced the history of India.

  Mountains: barrier, protection, isolation, growth of regional kingdoms

  Passes: link, trade, travellers, invaders, new ideas

  Plains: acts as a base for the establishment of powerful pan-Indian kingdoms and empires

  River valleys: fertile soil, agriculture, transport, early civilisations

  Seas: protection, trade and commerce, establishment of overseas colonies
- **Timeline**: Make a timeline of your grandmother or mother's life. Mark in red the important years in their lives and make a note of what happened that year.
- **Model making:** Paste a map of India on a cardboard. Show the physical features of India using modeling clay to give it a 3-D effect. Now use the model to explain how the geographical framework of India has affected its history.
- **Group work:** Work in groups. Each group can make a chart or a booklet on any one of the sources of information mentioned in the lesson. Paste pictures and write interesting facts about how historians use the information to build history.
- **Diary entry:** You are an archeologist working near the pyramids in Egypt. You have found the entrance to a new tomb of the pharaohs. Write a diary entry of about 50 words describing this discovery.

Multiple Choice Questions

1. History is the study of
   a. the human body
   b. the human past
   c. the environment
   d. the government

2. Prehistory ends and history begins when
   a. humans learnt to walk
   b. humans learnt to talk to each other
   c. humans learnt to write
   d. humans learnt to build houses
3. The year 50 BCE
   a. comes before the year 110 BCE
   b. comes after the year 110 BCE
   c. lies in the same century as the year 110 BCE
   d. lies in the same decade as the year 110 BCE
4. The year 1015 CE lies in the
   a. 11th century CE
   b. 10th century CE
   c. 9th century CE
   d. 10th century BCE
5. Several powerful kingdoms were established in the Indo-Gangetic Plains, because:
   a. the Ganga was considered to be a holy river
   b. it was easy to trade with western kingdoms like Mesopotamia and Egypt from here
   c. the Indo-Gangetic region was safe from invaders
   d. the fertile land encouraged the growth of agriculture
6. In India, early manuscripts were written on
   a. beaten copper, parchment and dried palm leaf
   b. beaten copper, bark of trees, and dried palm leaf
   c. paper, parchment and dried palm leaf
   d. bark of trees, beaten copper and paper
7. The Arthashastra by Kautilya is
   a. a commentary on the Vedas
   b. an account by a traveller
   c. a biography
   d. a treatise on government
8. The study of inscriptions is called
   a. epigraphy
   b. decipherment
   c. archaeology
   d. numismatics
9. The study of coins often provides us information about
   a. the main occupation of the people of the time
   b. the names of kings and queens of the time
   c. the architecture of the time
   d. the eating habits of the people

HOTS: Think and Answer

Why do historians these days prefer to use the terms BCE and CE rather than BC and AD? Think and answer!

Values that enrich

Arun sees a man scribbling on the walls of a historic monument. He tries to stop him. What values does this reflect?

Life skills

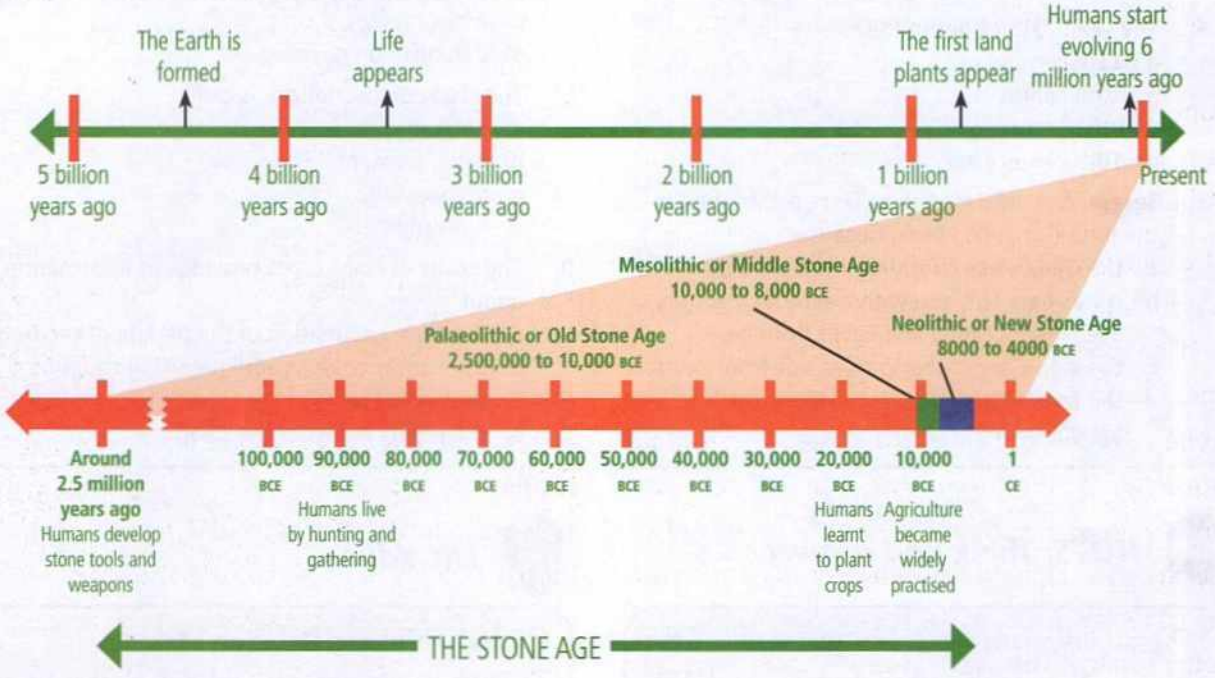
Critical Thinking/Decision Making

To excavate an archeological site costs a lot of money. Now imagine that you are an archeologist. You are halfway through the excavation of a very important dig. Unfortunately you are rapidly running out of money. Suddenly you come across a hoard of gold coins in the grave you just uncovered. What would you do?

- Would you keep the gold to fund the rest of your excavation? (After all, you found it!)
- Would you hand over the entire amount to the government?
- Would you keep some for yourself and hand the rest to the government?

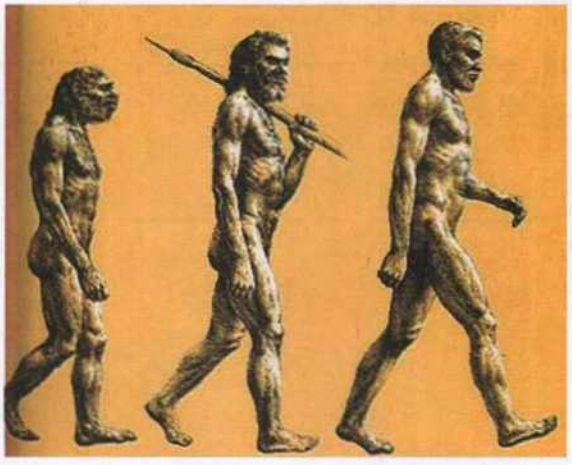
Tell the class what your decision would be, and the reason for your decision.

2. Early Humans—Hunters and Gatherers



Enrichment Activity

Study the timelines given above. According to the timeline, how old is the Earth? When did humans start evolving? Find out, and mark on the timeline, when dinosaurs lived. On this timeline of the Earth's history, a line as thin as a hair would represent the last 400 years of human history. The discovery of electricity, the invention of cars, aeroplanes, television and computers, all took place within this brief period.



Human evolution

Humans evolved gradually on Earth over a million years. The process of evolution started in Africa. From here the early humans spread slowly across the continents. They modified natural conditions to suit their requirements. By 48,000 BCE, they had populated various parts of the world. Early humans lived simple lives. They were hunters and gatherers. They hunted animals and gathered fruits, nuts and roots to eat. They lived in caves or tree tops and wore clothing made from the bark of trees, animal skin or fur. They used simple tools and weapons made of stone and bone.

The period of human history from around 2.5 million years ago to 4000 BCE, when humans used mainly stone tools, is known as the **Stone Age**. The Stone Age is further divided into the Old Stone Age or the **Palaeolithic Age**, the Middle Stone Age or the **Mesolithic Age** and the New Stone Age or the **Neolithic Age**. The period of transition, or change, from the use of stone to the use of metals is known as the Copper–Stone Age or the **Chalcolithic Age**. Humans used both stone and metal during the Chalcolithic Age.

Since the Stone Age was a period before humans learnt to write, our knowledge of this period comes from **artefacts**—bones, tools, weapons, cave paintings and pottery. These remains are unearthed and studied by archaeologists.

THE OLD STONE AGE, OR THE PALAEOLITHIC AGE (AROUND 2.5 MILLION YEARS AGO 10,000 BCE)

The Old Stone Age is also called the Palaeolithic Age—*palaios* in Greek means 'old' and *lithos* means 'stone'. During the Old Stone Age, human beings were mainly nomads, i.e., wanderers or people

Human beings were initially hunters and food gatherers.

without a permanent home. They moved in groups, hunted and had a diet of raw meat along with vegetables and fruits. Hunting could not support a growing population in one place, so they frequently moved over great distances.

Then around 40,000 to 35,000 BCE, there was a change in human behaviour. There was a marked increase in new forms of stone and bone tools. Expressive and often beautiful cave paintings started appearing in caves around the world. Humans started burying their dead in elaborate ways. In other words, they started showing many habits of modern humans. What were the main features of this stage of human development?

Tools and weapons

In order to protect themselves, and to make their lives easier, the palaeolithic humans made simple and crude stone tools and weapons (axe-heads, hammers and choppers). In the beginning, the tools

Palaeolithic stone tools

Sources of History

Flint is a hard, glassy kind of rock. It was commonly used to make stone tools during the Stone Age. Flint breaks into thin, sharp splinters when struck by another hard object. Such splinters are called flakes or blades, and are ideal for making tools or weapons.

Stone Age flint points

were mainly stone flakes that had been struck off from bigger stones. The other type of weapon used at this time was the spheroid—a stone ball that might have been used to bring down animals from a distance. In the course of time, more complex tools like hand axes and large flakes were made for cutting animals or scraping their skins.

Shelter and clothing

They used animal skins, barks of trees and leaves to make their clothing. They lived in caves, trees or natural rock shelters.

Art

There are almost no monuments of that immense period of prehistory. However, towards the end of the Old Stone Age, vivid and beautiful cave paintings

Two views of a flute made of animal bone, more than 32,000 years old, France

A 30,000 year old carving of a 'lion lady', now at the Museum of Ulm, Germany

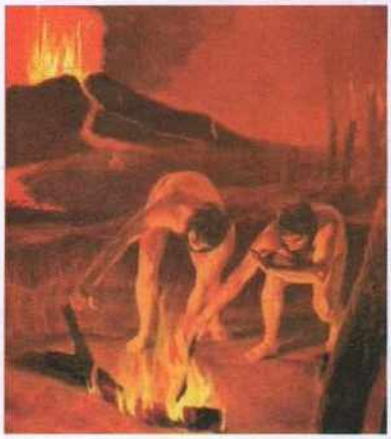
Rock paintings at Bhimbetka

started appearing in various sites around the world, like **Altamira** in Spain and **Lascaux** in France. Most of the cave paintings, which are about 20,000 years old, focus on the animals that the people hunted. In India, more than 450 painted rock shelters ranging from the Palaeolithic to the Mesolithic period have been found in **Bhimbetka** (which is about 45 km from Bhopal).

Life-like sculptures of animals and figures of mother goddesses have also been found.

Discovery of fire

In all probability, at the end of the Old Stone Age, humans accidentally discovered how to control and use fire. This turned out to be one of the most important discoveries made by humans. Fire could protect them from wild animals. They must also



have found cooked food softer and easier to eat, and maybe tastier.

Invention of the wheel

The wheel, which is believed to have been invented during the Old Stone Age, was one of the most important inventions in history. Early wheels were not like the smoothly rounded ones used today. They were much more uneven in shape with rough edges, having been cut out of tree trunks.

Palaeolithic sites in India

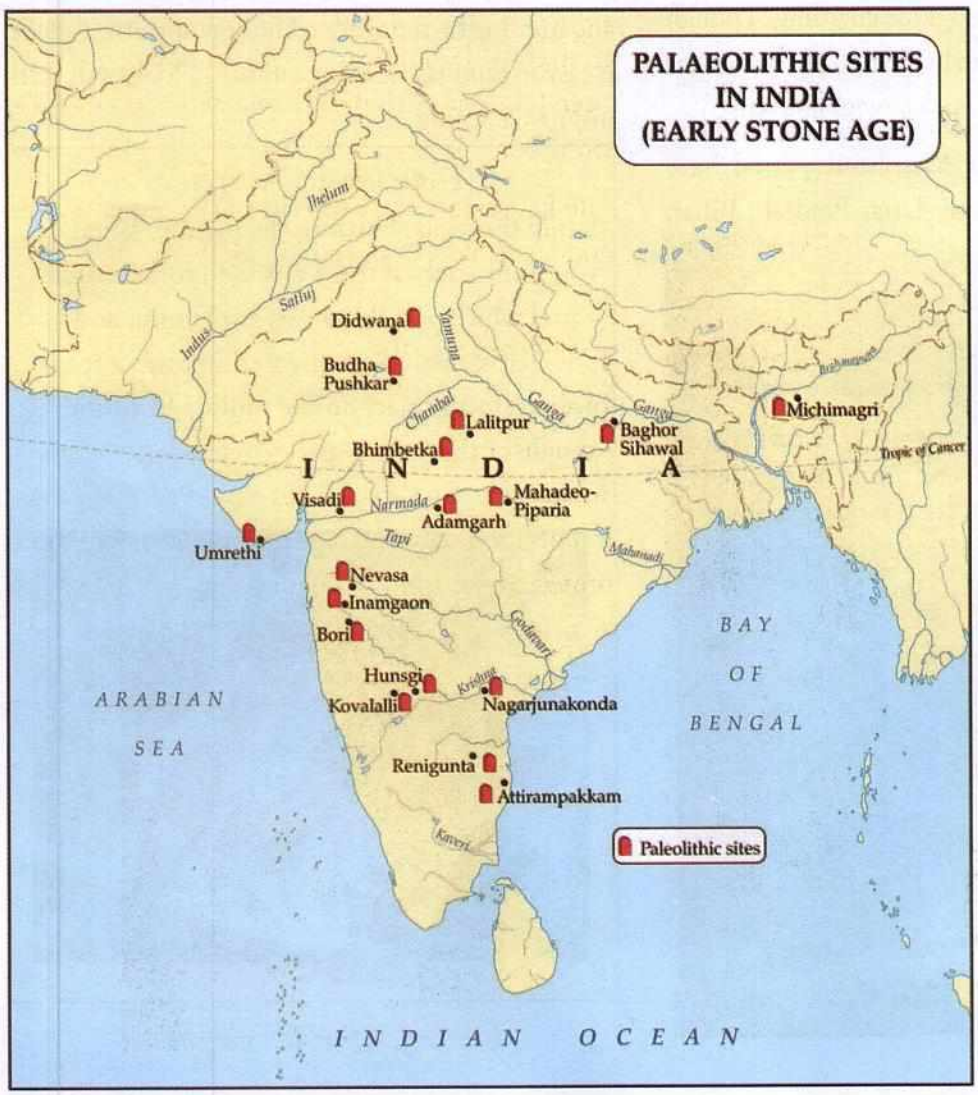
Palaeolithic sites in India include Attirampakkam in Tamil Nadu, Hunsgi in Karnataka, and Bhimbetka and Baghor in Madhya Pradesh.

ENRICHMENT ACTIVITY: MAP WORK

Study the map. Mark the Palaeolithic sites on a physical map of India. Which region has the most sites? Did you notice that most sites are located beside rivers? Can you explain this occurrence?

THE MIDDLE STONE AGE, OR THE MESOLITHIC AGE (10,000–8000 BCE)

The Mesolithic or Middle Stone Age was a period of transition between the Palaeolithic and the Neolithic Ages. This period lasted from around 10,000 to 8000 BCE.



Mesolithic sites in India are located in Rajasthan, southern Uttar Pradesh, north-eastern India, Andhra Pradesh, Madhya Pradesh and Karnataka. Bagor in Rajasthan is an interesting Mesolithic site. You have already read about Bhimbetka, where people continued to live in the Mesolithic period.

We come to know about the Mesolithic people from three sources, namely, tools, cave and rock paintings, and burial sites.

Changing lifestyles

By around 9000 BCE, the climate became warmer and drier. Climatic changes brought about changes in fauna (animal life) and flora (plant life). A greater variety of plants and animals now became available. So, both hunting and gathering became easier. The people continued to hunt, fish and gather food.

Humans also learnt to tame animals and grow crops during this period. They probably discovered the value of the seeds of some grasses like barley and wheat. Many different ways of obtaining food must have been tried; some would have failed completely, and some would have been more successful.

The dog was the first animal to be tamed. The humans must have used dogs for guarding. Though many humans continued to live in rock shelters, some built their own houses of sticks, twigs and mud.

Rock paintings from the Mesolithic period have been found in Uttaranchal, Uttar Pradesh, Bihar, Madhya Pradesh, Andhra Pradesh and Rajasthan. Remains of human burial have also been found. There are evidences of food and ornaments at these burial sites.

Clues from the past: Micro-wear analysis

When a stone tool is repeatedly used for a particular act, like cutting plants or meat or scraping animal hides, the tool gets a shine on its surface. The shine or polish created on the tool by each activity is different. By studying this polish on the tool under a special kind of microscope, archaeologists can say what a tool was used for. This is called micro-wear analysis.

Microliths

Discover more...

Tools and implements

Though large hand axes and spheroids continued to be made in this period, **microliths**, or very small stone tools, are the main type of tools found at Mesolithic sites. The microliths had sharp edges and were typically less than 3 cm in size. They were probably used as the barbs (backward-facing points) of arrows and spears. Tools at this time were also made of bone, wood, or the tusks and horns of animals. These new, lighter tools helped quicker movement, and hunting became easier. The bow and arrow made it easy to hunt fast-moving animals. Hooks and baits improved fishing.

ENRICHMENT ACTIVITY

Study the tools shown in the picture. What do you think each of these was used for? Encircle a tool which you think was a spheroid, and put a cross against what you think was a spear point. Do a project on the tools used by the people of the Stone Age.

THE NEW STONE AGE, OR THE NEOLITHIC AGE (8000–4000 BCE)

Around 8000 BCE, the Mesolithic Age ended and the New Stone Age or the Neolithic Age started (*neos* means 'new' in Greek). This was an extremely important period in the history of human society with several vital discoveries and inventions being made, which brought about great changes in the lives of human beings. Humans evolved from being hunters and gatherers to being farmers and herders. You will read more about this age in the next chapter.

CHALCOLITHIC AGE (4000–2000 BCE)

Chalkos means 'copper' and *lithos* means stone; so the Chalcolithic Age is also called the Copper–Stone Age. Implements made of both stone and copper were used during this period. People invented the plough, the wheeled cart and the sail boat. They discovered how to mix metals and get stronger tools, vessels and weapons.

STONE AGE SETTLEMENTS IN THE DECCAN—A CASE STUDY OF HUNSGI

Stone Age sites dating from 1.5 to 0.7 million years ago are densely concentrated in Central India and the southern parts of the Eastern Ghats.

The early hunter–gatherers avoided areas of heavy rainfall and dense vegetation. They preferred the semi-humid regions of the Deccan and open woodlands rich in plant and animal food resources. They also needed easy access to the right type of stone. They appear to have camped along lakes and pools, and along boulder strewn riverbeds, in rock shelters (as in Bhimbetka).

Stone tools found in Central India

Some of the oldest sites discovered in India are in the **Hunsgi** and **Baichbal Valleys** in Karnataka. Stone Age tools dating to around 1 million years ago have been found here. Hunsgi appears to have been a place where early humans manufactured tools.

The availability of a perennial water source in the form of springs, the availability of raw material in the form of limestone for tool-making, the protected nature of the valley, and the availability of a wide variety of plant and animal foods, ensured continuous human occupation of this valley from the earliest times.

The tools found here consist of chopping tools, spheroids, hand axes, cleavers, scrapers, blades and flakes. They were made out of limestone and granite. These tools were most probably used for a variety of functions like hunting, killing and skinning animals, digging roots and tubers, processing plant food, and making wooden tools and weapons. A very common artefact from this region is the end scraper, a small rounded tool used to scrape hides. It usually had a bone handle.

Sources of History

Rock paintings have been discovered inside rock shelters at Kaimur in Bhabua district in Bihar. These paintings belong to the Mesolithic period which in Bihar ranges from 5000 BCE to 2500 BCE. The paintings depict the lifestyle of the early humans who lived here. Human figures have been shown in hunting poses. Many paintings show animals in their natural form. These rock paintings are almost identical to those found at Spain's Altamira and France's Lascaux.

Rock paintings at Lascaux, France

Rock paintings at Kaimur, Bihar

Find out how the early humans made these cave paintings — how the paints were made and how the rock paintings were made. Collect pictures of rock paintings found around the world, and stick them in your scrapbook. Do they look similar?

Glossary

nomad: a wanderer
taming: making an animal used to living with humans
microlith: a very small stone tool
herding: looking after animals

In Brief

- Humans evolved over millions of years on the Earth.
- The period from around 2.5 million years ago to 4000 BCE is known as the Stone Age.
- The Stone Age is further divided into the Palaeolithic (Old), Mesolithic (Middle) and Neolithic (New) Ages.
- During the Old Stone Age, humans were hunters and gatherers.
- They lived in caves, used stone tools, and wore clothing made from animal skin and the bark of trees.
- Towards the end of the Old Stone Age, humans learnt the use of fire and the wheel.
- In the Middle Stone Age, people learned to grow crops and tame animals; they used improved stone tools known as microliths.
- Cave paintings belonging to the Stone Age are seen around the world.
- In the New Stone Age, humans became farmers and herders.
- The period after the Stone Age is known as the Copper–Stone Age. During this era, people discovered the use of metals.

Exercises

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

1. The Old Stone Age is known as _____.
2. The period of transition between the Old and the New Stone Ages is known as the _____.
3. The wheel is believed to have been invented in the _____ Age.

4. During the _____ period, people started building houses with sticks, twigs and mud.
5. One of the oldest archaeological sites found in India is _____ Valley in Karnataka.

II. *True or false?*

1. Human evolution occurred within a very short span of time.
2. Old Stone Age people lived in caves and natural rock shelters.
3. In the Old Stone Age, humans were hunters and gatherers.
4. People of the Stone Age had no interest in arts.
5. Neolithic humans started farming and herding.
6. In the Chalcolithic period, humans used only metals.

III. *Answer in brief.*

1. Why is the Stone Age called so?
2. What are the three divisions of the Stone Age?
3. What are the sources of our knowledge of the Stone Age?
4. Why did the Old Stone Age people have to move from place to place?
5. What was the natural change that occurred around 9000 BCE? How did it help the humans who lived then?

IV. *Answer in detail.*

1. Which period in history is known as the Stone Age? What are the sources to study the human life of that period?
2. What do you know about the tools and weapons of the Palaeolithic Age?
3. Write about the sources of food that were available to the people of the Mesolithic Age.
4. What are cave paintings? What is their significance?
5. What are microliths? How do they differ from the tools of the Old Stone Age?
6. What is the significance of the invention/ discovery of: i) fire ii) the wheel iii) agriculture and iv) the use of metals?
7. What were the favourable conditions for human settlement that existed in the Hunsgi–Baichbal valleys?

Enrichment Activities

- **Chart Work:** On a chart paper, draw or paste a series of pictures to show the different stages in the invention of the wheel. Write a few sentences explaining each stage.
- **Project work:** Work in groups. Each group should find out how early humans discovered fire. You must answer the following questions. 1. How would the early humans have reacted when they first saw fire in its natural form? 2. How did the early humans learn to control the use of fire to their advantage? 3. What alternatives would the early humans have used if wood was not available? The students can present their findings in the form of a chart or booklet. They can go to the following site or search related sites to complete the task. http://archaeology.about.com/od/ancientdailylife/qt/fire_control.htm
- **Discussion:** Search the Internet or read relevant books to learn how early humans who were living in Africa migrated to other places on the Earth. Have a discussion in class.
- **Write Right:** You must have heard of the

proverb 'Necessity is the mother of invention'. In about 50 words, write how necessity led to the invention of tools, weapons, clothing, shelter, and the wheel.

- **Picture Reading:** This is a painting of a Stone Age settlement. Describe the scene in 10 to 15 sentences. Focus on the location of the settlement, the type of houses, the clothing, and the various activities the people are involved in. What are the tools being used? How are they being used? Can you see anything which suggests that these people knew about fire and were using it?

Multiple Choice Questions

1. Life on Earth appeared for the first time
   a. around 4.5 million years ago
   b. around 3.5 billion years ago
   c. around 20,000 years ago
   d. around 1.5 million years ago
2. The people of the Old Stone Age
   a. were hunters and gatherers, were cave and tree dwellers, made cave paintings, used crude stone tools, discovered fire
   b. were hunters and gatherers, had permanent dwellings, used metals, used microliths as tools, invented the wheel
   c. were farmers, were cave and tree dwellers, used crude stone tools, made cave paintings, discovered fire
   d. were hunters and gatherers, were cave and tree dwellers, used metal and stone tools, discovered fire

3. The earliest wheels made by humans in the Stone Age were
   a. cut out of tree trunks and of uneven shape
   b. made of rubber and of uneven shape
   c. cut out of tree trunks and smoothly rounded in shape
   d. smoothly rounded rubber wheels
4. Microliths are
   a. instruments used to study microscopic animals
   b. people who lived during the mesolithic period
   c. very small stone tools with sharp edges found at mesolithic sites
   d. special kinds of bows and arrows used to hunt fast moving animals
5. The Mesolithic period witnessed a change in lifestyles. This was mainly because
   a. a warmer climate resulted in a greater variety of plants and animals, which made life easier for the people
   b. the people became fed up with the hard life of hunting and gathering and chose to settle down
   c. the people learnt to tame animals and grow crops.
   d. the people started making small, light and sharp tools called microliths
6. People invented the plough, the wheeled cart, the sail boat, and learnt to mix metals during the
   a. Palaeolithic Age
   b. Mesolithic Age
   c. Neolithic Age
   d. Chalcolithic Age
7. The early hunter gatherers chose to settle down in places
   a. that had heavy rainfall, dense vegetation and easy access to rocks and boulders
   b. that were rocky, had no rainfall and very little vegetation
   c. that were on the fertile alluvial banks of rivers and were surrounded by dense forests
   d. that were open woodlands with abundant plant and animal life, and had easy access to rocks and boulders
8. The main stone tools found at the Hunsgi and Baichbal valleys of Karnataka are
   a. chopping tools, spheroids, axes, cleavers and scrapers made of limestone and granite
   b. spheroids, bows and arrows, spears, cleavers and scrapers made of wood and granite
   c. bows and arrows, knives, axes, chopping tools and scrapers made of limestone and granite
   d. chopping tools, spheroids, axes, cleavers and scrapers made of copper and granite

HOTS: Think and Answer

What is the difference between a discovery and an invention? Think and answer.

Values that enrich

Lin lived in the year 10500 BCE. He was a good hunter. One day, Lin and the rest of his group killed a large bison. On their way home, they met another group that was returning from its hunt empty-handed. Lin gave them a share of the meat even though it meant his people would get less food. What values can we learn from Lin's behaviour?

Life skills

Critical Thinking/Effective Communication

What would our lives have been like today if our ancestors had not invented the wheel or the steam engine? Or if a curious human being had not discovered how to make fire? Inventions or discoveries made by one person can change the lives of millions of other people.

How different would your life have been if these inventions or discoveries had not been made? Speak about it for a few minutes in front of your class.

We too should try to do something new or different. Our minds should always be asking questions—Why did this happen? How did it happen? How can I change it? How can I make it work better? Never accept things as they are.

Be original. Think for yourself, and try not to copy what others have done.

3. Farmers and Herders

Jericho in the Middle East is one of the first places where Neolithic culture appeared, as early as 9500 BCE.

The period from around 8000 to 4000 BCE is known as the **Neolithic Age**. During this period, humans changed from hunters and gatherers to farmers and herders. How did this change come about?

Around 8000 BC, the ice which had covered large parts of the Earth during the Palaeolithic and Mesolithic Ages started to melt. The warmer climate encouraged the spread of plants and animals to previously cold regions. People learnt to grow crops of grains, and vegetables. This resulted in the development of agriculture. People also started taming animals as they realised how useful they were.

Neolithic settlements have been found in several regions of South Asia. Among the excavated sites, the main ones are at Mehrgarh in Pakistan, Burzahom in Kashmir, Daojali Hading and Sarutaru in Assam, Chirand in Bihar, Kuchai in Odisha, Daimabad and Inamgaon in Maharashtra, Brahmagiri in Karnataka, Nagarjunakonda in Andhra Pradesh and Paiyampalli in Tamil Nadu.

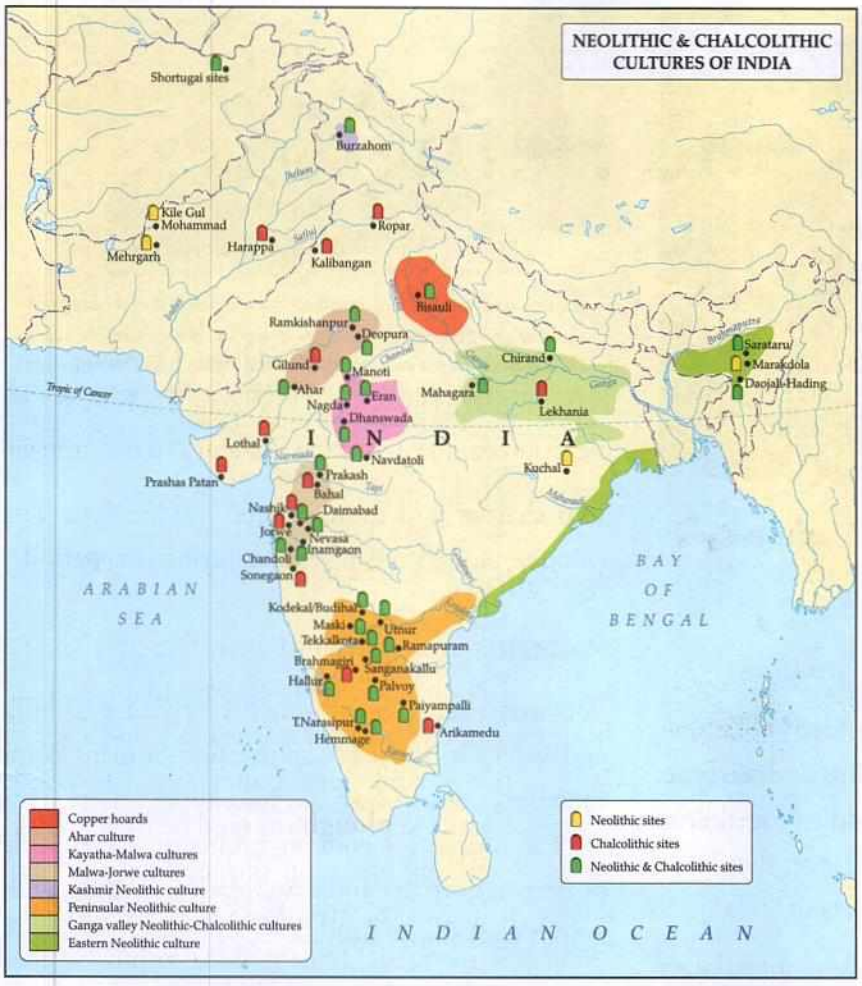
Agriculture

After centuries of practising food gathering, humans learnt to plant their own crops and plan their harvests. They learnt to select the best quality seeds. Wheat, barley, millet and pulses were cultivated. Humans learnt to **plough** the land before planting seeds. Ploughing broke up the hard soil and cut a straight line in the ground in which the farmer could sow the seeds. Due to these improvements in agricultural practices, there was an explosion in agricultural output.

This agricultural revolution brought about many changes and improvements in the way people lived. More food could now be produced than was required for the people. This led to methods of saving for the future. Food could be stored till the next harvest. After each crop was harvested, the fields were cleared for the next season by burning the fields. Ash mounds as well as habitation sites have been discovered in Brahmagiri and Hallur in Karnataka and Paiyampalli in Tamil Nadu.

Domestication and herding of animals

During the Neolithic period, humans started domesticating animals. Remains of animal bones and shelters found at Neolithic sites tell us what



kinds of animals were domesticated. Bones of sheep and goats have been excavated at Tekkalakota in Karnataka, and in settlements to the south of the river Godavari. The farmers of Piklihal, in Karnataka, were cattle herders. They set up cow pens and also collected dung. With the domestication of animals like oxen, pigs, and sheep, there was a regular supply of meat. Goats were also a source of milk. Some of the animals like horses, oxen and bulls could be used to plough the land.

Thus, Neolithic humans became herders. Herding is the management of domesticated animals. The animals domesticated by the humans needed to be fed and kept safe. The animals often needed to be moved from place to place in search of fresh pasture or grass.

A herder with his herd of goats

Settlements

Settled community living was another result of agriculture. Settled life would also have needed a leader and some one to maintain law and order.

This period probably saw the beginning of division of labour. Some people would have made tools, some would have taken the animals for grazing, and some would have been involved in agriculture. The population increased rapidly because large quantities of food were available, and the agricultural revolution provided the means for a secure life in the future.

Neolithic people buried their dead. Objects used by the dead persons, like tools, weapons and pottery, were buried with them. In many parts of South India, burial places have been marked with huge rectangular blocks of stone. They are called

Skara Brae in Scotland is a 5000-year-old Neolithic settlement of several houses, each complete with stone cots, stone shelves and fireplaces, all similar in layout and joined by tunnels.

megaliths (*mega* means 'large' in Greek).

As the needs of agriculture demanded settlement in one place, people constructed huts of dried grass and mud as shelter. Huts were huddled together as if in a colony. Most settlements were on the slopes of hills or in rock shelters near rivers or streams.

The homes of Neolithic farmers were much larger and sturdier than the skin-covered huts of their Mesolithic ancestors. Some of them were built of split logs. Walls were sometimes woven from smaller branches. Some people even started living in brick houses. The earliest Neolithic settlements are in the valleys of Iran and Iraq, and in Israel and Palestine.

Tools

With farming as an activity growing in importance, there was a demand for better and more effective tools. Sickles and reaping knives were developed to harvest crops. Heavy tools were used for digging and levelling the land. Grinding stones were invented for processing cereals and other plant food. Stone axes were used to cut down trees and mattocks to break up the soil. Stone was ground and polished into sharper and more refined implements. The wooden plough was invented during this period.

A stone axe hammer with convex sides, a blade and a hole for a wooden shaft through the centre, Newport, Wales. Ground stone tools came into use around 8000 BCE. Axes such as this one were chipped into rough shape with small stones and then ground smooth against a hard rock or boulder.

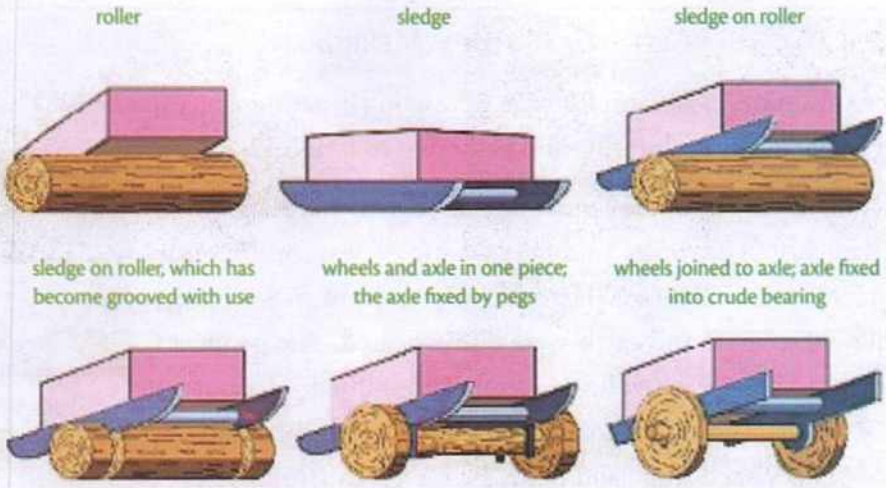
Pottery

Pots were needed for storing excess grain and milk and water. During the Neolithic Age, humans learnt to make vessels of clay and bake them on fire. Pots were also used for cooking and eating. Neolithic pottery in northern India was black-grey ware, with a matt (not shiny) finish.

A jar with spiral designs, from around 4000 BCE, the Jomon period of ancient Japan

Invention of the axle

One of the greatest inventions of the Neolithic humans was the wheel with an axle. An axle is a



Stages in the invention of the wheel

shaft on which the wheel rotates. The invention of the axle allowed the wheel to turn freely. It had various uses.

- The potter's wheel was used to work clay to make better pots.
- Heavy objects could be transported on wheels.
- It improved transport and quickened the pace of development.
- Possibly, the wheel was used to spin cotton thread which could then be woven into cloth.

The oldest surviving wheel has been found in Mesopotamia in Iraq. It is believed to be over 5,000 years old.

Religion

Not much is known about the religion of the early humans. They must have been awed by nature and its mysteries. Probably, nature was worshipped in different forms. The cave paintings of Old Stone Age hunters may have had a magical or religious significance. Several statues and figurines of mother goddesses have been found at Neolithic sites, suggesting the prevalence of goddess-worship. Over a period of time the dead and their worship assumed importance.

Neolithic figurine of mother goddess, Macedonia

Ornaments

People made ornaments of conch shells, lapis lazuli and turquoise beads. Remains of necklaces, bracelets and earrings have been found from Neolithic sites.

Stone beads and pendants from a Neolithic settlement in Britain

Case study: Mehrgarh

By 7000 BCE, communities in western Pakistan were living in permanent settlements. Their main activity was beginning to change from hunting and gathering to farming.

Pottery from Mehrgarh

Archaeologists discovered one of the earliest human settlements in the world at Mehrgarh (Baluchistan province, Pakistan). Mehrgarh was continuously inhabited from 7000 BCE to 2500 BCE. Here the main crop grown was barley, and animals like sheep, goat and cattle were domesticated. The people of Mehrgarh also cultivated wheat, collected fruits and hunted. Ornaments and figurines of seashell, stone and copper were buried with the dead. Tools were made of polished stone and bone. Numerous microliths have been found at the site.

There was no pottery in the earliest stages; instead the settlers used woven baskets coated with bitumen (a tar-like substance). From around 5000 BCE, people started making pots of clay. The pottery was simple hand-made coarse ware, reddish-brown in colour, with geometric shapes painted in black.

Around 4000 BCE, a new kind of barley was grown which required irrigated fields. This points to improvements in agricultural techniques. A large granary for storing grains has been discovered. By the beginning of the 3rd millennium BCE, there was an explosion in pottery styles, and kilns for baking the pottery started appearing. There was also a marked increase in terracotta figurines, especially of women. The size of the settlements increased markedly. Timber started being used for building houses.

Female figurine, Mehrgarh

Case study: Burzahom

Some of the Neolithic sites in Kashmir include Burzahom, Gofkral, Hariparigom, Pampur and Waztal. Burzahom means 'place of birch' in Kashmiri. This is because there are many birch trees in the area. Burzahom is located on the bed of a dried-up lake. The lakes and forests around Burzahom indicate there was a good supply of food and water available here.

There is something unusual about the earliest Neolithic houses at Burzahom—they are below ground level. Such dwellings are called *pit dwellings*. The people dug pits into the ground with the help of stone tools. Then they plastered the sides of the pit with mud. The pits were usually round or oval; a few were rectangular. The earliest Neolithic people of Burzahom made simple pots by hand in different shapes and sizes, and grey, red and brown in colour. They also made tools out of animal bones and antlers. The bone tools included harpoons for fishing, needles for sewing, and arrowheads, spearheads and daggers for hunting.

Burzahom

Case Study: The North-East

Neolithic settlements have been found in several places in North-East India. Stone tools along with cord-impressed pottery have been found at Daojali Hading and Sarutaru in Assam, and Selbalgiri in Meghalaya. Many sherds of pottery found here have marks made by cord or string, and wooden mallets, on their surface. This suggests that the vessels were enlarged and shaped by beating with a wooden hammer wrapped in cord or string. Several ground and polished stone axes have also been found at these sites. The people practised shifting cultivation and grew root vegetables like yams and taro. They raised stone and wooden memorials for the dead.

Cord-impressed pottery

Glossary

food gathering: collecting naturally available food like fruits and vegetables
harvest: to gather ripened crop
domesticate: to tame
division of labour: different persons engaging in different parts of the same job
megalith: large stone memorial
terracotta: hard, unglazed brownish-red pottery
reap: harvest
matt: dull; not shiny

In Brief

- Neolithic sites have been discovered all over India and other parts of the world.
- During the Neolithic Age, the Earth became warmer, encouraging the spread of plants and animals.
- In this period, humans became farmers and herders.
- Animals like oxen, pigs, and sheep, were domesticated.
- Settled community living began during the Neolithic Age.
- During the Neolithic Age, humans made more refined stone tools and invented the wooden plough.
- The wheel that rotated around an axle is the most valuable invention of the Stone Age.
- Baked clay pots were produced using the potter's wheel.
- Goddess-worship was prevalent.
- Neolithic people wore ornaments made of conch shells and stone beads.

Exercises

I. Fill in the blanks.

1. Neolithic Age ranges from around _____ BCE to _____ CE.
2. One of the greatest inventions of the Neolithic period was the wheel with _____.
3. The major improvement in agriculture that humans learnt during the Neolithic period was _____.
4. The world's oldest wheel was discovered at _____ in Iraq.
5. Mehrgarh, one of the earliest human settlements, is located in _____.

II. True or false?

1. Around 8000 BCE, the climate of the Earth became warmer.
2. Neolithic settlements have been discovered at many places in India.
3. Neolithic people cremated (burned to ashes) their dead.
4. Neolithic pottery in northern India had a glossy finish.
5. Goddess-worship was prevalent during the Neolithic Age.
6. Neolithic people made ornaments of gold and silver.
7. Large memorial stones that mark burial places are known as megaliths.

III. Answer in brief.

1. Name any five Neolithic settlements in India.
2. What crops were grown during the Neolithic Age?
3. What animals were domesticated by Neolithic humans?
4. What is meant by division of labour?
5. Mention two stone tools used by humans in the Neolithic Age.
6. What were the improvements brought about in pottery in the Neolithic Age?
7. What was unusual about the Neolithic houses found at Burzahom, Kashmir?
8. In which states of India has cord-impressed Neolithic pottery been found?

IV. Answer in detail.

1. Write a note about agriculture during the Neolithic Age.
2. What do you know about the houses built by the people of the Neolithic period?
3. What is the significance of the wheel and axle system?
4. Write a summary on the religious beliefs of Neolithic people.
5. Describe the life of the Neolithic humans who lived in Mehrgarh.

Enrichment Activities

- **Poster making:** Make a poster on the topic: 'From hunters and gatherers to farmers and herders'. Paste or draw pictures that show humans in various stages of transition from hunting and gathering to farming and herding.
- **Find Out:** Work in groups. Search the Internet or books in your library to find out the kind of food that Neolithic humans consumed. You can get more information from the following site or any related sites. http://content.usatoday.com/communities/sciencefair/post/2011/10/early-agriculture-shift-denmark/1
  Discuss your findings in class.
- **Debate/Discussion:** Have a debate/ discussion in class on the topic: 'The invention of the axle was more important than the invention of the wheel.'
- **Group Work:** Work in groups of four. Make a project on the stages of invention of the wheel and axle. Models of the different stages can be made using clay, thermocol, wood, or any other material of your choice.

Multiple Choice Questions

1. The Neolithic Age is characterised by
   a. the beginning of farming and herding
   b. the beginning of pottery
   c. invention of the axle
   d. all of the above
2. In South Asia, the main Neolithic sites found so far include
   a. Mehrgarh, Burzahom, Paiyampalli, Chirand, Daojali Hading
   b. Bhimbetka, Hunsgi, Mehrgarh, Delhi, Burzahom
   c. Mehrgarh, Delhi, Mysore, Paiyampalli, Burzahom
   d. Hunsgi, Delhi, Patna, Assam, Odisha
3. There was a great increase in agricultural output during the Neolithic period because
   a. people started feeling more hungry and so grew more food
   b. people started domesticating animals for whom they needed to grow more food
   c. there was an improvement in agricultural practices, like ploughing and the use of better quality seeds
   d. people started living in settled communities
4. The main animals domesticated during the Neolithic period include
   a. cows, pigs, sheep, horses and oxen
   b. cows, pigs, elephants, goats and dogs
   c. dogs, cats, squirrels, snakes and goats
   d. dogs, cows, pigs, horses and lions
5. The axle was one of the most important inventions of the Neolithic Age. An axle
   a. is a kind of axe used to cut trees
   b. is a vehicle that moves on three wheels
   c. is a shaft on which the wheel rotates
   d. prevents the wheel from moving freely

HOTS: Think and Answer

How did the development of farming lead to the growth of other occupations like pottery or ornament making? Think and answer.

Values that enrich

The people of Mehrgarh built their houses using dried grass and mud. Almost every year their houses would get washed away due to heavy rains and floods. However, the people of Mehrgarh did not give up. They rebuilt their houses every time it got washed away. What values does their behaviour reflect?

Life skills

Being creative

Pottery is an ancient art that has been practised by humans for thousands of years. Let us try our hands at some simple pottery.

(Picture credit: jhpottery.com)

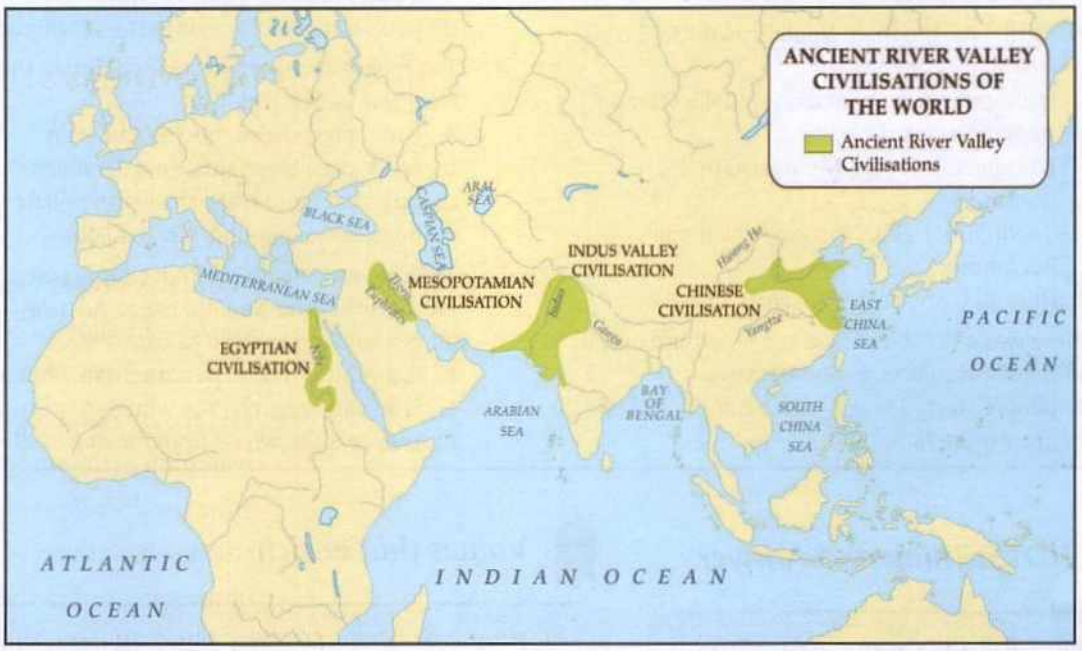
To make a coil pot

Choose a flat work surface. Take a lump of clay. Soften it by kneading it with a little water. Take a little clay and roll it back and forth on the surface to form a coil. The coil should be the thickness of a pencil. Roll it around to form a pot as shown in the picture. Smooth the insides to make the coils stick smoothly together.

Leave them to dry. When dry, paint them.

You could get more ideas from http://skim-art.com/arted/l5.html

4. And Then, The First Cities



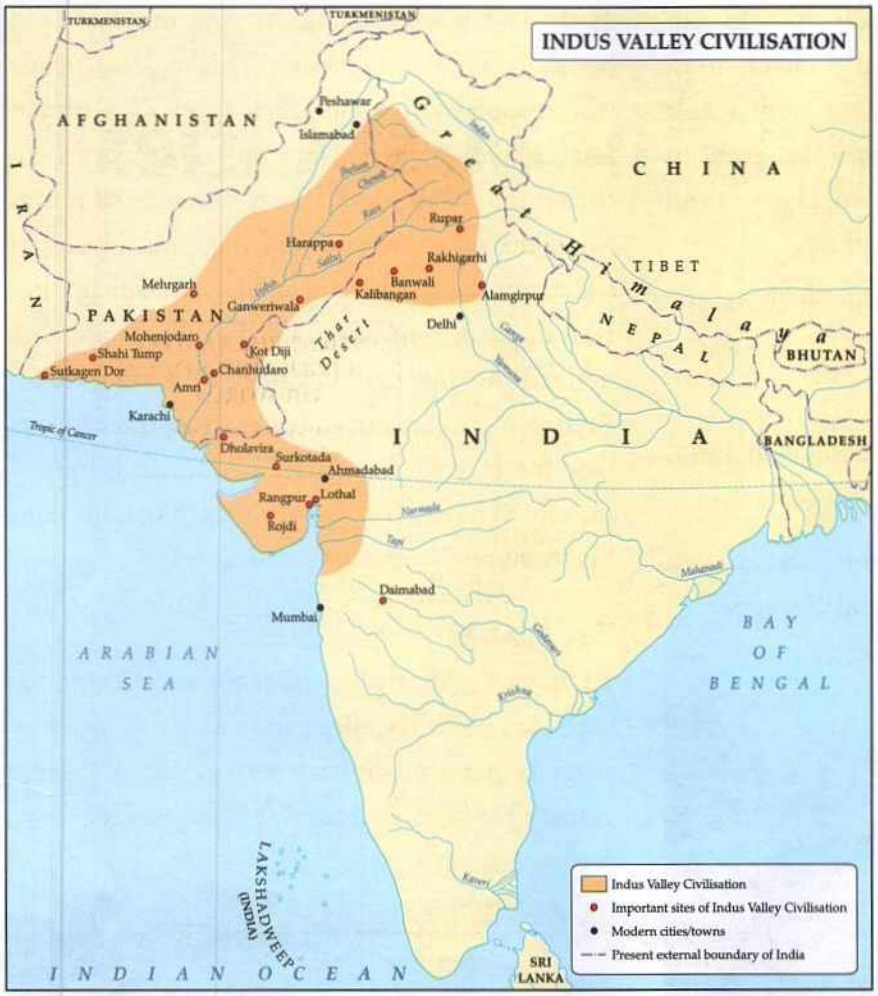
As you saw in the last chapter, by 8000 BCE, many people had settled in small villages, and were practising agriculture and domesticating animals. People no longer had to spend the whole day hunting and gathering food. With better methods of agriculture, surplus (extra, more than required) food was produced. So people could now devote more time to other activities like leisure and thinking. Writing was invented, art flourished, trade grew, and various inventions and discoveries changed almost every aspect of human existence. Gradually, villages grew into towns, and towns into cities; and the first great civilisations of the world were born.

WHAT IS CIVILISATION?

Civilisation is said to occur when a society is in an advanced state of social development. Such a society would have

- an advanced system of agriculture,
- people living in towns and cities,
- complex legal, political and religious institutions,
- division of labour, with rulers, warriors, priests, farmers, carpenters, potters and so on, and
- literacy, or the knowledge of writing.

Whenever and wherever these conditions were fulfilled, civilisations arose. The earliest civilisations of the world came up around 5000 BCE in river valleys. There were four major river valley civilisations—the **Mesopotamian civilisation** came up between the Tigris and Euphrates rivers, the **Egyptian civilisation** in the Nile Valley, the **Chinese civilisation** on the banks of the Hwang Ho and the **Indus Valley civilisation** on the banks



of the river Indus. These parts of the ancient world witnessed the first urban revolution.

ENRICHMENT ACTIVITY

Look at the map and locate the rivers mentioned. Why do you think all the early civilisations came up in river valleys?

URBANISATION AND CITIES

A **city** is a large and densely populated area. Cities are also known as urban areas. When more and more people start moving from villages to towns and cities, the process is called urbanisation. **Urbanisation** is one of the key features of civilisation.

In cities, people have occupations other than farming. There are traders, jewellery makers, writers, thinkers, and artists. This is where the rulers and the ruling class usually stay. Cities usually have well-developed public facilities like roads, a drainage system, public halls, and granaries.

THE INDUS VALLEY CIVILISATION

The Chalcolithic Age was followed by the Bronze Age. In the Bronze Age people started using bronze—an alloy or mixture of copper and tin. About 4,700 years ago, the largest Bronze Age civilisation in the world emerged in the north-western part of the Indian subcontinent. Since this culture was born in the valley of the Indus River, it is popularly known as the **Indus Valley civilisation**. The Harappan culture or the Saraswati-Sindhu civilisation (as the Indus civilisation is also known) was the largest of the ancient civilisations. It was spread over about 650,000 sq. km, which is more than twice the area of the Mesopotamian and Egyptian civilisations.

This civilisation stretched eastward from the current border of Iran to areas beyond Delhi, and it stretched southward till the Godavari River. More than 1,400 Indus civilisation sites have been discovered to date, and more continue to be discovered. Of these the more important ones include Mohenjodaro, Harappa and Mehrgarh (all three in Pakistan), Dholavira and Lothal in Gujarat, Rakhigarhi and Banawali in Haryana, Ropar in Punjab, Kalibangan in Rajasthan, and Alamgirpur in Uttar Pradesh.

Excavations at sites like Mehrgarh, in Pakistan, show that this civilisation evolved gradually from village communities around 7000 to 5000 BCE. It reached a highly developed phase from 2600 to 1900 BCE. The cities of Mohenjodaro, Harappa and Dholavira flourished during this phase.

What were the main features of this civilisation?

Town planning

The most striking feature of the Indus civilisation was the well-planned nature of its cities.

Most of our knowledge of the Indus cities is based on excavations at Mohenjodaro and Harappa.

Streets intersected at right angles.

Like most of the Indus towns, Mohenjodaro was a grid planned city, i.e., all the streets cut each other at right angles. It was divided into two parts. One part was at a higher level. It was built on a massive platform constructed of baked brick. Archaeologists call this area the **citadel** or **acropolis**. It might have been the administrative centre of the city where all the large public buildings were located. The lower part of the city consisted of the houses of the common people.

THE GREAT BATH

Within the citadel at Mohenjodaro, archaeologists found a structure that they called the **Great Bath**. This was a rectangular tank made of fired bricks closely fitted together. This tank was made waterproof by a 3 cm thick layer of bitumen (tar). Flights of steps from opposite sides led to the bottom of the tank. There were several rooms along the other two sides of the tank. In one of the rooms there was a large well, from which water was supplied to the tank. Used or dirty water was drained out through an outlet to a brick drain. Archaeologists are not sure what this structure was used for. It might have been used by the people of the city to have a bath before attending important functions and ceremonies.

THE GRANARY

To the west of the bath, a massive brick platform has been excavated. The shape and size of this structure suggests that it might have been a granary. A large granary has been excavated at Harappa too.

The Great Bath

The Great Granary

Residential area

In the town area, away from the citadel, platforms were built for houses. These platforms enabled houses in the city to be built above the flood level. Most of the houses were plain and uniform in plan; the rooms of each house were arranged around a courtyard. Each house had a single entrance and one of every three houses had a well too. Many houses had a separate bathing area as well. Some of the houses were double storied.

Drainage

As the houses were built, a careful drainage system was laid out. The drains in houses invariably led to a cess-pool or manhole. The drains along the main roads were covered and were inspected and cleaned regularly. The drainage system of the Indus cities stands out as remarkable among the cities of the world at that time.

Were there rulers in these cities?

The Indus cities were well planned, with straight roads, walled citadels and well-maintained drains, which definitely means that there was a high standard of administration. Unfortunately, till the script of the Indus civilisation is deciphered, we can hardly say anything about the nature of government in the Indus cities.

What did the people eat?

A number of crops were cultivated—cereals like wheat and barley, pulses, oilseeds like mustard and sesame, and millets like bajra, ragi and jowar. Remains of these crops have been found from the excavated sites. We do not find much evidence of the cultivation of rice. Fish, meat, milk, date and fruit were also a part of the diet.

What did they wear?

Archaeologists have found evidence of cotton and woven cloth. Spindles made of clay have been found in many sites. (Spindles are used to spin cotton thread.) Men wore flowing lengths of cloth, while the women wore skirts, as can be seen from various figurines found in the sites. Both the men and the women seem to have draped a shawl over their shoulders.

Both men and women wore ornaments made of gold, silver, faience, and beads of semi-precious stones like jade, lapis lazuli, cornelian and agate. Bangles, earrings and necklaces seem to have been popular.

The women used *kajal* for their eyes and painted their lips, as they do even today.

Bronze statue of a dancing girl—it shows the style of jewellery worn by the women of the Indus Valley

Necklace from Mohenjodaro made of gold, agate, jasper, steatite and green stone

Did they know to write?

The people of the Indus civilisation had developed a form of writing. This was one of the world's earliest known scripts. Writing was in the form of brief inscriptions found mainly on seals of different materials like clay, baked clay and steatite (soap

stone). Archaeologists reveal that the writing is usually from right to left. Historians are still trying to decipher the script in its entirety.

Replica of sign board found at Dholavira — this is the longest set of characters ever found at an Indus site.

Metallurgy

The Indus people alloyed copper and tin to make bronze, which was more malleable and stronger than copper. Knives, axes and chisels were made of stone. Copper tools like razors, hooks, sickles and axes were also made, and so were smaller copper tools like nails and needles. There is no evidence for the use of iron to manufacture objects. However, iron minerals, like hematite, were used to make pigments.

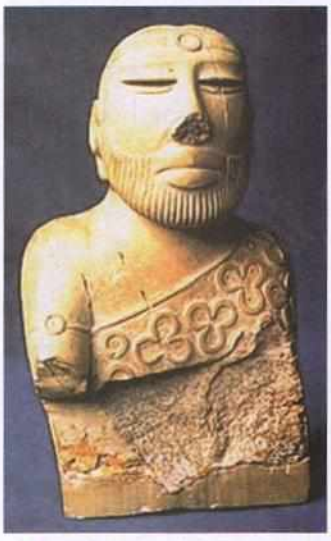
Pottery

Jar painted with birds, Indus culture, 2600–2000 BCE, Chanhu Daro

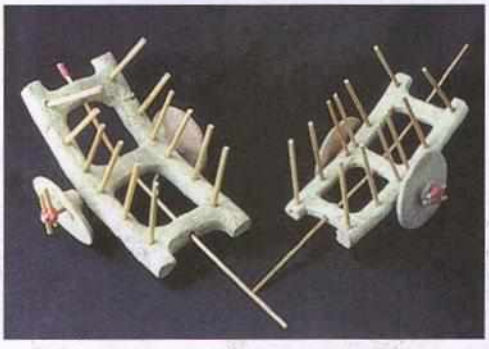
Besides agriculture, probably the most popular occupation was pottery. A variety of pots, both plain and decorated, have been found. Many pots were painted red, with designs in black suggesting geometric patterns.

Art and craft

Two finely sculpted works of art were recovered from Mohenjodaro. One is the bust of a bearded man who has his robe thrown over one shoulder, similar to what one finds in Mesopotamia. The other is that of the famed 'dancing girl' in bronze. Many terracotta figures of animals, carts, toys and human figures were recovered from the sites. Some of the toys had parts which moved, for example, bulls and rams that could shake their heads and tails. There are toy birds which can move up and down ropes. Such toys are made in India even today.



Statue of a bearded man (also known as the priest king)



Terracotta toys

Seals

Many seals have been found in the Indus Valley, mainly made of steatite. Most of them show figures of animals, with writing on the top portion. Most

Yogi seal

Bison seal

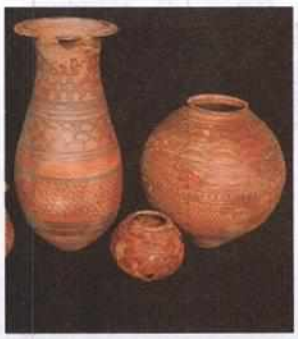
of them are square in shape, a few round and some cylindrical.

Weights and measures

At several of the Indus Valley cities, cube-shaped stone measures of weight in graduated sizes have been found. The smallest weight found is 0.856 g and the most common weight is approximately 13.7 g. Remarkably, they seem to be uniform throughout the Indus territory. These weights may have been used to make trade easier.

Religion

Seals representing a male figure sitting in the form of a yogi, a figure like a mother goddess and pipal trees tell us a little about the faith of the people. They may have worshipped Pasupati, an early form of Shiva, and mother goddesses. Evidence of burial practices has been found at cemeteries at Harappa, Lothal and a few others sites. The dead were buried wearing ornaments and with a few pots.



Harappa burial pottery

Figurine of mother goddess

Trade

The people of the Indus civilisation had established a flourishing system of trade—both by land and by sea. The two large structures at Harappa and Mohenjodaro, identified as granaries, suggest the storage of grains. The grains probably came from villages. The villages may have traded the grain for some of the goods produced in the cities. Besides roads, the Indus river system must have been used for trade. Ornaments made in the Indus Valley have been found by archaeologists in Mesopotamia, which suggests that there was trade between the two civilisations. A dockyard found at Lothal also suggests the possibility of overseas trade with western Asia.

The end of the Indus civilisation

This advanced civilisation appears to have declined suddenly after 2000 BCE. Why it declined remains a puzzle, but a few reasons have been suggested.

The cities might have been destroyed by earthquakes or floods. Another factor could be the falling quality of the soil due to excessive deforestation. Environmental disasters like earthquakes might have caused rivers to change their course. The resulting floods and droughts might have caused crops to fail, and spread epidemics.

Over time, people would have moved away and the cities would have crumbled.

Around the world

The **Egyptian civilisation** (3500–1500 bce) has given the world some of its most enduring and mysterious works of architecture. The Great Pyramids of Giza were built around 2400 bce. They are built of blocks of limestone that are so massive (each weighing 15 tons) that even the strongest crane in the modern world would have a hard time lifting them. No one knows for sure how the Egyptians lifted these blocks more than 5000 years ago.

Glossary

urban: relating to cities
decipher: to read or understand
alloy: a blend of different metals
malleable: can be easily hammered into shape
citadel: a stronghold that protects the city
faience: glazed earthenware decorated with opaque colours
steatite: a soft variety of talc stone which feels soapy
bust: a sculpture of the head and shoulders of a person

In Brief

- Advanced agriculture, division of labour and knowledge of writing are some of the features of any civilisation.
- The earliest civilisations came up around 5000 BCE in river valleys. The Indus civilisation was one of them.
- Some of the important sites of the Indus civilisation are Mohenjodaro, Harappa, Mehrgarh (in Pakistan), Dholavira, Lothal (in Gujarat), Kalibangan (in Rajasthan) and Alamgirpur (in Uttar Pradesh).
- The cities of the Indus civilisation were well planned, with straight roads, walled citadels and well maintained drains. Houses were built using baked bricks.
- The people of Indus civilisation consumed barley, wheat, pulses, millets, fish, meat, milk and fruit.
- They wore cotton clothes and ornaments made of gold, silver and semi-precious stones.
- Metallurgy and pottery were well advanced in Indus civilisation; however, iron was unknown.
- The Indus civilisation had a well-established system of trade through road and sea.
- The decline of the Indus civilisation is widely believed to be due to natural disasters like earthquakes or floods.

Exercises

I. Fill in the blanks.

1. The Indus civilisation was highly developed by _____ BCE to _____ BCE.
2. Most of our knowledge of the Indus civilisation comes from excavations at _____ and _____.
3. The _____ system of Indus cities stands out as remarkable among the cities of the world at that time.
4. Within the citadel at Mohenjodaro, a structure with waterproofed walls called the _____ was found.
5. The Indus people mixed copper and tin to make _____.

II. True or false?

1. The Indus civilisation belongs to the Bronze Age.
2. The Indus Valley people used iron for making tools.
3. The weights found throughout the Indus territory are uniform.
4. In the Indus civilisation, houses were built on a raised platform to protect them from floods.
5. In the Indus civilisation, only women wore ornaments.

III. *Answer in brief.*

1. Mention two places in Pakistan and two in India, where Indus sites have been found.
2. What were the two parts into which the Indus cities were divided?
3. Give two examples for the advancement of arts in the Indus civilisation.
4. Write a brief note on the seals of the Indus civilisation.
5. What evidence suggests that the Indus people had trade relations with the Mesopotamians?

IV. *Answer in detail.*

1. Explain how improvements in agriculture lead to advancements in lifestyle.
2. Write a detailed note on the nature of town planning in the Indus cities.
3. What were the foods that the people of the Indus civilisation ate?
4. What do you know about the clothes worn by the people of the Indus civilisation?
5. Write a summary on the religious beliefs of the people of the Indus civilisation.
6. What could be the reasons for the decline of the Indus civilisation?

Enrichment Activities

- **Map Work:** On an outline map of the world, mark the location of the Indus Valley civilisation, the Mesopotamian civilisation, the Egyptian civilisation and the Chinese civilisation.
- **Project work/Group work:** Work in groups. Each group can study about any one of the river valley civilisations. Write about the people, administration, art or architecture, clothing and trade. Paste pictures that show interesting facts about each of the civilisations. The students can present the work in the form of a slide presentation, a chart or a booklet.
- **Art Work:** In the lesson, you read about the seals excavated from the Indus Valley. Use modelling clay, thermocol or even soap to make a seal. Engrave pictures and inscriptions on the seal.
- **Write Right:** Imagine you are living in Mohenjadaro. In about 50 words, write how you spend your day with your family and friends.

Multiple Choice Questions

1. For civilisation to occur, a society would need to have
   a. a system of advanced agriculture, people living in towns and cities, the knowledge of writing
   b. most of its people engaged in hunting and gathering, people living only in villages, division of labour
   c. most of its people engaged in banking and law, flourishing trade, tools made of steel
   d. a system of advanced agriculture, people living in towns and villages, tools made mainly of iron and steel
2. Urbanisation is the process of
   a. people moving from the mountains to the plains during winter
   b. people moving from villages to towns and cities
   c. people moving from towns and cities to the villages
   d. people moving from one country to another in search of jobs

3. The Indus Valley civilisation was a
   a. Neolithic civilisation
   b. Chalcolithic civilisation
   c. Bronze Age civilisation
   d. Mesolithic civilisation
4. The most striking feature of the Indus civilisation is the
   a. well-planned nature of its cities
   b. massive architecture of its cities
   c. script developed by the people
   d. highly advanced system of agriculture practiced by its farmers
5. The diet of the people of the Indus Valley civilisation consisted mainly of
   a. wheat, barley, rice, bajra, fish, milk
   b. wheat, barley, pulses, bajra, fish, milk
   c. wheat, barley, rice, ragi, meat, date
   d. wheat, barley, pulses, rice, fish, milk
6. We know that the people of the Indus civilisation had a flourishing system of trade because
   a. two large granaries found at Harappa and Mohenjodaro suggest the storage of grain for trade
   b. ornaments made in the Indus Valley have been found in Mesopotamia
   c. a dockyard has been found at Lothal
   d. all of the above
7. The possible causes for the sudden end of this civilisation are
   a. the landing of a meteorite
   b. earthquakes and floods
   c. excessive deforestation
   d. gradual migration of the Indus Valley people into the Indo-Gangetic Plain
      i. a, b and c
      ii. b and c

HOTS: Think and Answer

Do the town planners of today follow the same system that the people of the Indus Valley followed? Give reasons for your answer.

Values that enrich

The people of the Indus Valley did not build huge monuments or palaces. But, they obviously spent a great deal of time and effort in planning their city, so that they could lead a clean and comfortable life. What does this tell you about the values of the Indus Valley people?

Life skills

Civic responsibility/Self awareness

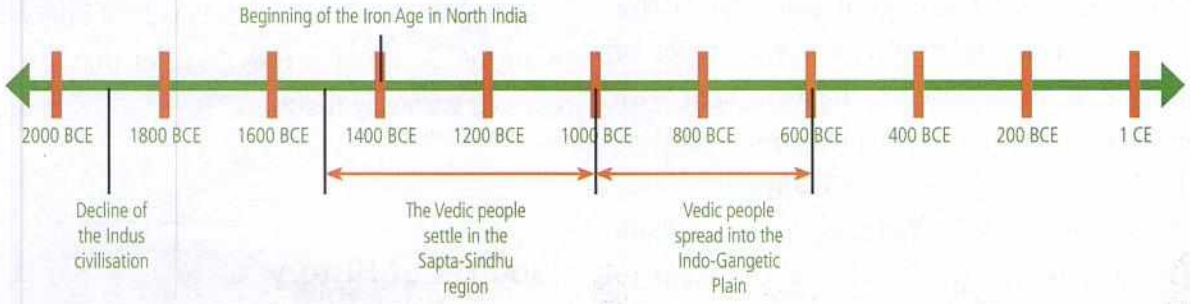
You just saw in this chapter that the people of the Indus civilisation had an excellent drainage system. They appear to have been people with a strong sense of civic responsibility. Civic responsibility is our duty towards society, and our duty towards keeping our surroundings clean. It is something many Indians these days seriously lack.

Are you a responsible citizen of society? Test yourself.

- Do you spit or urinate in public places, like the roadside?
- Do you throw your garbage by the roadside, away from the municipal dump?
- Do you tear pages out of library books, or damage them in any way?
- Do you eat things and throw the wrapper wherever you are standing?
- Do you follow traffic rules?
- Do you volunteer for any social service activity in your city, like teaching children?

Responsible members of society would never throw garbage in public spaces, spit or urinate in the open or damage public property. They would also volunteer to help out the less advantaged people of society in some meaningful way.

5. Different Ways of Life: the Vedic Period and Chalcolithic Settlements

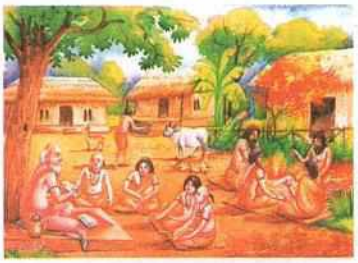


NEW GROUPS OF PEOPLE, NEW PATTERNS OF LIVING

With the decline of the Indus civilisation around 1900 BCE, the first phase of urbanisation in the Indian subcontinent came to an end. Based on archaeological evidence, it appears as if people went back to living in villages.

The beginning of the Vedic Age

Then, around 1500 BCE, groups of people started settling along the banks of rivers in the Punjab region. We come to know about these people and their lives from their holy books, the *Vedas*. Therefore, we now call them the **Vedic people**, and this period of Indian history is called the **Vedic period**. As the Vedic people called themselves 'Arya', historians also refer to these people as the **Aryans**.



For thousands of years, the Vedas were passed down orally from the teacher to the students.

ENRICHMENT ACTIVITY: BE A DETECTIVE

According to linguistics (the scientific study of languages) there is a common root between Sanskrit (the language of the Vedic people), and other Indo-European languages like Persian, Greek and German. There are, therefore, several words in common between these languages. For example, the word for 'mother' is ***mater*** in Latin, ***meter*** in Greek, ***mutter*** in German, and ***matr*** in Sanskrit. Find out some other words like this which are common between the languages. Share them with your class.

The Vedic people may have been some of the earliest people in the Indian subcontinent to domesticate the horse and use it to pull carts. They also knew the uses of iron. Hence, the rise of the Vedic culture also marks the beginning of the **Iron Age** in northern India.

Archaeological evidence of the Vedic period

There is some archaeological evidence of this period. Archaeologists identify two types of pottery that are believed to be associated with the Vedic settlers. One is black-and-red ware (BRW), found in the Indo-Gangetic divide and the upper Ganga-Yamuna doab (the land between two rivers). This has been dated to around 1450 to 1200 BCE. The second is painted grey ware (PGW), which has been dated to 1200 to 600 BCE. It has been found in the middle and eastern Gangetic Plain. Major sites include Sardargarh, Bairat and Noh in Rajasthan, Panipat and Ropar in Haryana, Delhi, and Alamgirpur, Hastinapur, Atranjikhera and Kannauj in Uttar Pradesh. Painted grey ware is typically grey in colour, finely made and painted with black or red geometric patterns. The shapes include flat-based convex-sided dishes, bowls, and vases (*lotas*).

Where did they live?

The ***Rig Veda***, the first book of the *Vedas*, tells us that around 1500 BCE, the Vedic people first settled down in the region surrounding the Indus and its tributaries. They called this land the Sapta Sindhu or the land of the seven rivers. The people were grouped into tribes. Cattle was their main source of wealth as it gave them milk, ghee and meat. The more the cattle, the wealthier the tribe was. So, it was not uncommon to have cattle wars.

From 1000 BCE to around 600 BCE, the Vedic people spread from the Sapta Sindhu region into the Indo-Gangetic plains. They cleared the thick forests by cutting and burning them. The land was then used for cultivation and settling.

The people lived in **wattle** and **daub houses**. Wattle and daub houses have a frame made of interwoven branches or wooden rods (wattle) that are then covered with clay (daub).

Sources of History

The word used for the plough in the Vedic literature is *langala* a word from Munda, a non-Vedic language. It is believed that the Vedic people learnt the use of the plough from the pre-Vedic groups, as the plough was used in India in Harappan times.

How were they ruled?

The **rajan** was the chief of the tribe. He was chosen by the people. He was assisted by the commander-in-chief of the army, known as the **senani**, and the priest or the **purohit**. The rajan was also advised by two assemblies of elders known as the **sabha** and the **samiti**. The most qualified member of the tribe was selected as the next rajan. The rajan received gifts in kind. He also received a share of the plunder when cattle raids took place. There was no regular tax.

In course of time, the rajan became more powerful. The chiefs battled among themselves for more

land. The victorious chief assumed more titles as more power was gained. From various texts and epics, we know that Kuru and Panchala were powerful tribes. The rajan performed rituals like the **Rajasuya** and **Ashwamedha** to gain supremacy over other chiefs.

As the rajan became more powerful, the sabha and the samiti lost their significance.

What kind of a society prevailed?

The smallest unit of society was the **kula** or the family. The eldest male member of the family, who was known as the **grahapati**, headed the kula. His children and grand-children too lived with him as a joint family. A group of kula formed a **grama** or village. A number of grama formed a **vis** or a clan. A group of vis formed a **jana** or tribe. A jana was headed by a **rajan** or tribal chief.

Some women participated in assemblies, but this was not a universal practice. In later years, however, women were no longer allowed to attend assemblies.

How was society categorised?

The people who composed the *Vedas* called themselves **arya** or noble ones, to distinguish themselves from the earlier inhabitants of the land. As the Vedic people increased in number and started migrating further into the Indo-Gangetic plain and the Deccan Plateau, they had to fight the local inhabitants for the possession of the land.

Vedic society was also classified on the basis of occupation or profession into four **varnas** or classes. The **brahmanas** were the priests, the **kshatriyas** were the class of rulers and the warriors, and the **vaishyas** were traders, cultivators and skilled workers. The **shudras** were mainly labourers.

There is a hymn in the *Rig Veda*, which tells us that the varnas mentioned were not hereditary and could be interchanged.

However, over a period of time, it became difficult for people to move out of the varna they were born into. The system was no longer based on one's profession. It had become hereditary. Imagine a pyramid. At the top were the priests. They held high positions because they were necessary for conducting all rituals. Next in importance were the warriors. By acquiring more lands, they had become powerful. The merchants and traders were next on the pyramid. They had become wealthy and powerful due to their trading activities. At the bottom of the pyramid were the labourers.

What was their occupation?

The Vedic people led a simple life. Cattle rearing and agriculture were their important occupations. As more people turned to agriculture as a means of livelihood, cattle as a source of wealth became less significant and land became more valuable.

The people grew rice, wheat and barley. They also worked as potters, weavers, carpenters and chariot makers. The **barter** system was in practice, i.e., goods were exchanged without the use of money. Long-distance trade is not known to have been common.

After 1000 BCE, agriculture became the most important occupation. Farming equipment made of iron was far superior to the wooden equipment, and this played a vital role in bringing more land under cultivation. With improved technology and a better lifestyle, a variety of occupations like leather making and jewellery making came up.

The story of pottery

Pottery is made from clay. The clay is moulded into the required shape and fired in a kiln (or furnace) at a very high temperature. This strengthens the pottery and makes it permanently hard. Pottery can either be shaped by hand or shaped on a wheel. The earliest pottery was hand made. In the course of time, the potter's wheel was discovered. The clay is thrown on to the centre of a potter's wheel, which is rotated by the potter. While the wheel rotates, the potter moulds the clay to the required shape. Ask your teacher to take your class to watch a potter at work.

Painted grey ware

Discover more...

The people started trading with places across the seas too.

The Vedic people appear to have given a lot of importance to recreation—they engaged in hunting, wrestling, gambling, music and dance.

What did they worship?

The Vedic people worshipped the sky, the wind, the rain, fire and other elements of nature as gods and goddesses. The god of thunder and war was **Indra**, the most important of all. Other gods worshipped included **Surya**, the Sun god, **Varuna**, the god of rain, **Prithvi**, the goddess of the **Earth**, and **Agni**, the god of fire. Sacrifices or **yajnas** were performed to keep the gods and goddesses happy.

In course of time, as the Vedic people slowly spread across northern India, they started worshipping new gods like **Brahma**, **Vishnu** and **Shiva**. Goddesses like **Saraswati** and **Lakshmi** were also worshipped. Several rituals were considered necessary to make them happy. The rituals became elaborate over time.

The religious books of the Vedic people

The *Vedas* were the main religious books of the Vedic people. The *Vedas* contain **hymns** (songs in praise of god) composed in Sanskrit. They also contain details of rituals to be performed to appease the gods.

There are four *Vedas*—the *Rig Veda*, the *Yajur Veda*, the *Sama Veda* and the *Atharva Veda*. The *Rig Veda* is the oldest of the *Vedas*. It is believed to have been composed between 1500 and 1100 BCE. It consists of 1028 hymns. Each of the *Vedas* has four parts–the *Samhitas*, the *Aranyakas*, the *Brahmanas* and the *Upanishads*. The *Puranas* and the epics, *Ramayana* and *Mahabharata*, are also a part of Vedic religious literature. These books tell us about the life of the Vedic people—their beliefs, the nature of their society, their political set-up, their dress and food habits, the occupations they followed, and the nature of their economy.

Today, we can get printed copies of the *Vedas*. But in those days, the *Vedas* were not written down. They were transmitted orally from the teachers to the students (students learnt the hymns from their teachers, and they had to memorise them). They were written down on palm leaf or birch bark only around the 2nd century bce. One of the earliest surviving manuscripts of the *Rig Veda* dates to around the 11th century ce.

An ancient manuscript of the Bhagawata Purana

Discover more...

CHALCOLITHIC SETTLEMENTS IN THE REST OF INDIA

Around the time the Indus Valley settlements were declining in the north-west, and the Vedic people began settling in North India, agriculture-based life had started in other parts of the country. More than a thousand Neolithic and Chalcolithic sites that flourished between 2800 BCE and 1400 BCE have been discovered in various parts of the country. The Chalcolithic Age, as you saw in Chapter 2, was a period when copper was used, along with stone, for the production of tools, weapons and ornaments. Thus, along with copper tools, the Chalcolithic settlements also used microliths, flakes and blades, stone and terracotta sling balls.

CASE STUDY: INAMGAON

Inamgaon, on the banks of the river Ghod in Maharashtra, is one of the largest Chalcolithic settlements in India. The Chalcolithic phase of this settlement lasted for around 900 years, from 1600 BCE to 700 BCE, during which the people here used both stone and copper. The people of Inamgaon were mainly farmers.

Archaeologists have found the remains of at least 134 mud houses at Inamgaon. The houses are rectangular structures measuring 5×3 m. The walls of the houses were probably built of mud and branches of trees, while the roofs were thatched with grass. The richer farmers lived in the centre of the settlement. One of the biggest houses here had as many as five rooms.

A few tools and ornaments made out of copper have been found at Inamgaon. Stone tools consisted of blades and microliths. We also find the use of domestic stone tools like grinding stones and pestles to grind or crush grains.

On the basis of the plant seeds found at the site, we know that the people of Inamgaon grew barley, wheat, peas, gram and beans. They also cultivated rice, jowar and ragi. They domesticated animals like cattle, sheep, goats, dogs and pigs, as can be seen from the animal bones found here. The discovery of fish bones and fish-hooks attest to the practice of fishing here.

Several terracotta figurines have been found at Inamgaon, of which the most common animal figure is that of the bull. Some figurines, thought to be of mother goddesses, have also been found.

The pottery of the people was of quite a high standard. It was wheel-made and fired. Pottery kilns have been found at Inamgaon. The pottery has a red background with simple geometric designs painted on it in black.

A large number of human burial sites have been found at Inamgaon. Clay pots containing food and water were placed along with the body. The people worshipped both gods and goddesses.

A reconstructed house in Inamgaon

Almost all the Chalcolithic sites in Central and Western India went into a decline between 1400 and 500 BCE. There was a great reduction in rainfall during this period. Settled agriculture started again here only after 500 BCE. The people led nomadic lives during this period.

Case study: The megalithic culture of South India

In South India, we find the emergence of megalithic cultures around 1000 BCE. In this culture, burial sites are marked by extremely large stones called megaliths.

There are different types of graves. Some are cut into rocks and covered with a flat stone. There are a few enclosed tombs too, with stones placed around them in a circular fashion. Yet another kind of grave is where the bones are put in a pot or urn and buried. This was then surrounded by a ring of stones. Some of the sites have pits (called cists) lined with stones, to contain gifts for the dead.

The megalithic burial sites are associated with the spread of the use of iron. Iron tools were used to cut and work the megaliths. The habitations found near these burial grounds are scanty, suggesting that the megaliths were put up by nomadic groups of people as a kind of marker in case they ever wanted to return to the site.

The graves contain several iron implements and weapons. They also contain the bones of a number of animals like the cow, goat, sheep, dog, horse, birds, crocodile, fish, etc. A variety of pots have also been found in some graves.

A dolmen or megalithic tomb in Marayoor, Kerala

A cist burial site excavated at Kodumanal, Tamil Nadu
(Photo credit: K. Ananthan / The Hindu)

Glossary

pastoralist: a person who keeps cattle
doab: the area between two rivers
tributary: a branch that flows into the main stream of a river
hymn: a song in praise of the gods
epic: a long poem describing the deeds of legendary heroes
kiln: a furnace for burning bricks

In Brief

- Around the time of the decline of Harappan civilisation, the Vedic people started settling along the banks of rivers in the Punjab region. They were pastoralists.
- The major sources of information on the Vedic Age are their four sacred books called the *Vedas*—the *Rig, Yajur, Sama* and *Atharva Vedas*.
- Around 1500 BCE, the Vedic people settled in the region of the Indus and its tributaries, the area known as Sapta Sindhu. Later they spread into the Indo-Gangetic Plain.
- The chief of the tribe was known as the rajan; he was assisted by two assemblies called the sabha and the samiti.
- There were four varnas, which were initially based on occupation but later became hereditary. They were the brahmanas, the kshatriyas, the vaishyas and the shudras.
- Agriculture and cattle rearing were the main occupation of the Vedic people. They grew rice, wheat and barley.
- One of the largest Chalcolithic settlements is seen in Inamgaon in Maharashtra.
- In South India, megalithic cultures emerged around 1000 BCE. They are marked by huge burial stones.

Exercises

I. Fill in the blanks.

1. The major source for the study of the history of the Vedic people are the _____.
2. The rise of the Vedic culture marks the beginning of the _____ Age in northern India.
3. In Vedic society, the chief of tribe was called the _____.
4. In Vedic society, the warrior class was called the _____.
5. The ancient settlement found at Inamgaon belongs to the _____ Age.

II. True or false?

1. The Vedic people first settled in the Sapta Sindhu region.
2. The Vedic people lived in brick houses.
3. The priests were at the top of the social pyramid in Vedic society.
4. The epics *Ramayana* and *Mahabharata* were written during the Vedic period.
5. The ancient people who lived at the Inamgaon settlement used both stone and copper.

III. Answer in brief.

1. Where did the Vedic people first settle down?
2. Name the two types of pottery associated with the Vedic people.
3. What was the impact of tools made of iron on agriculture?
4. Name the various religious books of the Vedic people.
5. Distinguish between microlith and megalith.

IV. Answer in detail.

1. Describe the government system of the Vedic Age.
2. Explain the pyramid-like social system of the Vedic Age. How did it change over time?
3. Describe the nature of economy of the Vedic society.
4. Give a sketch of the life of the Chalcolithic people of Inamgaon.
5. Give an account of the megalithic settlements of South India.

Enrichment Activities

- **Project/Presentation:** Do a project, or make a presentation, on the Vedic people. Focus on their lifestyle, their use of iron and horses, and the nature of their religion.
  Or
  Do a project, or make a presentation on the Chalcolithic settlements of India. Choose any one settlement, and focus on the occupation of the people, their houses, clothing, food, religion and art.
- **Discussion:** Have a discussion in class on the impact of the Vedic people on India.
- **Role play:** Work in groups. Enact a small skit on any story taken from the *Ramayana* or the *Mahabharata*. You will have to write the dialogues for each person in the group. You could take the help of your teacher.
- **Model making:** In the lesson, you have read about the wattle and daub houses that the Vedic people lived in. Make a model of a wattle and daub house. Make a framework for the house by weaving thin pieces of wood around vertical sticks. (You could use sticks from coconut or bamboo brooms.) Now press wet mud from both sides onto the woven frame. Let it dry. Make the roof with hay or any other material of your choice. Present your work in class.

Multiple Choice Questions

1. In the beginning, the main occupation of the Vedic people was:
   a. pottery
   b. cattle rearing
   c. weaving cloth
   d. making jewellery
2. The rise of the Vedic culture marks the beginning of this age in northern India:
   a. Iron Age
   b. Bronze Age
   c. Stone Age
   d. Megalithic Age
3. Where did the Vedic people first settle?
   a. around the river Indus and its tributaries
   b. in the Indo-Gangetic region
   c. in the Himalayas
   d. none of the above
4. In the Vedic society, a number of kula or families formed a
   a. grama
   b. sabha
   c. vis
   d. jana

5. The gods and goddesses worshipped by the Vedic people during the Early Vedic Period included:
   a. Indra, Surya, Varuna, Shiva and Brahma
   b. Brahma, Vishnu, Shiva, Indra and Lakshmi
   c. Saraswati, Lakshmi, Brahma, Vishnu and Shiva
   d. Indra, Surya, Varuna, Prithvi and Agni
6. The main religious books of the Vedic people were the
   a. *Ramayana*
   b. *Mahabharata*
   c. *Vedas*
   d. *Upanishads*
7. Archaeologists describe Inamgaon in Maharashtra as a Chalcolithic settlement. They do so because:
   a. tools made of both iron and stone have been found here
   b. the remains of more than 134 mud houses have been found here
   c. the pottery found here was of a high standard
   d. tools, weapons and ornaments made of copper and stone have been found here
8. In the megalithic cultures of South India,
   a. people built large temples in honour of the gods
   b. the people built cities with well planned drainage systems
   c. the people lived in houses marked by extremely large stones called megaliths
   d. the people buried their dead and marked these burial sites with extremely large stones called megaliths

HOTS: Think and Answer

As the Vedic culture spread across the Indo-Gangetic region, what impact would it have had on the earlier inhabitants of the land? Do you think their life changed? Or did it continue the way it was? Explain your answer.

Values that enrich

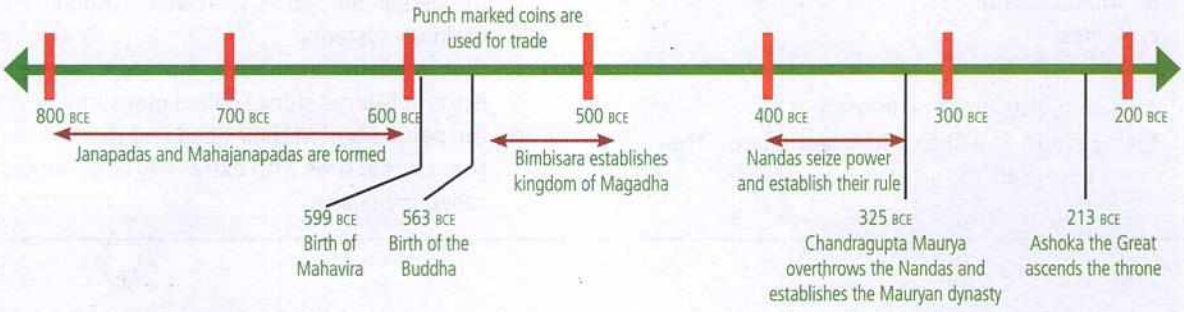
As the Vedic people spread into new lands, they must have faced many obstacles and made many lifestyle changes to adapt to their new environment. Yet they established themselves firmly here. What values can we learn from this situation?

Life skills

Developing empathy/logical reasoning

Despite several efforts made by the government to eradicate the caste system, it still flourishes in India today. Do you think the caste system has any meaning in today's world? Have a discussion in class.

6. The Early States— Janapadas and Mahajanapadas



By 600 BCE, the Vedic people had spread out over the Indo-Gangetic Plains. The Vedic people absorbed several local words into their language, and learnt practices like ploughing from the earlier inhabitants of the land. In turn, the Vedic religious practices and culture made a lasting impact on the local inhabitants. In course of time, this intermixing gave rise to the first post-Indus states and kingdoms. This period of the Vedic expansion into the Indo-Gangetic Plain is called the Later Vedic Period.

JANAPADAS TO MAHAJANAPADAS

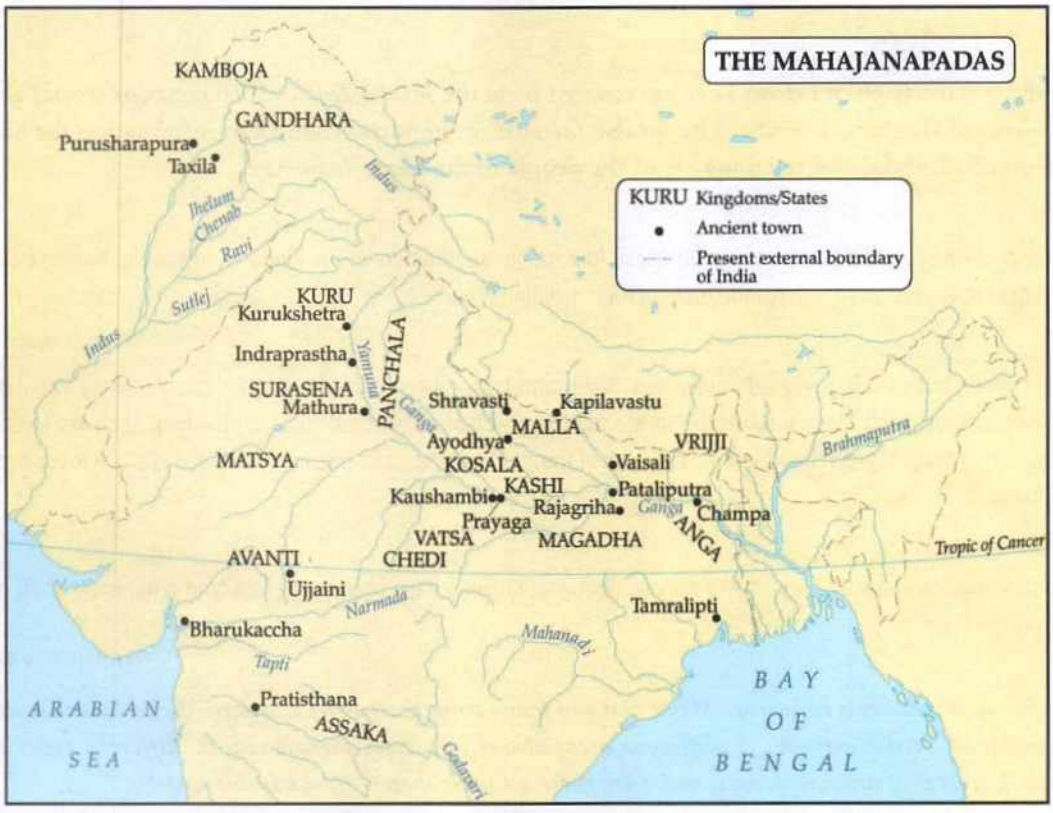
The Vedic people cleared the thick forests of the Indo-Gangetic plains with the help of iron tools and brought more land under cultivation. As they started leading settled lives as cultivators, their settlements became permanent. Each of these settlements usually consisted of a single jana or tribe. (As you learnt in the last chapter, a jana or tribe was formed of many families or kulas.) These tribal settlements were called **janapadas**. The janapadas were ruled by rajans or chiefs.

The rajans fought among themselves for control over land, as whoever controlled the largest territory was considered the most powerful. The powerful states that emerged after defeating the smaller states or janapadas came to be known as **mahajanapadas**.

According to the Buddhist texts ***Anguttara Nikaya***, and ***Digha Nikaya***, by around 600 BCE, there were 16 mahajanapadas, such as **Magadha**, **Avanti**, **Vatsa** and **Kosala**. Over time, Magadha emerged as the most powerful of all the mahajanapadas.

What is a state?

A **state** is a political organisation that has sovereignty over a geographical area—this means that the



Map of the Mahajanapadas

ENRICHMENT ACTIVITY: MAP WORK

Study the map above. Name at least 10 mahajanapadas. Also name 10 main towns of India of this period. Locate and mark them on a map of India.

government is free from outside control. In other words, the rajan or the chief of the janapada now had total control over the area where the tribe lived. The rajan imposed laws and rules over the area he ruled, which the people of the state had to obey. The earliest forms of the state usually came up wherever and whenever agriculture (and later, writing) came up. The early states were usually of two types—**monarchies** and **republics**.

MONARCHIES AND REPUBLICS

The 16 mahajanapadas were concentrated in the Gangetic plain, and they were mostly **monarchies** (i.e., ruled by kings or monarchs). The king became more powerful, and the kingship was now passed from father to son, i.e., it became **hereditary**. The king was considered divine. The king imposed taxes to administer the land. The army was under his command and he was the lawmaker too.

The other political system that existed during the same period was that of the **republics**. In a republic the people chose or elected their rulers. Power lay with the people of the state, not with the ruler. The republics were also known as **gana-sanghas**. These republics were located in the less fertile tracts of land. They were mostly concentrated at, for example, the foothills of the Himalayas, in north-western India and in Punjab.

Some well-known republics were those of the Shakyas, Mallas, Vajjis (Vrijjis) and Yadavas. These republics were ruled by a chief known as the **ganapati**, and the office was not hereditary. The ganapati was considered a chief rather than a king. The assembly played a vital role in the

Sources of History

Read the three extracts given below. They are sourced from the *Jataka Tales*, which contains stories about the previous births of Gautama Buddha. The *Jataka Tales* are an important source of information for historians about the political, social and religious life of the people in the Later Vedic Age.

Extract 1

In (times) past, while Brahmadatta reigned in Váránasí, four bráhmana-brothers in the kingdom of Kási, ... having built huts at regular distances in the region of Himavanta, took up their dwelling there.

Extract 2

In times past, while Brahmadatta reigned in Varanasi, Bodhisatta having been born in an agriculturist's family, when grown up gained his livelihood by tilling the ground. At this time a merchant wanders about trafficking by the help of an ass. In every place he comes to, having taken his merchandise from the back of the ass, he clothes him in a lion's skin and lets him loose into the rice and barley fields. ...

Extract 3

In times past, while Brahmadatta reigned in Varanasi, Bodhisatta having been born in the family of a minister, when grown up became the king's mentor. ...

Translated by V. Fausböll

Now imagine that you are a historian. What can you learn from these brief extracts? Write down: 1. any place names mentioned in the extracts; 2. different occupations of society mentioned; 3. different types of crops mentioned; 4. names of animals mentioned. (Are these animals shown on the Indus seals?)

administration of the land. Of course, like the rajan of the mahajanapadas, he also collected different types of taxes and had a strong army.

SOURCES OF INFORMATION

Our main sources of information for this period are various Buddhist, Jain and Vedic texts, like the *Jataka Tales*, the *Brahmanas*, the *Upanishads* and the *Ramayana* and *Mahabharata*.

There is also some archaeological evidence of this period. The northern black polished ware found in several sites in the Gangetic plain is associated by historians with this period of Indian history.

LIFE IN THE MAHAJANAPADAS

Growth of new crafts

As the people settled down to a life of agriculture, they soon started producing more food than they needed to survive. As surplus food was produced by the cultivators, some people could now take up other crafts like pottery, carpentry, blacksmithing, weaving, etc. Pots of different colours have been found at many sites.

Growth of trade and the formation of guilds

Trade increased and spread. It became a very important activity. Sources tell us how merchants carried textiles, pots and many other types of crafts to the markets for trade. Sometimes the traders crossed rivers in the search for new markets and started using **coins** as payment for trade, instead of bartering goods. We have evidence of the use of punch-marked coins in trade—silver and copper coins were punched with symbols of hills or trees. Taxila (in Pakistan), Champa and Bharukaccha (Bharuch in Gujarat) emerged as important trading centres.

Punch-marked coins from Kosala, ca 600–470 BC

We know from literary sources that craftspeople were organised into guilds known as **shrenis** then. Different crafts had different guilds. Each shreni had prescribed rules and regulations and a code of conduct too.

Growth of Urban Settlements

Some of the bigger settlements grew into towns and cities, or urban settlements. Most of the settlements which became towns and cities were the capitals of the mahajanapadas and janapadas. Others were centres of trade or places of worship. Pataliputra, Kausambi, Rajgir, Varanasi were some of the important cities. Many of the cities, especially the capitals of the mahajanapadas, had walls of wood or brick or stone around them. This is known as fortification.

ENRICHMENT ACTIVITY

Why do you think the rulers believed in having strong walls around the city? Do our cities have fortification nowadays? Have a discussion in class.

While the farmers lived in the villages, administrators, craftspeople and traders lived mainly in the cities.

Imposition of taxes

To run a family, money is needed. That is the reason why your parents work. Similarly, to manage a country, more money is needed. Most of this money is got in the form of taxes.

In Vedic India, taxes were imposed by the rulers on the revenue or income earned by the people of the kingdom.

The rajan of the mahajanapada, therefore, collected taxes to administer the land and to maintain a large army for defending the kingdom.

- The rajan was considered the owner of the land and so collected one-sixth of the produce as tax from the farmers.
- Craftsmen paid taxes either by supplying craft items or possibly by working for a certain number of days for the king.
- Even cattle and sheep herders paid taxes in the form of animals and animal products.
- Traders were taxed on goods bought and sold.
- The king was considered the owner of wasteland and the jungles, and so hunters and gatherers also had to give a part of their produce to the rajan.

Let us now study two mahajanapadas to understand how they grew to become great powers.

CASE STUDY: MAGADHA

Starting out as a small territory, over a period of time, Magadha grew into a mighty mahajanapada. Its first capital was at Rajagriha, but was later shifted to Pataliputra. The first known ruler of this kingdom, **Bimbisara** (ca 558–491 BCE), belonged to the Haryanka dynasty. A capable ruler, he set up an excellent administrative system and built an extensive network of roads and communication. He patronised sages, and we find that both the Jains and the Buddhists claimed him as their devotee. He strengthened his position by annexing the neighbouring state of Anga.

Around 492 BCE, Bimbisara's son, **Ajatashatru**, killed his father and seized the throne. Ajatashatru was an efficient ruler and was also considered fair and just. Like his father, he too had an interest in religious matters, especially in Buddhism. Ajatashatru shifted his capital to Pataliputra. He annexed Kosala and Vrijji, but after his death in 461 BCE, the kingdom started disintegrating.

A number of kings followed him and ultimately the **Sisunagas** came to power. Later, they were overthrown, and the **Nandas** seized power around 400 BCE. The Nandas, we come to know from sources, were unpopular with the masses. They ruled Magadha for almost 75 years, till the last Nanda king was overthrown by **Chandragupta Maurya**.

Why did Magadha emerge so powerful? The reasons were many. Magadha had a very good supply of forest timber and elephants. It had control over the lands bordering the Ganga, and this gave it ready access to trade. Magadha controlled the important river port of Champa, which gave it great advantage in matters of trade and in times of war. Magadha also had abundant iron and copper deposits. Iron was needed to make weapons. It was also used to make agricultural tools like the plough. Magadha was located in the fertile Gangetic plain. This helped the growth of agriculture and made Magadha prosperous. All these factors worked to make Magadha more powerful than its rivals.

Bimbisara entering Rajagriha—a carving from the Sanchi Stupa

CASE STUDY: VAJJI (VRIJJI)

The Vajji (or Vrijji) mahajanapada was a republic or gana-sangha. It was one of the world's first democratic republics. It was located to the north of the Ganga, extending into the foothills of the Himalayas, and included parts of modern-day Nepal. Its capital was the city of Vaishali.

Vajji was ruled by a confederacy (union) of eight clans. The republic was governed by an assembly consisting of representatives of the eight clans. The chairman of the assembly was called the **ganapramukh**. But the ganapramukh's position was not hereditary—it was like that of a chief rather than that of a king. Decisions on important issues were taken after discussions were held in the assembly. If a decision could not be reached, the matter was put to vote. The main clans of the Vajji confederacy included the Lichchhavis, the Vajjis, the Jnatrikas and the Videhas.

Glossary

assimilated: absorbed; mixed in with
state: an independent territory
rajan: a tribal chief
republic: rule by the people
gana-sangha: early republics of the Later Vedic period
janapada: a tribal state ruled by a rajan
mahajanapada: a large state formed by the capture of many janapadas
guild: an association of people involved in the same occupation
barter system: a system of exchanging things without using money
confederacy: a union

In Brief

- By 600 BCE, the Vedic people had spread out over the Indo-Gangetic Plains and intermixed with the local inhabitants.
- The earliest states were tribal settlements known as janapadas ruled by rajans or chiefs.
- The rajans fought among themselves for power and the winners formed mahajanapadas by annexing many janapadas.
- Some states were monarchies ruled by hereditary kings. Other states were republics ruled by elected chiefs called ganapatis. The republics were called gana–sanghas.
- Trading activities expanded and punch-marked coins were used. Craftspeople formed different guilds known as shrenis.
- Bigger settlements grew into towns and cities.
- Magadha was a mighty mahajanapada; its first known ruler was Bimbisara.
- The Vajji mahajanapada was a republic governed by an assembly of representatives of all the clans.

Enrichment Activities

- **Reading Activity:** Read stories from the *Jataka Tales*. What did you learn about the nature of society, the customs, the dress, the food habits and the occupations of the people in Later Vedic India, from these stories? Write down your findings, and share them with your classmates.
- **Project/Presentation:** Create a project, or make a presentation, on the history of coins in Ancient India. Trace the origin of coins, the different materials used to make them, the purpose they served, and the different shapes they were made in.
- **Diary Entry:** Imagine that you are a citizen of Magadha. You have just returned from a trip to the republic of Vajji. Write a diary entry describing your journey and your experiences in Vajji to your friends. Describe the system of government in Vajji and how it is different from the system followed in Magadha. Also describe how the society and customs are different in the two places.
- **Map Work:** On a map of South Asia, mark the extent of the Mauryan Empire during the reign of Chandragupta Maurya.

Exercises

I. Fill in the blanks.

1. Small tribal settlements ruled by rajans were called _____.
2. There were 16 mahajanapadas concentrated in the _____ Plain.
3. The most powerful mahajanapada of the time was _____.
4. The chief of a republic state was known as a _____.
5. Taxila and Champa were major centres of _____.
6. Ajatashatru changed the capital of Magadha from _____ to _____.

II. True or false?

1. The king of the mahajanapada was elected by the people.
2. The republic states were known as gana-sanghas.
3. The capital cities of mahajanapadas had walls around them.
4. The chief of a monarchy was known as a ganapati.
5. The mahajanapada of Vajji was a monarchy.

III. Answer in brief.

1. Define a state.
2. What are the main sources of information about the Later Vedic period?
3. What is the type of pottery associated with the Later Vedic period?
4. What were the two types of early states?
5. Give two examples of monarchies and two examples of republic states.
6. What are punch-marked coins?
7. Mention any two taxes collected by the rulers of mahajanapadas.

IV. Answer in detail.

1. What were the differences and similarities between the monarchies and republics that emerged in the Later Vedic Period?
2. Write a brief note on i) Bimbisara and ii) Ajatashatru.
3. Explain the growth of Magadha into a powerful state.
4. Give an account of the governance in the republics, citing a case study.

Multiple Choice Questions

1. Of the 16 mahajanapadas that emerged by around 600 BCE, the most powerful was
   a. Avanti
   b. Kosala
   c. Magadha
   d. Vatsa
2. In a monarchy,
   a. power was hereditary, that is, it was passed from father to child
   b. people chose or elected their leader
   c. the assembly had a vital role to play in ruling the kingdom
   d. the power lay with the people of the state, not with the ruler
3. Some well-known republics were
   a. Magadha, Shakya, Kosala, Vrijji
   b. Gandhara, Magadha, Shakya, Malla
   c. Vrijji, Malla, Shakya, Yadava
   d. Magadha, Avanti, Kosala, Chedi

4. What led to the growth of new crafts around 600 BCE?
   a. People living in towns and cities needed an occupation that was not based on agriculture.
   b. Too many people turned to agriculture, resulting in too much pressure on the land, forcing some farmers to take to new crafts.
   c. Since surplus food was now produced by farmers, some people could take up other crafts.
   d. All of the above.
5. How did the formation of trade guilds help the traders?
   a. It helped them get to know each other.
   b. The traders could charge a higher price for their products.
   c. By having rules and regulations and a code of conduct, the guilds helped to organise the traders and thus made them stronger.
   d. All of the above.
6. Why did Magadha emerge as the most powerful Mahajanapada?
   a. It was located in the rich Gangetic plain which helped the growth of agriculture, and made Magadha prosperous.
   b. It had control over the port of Champa which helped trade and in times of war.
   c. It had rich iron and copper deposits which were needed for making weapons and agricultural tools.
   d. All of the above.
7. Which of these statements proves that the mahajanapada of Vajji was a republic?
   a. It was located at the foothills of the Himalayas, where most of the other republics of Vedic India were located.
   b. It was governed by an assembly which consisted of the representatives of the eight main clans of Vajji.
   c. The chairman of the assembly was called ganapramukh but his position was not hereditary.
   d. Important decisions were taken after discussions in the assembly, or through voting.
      i. a, b, c
      ii. b, c, d
      iii. c, d

HOTS: Think and Answer

You have learnt about the difference between a monarchy and a republic. Which do you think is a better system of government? Justify your answer. Do you think India would have progressed faster if it had been a monarchy instead of a democracy?

Values that enrich

The people of Magadha took up new crafts or professions like pottery, carpentry and weaving. They travelled to other places to market their goods. Each occupation had organised guilds that helped the people market their goods. What lessons can we learn from the people of Magadha?

Life skills

Creative thinking

How much time do you spend each week in front of the television, or playing games on the computer? Studies have shown that if children spend more than 4 hours of 'screen time' in a week, it can affect their physical and mental health.

Rediscover the joys of playing real games.

Invent a game. Be original. It can be an indoor game or an outdoor game. Share it with your class.

Research ancient games online.

7. Great Thinkers and New Beliefs

In the previous chapter, you studied about the growth of the janapadas and mahajanapadas. In this chapter, you will learn about some great thinkers who emerged around Magadha during the Later Vedic Age and about the new faiths they established.

The Later Vedic Age was a period of prosperity in several parts of the fertile Gangetic plains. People took to arts, trade flourished, and towns and cities sprang up. But with prosperity came a sense of disquiet. Material wealth did not necessarily bring happiness.

SOCIETY IN THE 7th CENTURY BCE

By the 7th century BCE, the Vedic religion had lost its simplicity. Its main focus was now on a variety of expensive rituals. Elaborate rituals such as the Rajasuya and the Ashwamedha were performed by priests on behalf of chiefs and kings. As these rituals were conducted with money collected from the people as taxes, the burden on them was immense.

The varna system was no longer flexible. A person's caste was largely decided by birth and not by occupation. The power of the priestly class increased. They declared that the only way to reach god was through them.

Over time, people started questioning the power of the priestly classes. They questioned the relevance of rituals and the importance given to Sanskrit.

Statue of Buddha from Mathura, now at the Patna Museum

They started resenting the caste system. Some people also felt the need to understand the purpose of life and the meaning of death. They felt that they needed a different set of beliefs.

In response to this widespread feeling of discontent, several new ideas and beliefs were born. More than 60 different schools of thought were believed to have emerged in India around the 6th century BCE. Of these, the ones that captured the imagination of the people were Jainism, Buddhism and the teachings of the *Upanishads*.

THE UPANISHADS

The *Upanishads* form the last part of the *Vedas*, and deal with philosophical questions such as: 'What is this world? Who am I? What becomes of me after death?'. The *Upanishads* are believed to have been composed between the 7th and the 4th centuries BCE, though some may have been composed at a much later date. According to the *Upanishads*, all living beings have a soul, the **atman**, which survives even after the body dies. According to the *Upanishads*, a person could reach god through bhakti (personal devotion to god). This could be done without the help of priests or rituals. The *Upanishads* also taught the law of **karma**—the concept that what we experience in our present life is a result of our past actions. The *Upanishads* laid stress on the practice of yoga and meditation for a healthy life.

The six schools of Indian philosophy

The sages of ancient India are believed to have developed six schools of philosophy. Each school came to be associated with a particular sage.

The Nyaya School was developed by Sage Gautama.

The Vaisesika School was founded by Sage Kannada.

The Samkhya School was founded by Sage Kapila.

Sage Patanjali developed yoga, which teaches the methods by which one can control the mind through meditation.

The Mimamsa School was founded by Sage Jamini.

Sage Vyasa is considered the founder of Vedanta.

Discover more...

JAINISM

The roots of the Jain faith can be traced to a succession of 24 **jinas** or **tirthankaras**. A jina is one who has conquered anger, passion, greed and ego through meditation and self-awareness. The followers of a jina are called **Jains**. Jainism gained widespread popularity under **Vardhamana Mahavira**, the last of the 24 tirthankaras.

According to some historians, Vardhamana Mahavira was born around 599 BCE near Vaishali in Bihar. His father, Siddhartha, was a chieftain of the Lichchhavi clan, and his wife was Trishala.

By the time he was 30, Vardhamana renounced his family ties to search for the truth. He spent 12 long years in prayer and penance, after which he attained enlightenment. He came to be known as Jina or Mahavira (the great victor who had conquered the self). He discarded his clothes as he felt that they were a symbol of bodily consciousness.

He spent the remaining years of his life spreading his teachings to a large number of followers. He preached in Prakrit, the language of the common people. He died in Pava, in present-day south Bihar, around 527 BCE. The religion he established came to be known as Jainism.

The teachings of Mahavira

Mahavira taught his followers to believe in, and practise:

- ahimsa, or absolute non-violence, even towards animals, insects, birds and plants

Sources of History

The *Uttaradhyayana Sutra* is one of the most important sacred books of the Svetambara Jains. It consists of 36 chapters, each of which deals with aspects of Jain doctrine and discipline. It is believed by some to contain the actual words of Mahavira. Given below is an extract from this book which highlights how, among the Jains, a person's position depends on what one does and not on birth.

'One does not become a monk by the tonsure, nor a muni by living in the woods, nor an ascetic by wearing grass and bark. One becomes a monk by equanimity, a muni by knowledge and an ascetic by penance. By one's actions one becomes a brahmana or a kshatriya, a vaishya or a shudra.'

Have a debate in class on the topic "A person's position in life is determined not by birth, but by their actions."

Vardhamana Mahavira

- honesty
- kindness
- truthfulness
- not coveting or desiring things belonging to others

Mahavira laid emphasis on the attainment of **nirvana** or freedom from the cycle of life and death. This was possible only if one could free oneself of **karma** or destiny. A person could rise above karma by leading a good and disciplined life.

He said that nirvana could be attained by practising the ***triratna*** (or three jewels)—right faith, right knowledge and right action. He did not believe in the caste system, and taught that all humans were equal. He did not lay emphasis on the need for gods or rituals as necessities for leading a moral life.

The spread of Jainism

Jainism soon attracted many followers. One of the main reasons for this was that Mahavira taught in Prakrit, which was the language of the common people. In course of time, the Jaina (as followers of Mahavira came to be called) broke up into two groups, the **svetambaras** and the **digambaras**. The digambaras did not wear clothes. They were 'sky-clad' as the word digambara means. The svetambaras wore white garments. Svetambara Jainism is more widespread these days.

The Jain monks spread Mahavira's teachings from Odisha to Rajasthan and from Karnataka to Tamil Nadu. But Jainism did not spread as quickly or as far as Buddhism. Mahavira's insistence on absolute non-violence made it a more difficult faith to follow. Followers of Jainism built several temples, cave-temples and monasteries.

BUDDHISM

Siddhartha Gautama, as Buddha was known in his youth, was the founder of Buddhism. He is believed to have been a contemporary of Mahavira. Many miracles and legends are connected with the birth of Siddhartha.

Early life

Siddhartha was born in Lumbini, in present-day

Buddha leaving the palace, sculpture from Gandhara, 2nd century BCE

Nepal. He is believed to have been born around the 6th century BCE. His father Suddhodana was one of the chieftains of the Shakya clan, and his mother was Mayadevi. It is believed that there was a prophecy made at the time of his birth that the prince would one day renounce all worldly belongings and become a great sage. To prevent this from happening, his father shielded him from suffering and hardships. Married to Yashodhara in his youth, Siddhartha had a son, Rahula.

One day as Siddhartha rode out to the royal park, he saw sights which changed his life forever. He saw an old man, a sick man and a corpse (dead body). He was deeply saddened by the suffering he saw around him. Finally, he saw an ascetic, and was struck by the peace on the man's face. The prince decided to leave his family to search for truth and the meaning of life. He was around 29 years old at that time.

The journey to become the Buddha

Siddhartha wandered for years, leading a life of great austerity. At Gaya, he sat under a pipal tree, and sank into deep meditation for 49 days. Around the year 528 BCE, Siddhartha attained enlightenment. He now came to be known as the Buddha, or 'the enlightened one'.

The Buddha's doctrine

Buddha gave his first sermon in a deer park at Sarnath, near Varanasi. He expounded the doctrine of the **four noble truths**, which constitute the essence of his teachings. They are:

- Life is full of suffering.
- This suffering has a cause.
- The cause of this sorrow is desire.
- Getting rid of desires and wants will lead to peace.

For 40 years after his enlightenment, Buddha wandered around the country, preaching to people about how to rid their lives of suffering and pain, and about desires and freedom. He died around 483 BCE at Kushinagar in Bihar.

Life of moderation

Buddha declared that a life of moderation is the way to attain peace and happiness. That is the **noble eight-fold path** or the **Middle Path**.

What is the noble eight-fold path?

1. right understanding
2. right thought
3. right speech
4. right action
5. right livelihood
6. right effort
7. right mindfulness
8. right contemplation or concentration

People who followed this middle path would find peace and enlightenment. Like Mahavira, Buddha also spoke to the people in Pali—a language they could understand easily. He preached ahimsa or non-violence, and spoke against the caste system. Buddha's teachings soon attracted a large following.

The Story of Angulimala

Buddha with Angulimala, a painting in a Laotian temple

Angulimala was a highway robber. His guru asked him to make a necklace with the thumbs of 1000 people he had killed. One day as he waited for his 1000th victim, he saw Buddha walking towards him. Angulimala jumped on him with his dagger. But Buddha walked on calmly. However fast Angulimala ran, he was never able to catch up with Buddha.

The exhausted Angulimala begged Buddha to stop running.

Buddha replied, 'I have already stopped. It is you that has to stop now.'

Angulimala asked Buddha what he meant by that.

Buddha replied, 'I have stopped harming living beings, while you are still hurting and killing them.'

Overcome with shame, Angulimala renounced his ways and became a Buddhist monk. Thus, Buddha with his compassion changed a killer into a monk.

Discover more...

THE SPREAD OF BUDDHISM

Mahayana and Hinayana Buddhism

In the course of time, the followers of Buddhism split into two groups—**Hinayana** and **Mahayana**. The Mahayana Buddhists made images of Buddha and worshipped them. They also started performing rituals. The Hinayana Buddhists believed this to be against the teachings of Buddha. They believed that nirvana could be achieved only by following the middle path or the four noble truths.

The sangha

One of the most important features of both Jainism and Buddhism was the **sangha**. The sangha was an order of monks and nuns who travelled around the country spreading the teachings of Mahavira or Buddha. Both made the monks undergo spiritual

Sources from History

The passage below has been taken from the *Dhammapada*. It was translated by Thomas Byron. The *Dhammapada* is a sacred book of the Buddhists and contains the teachings of Buddha.

Hatred never dispels hate.
'Look how he abused me, and beat me
How he threw me down and robbed me.'
Live with such thoughts and you live in hate.
'Look how he abused me and beat me,
How he threw me down and robbed me.'
Abandon such thoughts and live in love.
In this world
Hate never yet dispelled hate.
Only love dispels hate.
This is the law,
Ancient and inexhaustible.
You too shall pass away.
Knowing this, how can you quarrel?

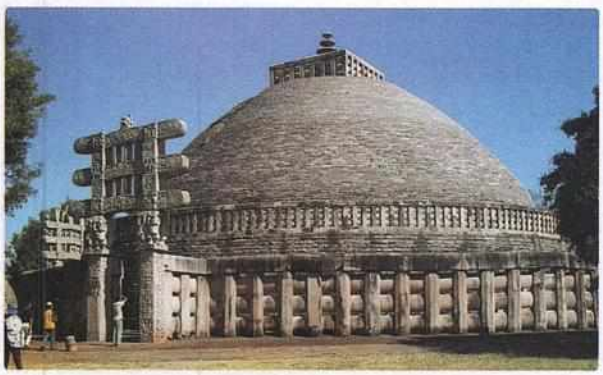
Write a commentary on this primary source. (A commentary is a written explanation, critisism or opinion about a book or some part of it.) Do you agree with the thoughts expressed in this passage?

training to attain enlightenment. Both of them made some basic rules to be followed by the sangha. The monks had to lead a life of poverty, simplicity and chastity. To join the sangha, permission had to be sought from the parents, and in the case of a married woman, her husband. This voluntarily chosen life of hardship commanded respect from the ordinary people.

It was mainly through the efforts of the sangha that Buddhism and Jainism spread the way they did. Buddhism spread across India. From India, over the years, the religion spread to Sri Lanka and South-east Asia (Myanmar, Thailand, Kampuchea, Vietnam, Laos, Malaysia and Indonesia). In the north, Buddhism spread along the trade routes, west into Afghanistan and east into Tibet, China, Japan and Korea.

Monasteries, stupas and chaityas

The followers of Buddha built several monasteries, stupas and chaityas adorned with beautiful sculptures depicting the life of Buddha. **Monasteries** were places where the monks of the sangha lived and prayed. Some of the Buddhist monasteries became great centres of learning, like Nalanda, Takshashila and Sarnath. **Stupas** are dome-shaped structures where the relics of Buddha are preserved. The stupa at Sanchi in Madhya Pradesh is one of the few surviving stupas. A **chaitya** is a Buddhist shrine or hall of worship.



Sanchi Stupa, Madhya Pradesh

Ruins of the ancient university at Nalanda

Glossary

inhabitant: a person who lives at a place
caste system: division of society into groups on the basis of caste
school of thought: a set of beliefs accepted by a group of people
ahimsa: non-violence
tirthankaras: great preachers in the Jain tradition
nirvana: freedom from the cycle of birth and death
karma: the belief that what we experience in our present life is a result of our own actions in previous lives
prophecy: prediction

doctrine: a set of principles
middle path: observing moderation in all respects
bhikshu: a monk
Sangha: an order of Buddhist or Jain monks and nuns
monastery: a residence of monks
relic: bodily remains, like a tooth
stupa: a place where a relic of Buddha is said to be preserved
chaitya: a Buddhist place of worship

In Brief

- By the 7th century BCE, the Vedic religion had grown apart from the common people.
- People started questioning the high-handedness of the priestly class, which led to the emergence of new faiths.
- The *Upanishads* are books of wisdom composed between the 7th and 4th century BCE.
- Vardhamana Mahavira made Jainism popular. He emphasised non-violence, honesty and kindness.
- Mahavira preached that people can attain nirvana by following the triratnas of right faith, right knowledge and right action.
- Siddhartha Gautama founded Buddhism after he became the Buddha, or 'the enlightened one'.
- Buddha taught the principle of four noble truths and the eight-fold path to nirvana.
- Since Mahavira and Buddha spoke in the language of the common people, Jainism and Buddhism spread fast throughout the Indian subcontinent and beyond.
- Both Mahavira and Buddha established orders of monks and nuns known as sanghas, which worked to spread Jainism and Buddhism.
- The Buddhists built many monasteries, stupas and chaityas (shrines) that can be seen even today.

Enrichment Activities

- **Role Play:** Enact a play based on the life of Buddha or Mahavira. It could be based on interesting anecdotes (like Buddha's meeting with Angulimala) or on the important moments of their lives, like the four sights that changed Gautama.
- **Group Work:** Work in groups. Search the Internet or read books to find out about Jain temples in your state or the neighbouring state. Paste pictures of the temples, and write where they are located. You can even show the location by pasting the pictures on a political map of your state. Present your work in the form of a chart or booklet.
- **Map Work:** In this lesson, you have read about the spread of Buddhism outside India. On the map of Asia, locate famous Buddhist temples in the countries to which the religion spread. You can paste pictures of the temple in the location.

Exercises

I. Fill in the blanks.

1. Mahavira is believed to be the last of 24 _____.
2. _____ and _____ were elaborate rituals performed by priests on behalf of kings.
3. The order of monks which Mahavira and Buddha established is called _____.
4. Stupas are structures where _____ of Buddha are kept.

II. True or false?

1. By the 7th century BCE, the Vedic religion had degenerated into elaborate rituals.
2. The common people disliked the caste system of the Vedic religion.
3. Nalanda was a great Jain centre of learning.
4. Nirvana means freedom from the cycle of life and birth.
5. Mahavira and Buddha lived during the same period of time.

III. Answer in brief.

1. What is the law of karma taught by the *Upanishads*?
2. Explain the triratna principle preached by Mahavira.
3. Who were digambaras and svetambaras?
4. What were the two groups into which the Buddhists were divided? What was the basis of the split?
5. Name four countries in Asia to which Buddhism has spread.

IV. Answer in detail.

1. Describe the major principles of Jainism.
2. Describe the eight-fold path preached by Buddha to obtain nirvana.
3. Write down any five similarities between Jainism and Buddhism.
4. How did the sanghas help in the spread of Buddhism and Jainism?

Multiple Choice Questions

1. Which of these statements best describe society as it was in the 7th century BCe?
   a. The people lived lives of great poverty, and so turned to newer faiths like Jainism and Buddhism.
   b. It was a period of prosperity but the unchecked power of the priests, and the expensive rituals forced on the common people, forced them to turn to newer faiths like Buddhism and Jainism.
   c. People were happy and contented. The caste system was flexible, allowing people to move from one caste to the other depending on their occupations.
   d. None of the above
2. The law of Karma taught by the Upanishads stated that
   a. people should practice yoga and meditation for a healthy life.
   b. the human body has an atman which survives even after the human body dies.
   c. people could reach god without the help of priests or rituals.
   d. what we experience in our present life is a result of our past action.
3. According to Mahavira, Nirvana could be attained by practising the triratnas of:
   a. see no evil, speak no evil, hear no evil
   b. right faith, right knowledge, right action
   c. prayer, rituals and fasting
   d. honesty, ahimsa and kindness to all creatures

4. Jainism did not spread as widely as Buddhism, because
   a. the Jain monks did not travel as widely as the Buddhist monks to spread Jainism.
   b. Mahavira insisted on absolute non-violence. This was difficult for the common people to follow.
   c. Mahavira taught in Prakrit, which the common people could not follow.
   d. All of the above.
5. What were the four sights which changed Gautama's life?
   a. An old man, a happy child, a sick lady, a corpse
   b. An old man, a sick man, a corpse and an ascetic
   c. A criminal being taken to prison, a happy child, an old man and an ascetic
   d. None of the above
6. Buddha believed that for freedom from suffering,
   a. we should get rid of desires and wants
   b. we should practice meditation and pray constantly
   c. we should practice severe penance and fasting
   d. we should practise ahimsa and be honest
7. Followers of Mahayana Buddhism
   i. made images of the Buddha and worshipped them, and started performing various rituals
   ii. believed that nirvana could only be achieved by following the middle path
   a. Both the above statements are true.
   b. Only the first statement is true.
   c. Only the second statement is true.
8. How did the Sanghas help in the spread of Buddhism and Jainism?
   a. They built several stupas, viharas and chaityas.
   b. The monks of the Sanghas travelled far and wide to spread the teachings of Buddha and Mahavira.
   c. They forced the people to adopt the new faiths.
   d. They preserved the relics of Buddha under the Stupas.

HOTS: Think and Answer

Why do you think Buddhist and Jain monks were not allowed to marry or maintain contact with their families? Think and answer.

Values that enrich

Read the following story:
In a forest, there lived four friends—a deer, a crow, a tortoise and a rat. One day, a hunter caught the tortoise in his net. The three friends planned to save the tortoise. The next day the deer acted as though it was dead. When the hunter saw this, he put down the bag which held the tortoise and went to pick up the deer. In the meantime, the rat nibbled the bag and set the tortoise free. The deer ran away when the hunter came near. The four friends lived together happily. What values do you learn from the story?

Life skills

Coping with emotions

Do you get angry often? What do you do when you get angry? Shout? Throw things around? Bang the door? Or do you just sit quietly and sulk?

Buddha taught that anger, greed and ignorance were three poisons that can destroy us. He told his followers to purify themselves of anger. But it is not easy to control anger. The next time you feel your temper rising and your control slipping, try these steps.

- Learn to recognise signs that will warn you that you are getting angry.
- Accept that you are angry.
- Do not react. Take a deep breath, count to ten and try to relax slowly.
- Try to see things from the other person's point of view.
- Though you may appear to be weak by not reacting, you are actually the stronger one for having walked away.

Remember, tolerance or patience is a sign of strength, not of weakness.

8. The First Empire and an Inspiring Emperor

ENRICHMENT ACTIVITY: READING TIMELINES

Refer to the timeline on page 46. According to the timeline, who established the Mauryan dynasty in 325 BCE? After reading this page, mark on the timeline the date when Alexander the Great tried to invade India.

In an earlier chapter, we read about the emergence of **Magadha** as the most powerful of all the mahajanapadas (kingdoms) between the 6th and 4th centuries BCE. From the 4th century BCE, Magadha, under the inspiring leadership of the **Mauryas**, grew from a kingdom into an empire—the first empire of the Indian subcontinent.

WHAT IS AN EMPIRE?

An **empire** consists of several kingdoms or states that have been brought under the control of a single ruler. As you saw in chapter 6, between 600 and 400 BCE, several states or janapadas developed. The stronger janapadas captured neighbouring states to form mahajanapadas or kingdoms. Of the 16 mahajanapadas that emerged, Magadha was the strongest. Let us see how the kingdom of Magadha transformed itself into an empire that ruled over most of northern India.

THE INVASION OF ALEXANDER THE GREAT

The Macedonian king, Alexander the Great, was one of the world's greatest conquerors. His empire stretched from Macedonia in Greece to the borders of the river Beas in Punjab. Alexander wanted to conquer India, tempted by the stories he had heard of India's wealth. His attempt at crossing the river Beas in 326 BCE failed, with his battle-weary Greek soldiers refusing to move further. Alexander's invasion had an important impact on India. It helped the formation of empires in India. Alexander's invasion weakened all the smaller kingdoms in the north of the Indian subcontinent, making it easier for **Chandragupta Maurya** to conquer them.

CHANDRAGUPTA MAURYA

Around 321 BCE, an ambitious young man by the name of Chandragupta overthrew the Nandas and established the Mauryan Empire. He did this with the help of his mentor, **Kautilya** (or Chanakya). Kautilya was a minister in the court of Dhanananda, the last ruler of the Nanda dynasty.

ENRICHMENT ACTIVITY: PRESENTATION

Make a presentation on Alexander the Great. On a map of the world, mark the extent of his empire. You can get information and download images of Alexander from the Internet.

Chandragupta and Kautilya first attacked and conquered the outer parts of the Nanda kingdom, areas which had been weakened by Alexander's invasion. They thus conquered Punjab, Malwa and Saurashtra. They finally captured Pataliputra, the

capital of Magadha, in 321 BCE. Chandragupta then extended his empire upto the river Indus, taking back parts of Alexander's empire, and laying the basis for the Mauryan Empire.

Alexander had left his Greek general, **Seleucus Nicator**, in charge of the eastern part of his empire. Seleucus was defeated by Chandragupta in 305 BCE and was made to surrender extensive territories—the areas of Kabul, Herat, Kandahar (in present-day Afghanistan) and Baluchistan (in present-day Pakistan). (Locate these places on a map of Asia in your school atlas). Seleucus also gave his daughter in marriage to Chandragupta, thus establishing peace between the two states.

Megasthenes, a Greek ambassador, stayed at Chandragupta's court at Pataliputra for several years. His book ***Indica*** is a valuable source of information about life in India during Mauryan times, i.e., India as it was more than 2,000 years ago.

By the end of Chandragupta's rule, the kingdom of Magadha had become an empire. The Mauryan Empire now stretched from the Hindu Kush in the west to Bengal in the east, and from the Himalayas in the north to the Narmada in Central India.

BINDUSARA

Chandragupta was succeeded by his son, **Bindusara**. Bindusara ruled from 297 to 272 BCE. An able son of an able father, he is said to have conquered 16 states, and extended the Mauryan Empire greatly.

ASHOKA THE GREAT

Bindusara was succeeded by **Ashoka**, a king who was inspired by Buddhism to conquer people with kindness rather than war.

After a four-year long conflict over the throne among the descendants of Bindusara, Ashoka ascended the throne in 268 BCE. Today, Ashoka is

Punch-marked Mauryan coins made of silver, showing an elephant and the sun

regarded by many historians as one of the greatest rulers the world has ever seen.

Ashoka inherited a vast empire from his father. In the beginning of his rule, Ashoka continued to follow in the footsteps of Chandragupta and Bindusara. He tried to extend the frontiers of the Mauryan Empire with fresh conquests. He finally turned his attention to the kingdom of Kalinga. In 261 BCE, Ashoka attacked Kalinga.

The Kalinga War (261 BCE)

The turning point of Ashoka's life was his conquest of Kalinga (Odisha). Kalinga was a powerful kingdom at the centre of important trade and pilgrimage routes. Therefore, conquering it was of great significance. Kalinga had been annexed by the Nandas earlier, but regained its independence quickly. Bindusara tried to capture it but failed. For Ashoka, the possession of Kalinga became essential.

The conquest of this kingdom was bloody, and many thousands of soldiers and common people were killed. The sight of the battlefield filled Ashoka with horror and dismay. Shocked at what he had done, he vowed never to wage war again. Soon after, Ashoka became a Buddhist. He adopted the policy of ahimsa or non-violence. He was now filled with compassion, and felt the need for 'right living'. The year after the Kalinga war, Ashoka is said to have gone on his first Buddhist pilgrimage to Bodh Gaya, where Buddha had attained enlightment.

Given below is a translation of Ashoka's 13th rock edict, expressing the deep remorse he felt after destroying Kalinga. Few kings in history have repented so deeply, or tried so hard to make up for the suffering they caused.

Ashoka and his dhamma

We know about Ashoka and his attraction to Buddhism from his edicts, which have been found at more than 30 places throughout India, Nepal, Pakistan and Afghanistan. Almost all his edicts speak of his overwhelming concern for the welfare of his people.

Ruins of the stupa at Vaishali

Sources of History

13th Major Rock Edict

'When he had been consecrated eight years, the Beloved of the Gods, the king Piyadassi*, conquered Kalinga. A hundred and fifty thousand people were deported, a hundred thousand were killed and many times that number perished. Afterwards, now that Kalinga was annexed, the Beloved of the Gods very earnestly practised Dhamma, desired Dhamma, and taught Dhamma.

On conquering Kalinga, the Beloved of the Gods felt remorse, for when an independent country is conquered the slaughter, death, and deportation of the people is extremely grievous to the Beloved of the Gods, and weighs heavily on his mind. What is even more deplorable to the Beloved of the Gods is that those who dwell there ... householders who ... behave well and devotedly towards their friends, acquaintances, colleagues, relatives, slaves, and servants — all suffer violence, murder, and separation from their loved ones. ...This participation of all men in suffering weighs heavily on the mind of the Beloved of the Gods. ...

This inscription of Dhamma has been engraved so that any sons ... that I may have ... should only consider conquest by Dhamma to be a true conquest, and delight in Dhamma should be their whole delight, for this is of value in both this world and the next.'

* *'Piyadassi' and 'Beloved of the Gods' are names by which Ashoka was referred to.*

Enrichment Activities

Interpreting primary sources:
Imagine that you are a historian. You have just translated this edict of Ashoka's from Prakrit. Write a short paragraph on what you have learnt about the king and his rule from this edict.

Role play: Enact a play in class showing the battle of Kalinga and the effect it had on Ashoka.

Ashoka carved his policy of **dhamma**—i.e., a person's duty to live according to certain religious and social codes—on pillars, caves and rocks. These edicts were spread throughout the land, so that people could read and follow them. The edicts were in **Prakrit**, the language spoken by the masses.

Ashoka appointed officers, delegated powers to them, and expected them to be accountable. Special officers called **dhamma mahamattas** were appointed to devote themselves to the maintenance of dhamma, so that the people could obtain happiness in this world and the next.

As you can see from the 1st Edict of Dhauli, Ashoka cared for his people like a father. He worked hard to make people accept values that were known in principle, but rarely practised.

The Ashoka Pillar at Vaishali with its lion capital

For instance, he told his subjects

- to obey their parents;
- to be liberal to friends, acquaintances, relatives and ascetics;
- to abstain from killing animals, and practise ahimsa or non-violence;
- to be moderate in expenditure and in acquiring possessions;
- to cultivate compassion, truthfulness, purity, gentleness and virtue;
- to treat everyone with care, show reverence to teachers and gentleness to all.

Ashoka led by example. He lived his life the way he wanted his subjects to. He neither approved of superstitions nor wasteful rituals. He advocated religious tolerance. During his reign, he dug wells, planted trees, built hospitals, and even created public gardens for medicinal herbs so that his subjects would benefit.

He built monasteries where **bhikshus** (monks) and **bhikshunis** (nuns) could study the Buddhist scriptures and live peaceful lives.

THE MAURYAN ADMINISTRATION

The Mauryan administration was a totalitarian one (i.e., the monarch had absolute powers), though a benevolent one. We get to know about the nature of administration during Mauryan times from the edicts of Ashoka, Megasthenes' *Indica* and the *Arthashastra* of Kautilya.

Adhyakshas (superintendents), **yuktas** (subordinate officers), **pradeshikas** (provincial officers) and **rajjukas** (district officers) were responsible for a

variety of duties, including the collection of taxes and revenues.

The monarch was advised on policy matters by a privy council, or **mahamantriparishad**. The privy council had very few members and was given great responsibility. The policies of the government were made by the privy council, and were carried out by the council of ministers or **mantriparishad**. The *Arthashastra* tells us that the council met regularly; if differences could not be resolved, then decisions were taken by majority vote.

The empire was divided into smaller units for better administration.

Empire → Provinces → Districts → Villages

Provinces

The Mauryan provinces were huge and were ruled by viceroys who were generally princes. The empire was divided into four provinces—Magadha, Ujjain, Taxila and Swarnagiri.

Districts

The provinces were further divided into administrative districts called **janapadas**. They were managed by officials called **sthanikas**.

Villages

Each district consisted of groups of five to ten villages. **Gopas** or **ganardhans** maintained records of all the resources of the villages under them. Each village was headed by an official called the **gramin**. His job was to regulate land and water rights and to collect taxes and fines. Villages enjoyed a certain level of autonomy (independence). The day to day affairs of the villages were managed by village elders. The entire village participated in community activities like village festivals or public entertainment.

The city of Pataliputra

The most complex and well-organised system of urban government was the administration

Sources of History

Ashoka advised his officers thus (this is a translation of Ashoka's 1st Separate Edict from Dhauli and Jaugada).

'By order of the Beloved of the Gods: the officers and city magistrates at Tosali / Sarnapa are to be instructed thus:

... You are in charge of many thousands of living beings. You should gain the affection of men. All men are my children, and just as I desire for my children that they should obtain welfare and happiness both in this world and the next, the same do I desire for all men ... You should strive to practise impartiality. But it cannot be practised by one possessing any of these faults—jealousy, shortness of temper, harshness, rashness, obstinacy, idleness, or slackness. ... He who is slack will not act, and in your official functions you must strive, act, and work. ...

...This inscription has been engraved here in order that the city magistrates should at all times see to it that men are never imprisoned or tortured without good reason. And for this purpose, I shall send out on tour every five years an officer who is not severe or harsh; who, having investigated this matter. . . , shall see that they carry out my instructions....'

In his **5th Edict**, Ashoka tells us that the dhamma mahamattas were responsible for 'promoting the welfare of prisoners or releasing those that have children, are afflicted, or are aged. ...'

Notice what Ashoka has to say about the treatment of prisoners. How do we treat prisoners today? Do we show them such compassion?

Write a newspaper article comparing the way prisoners were treated during Ashoka's rule and how they are treated today.

of the imperial city of Pataliputra. According to Megasthenes, a committee of 30 people was appointed to look after the administration of the city. They were divided into six groups:

Group I—Industrial activities

Group II—Entertainment of foreigners, assigning them lodgings, taking care of them

Group III—Registration of births and deaths

Group IV—Trade and commerce, checking weights and measures

Group V—Supervision of manufactured articles

Group VI—Collection of taxes

Kautilya writes that the city governor, or the **Nagarika**, was responsible for the maintenance of law and order in the city. He was also responsible for its hygiene. He controlled trade and supervised the prisons as well as the cremation grounds.

SOCIETY

The varna system was followed strictly. Kautilya prescribes different laws for different castes. Women enjoyed greater rights than they did for centuries afterwards.

A large number of people were farmers. They grew rice, wheat, barley, pulses, cotton and vegetables. To have increased agricultural production was the main goal of the Mauryan state. Therefore, it built facilities like dams and canals. A well-known canal of the period was Sudarshan Lake at Girnar in present-day Gujarat.

Environmental protection seems to have been of great concern for the Mauryans. In fact, Kautilya warns against 'damaging plants and trees in city parks, sanctuaries, holy places and cremation grounds, particularly those that bear flowers, fruits or provide shade'. Fines were imposed for urinating near holy places, water reservoirs, temples, or royal buildings.

Also important was consumer protection (a term frequently used today, meaning 'protecting the common people from getting cheated by traders or service providers'). Kautilya warns doctors, 'Physicians shall inform authorities before undertaking any treatment which may involve danger to the life of the patient. If, as a result of the treatment, the patient dies or is physically deformed, the doctor shall be punished.'

TRADE AND INDUSTRY

Next to agriculture, the main occupation of the people was trade and industry. Both inland and overseas trade were significant. Weights and measures were standardised; trade was regulated strictly. The Mauryans gave importance to road building and provided conveniences along the road; security on the road was also improved to make trade routes safe.

Textiles, wooden and ivory objects, perfumes, jewellery from semi-precious stones and shining black pottery were some of the items bought and sold. The Mauryans maintained commercial ties with the Greek kingdoms of Central Asia and the Middle East. Overland trade with West Asia primarily passed through the cities in the north-west. The Mauryans built a royal highway from Takshashila (Taxila) to Pataliputra. This road was rebuilt over a period of time, and today serves as the Grand Trunk Road.

Trade Guilds

Yet another development was the emergence of *shrenis* or guilds. A shreni was like an association for each

Sources of History

Read the extract given below carefully. It is taken from the *Arthashastra*. What does it tell you about the social, economic and political set-up during the time of Kautilya?

Arthashastra*, Book I, Chapter 19, *The Duties of a King

'...the king shall ever be wakeful. ....During the first one-eighth part of the day, he shall post watchmen and attend to the accounts of receipts and expenditure; during the second part, he shall look to the affairs of both citizens and country people; during the third, he shall not only receive revenue in gold, but also attend to the appointments of superintendents; during the fifth, he shall correspond ... with his ministers, and receive the secret information gathered by his spies; during the sixth, he may engage himself in his favorite amusements ...; during the seventh, he shall superintend elephants, horses, chariots and infantry; and during the eighth part, he shall consider various plans of military operations with his commander-in-chief. At the close of the day he shall observe the evening prayer.'

1. According to Kautilya, what were the various duties of a king?

2. How much time was the king expected to spend on checking the accounts of the state?

3. How much time was the king allowed to spend on his favourite pastime?

trade and had rules and regulations. Some of the guilds even acted as bankers to its members. Members of a particular guild had to abide by its rules.

Coins

Punch-marked coins became widespread in the Mauryan kingdom. They were mainly made of silver, and stamped with different symbols.

MILITARY POWER

The Mauryan army was massive, and was commanded by the **senapati**. According to one source, Chandragupta had an army of 600,000. The soldiers were well trained and well equipped. The army had six branches—cavalry, infantry, chariots, elephants, transport and navy.

There were also secret agents who informed the monarch of happenings in the state. Kautilya even recommended having spies to spy on secret agents.

CONTACT WITH FOREIGN LANDS

Ashoka sent missions to several lands, mainly to the Greek states to the north-west of the Indian subcontinent. Ashoka is silent about any mission to Sri Lanka, but Pali texts tell us the story in great detail. It is believed that Ashoka's son Mahinda and daughter Sanghamitra took Buddhism to Sri Lanka.

THE END OF THE EMPIRE

Ashoka ruled for about 37 years, and the empire continued for another 50 years. After that, the empire began to break up. Many reasons are suggested for this. The administration might have become less efficient; or it might have become financially difficult to run such a vast empire. Or perhaps the army had become weak due to the policy of peace followed by Ashoka. In any case, even great empires decay, and the Mauryan Empire too declined. The final blow was given by the Sungas, who took over the throne of Magadha from the Mauryas.

Glossary

empire: a group of states under a single ruler
conquer: to defeat and take over by force
edict: an order or law
dhamma: here, the teachings of Buddha; to live one's life according to certain religious and social codes
totalitarianism: government with the ruler having absolute power
privy council: council that advises the king
viceroy: governor of a province who rules as the representative of the king
cavalry: army unit consisting of soldiers who fight on horseback
infantry: army unit consisting of foot soldiers

In Brief

- Between 600 BCE and 400 BCE, Magadha emerged as the most powerful mahajanapada.
- Alexander's invasion weakened the northern kingdoms in the Indian subcontinent, making it easier for Chandragupta Maurya to conquer them and establish the Mauryan Empire.
- Chandragupta captured Pataliputra in 321 BCE, aided by Kautilya (or Chanakya).
- Chandragupta's son, Bindusara, further extended the territories of the Mauryan empire.
- Bindusara's son Ashoka ascended the throne in 268 BCE. Grief-stricken by the destruction caused by war, Ashoka embraced Buddhism.
- Ashoka carved his policy of dhamma on pillars and rocks at several places.
- Ashoka carried out many welfare activities like constructing wells, building hospitals and planting trees.
- The *Arthashastra* written by Kautilya and the *Indica* written by the Greek ambassador Megasthenes serve as rich sources of information on the Mauryan Empire.
- The Mauryan Empire was divided into provinces, districts and villages.
- The capital city of Pataliputra was administered by a committee of 30 people.
- There was also substantial trade, both inland and overseas.
- Ashoka sent missions to several countries to spread Buddhism.
- About 50 years after Ashoka's rule, the Mauryan Empire disintegrated, and was overthrown by the Sungas.

Enrichment Activities

- **Write Right:** Search the Internet or read books to find out about Kautilya's work the *Arthasastra*. What are the main topics that the book discusses? Is the book useful or relevant even today?Write a short essay about the book. The essay must not exceed a word limit of 150-200 words.
- **Map Work:** On an outline map of Asia mark the extent of Chandragupta's empire when he died. On another map of Asia mark the territories that Chandragupta took over from Seleucus Nicator.
- **Art Work:** On a chart write an edict about how you feel the class must function, about the number of hours you should be allowed to watch television or play or anything that you feel very strongly about. Read out your edict in class.
- **Speak Out:** Imagine you are a visitor in the city of Pataliputra. Speak for about 5 minutes on what you saw in the city. Were you impressed when you went around the city? If so, why.

Exercises

I. Fill in the blanks.

1. Alexander was a king from _____.
2. The last Nanda king of Magadha was ____.
3. The Greek general defeated by Chandragupta was _____.
4. The *Arthashastra* was written by _____.
5. The _____ War became a turning point in Ashoka's life.

II. True or false?

1. After the Kalinga War, Ashoka adopted the policy of ahimsa.
2. Ashoka forced his people to follow Buddhism.
3. The Mauryan king was assisted by a council called the mantriparishad.
4. In the Mauryan Empire, the village was administered by officials called sthanikas.
5. In the Mauryan Empire, the villages enjoyed a certain level of independence.

III. Answer in brief.

1. Why could Alexander not continue his campaign to conquer India?
2. What regions were taken over by Chandragupta after the defeat of Seleucus Nicator?
3. What were shrenis?
4. Name the branches of the Mauryan Army.
5. What are the possible reasons for the decline of the Mauryan Empire?

IV. Answer in detail.

1. Describe how Chandragupta turned a small kingdom into a mighty empire.
2. Describe the impact of the Kalinga War on Ashoka. Discuss Ashoka's dhamma.
3. Explain the features of administration in the Mauryan Empire.
4. Write a note on the nature of trade and industry during Mauryan times.

Multiple Choice Questions

1. What was the political impact of Alexander's invasion of India?
   a. By conquering several of the small kingdoms of north-west India, he broke their strength and paved the way for the formation of empires in India.
   b. He looted the riches of the kingdoms, and left India ravaged and poor.
   c. He befriended Chandragupta Maurya, and helped him establish the Maurya Empire.
   d. He introduced Greek art and architecture into India.
2. Who was the author of *Indica*?
   a. Seleucus b. Alexander
   c. Megasthenes d. Chandragupta Maurya
3. Ashoka the Great began his rule like any other king. He waged several wars and tried to extend the limits of his empire. What was the event that changed Ashoka?
   a. Ashoka met Buddha in the course of his travels and was influenced by his teachings, especially the doctrine of ahimsa.
   b. The sight of the battlefield after his bloody conquest of Kalinga shocked Ashoka. He vowed never to wage war again.
   c. He suffered a great defeat in the Battle of Kalinga, after which he swore never to engage in war again.
   d. Ashoka found that the frequent wars were ruining the economy of his empire, and so decided to wage no more wars.
4. Which of these statements does not reflect Ashoka's Dhamma?
   a. He told his subjects to practice ahimsa or non-violence.
   b. He told his subjects to be moderate in expenditure, and in acquiring possessions.

c. He told the people to wear clothes made only from hand spun cotton cloth.
d. He told the people to treat servants with care and show reverence to teachers.

5. What were the methods adopted by Ashoka to spread his dhamma?
   a. He carved his dhamma on pillars, caves and rocks distributed through the length and breadth of the empire. These edicts were written in Prakrit, the language used by the common people.
   b. Like Buddha and Mahavira, he gave sermons to the people.
   c. He appointed special officers called dhamma mahamattas to lead his army.
   d. He used his army to force the people to accept his dhamma.
6. The Mauryan government took several steps to help the growth of trade and industry in the empire. Which of these steps was not taken by the government to help the traders?
   a. Weights and measures were standardised.
   b. Roads were built and conveniences provided along them.
   c. Trade was regulated strictly.
   d. Dams and canals were built.
7. What was the impact of the policy of peace and ahimsa followed by Ashoka on the Mauryan army?
   a. With no war and as a result, no deaths, the Mauryan army now had too many soldiers in it. The army now became heavy and slow.
   b. The policy of ahimsa made the army weak and unable to withstand the invaders.
   c. The army continued to be a great fighting force, and defended the army against all intruders
   d. None of the above
8. Which of these was not a possible cause for the fall of the Mauryan Empire?
   a. The administration of the empire became less efficient.
   b. It may have become financially difficult to run such a vast empire.
   c. There were repeated attacks by Alexander the Great.
   d. The army had become weak due to the policy of peace followed by Ashoka.

HOTS: Think and Answer

Write a commentary on the extract from the *Arthashastra* given on page 69. Examine it critically. Do you think all the kings discharged their duties as per the rules laid down in the *Arthashastra*? Do you think our current leaders follow such a strict schedule? Would it help the nation if they did? Explain your statements.

Values that enrich

Ashoka planted trees and built parks and sanctuaries throughout his kingdom. What value does this reflect?

Life skills

Coping with emotions

What is bullying? Bullying happens when one person repeatedly makes another person feel hurt, afraid or uncomfortable. Bullying can cause physical hurt (hitting or pushing someone, stealing or ruining someone's things), or it can cause mental trauma (threats, name calling, spreading rumours, and forcing someone to do something he/she does not want to do).

Bullying can make a person feel depressed, sad, lonely and afraid. What can you do to counter bullying?

- Do not react. The bully wants you to cry or get angry. Ignore the bully and walk on.
- Walk away as fast as possible to a place where there are more people and you are not alone with the bully.
- Most important of all—communicate! Do not keep this to yourself. Talk to your parents, teachers, school counsellor, or any adult who you feel comfortable with. Explain how you feel.

And always remember, there is nothing wrong with you. It is the bully who has a problem.

9. Life in Villages, Towns and the Kingdoms of South and Central India

The Indus civilisation, if you remember, had been largely urban (most of its people lived in cities and towns). With the fall of the Indus civilisation, urban centres seem to have disappeared from the Indian subcontinent.

The decline of the Indus civilisation coincided with the beginning of the Vedic civilisation in India around 1500 BCE. The Vedic people were orginally **pastoralists** who herded cows and sheep. In the course of time, they settled down to a life of agriculture, and started living in small rural settlements.

THE EXPANSION OF AGRICULTURE

Between 1000 and 600 BCE, the Vedic people spread eastwards into the Indo-Gangetic Plains. This period marked the beginning of the **Iron Age** in North India. Better tools and weapons could be made with iron as it was harder than copper. The Vedic people made lances, spears, axes, swords, bows and arrows, and ploughshares with iron.

As the Vedic people moved eastwards, the iron tools they used made it easier for them to cut down forests and cultivate new areas. This led to a major expansion of agriculture and a marked increase in agricultural production.

The Iron Age culture gradually spread to South India. In the southern part of India at this time, megalithic cultures formed part of the Iron Age. You read about them in chapter 5.

LIFE IN THE VILLAGES

By 800 BCE, several closely spaced small villages had emerged in the Gangetic Plains. Agriculture was the main occupation of the people of these settlements. The greater dependence on agriculture, rather than on pastoralism, gave people the opportunity to take up other occupations. People started specialising in different professions.

The importance of **carpenters** increased, as they now made not only chariots but also ploughs. The framework of houses too was now made of wood. The carpenters had access to abundant supplies of wood from the surrounding forests.

Metalsmiths made things of brass, copper, gold, silver and iron. Other occupations included those of the **potter**, the **weaver** and the **hunter**. The nature of the pottery made by these people is used by the archaeologists and the historians to identify the culture to which they belonged. Thus, in the western parts of the Gangetic Plains, the Painted Grey Ware Culture dominated, while the Black-and-Red Ware Culture developed in the central and eastern parts of the plains. Still later, the Northern Black Polished Ware Culture dominated the settlements of the Gangetic Plains. This culture produced highly polished pottery made of black clay.

THE SECOND URBANISATION

The conditions in the Gangetic Plains were now suitable for urbanisation. What were these conditions? Urbanisation is the process by which larger rural settlements gradually grow into towns and then cities, and people move from villages to these towns.

- Increased agricultural production led to surplus food supply.
- People took up new occupations and specialised in crafts like weaving, jewellery-making and pottery.
- Surplus food could now be exchanged or traded for other goods.
- This led to the establishment of trade centres. Some of these grew into urban centres (towns and cities).
- Since towns and cities did not produce their own food, they depended on trade with villages for food.
- The growth of kingdoms and empires in northern India also encouraged the growth of cities.

Thus, the expansion of agriculture and trade, and the establishment of states, led once more to the growth of towns and cities. This phase, starting from the 6th century BCE, is called **the second urbanisation.**

By 400 BCE, several towns and cities had developed in the North, like Pataliputra, Mathura, Kasi, Kosala and Ujjain.

By 200 BCE, several thriving urban centres had developed in the South too. In South India, the towns that developed include Thanjavur, Arikamedu, Madurai, Puhar and Mamallapuram.

Different kinds of urban centres

The early urban centres were of various kinds as their growth had different causes.

ADMINISTRATIVE TOWNS

Some towns grew as centres of administration. Some cities became the capitals of powerful kingdoms like Hastinapura, Rajagriha (of Magadha), Kausambi (of Vatsa), and Shravasti (of Kosala). In South India also, the capitals of kingdoms grew into towns and cities, like Kaveripattinam (Cholas) and Madurai (Pandyas).

MARKET TOWNS

Some towns were markets and centres of trade. These urban centres were connected to several villages and were places where the villagers could come and exchange their produce for other things they needed. Ujjain was one such town. Several trading places in the interior of the subcontinent also developed into urban centres, such as Tagara, Kondapur, Nevasa, Nasik and Karur (Vanchi).

PORT TOWNS

Some towns grew around ports. Bharukakacha (Bharuch) was a major port city which handled most of the sea trade from the west. Further down the western coast were the ports of Sopara, Kalyan and Musiri. Musiri, near Pattanam in present-day Kerala, was an important centre of trade with the Roman Empire. Tamralipti, on the mouth of the Ganga was the main port on the eastern coast. Other port towns on the eastern coast included Arikamedu, Korkai, Azhagankulam and Puhar.

RELIGIOUS CENTRES

Some urban centres developed around places of Buddhist, Jain and Hindu pilgrimage. Nagarjunakonda and Amaravati were important

Buddhist religious centres. Vaishali, Ujjaini, Kasi, Madurai and Mathura were cities of great religious significance for the Hindus.

Many towns and cities served multiple functions. Thus, cities like Pataliputra and Mathura were not just administrative centres; they were also important centres of trade. Madurai was a religious centre as well as the capital of the Pandyan kingdom.

Limestone carving of a Buddhist stupa, Nagarjunakonda, 3rd century CE

Layout of towns

Most of the towns were enclosed within moats or fortified walls. The houses were built of mud bricks and, in some cases, burnt bricks. Palaces and richer dwellings were made of finely carved wood. Facilities not seen in villages can be seen in excavated urban sites—drains, ring wells and soakage pits to dispose off sewage. These were different from the features of the towns of the Indus civilisation.

NEW KINGDOMS IN SOUTH AND CENTRAL INDIA (200 BCE TO 300 CE)

To understand better how improvements in agriculture led to the development of urbanisation in the Indian subcontinent, we will take up a case study of the ancient Tamil kingdoms.

CASE STUDY: TAMIZHAGAM

In the south, the period between 200 BCE and 200 CE was a time of transition from chiefdoms to kingdoms and states, and from villages to towns and cities.

There were three main kingdoms in South India—those of the **Cheras**, the **Cholas** and the **Pandyas**. They occupied the southernmost part of the peninsula. In old Tamil, the region ruled by the three kingdoms was referred to as Tamizhagam, or the Tamil country.

The Pandyas

The Pandyas had their capital at Madurai. Korkai was their port city. One of their most important rulers was Nedunchezhiyan.

The Cholas

The Cholas ruled to the north-east of the Pandyan kingdom, between the rivers Pennar and Velar. Uraiyur was their first capital, which was later shifted to Puhar or Kaveripattinam. Contacts with Sri Lanka were possibly known. Watered by the Kaveri, the land of the Cholas was fertile. Elara and Karikala were two powerful Chola rulers. Later the Cholas shifted their capital to Thanjavur.

The Cheras

The Cheras ruled over the present-day area of Kerala. Senguttuvan was one of their most famous kings. He built a strong navy and traded with Arabia and the West. The capital city of the Cheras was Vanchi.

Sources of Information

The period between 500 BCE and 300 CE is known as the **Sangam Age** in Tamil Nadu.

In Tamil, **sangam** means 'assembly'. Scholars and poets from all over the land assembled in Madurai during these assemblies to share their thoughts and engage in philosophical debates. Three Sangams or assemblies were held at and around Madurai, between 200 BCE and 300 CE. The works of the Sangam poets were compiled in several books. This collection of works came to be called Sangam literature.

Several outstanding literary works belong to this period, for example, ***Tolkappiam***, the book of grammar, and ***Tirukural***, the book of wisdom. The Sangam literature gives us a detailed account about the life of the Tamil people 2000 years ago. It describes the armies and battles, merchants and crafts, code of conduct for the rulers and the ruled, and rituals and festivals. It helps us recreate a rich bygone period.

Apart from Sangam literature, other sources of information about Tamizhagam include inscriptions found in caves, pottery, monuments and coins.

Administration and Society During the Sangam Era

In Tamil society, high status was accorded to the ***velir*** or heads of the chiefdoms associated with megalithic burials. As the chiefdoms grew into kingdoms, monarchy became the chosen form of government. The king was the highest authority in the land. The king was assisted in the discharge of his duties by ministers, administrative officers, spies, revenue collectors and the chief commander of the army. The imposition and collection of taxes was one of the most important duties of the king.

Occupation and Economy

Agriculture was the main occupation of the people. According to Sangam literature, land was divided on the basis of fertility and environment into hilly tracts, forest land, agricultural land, coastal land and sandy dry region. The land was used and crops were grown in a manner best suited to each area.

A variety of crops like gram, rice, ragi, sugarcane, fruits, pepper and spices were grown. The dry climate of the region made it necessary to develop an efficient system of irrigation, especially for crops like cotton and rice. Evidence of reservoir-like structures has been found in several sites. **Karikala Chola** is believed to have built the **Grand Anicut**, a dam across the Kaveri, that still stands.

Besides farmers, craftsmen seem to have had a high position in society. Epigraphers inform us of the encouragement and privileges given to weavers, goldsmiths, blacksmiths, architects, sculptors, carpenters and leatherworkers. Spindle whorls made of terracotta used to spin cotton have been found at Kodumanal. Vats used for dyeing cloth have been found at Arikamedu. **Guilds**, or associations, were formed by people following the same craft. Farmers too had their guilds.

Necklace made of beads, Arikamedu

Leisure activities

From the inscriptions we come to know that the people enjoyed several forms of leisure activities. There are many murals in temples that show men wrestling, doing acrobatics or hunting elephants. Gambling was popular and tax was imposed on it. Bull chasing was another popular sport.

Religion

Both sects of Hinduism—Vaishnavism and Shaivism—were patronised. Though rulers had their own preferences, they were tolerant of all religions. Jainism was practised during the Sangam period. Buddhism was also a widespread religion, especially during the Sangam period. We have inscriptions that reveal that the Chola rulers patronised Buddhism too.

Towns and cities of Tamizhagam

In the south, unlike in the north, the main factor for the growth of urban centres was the increasing demands of trade. The capital cities became centres of administration and trade, as in the case of Uraiyur, Madurai and Karur. Port settlements like Arikamedu, Musiri and Puhar grew into towns.

Arikamedu, located 3 km south of Puducherry, was a thriving centre of Indo-Roman trade. The port flourished between 100 BCE and 200 CE. Excavations have revealed the presence of a possible warehouse, vats for dyeing cloth, and lined pits for smelting (extracting metal from ore).

Kaveripattinam, or Puhar, located near the Kaveri delta, was another important port city. It was also the capital city of the Pandyas. This settlement has been dated between 300 BCE and 200 CE. An I-shaped wharf and reservoir-like structures have been excavated here. There are the ruins of a Buddhist vihara here.

Shards of Roman pottery found at Arikamedu

Korkai and **Azhagankulam** (near the Vaigai river delta) were also port cities of the Pandyas. Evidence of pearl fishing has been found from both these sites. These sites have yielded pottery—both locally made and from foreign lands.

The Sangam poem ***Pattinappaalai*** describes the port city of Puhar or Kaveripattinam. Ships could, according to the poet, enter the harbour without lowering their sails—so deep were the waters of the harbour. There were several thriving markets and tall mansions which could be reached by high ladders.

The Satavahanas

While the Cheras, Cholas and Pandyas ruled over the Tamizhagam, a new dynasty came to power in Central India. For three centuries, between 100 BCE and 220 CE, the **Satavahanas** ruled over Central India. They were also known as the Andhras. Under their renowned ruler **Gautamiputra Satakarni** (106–130 CE), they defeated the Shakas and other rulers. Possibly, Satakarni's empire extended from

Malwa in the north to present-day Karnataka in the south. The capital of the Satavahanas was **Paithan** or **Pratishthan** on the Godavari.

The Satavahanas followed the **matrilineal** form of society, where children took on the name of their mothers, not the fathers. Prakrit was the official language of the Satavahanas and inscriptions were written in the Brahmi script.

The Satavahanas encouraged trade and laid good roads to make trading easier. They controlled the **Dakshinapath**, or the road connecting North India to South India. They probably used gold as bullion, but did not use gold coins, unlike the Kushanas. They mostly issued coins of lead, copper and bronze. Roman coins found in several parts of Andhra point to trade links between the Romans and the Satavahanas. Many towns grew during this period.

The Satavahana rulers were predominantly Vaishnavite (worshippers of Vishnu), but also promoted Buddhism. Nagarjunakonda and Amaravati became important seats of Buddhist culture under them.

Sources of History

According to the ***Maduraikkanci***, in the city of Madurai the *angadi*, or market, was located at the centre of a city. "The market of Madurai was cosmopolitan, with people of various nations, races and languages crowding into the shops. ... The great market was held in a large square and the items sold included garlands of flowers, fragrant pastes, coats with metallic belts, leather sandals, weapons, shields, carts, chariots and ornamented chariot steps. Garment shops sold clothing ... made of cotton, silk or wool. On the grain merchants' street, sacks of pepper and sixteen kinds of grains (including paddy, millet, gram, peas and sesame seeds) were heaped by the side. The jewellers, who conducted business from a separate street, sold precious articles such as diamonds, pearls, emeralds, rubies, sapphires, topaz, coral beads and varieties of gold."

Paint the scene described above. Which of the items mentioned here would you not expect to see in a market in India now? Which are the items you could see even today?

Glossary

urban: city-based
pastoralist: a person who rears cattle
Sangam Age: the period between 500 BCE and 300 CE in South Indian history
velir: Tamil chieftains of the Sangam Age
mansion: a large house or palace
Brahmi: the ancient Indian script from which modern scripts have been derived
matrilineal: considering a person as a descendant of his or her mother rather than father

In Brief

- Iron tools helped the Vedic people clear forests and expand agriculture.
- The growth in agriculture gave rise to several new occupations.
- Rise in agriculture and trade led to the growth of many towns and cities like Pataliputra, Mathura, Kasi, Kosala and Ujjain.
- In the southernmost part of India, there were three kingdoms—the Chera, Chola and Pandya kingdoms.
- The period between 500 BCE and 300 CE is known as the Sangam Age in Tamil Nadu.
- The Satavahanas ruled over Central India for three centuries.

Enrichment Activities

- **Map Work:** Draw or trace the map of South India. Mark the capitals of the three kingdoms and mark the port cities that are mentioned in the case study.
- **Art Work:** Make a model of the five landscapes mentioned in the Sangam literature. Find out the main occupation of the people in these landscapes. You can use any material that you can find at your home or school.
- **Debate:** 'The second urbanisation was far more advanced than that of the Indus Valley civilisation'. Have a debate on the topic.

Exercises

I. Fill in the blanks.

1. After 1000 BCE, the Vedic people spread eastwards into the _____ Plains.
2. Nagarjunakonda and Amaravati were important centres of _____.
3. The major source of information on the ancient Tamil kingdoms is _____ literature.
4. Karikala Chola is believed to have built a dam across the river _____.
5. Dakshinapath, connecting North and South India, was controlled by the _____ kings.

II. True or false?

1. Based on the environment, Sangam literature divides land into five types.
2. Musiri was a port town.
3. The Cheras ruled over present-day Kerala.
4. Prakrit was the official language of the Satavahana kings.
5. The Satavahana rulers were Buddhists.

III. Answer in brief.

1. What is meant by urbanisation?
2. What was the capital of the Cheras? Who was the most famous Chera king?
3. Name the capital and one prominent king of the Pandya dynasty.
4. Mention the capital city and a major king of the (early) Chola kingdom.
5. What is the Sangam Age? Why is it called so?
6. Who were the Satavahanas? Where was their kingdom located?

IV. Answer in detail.

1. How did iron tools help the Vedic people expand agriculture? What effect did it have on people's occupations?
2. What were the conditions that encouraged urbanisation in the Gangetic Plains?
3. Describe the different kinds of urban centres during the second urbanisation in ancient India.
4. Write an essay on the life of the Tamil people during the Sangam Age.
5. Write an account of the reign of the Satavahana kings.

Multiple Choice Questions

1. As the Vedic people moved eastward into the Gangetic Plain, between 1000 and 600 BCE, which factor led to the major expansion of agriculture?
   a. The fertile nature of the soil in the Gangetic flood plain
   b. The easy availability of water from the rivers for the crops

c. The iron tools and weapons used by the Vedic people to clear the forests and cultivate new areas
d. The thick forests of the Indo Gangetic plains made it difficult for the Vedic people to graze their cattle, thus forcing them to abandon pastoralism, and turn to agriculture

2. What was the second urbanisation?
   a. It refers to the reappearance of towns and cities on the Indian subcontinent for the first time after the decline of the Indus civilisation more than 1,000 years ago.
   b. It refers to the process by which people in the 6th century BCE moved from villages to larger rural settlements which gradually grew into towns and cities.
   c. It refers to the spread of the Vedic people along the Indo-Gangetic Plains, and the appearance of towns and cities.
   d. None of the above
3. Capitals of some powerful kingdoms grew into cities. For example,
   a. Rajagriha, Shravasti, Madurai, Nasik, Arikamedu, and Amaravati
   b. Hastinapur, Kausambi, Ujjain, Tamralipti, Kasi and Mathura
   c. Hastinapur, Shravasti, Kaveripattinam, Rajagriha, Kausambi and Madurai
   d. Rajagriha, Korkai, Puhar, Sopara, Musiri, Vaishali and Madurai
4. The main ports that developed around 200 BCE on the western coast of India included:
   a. Bharukakacha, Sopara, Kalyan and Musiri
   b. Tamralipti, Musiri, Sopara and Arikamedu
   c. Musiri, Azhagalkulam, Korkai, and Sopara
   d. Bharukakacha, Sopara, Arikamedu and Kalyan
5. On what basis can we say that land was managed in a scientific manner during the Sangam Age?
   a. Land was divided on the basis of its fertility, and only the most fertile land was used. The rest was left unused.
   b. Land was divided on the basis of fertility and relief, and the land was used and crops grown in a manner best suited for each area.
   c. Experiments were conducted by scientists to see how land should be used by the people.
   d. None of the above
6. Which of these was not a popular leisure activity in the Sangam Age?
   a. wrestling b. gambling
   c. bull chasing d. crocodile hunting
7. Which important port city was also known as Puhar?
   a. Arikamedu b. Kaveripattinam
   c. Korkai d. Musiri
8. Which of these cities was also a thriving centre of Indo-Roman trade?
   a. Arikamedu b. Kaveripattinam
   c. Korkai d. Madurai
9. Which was the dynasty that ruled central India between 100 BCE and 220 CE; and where was their capital located?
   a. Chola—Pratishthan b. Satavahana—Madurai
   c. Satavahana—Paithan d. Pandyas—Amaravati

HOTS: Think and Answer

Why did traders and craftsmen form guilds? In what way can the guilds help its members? Do we have guilds today?

Values that enrich

King Karikala Chola built the Grand Anicut on the river Kaveri. He was considered as one of the best Chola kings of the Sangam Era. What values does Karikala Chola stand for?

Life skills

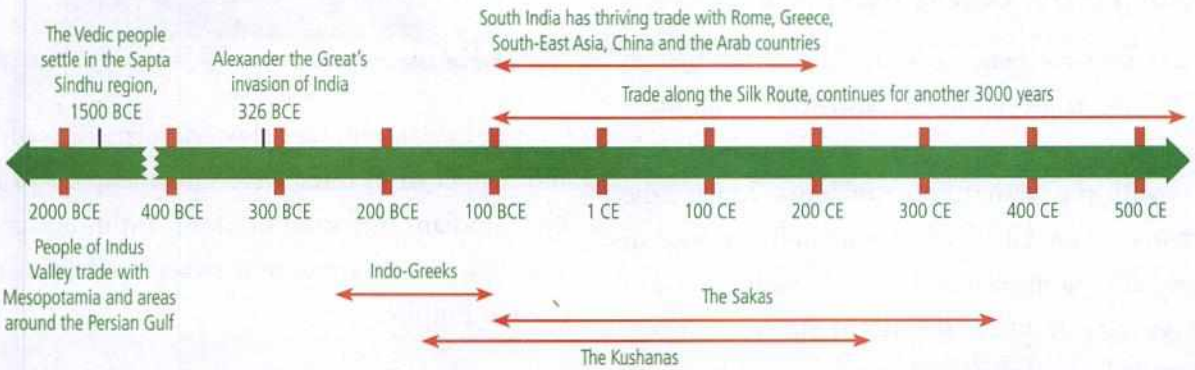
Interpersonal relationship

Having (and being) good neighbours can be fun and a great help in times of need.

How well do you know your neighbours? What can you do to get to know them better?

Make it a point to greet your neighbours politely when you meet them. You could ask your parents to organise a lunch/ dinner once a month where every family in your apartment pools in with one dish. Make friends with the other children in the apartment or neighbourhood, and encourage them to come out and play together.

10. Contact with Distant Lands



India has a long history of contact or interaction with distant lands. Contact between lands can occur in different ways:

- **Interaction through trade**—for example, the flourishing trade that existed between people of the Indus Valley civilisation and Mesopotamia, and between the Tamils and Greece, Rome and the countries of South-East Asia.
- **Contact through religion**—for example, the spread of Buddhism from India to Central Asia, East Asia and South-East Asia.
- **Contact through conquest**—for example, the conquest of north-west India by tribes from Central Asia like the Sakas and the Kushanas, and the Tamil conquest of South-East Asia.

CONTACT THROUGH TRADE

You have already read about the trade that developed between the people of the Indus Valley Civilisation and the other cultures of the time, like Mesopotamia. This contact declined during the early Vedic period, as the people traded only between local villages through barter. However, by 200 BCE, with the rise of towns and cities, India had re-established trade contacts with several regions, like China, South-East Asia, the Arab countries, Africa, Greece and Rome.

It was, however, mainly southern India that benefited from expanded economic and cultural contacts with West Asia, South-East Asia and the Roman Empire. Trade soon made the southern kingdoms very prosperous.

The Sangam literature tells us of the prospering markets of the cities of South India in the 1st and 2nd centuries CE. Traders from various parts of the country, and from foreign lands, came here with their wares. Some of the major exports were spices, precious stones like sapphires, rubies and diamonds,

cotton goods, silk, ivory, teakwood, animals, and birds such as peacocks. The main items of import were horses, wine, silk, ceramic, tin, lead, glass, gold and perfumes. Horses were brought by ship from the Arab lands. The value of the exports was far greater than that of the imports.

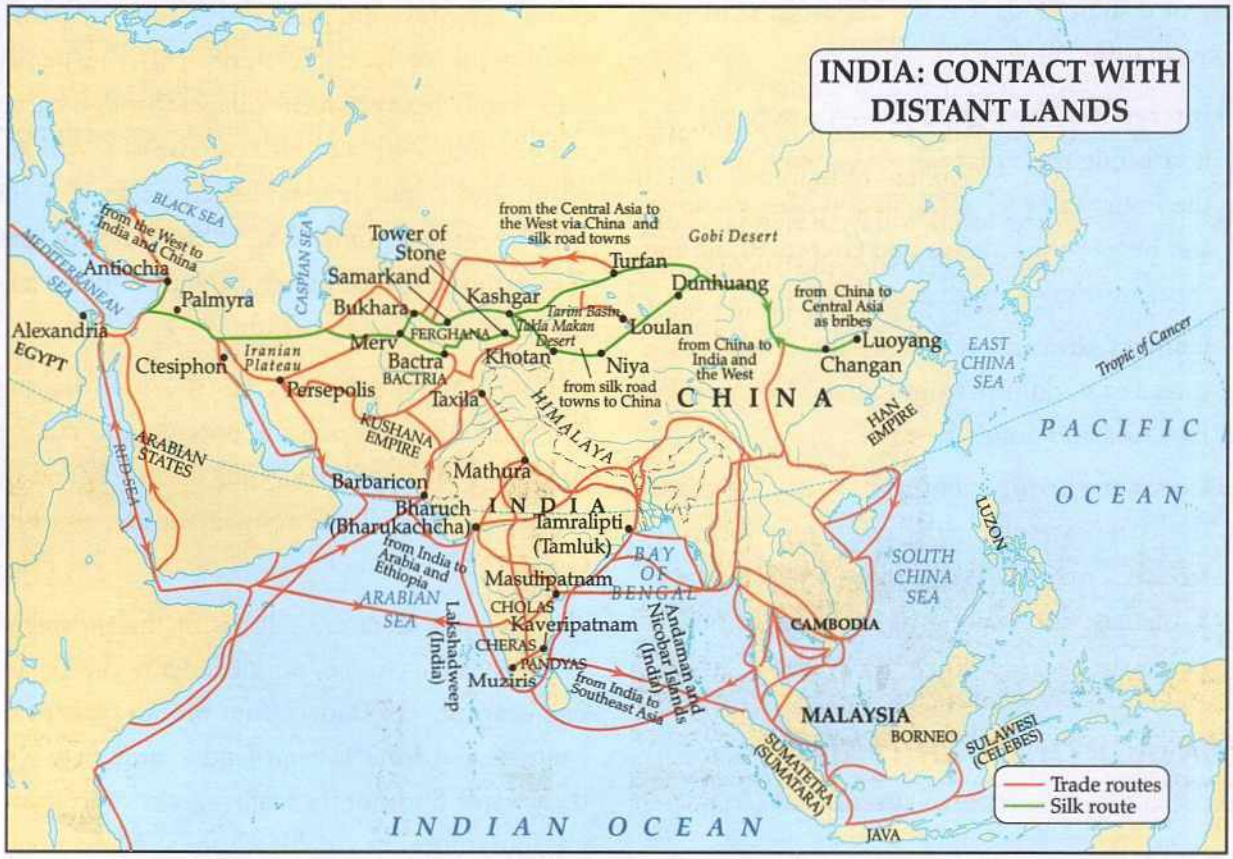
Contacts with Greeks and Romans

The Greeks are believed to be one of the first to enter into trade with the southern kingdoms. The Greeks and the Romans also had close trade links with the western coast of India. Musiri, the seaport near present-day Pattanam in Kerala, was an important trading centre. However, with the end of the Roman Empire in the 4th to 5th centuries CE, the trade links of the Cholas and the Pandyas with the West were reduced.

Coin of Roman emperor Augustus found in Pudukkottai, Tamil Nadu

Ginger, cardamom, sandalwood, turmeric, saffron and pepper from India were valuable items in the West. Indians imported tin, lead, antimony, gold, glass, copper, ceramics and sweet wine from the Roman Empire.

Arikamedu, near Puducherry, was an important centre of trade with Rome. Many articles such as



Map showing silk routes

porcelain, coins, jars and tubs (probably used for dyeing cloth) have been found here. Roman coins, pottery and other articles have been found at Puhar, Kanchipuram and Madurai too.

Contacts with South-East Asia

India had a well-developed system of trade with the countries of South-East Asia. We know that traders from Sri Lanka brought their goods to India to sell them to Greek and Roman merchants.

Historical sources also tell us about the economic ties between Kambuja (present-day Cambodia) and the kingdom of the Cholas after Kambuja was conquered by the Cholas. Accompanying this seagoing trade, many Indians emigrated. They reached Sri Lanka, the coast of Burma, Thailand and Cambodia, the Malay Peninsula, Java, Sumatra and Borneo; a few reached Taiwan and the Philippines.

The Tamils introduced their culture in some of the places they had under their control like Sumatra, Java and Bali. A large segment of Bali's population practise Hinduism even today. Rajaraja Chola is believed to have allowed the construction of a vihara by the king of Malaya at the Tamil port of Nagapattinam.

Angkor Wat, Cambodia, built by King Suryavarman II in the 12th century CE. Angkor was a Hindu and Buddhist religious centre from early times.

The Silk Route

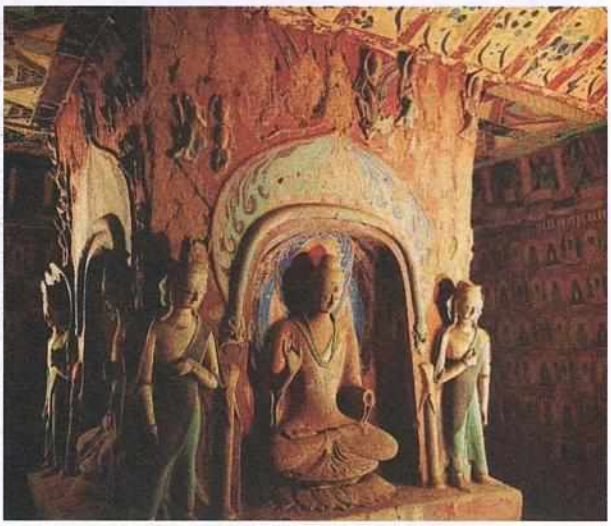
The Silk Route is one of the oldest and most important series of trade routes in the world. It connected Xian in China with the Mediterranean Sea (a distance of more than 7,000 km) for more than 2,000 years. The Silk Route was established around the 1st century BCE by the Chinese to reach the markets of India, and the West. This trade route was named so because silk was the most important commodity traded along this route for a long time. (Look at the map on page 82.)

Silk is believed to have been discovered in China around 2700 BCE. For almost 3,000 years, however, the Chinese kept the method of manufacturing silk a closely guarded secret. Chinese silk was thus in great demand around the world, especially in Rome.

The Silk Route had two main branches—the **northern route** and the **southern route**. The southern route ran through northern India, across Khorasan in Central Asia and Mesopotamia to the Mediterranean Sea. The northern route ran north of the Tibetan Plateau through Russia to the Black Sea, and then to the Mediterranean Sea.

The Chinese traded their raw and woven silk for spices, precious stones, pearls, ivory and raw cotton from India. China also exported musk, tung oil and amber to India.

A painting showing trade on the Silk Route, from the Dunhuang Caves, China



Statue of Buddha inside the Dunhuang Caves, China

It was not only traders who travelled along the Silk Route. Pilgrims, monks, would-be conquerors and soldiers also travelled along this route. Buddhism came to China along this route. Caravans travelling along the Silk Route brought Chinese inventions and discoveries, like paper, gunpowder, porcelain and tea, to the West. These discoveries had a powerful influence on cultures across the world.

CONQUERORS FROM DISTANT LANDS

The last Mauryan ruler was overthrown by Pushyamitra Sunga in 185 BCE. He established the Sunga dynasty in the east. In the Deccan, the Kanwas; and in Central India the Satavahanas, established their authority. At this time, north-western India was conquered by a number of ruling dynasties from Central Asia.

The Indo-Greeks or the Bactrian Greeks

One reason for the eclipse of the Mauryan dynasty was the arrival of the Bactrian Greeks. Parthia (Khorasan and the adjoining region to the south-east of the Caspian Sea) and Bactria (the region around Balkh in northern Afghanistan) were two

Coins issued by Menander

districts of Iran that were under the Greeks. These Bactrian Greeks used the weakness of the collapsing Mauryan empire to their advantage and expanded into India.

The most renowned Indo-Greek ruler was Menander or Milinda (165–145 BCE), who conquered territories upto Pataliputra. He was influenced by the teachings of the Buddha, and became a patron of Buddhism.

The Indo-Greek rulers were the earliest to issue gold coins in India, and this became a common custom among succeeding rulers over the centuries. Yet another significant contribution of Greek rule was the introduction of a new school of art in the north-western part of India—a blend of Greek and Indian styles—which was popularly known as the **Gandhara style**.

The Sakas

Coming to power after the Indo-Greeks, the Sakas established their rule over different parts of India. There were five branches of the Sakas, of which the branch that consolidated its power and ruled over a large territory was the one that ruled over western India. The Sakas introduced the **satrap**

system of government. The empire was divided into numerous provinces or satrapies, each under a satrap.

Rudradaman (130–150 CE) was the most famous Saka king. We know from inscriptions that he was a great patron of Sanskrit. There are many Sanskrit works belonging to this period. Asvaghosha wrote the ***Buddhacharita***. He also compiled the ***Saundaranandakavya***.

The Parthians

Tracing their origin in Iran, the Parthians moved to India and occupied a small portion at the north-west of the Indian subcontinent in the 1st century CE. Their most renowned king was Gondophernes, in whose reign Saint Thomas the Apostle is believed to have come to India to spread the teachings of Jesus Christ.

The Kushanas

The Kushanas were a tribe from the steppes of Central Asia. Predominantly nomadic, the Kushanas migrated to India and gradually occupied parts of Iran, Afghanistan and north-western India. The power of the Kushanas reached its zenith under **Kanishka** (late first and early second century CE).

Kanishka's empire touched the borders of all the great civilisations of the time. The Kushanas exchanged embassies with the Chinese as well as the Romans. Purushapura (present-day Peshawar) was Kanishka's capital. He issued numerous gold coins, which can be found even as far east as Mathura and Benares.

Headless statue of Kanishka at Mathura

Coin issued by Kanishka

Kanishka is believed to have created a calendar which came to be known as the Saka calendar. The Saka Era starts counting years from 78 CE. The Saka calendar is the one officially followed by the Indian government today.

Kanishka was also known for the patronage he extended to Mahayana Buddhism. Buddha was worshipped now, and images of the Buddha were created in large numbers for the first time.

After ruling for over 200 years, from the middle of the 1st century CE to the 3rd century CE, the Kushana Empire collapsed.

The Impact of the Sakas and the Kushanas

- The coming of the Sakas and Kushanas led to the growth of close contacts between Central Asia and India.
- The Sakas and the Kushanas introduced new styles of dressing. Turbans, tunics, trousers and heavy long coats were popularised by them.
- Indian craftsmen came into contact with the Greeks and Romans in the north-western frontier of the Indian subcontinent, and the result was a rich outpouring of images of the Buddha in the Gandhara (**Indo-Greek**) style.

CONTACT THROUGH THE SPREAD OF RELIGION—THE SPREAD OF BUDDHISM TO CENTRAL ASIA

Buddhism grew from being a relatively unknown

religion restricted to parts of eastern India in the 4th century BCE, to one of the most widespread religions of Asia by the 10th century CE. How did Buddhism spread so far?

The spread of religions has always been closely linked to trade routes and traders. Buddhism too was spread by Indian traders as they travelled along the Silk Route. Many Indian merchants were Buddhists, and it is believed that they helped the spread of Buddhism to South-East Asia, Central Asia and East Asia.

When Kanishka conquered the north-western parts of the subcontinent in the 1st century CE, he was exposed to the teachings of Buddha. He became a staunch follower of Buddhism. He held the last Buddhist Council at Kundalavana in Kashmir, where Buddhism finally divided into two sects—the Mahayana and the Hinayana.

Kanishka helped spread Mahayana Buddhism to different parts of Asia, especially Central Asia.

Kanishka's capitals at Kapisa and Peshawar became great centres of Buddhist learning. Kanishka built what was probably the tallest building in the world at the time, a giant stupa to house the relics of Buddha.

Bamiyan, about 240 km north-west of Kabul, was another important Buddhist centre of learning. Gigantic statues of Buddha (about 53 and 35 m in height), with smaller ones spread out around, were carved out on the sides of the Bamiyan gorge. They were, however, destroyed in 2001.

Travelling along the Silk Route, by the 1st century CE, Buddhism had also reached China. Emperor Ming (58–75 CE) of the Han Dynasty may have been one of the first Chinese emperors to be interested in Buddhism. Buddhist scriptures were translated into Chinese and several Buddhist viharas and monasteries came up.

Inside the Dunhuang Caves (or the Caves of the Thousand Buddhas) in Gansu Province, China, are 492 temples dedicated to Buddha. The cave shrines were built over a long time, beginning in 366 ce, and were used to store Buddhist scriptures and art. They are situated at a strategic point along the Silk Route, at the crossroads of trade as well as religious, cultural and intellectual influences.

Wall paintings of Buddha's life inside Dunhuang caves

Discover more...

Between 399 and 412 CE, the Chinese Buddhist traveller Faxian visited India. He came in search of complete copies of the Buddhist scripture, the ***Vinaya Pitaka***. On his return to China, he spent the rest of his life translating the scriptures. His account of his travels in India is a valuable source of information of conditions in India during the 5th century CE. Other Chinese travellers to India include Xuanzang and I-tsing.

Statue of Xuanzang at the Patna Museum

Buddhism became one of the main religions of China during the 7th and 8th centuries CE.

Glossary

emigrate: to shift to another country
vihara: a Buddhist temple
pilgrim: a traveller to a sacred place
caravan: a procession of wagons travelling together
Gandhara Art: Indo-Greek style of art
satrap: chieftain
steppe: extensive grasslands in Siberia or east Russia
nomadic: wandering

In Brief

- India has a long history of interaction with other countries through trade, through religion and through conquest.
- The kingdoms of southern India had economic and cultural contacts with West Asia, South-East Asia, and the Greek and Roman empires.
- The trade route that connected Xian in China with the Mediterranean Sea was called the Silk Route.
- After the decline of the Mauryan Empire, Greek rulers from Bactria conquered regions of the subcontinent.
- After the Indo-Greek rulers, the Sakas reigned over the western part of the subcontinent.
- The Parthians occupied a small area in the north-western region of the subcontinent in the 1st century CE.
- The Kushanas, a tribe from Central Asia, ruled over parts of present-day Pakistan and Iran, Afghanistan, north-western India. Kanishka was a major patron of Buddhism.
- Buddhism spread through trade to Central Asia, South-East Asia and East Asia.

Enrichment Activities

- **Group Work:** Work in groups. Each group can create a project on different aspects of Ancient India's contact with distant lands. The groups can work on interaction through trade, interaction through migration, contact through religion, and contact through conquest.
- **Role play:** The same groups could also role play Buddhist monks spreading Buddhism and tribes from the north-west conquering parts of India. Dress in a style appropriate to that period of history and the region you are representing. Speak a few lines explaining who you are and how you help promote contact between different lands.
- **Poster making:** Make a poster or collage titled "Ancient India: Contact with Distant Lands". Collect pictures and interesting bits of information about the Silk Route, the Indo-Greeks, the Sakas, the Gandhara Buddhas, the Dunhuang Caves, temples like Angkor Wat, etc. and arrange them artistically on the poster.
- **Timeline:** Make a timeline of the conquests that you read about in this chapter. Begin with Indo-Greek conquests, the Sakas, the Parthians and the Kushanas. Paste pictures on the timeline to show important rulers or events of each conquest.

Exercises

I. Fill in the blanks.

1. Arikamedu in Tamil Nadu was an important centre of trade with _____.
2. The Silk Route connected _____ in China with _____.
3. The Sakas introduced the _____ system of government.
4. _____ was the most famous Saka king.
5. Kanishka belonged to the _____ dynasty.

II. True or false?

1. Sangam literature has references about the trade between the Tamil kingdoms and other countries.
2. The Greeks and Romans were major trade partners of the ancient Tamil kingdoms.
3. The ancient Tamils had a thriving trade with the countries of South-East Asia.
4. Silk is believed to have been invented in India.
5. The Indo-Greek rulers issued gold coins.
6. Xuanzsang was a traveller from Central Asia.

III. Answer in brief.

1. Why is the Silk Route called so?
2. Mention three important commodities each from India and China that were sought after in the West.
3. Who were the Indo-Greek rulers? Where did they come from?
4. Name the works written or compiled by Asvagosha.
5. Who was the most renowned Parthian king? Which apostle is believed to have come to India during his reign?
6. Which Chinese pilgrim visited India during the 5th century CE? What was the purpose of his visit?

IV. Answer in detail.

1. Describe the different ways in which distant lands can interact.
2. Describe the pattern of trade seen in South India between 100 BCE and 200 CE.
3. Write a note on the Silk Route and trade through it. What was the impact of trade on other spheres like religion and science?
4. Who were the conquerors who captured parts of north-western India from 200 BCE? Write in detail.
5. Write a short essay on Kanishka's contributions to the spread of Buddhism outside India.

Multiple Choice Questions

1. Which of these is NOT an example of contact between India and distant lands?
   a. coming of the Kushanas into India
   b. spread of Buddhism into South-East Asia and China
   c. emergence of Buddhism as a popular religion among the people of India
   d. trade between the people of the Indus Valley and Mesopotamia
2. During the ancient period, Items imported by India included:
   a. spices, rubies and diamonds, silk, cotton and horses
   b. horses, tin, gold, glass, ceramic, sweet wine and silk
   c. ceramic, horses, spices, peacocks, ivory and precious stones
   d. all of the above
3. 'Many of the people of Bali (in South-East Asia) practise Hinduism even today.' How did Hinduism reach Bali?

a. Long ago, the island of Bali was attached to the Indian landmass. Though the islands broke away over time, the people continued to follow the Indian culture and Hinduism.
b. The Chola kings conquered large parts of South-East Asia, including Bali. Many Indians went and settled in these conquered lands. They introduced their culture and Hinduism to these lands.
c. Several of the traders from South East Asia who came to India embraced Hinduism. When they went back, they spread the religion among the local people of Bali.
d. All of the above.

4. What was the Silk Route?
   a. It was a trade route established in the 1st century BCE by the Chinese Emperor to connect China to the markets of India and the West.
   b. It was an important road in China where all the silk merchants met to buy and sell silk.
   c. It was an important road along which pilgrims and monks travelled from China to India to see the land of Buddha and to learn more about Buddhism.
   d. It was a trade route established by the Chinese emperor to link China to the vast markets of India.
5. The most renowned Indo-Greek ruler who conquered territories up to Pataliputra was
   a. Kadphises b.Menander c. Alexander the Great d. Kanishka
6. The main contribution of the Sakas to the Indian political system was:
   a. the introduction of the issue of gold coins as a form of payment
   b. their influence on Indian art and sculpture
   c. the introduction of the satrap system of governance
   d. the introduction of gunpowder and paper
7. Why is Kanishka considered to be the most famous king of the Kushana dynasty?
   a. Kanishka built up a powerful empire that touched the borders of all the great civilisations of the time.
   b. Kanishka is believed to have started the Saka calendar, which is the one followed by the Indian government today.
   c. The numerous gold coins issued by Kanishka, and the fact that they can be found even as far east as Benaras, points to the thriving economy of the empire.
   d. All of the above.
8. 'Buddhism became one of the main religions of China during the 7th and 8th centuries CE.' How did this happen? (More than one option may be correct.)
   a. Buddhism was carried to China by the traders who travelled along the Silk Route. Many of the Indian merchants were Buddhists.
   b. Kanishka, the powerful Kushana king, was a great patron of Mahayana Buddhism. Under him, Buddhism spread to different parts of Asia.
   c. Some Chinese emperors like Emperor Ming became interested in Buddhism. They helped spread the religion by building Buddhist Viharas and monasteries, and translating Buddhist scriptures into the local languages.
   d. Buddha travelled to China just before his death, and many Chinese who heard him speak chose to follow him.

HOTS: Think and Answer

Why do you think there was no trade between India and the countries of Africa and America in the ancient times?

Values that enrich

What values can we learn from the teachings of Buddha?

Life skills

Critical thinking/Effective communication

In this chapter, you read about India's trade with other countries during ancient times. Search the Internet or read books in your library, about how India's international trade has changed over the centuries. What was India's pattern of trade during the ancient times? How did it change after the British came? What is the pattern now after so many years of independence? Do you think it has changed for the better? Note down your points and discuss them in class.

11. India between the 4th and 7th Centuries CE

After the decline of the Mauryas in the 2nd century BCE, North India witnessed the rise and fall of many small kingdoms. For quite some time, the Satavahanas in the south and the Kushanas in the north maintained stability and order. But there was no empire as vast and powerful as that of the Mauryas till the coming of the Guptas.

THE GUPTAS

Though not as grand, the Guptas came close to the Mauryas in terms of the geographical extent of the empire. This period of the Guptas is also referred to as the 'Classical Age' of ancient India. The Gupta Empire kept northern India politically united for more than 200 years (320–540 CE). There are a number of achievements to the credit of this dynasty—art, literature and the sciences received royal patronage.

Sources of Information

There are, fortunately, several sources to help narrate the story of the Guptas.

1. **Literary sources**—Both plays and travelogues give a portrayal of the period. Works by writers like Vishakhadatta and Shudraka give us insights into life in the Gupta Age. Faxian, the Chinese Buddhist traveller, described in his writings the social and religious conditions of India during these times.
2. **Inscriptions**—There is a wealth of inscriptions belonging to the Gupta period, in a variety of

places, that reveal the achievements of the rulers. Of these the most well known is Harisena's inscription in praise of the Gupta king Samudra Gupta.

3. **Seals and coins**—Several seals and coins belonging to this period have been found, which offer us a glimpse into the age of the Guptas.
4. **Art and monuments**—The Gupta Age produced masterpieces in art, the most notable being the beautiful images of Buddha at Mathura. For the first time, we see the emergence of temples and also images of Vishnu and other deities.

Chandra Gupta I (CA 320–335 CE)

The Guptas were vassals of the Kushanas. When the power of the Kushanas declined, they asserted themselves under the leadership of Chandra Gupta I. Chandra Gupta I ascended the throne of Magadha sometime around 320 CE. He cemented his position by marrying a Lichchhavi princess from present-day Nepal. Chandra Gupta laid a strong foundation for the kingdom. He was succeeded by his son Samudra Gupta.

Samudra Gupta (CA 335–375 CE)

Samudra Gupta conquered and occupied vast territories including present-day Delhi, western Uttar Pradesh, Nepal, Assam and Bengal. Also many republics, forest kingdoms and even the southern kingdoms paid him tribute. We know about his aggressive expansionist policy and success from the Allahabad Pillar Inscription. Even parts of Punjab and Afghanistan came under his rule. Samudra Gupta was not only a great conqueror, he was also an accomplished veena player and a poet.

Gold coin showing Samudra Gupta in armour

Chandra Gupta II (CA 375–415 CE)

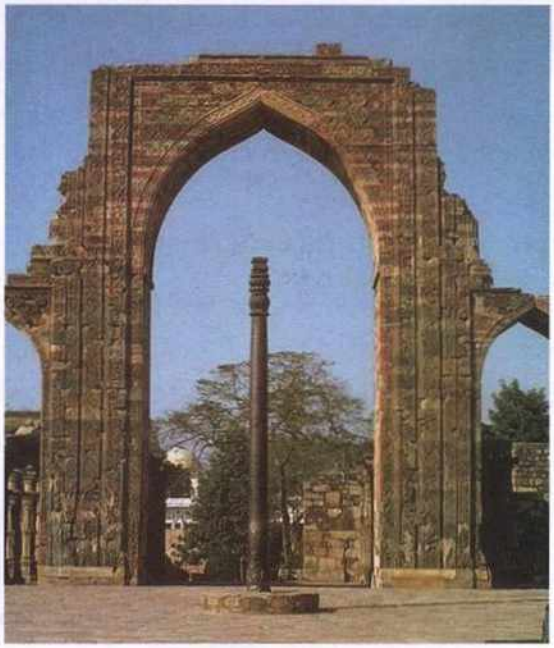
The reign of the Guptas reached its peak during the rule of Chandra Gupta II or Chandra Gupta Vikramaditya. His influence extended up to the Vakataka kingdom in the South. He conquered the Saka kingdom in the west and made Ujjain his second capital. He also occupied Malwa (in Madhya Pradesh) and Kathiawar (in Gujarat). The inscriptions on the iron pillar near the Qutub Minar in Delhi are believed to refer to Chandra Gupta II. It describes how his empire now extended to Vanga (Bengal). The poet Kalidasa is believed to have been part of Chandra Gupta's court.

Gold coin showing Chandra Gupta II

Kumara Gupta (CA 415–454 CE)

Kumara Gupta, who succeeded Chandra Gupta II, ruled for 40 years, and was a powerful king. During his reign, he retained and defended the vast empire that he had inherited from Chandra Gupta II.

Kumara Gupta was followed by Skanda Gupta (454–467 CE). Though powerful, Skanda Gupta had to contend with the invading Huns from Central Asia. Though he managed to defeat them,



The Iron Pillar at Mehrauli in Delhi

the power of the Guptas started declining after his death. By 550 CE, almost all of what was the Gupta Empire vanished.

LIFE UNDER THE GUPTAS

Administration

Kingship was hereditary. Unlike Mauryan rule where the kings held all the power in their own hands, Gupta rule was more decentralised. The empire was divided into a number of provinces or ***bhuktis***. They were placed under governors or ***uparikas***. The provinces were further subdivided into districts or ***vishayas*** which were headed by ***vishayapatis***. Then came the villages; the village head managed the affairs of the village with the assistance of the village elders. The villages and towns enjoyed a great deal of local autonomy.

Bigger cities were administered by ***ayuktas***, who were appointed by the governor. These *ayuktas* were assisted by town clerks. Guilds (*shrenis*) continued to flourish. There were the silk weavers' guilds, oil pressers' guilds, etc. Bankers too had their guilds. The heads of these guilds, called ***nagarasreshthins***, also advised the *ayuktas*.

Many taxes were levied on lands—one-fourth to one-sixth of the land revenue was collected as tax. High-ranking officials were probably paid in cash but, over a period of time, land grants replaced cash payments. This practice suggests the beginning of the practice of 'feudalism' in India. Over a period of time, this led to the decline of the empire.

Society

Faxian tells us about the simple life led by the people in the villages. But in the town and cities, the rich enjoyed affluent lifestyles. Most of the people seem to have preferred a vegetarian diet.

The caste system had by now further strengthened its hold on society. More and more sub-castes emerged as the foreigners who came into India were fitted in one caste or the other.

Trade

The Gupta Empire had long-distance trade with the Eastern Roman Empire, West Asia, Africa and many countries of South-East Asia. On the western coast, the ports of Bharuch and Cambay prospered, while Tamralipti developed on the eastern coast. The prosperity of the Guptas could be definitely attributed to this rich trade.

Contacts through trade also led to a more long-lasting impact on the cultures of South-East Asia. Sanskrit, Buddhism and Hinduism spread here from India.

Sculpture showing the varaha avatar of Vishnu, 5th century CE, Cave 5 Udayagiri, Madhya Pradesh

Religion

Religion gained importance in the Gupta period. Though the rulers were Hindu, they were tolerant towards other faiths. A great transformation took place in both Hinduism and Buddhism.

Idols were sculpted of gods and goddesses and worshipped in temples. The concept of the trinity of Brahma, Vishnu and Shiva gained popularity, as did the worship of Shakti. The university at Nalanda, the most famous centre of Buddhist learning, was founded by Kumara Gupta Mahendraditya.

The rule of the Guptas lasted for a little more than a century and a half. Towards the end of the period, many feudal chiefs who owed their beginnings to the Guptas assumed more power. One of these chiefs established the Pushyabhuti dynasty, in present-day Haryana. Their capital was at Thanesar. The most famous ruler of this dynasty was **Harshavardhana**.

HARSHAVARDHANA (606–647 CE)

Harshavardhana, or Harsha, came to power when he was about 16 years old. He went on to establish a mighty empire that extended across northern India. His kingdom included present-day Uttar Pradesh, Bihar, Bengal, Odisha and east Punjab.

Sculpture of Vishnu, 5th century CE, Mathura

Harsha moved his capital to **Kannauj**. Kannauj had replaced Pataliputra as the centre of power in the subcontinent. A well-fortified place, it suited Harsha, who could then control both the eastern and western parts of his empire.

We know about Harsha from the accounts of pilgrims who visited his court, especially those of Xuanzang, the Chinese pilgrim the writings of people like Banabhatta who lived in Harsha's court; and coins and inscriptions.

Administration

Unlike the Mauryas, and more like the Guptas, the officials of the empire were paid in land grants instead of money. This reduced the power and influence of the king. The king was assisted by a council of ministers.

Art and Culture

Harsha was a patron of the arts. The famous writers Banabhatta and Dandin were attached to his court. Banabhatta wrote the *Harshacharita,* a rich source of information about Harsha's reign. Harsha himself is believed to have written plays in Sanskrit, like *Ratnavali* and *Priyadarshika.* Educational centres like Kannauj, Vallabhi, Varanasi and Nalanda were patronised by Harsha. He donated generously to the university at Nalanda, which grew in fame as one of the greatest centres of learning.

Occupation and trade

According to Xuanzang, agriculture was the main occupation of the people. Trade thrived. There were many trading centres along the Ganga, which was used as an internal waterway to transport goods.

Religion

Harsha is believed to have become a follower of Buddhism later in his life. He organised large religious assemblies every five years where he honoured people belonging to all religions.

THE KINGDOMS OF THE DECCAN

After the fall of the Satahvahanas around 220 CE, several small kingdoms arose in the Deccan. The Chalukyas and the Pallavas emerged the strongest among them.

The Chalukyas

The Chalukyas ruled over large parts of the Deccan from the 6th to the 8th century CE. Their capital was at Badami or Vatapi. The most famous ruler of this dynasty was Pulakesin II (609–642 CE). Under him, the Chalukyan kingdom stretched from the river Narmada to the river Kaveri.

Pulakesin II defeated Harsha at the banks of the Narmada in a historic battle. The Chalukyas were engaged in several battles with the

Harsha welcoming Xuanzang a painting in the Parliament House, Delhi

Pallavas. Pulakesin II defeated the Pallava king Mahendravarman. However, Mahendravarman's son, Narasimhavarman, defeated Pulakesin II and captured Badami.

Vivid accounts of Pulakesin's campaigns are provided in the Aihole inscription composed by his court poet Ravikirti in 634 CE. (Such inscriptions written in praise of someone are called ***prashastis***.)

The Chalukyas were finally defeated by the Rashtrakutas in 753 CE.

The most enduring legacy of the Chalukya dynasty is the architecture and art that they left behind. The rock-cut temples at Pattadakal, Badami and Aihole are their most famous monuments. The Chalukyan style of architecture was a mix of the northern (nagara) and southern (dravida) styles.

Dancing Shiva, Badami, 600 CE

The Pallavas

At its peak, the Pallava kingdom stretched over most of South India. Its capital was at Kanchipuram. The greatest rulers of this kingdom were Simhavishnu (575–600 CE) and Narasimhavarman I (630–668 CE). Narasimhavarman I defeated the Chalukya king

The Virupaksha Temple, Pattadakal, 740 CE

Durga Temple, Aihole, 6th century CE

Sources from History

Given below are a few lines from a translation of the Aihole Inscription of Pulakesin II (634–635 CE)

(Verse 20) In the **Konkanas** the impetuous waves of the forces directed by Him speedily swept away the rising wavelets of pools—the **Mauryas**.

(Verse 21) When, radiant like the destroyer of Pura, He besieged **Puri**, the Fortune of the western sea, with hundreds of ships in appearance like arrays of rutting elephants, the sky, dark-blue as a young lotus and covered with tiers of massive clouds, resembled the sea, and the sea was like the sky.

(Verse 22) Subdued by His splendour, the **Latas**, **Malavas** and **Gurjaras** became as it were teachers of how feudatories, subdued by force, ought to behave.

(Verse 23) **Harsha**, whose lotus-feet were arrayed with the rays of the jewels of the diadems of hosts of feudatories prosperous with unmeasured might, through Him had his joy (*harsha*) melted away by fear, having become loathsome with his rows of lordly elephants fallen in battle.

Of this eulogy and of this dwelling of the **Jina** revered in the three worlds, the wise **Ravikirti** himself is the author and also the founder.

1. ***Underline phrases from the passage above which make the Aihole inscription a prashasti (a poem of praise), for Pulakesin II.***
2. ***How are the mighty Mauryas described by Ravikirti (verse 20)?***
3. ***How has Harsha's defeat at the hands of Pulakesin II been described (verse 23)?***
4. ***Nowadays, do poets or writers create prashastis for political leaders? Why do you think Ravikirti did not mention any of Pulakesin II's defeats?***

The Kailasanatha Temple, Kanchipuram

Pulakesin II. Continuous war with the Chalukyas and the Cholas weakened the Pallavas. They were finally defeated by the Cholas in 890 CE.

The Pallavas, like the Chalukya rulers, were great builders. The Shore Temple and the Seven Rathas at Mamallapuram, and the Kailasanatha temple at Kanchipuram, are a few of their outstanding contributions to Indian architecture.

Glossary

vassal: a small state that is under the power of an empire
tribute: payment made by a vassal state to an empire
Huns: a nomadic people who invaded India in the 4th century CE
decentralised: with powers distributed to local states
nagarasreshthin: head of a shreni (guild)
feudalism: a system of government in which vassals were protected by emperors, whom they had to serve in war
untouchability: the belief that touching a person of a 'lower' caste pollutes a 'higher' caste person

In Brief

- The Gupta Empire was founded by Chandra Gupta I, who came to power in Magadha around 320 CE.
- He was succeeded by his son Samudra Gupta, who expanded the empire to the east, up to present-day Assam and Bengal.
- Chandra Gupta II (Vikramaditya) further expanded the empire by conquering the Saka kingdom and making Ujjain his second capital. The Gupta empire went into decline by 550 CE.
- The Gupta empire was divided into provinces, districts and villages, each with its own administrative official.
- Through trade, Sanskrit, Buddhism and Hinduism spread to South-East Asia. Buddhism also spread to East Asia.
- After the fall of the Guptas, Harshavardhana established an empire which extended over the whole of North India.
- The Chalukyas ruled over large parts of the Deccan from the 6th century to the 8th century CE. The most famous Chalukya king was Pulakesin II, who defeated Harshavardhana.
- The Pallava kingdom covered almost the entire South India, with its capital at Kanchipuram. Its greatest rulers were Simhavishnu and Narasimhavarman I, who defeated Pulakesin II.

Enrichment Activities

- **Map work:** On a map of India, mark the extent of the Gupta Empire under Chandra Gupta II. Use another colour to show the extent of Harsha's Empire. Whose empire was larger? Which were the areas not included in the smaller empire?
- **Project/Presentation:** Do a project, or make a presentation, on Xuanzang the Chinese traveller who visited the court of Harsha. On a map of Asia, trace the route he took.
- **Find Out:** You have read about Kalidasa, who is believed to be one of the nine gems in Chandra Gupta II's court. Search the Internet or read books to find out about the other eight gems. You can present the information in the form of a slide presentation.
- **Chart Work:** On a chart, show the various monuments built by the Chalukyas and the Pallavas. Write a few lines about each, describing the main features of each and explaining where these monuments are located.

Exercises

I. Fill in the blanks.

1. The Gupta Age is referred to as the _____ Age of ancient India.
2. The Chinese traveller _____ has described the social and religious conditions during the Gupta Age.

3. _____ founded the Gupta Empire.
4. Chandra Gupta II was also known as Chandra Gupta _____.
5. Harshavardhana shifted his capital from _____ to _____.
6. Harshavardhana generously donated to the university at _____.
7. _____ was the capital of the Pallavas.

II. *True or false?*

1. The Guptas were originally vassals of the Kushanas.
2. Kalidasa was present in the court of Chandra Gupta I.
3. Samudra Gupta was also a poet and a musician.
4. Harshavardhana wrote the *Harshacharitha*.
5. The rock-cut temples at Pattadakal, Badami and Aihole were built by the Pallavas.
6. Continuous war with the Cholas and the Chalukyas weakened the Pallavas.

III. *Answer in brief.*

1. Give an example of the advancement of art during the rule of the Guptas.
2. List the military victories of Samudra Gupta.
3. Which Gupta emperor had to contend with the Huns? Did he succeed in the task?
4. Mention the regions of the world with which the Guptas traded.
5. Name the works of literature written by Harshavardhana.
6. What was the extent of Pulakesin II's kingdom? Which was its capital city?
7. What was the result of the battle between: i) Pulakesin II and Harsha; ii) Pulakesin II and Mahendravarman; iii) Pulakesin II and Narasimhavarman?
8. Name the architectural achievements of the Pallavas.

IV. *Answer in detail.*

1. What was the importance given to the caste system in society during the Gupta period?
2. Write a note on the nature of administration under the Guptas. Explain how feudalism originated in India at this time.
3. Why was the Gupta period known as the Classical Age of ancient India?
4. Write a review of Harshavardhana and his rule.

Multiple Choice Questions

1. Which was the dynasty that established an empire in India between the 4th and 7th centuries CE, that was almost as vast and powerful as that of the Mauryas?
   a. The Satavahanas b. The Kushanas
   c. The Cholas d. The Guptas
2. Who was the Chinese traveller who visited India during the rule of the Guptas?
   a. Xuanzang b. Faxian
   c. Megasthenes d. I-Tsing
3. The main sources of information we have about the rule of Samudra Gupta are the:
   a. inscriptions on the iron pillar near the Qutub Minar, Delhi
   b. inscriptions on the Allahabad Pillar
   c. writings by Vishakhadutta and Shudraka
   d. the writings of Kalidasa
4. The Gupta Empire was divided into a number of provinces or
   a. Bhuktis b. Vishayas c. Shrenis d. Uparikas

5. What is believed to have been the main source of wealth of the Guptas?
   a. the taxes collected from the farmers
   b. the taxes collected from the traders
   c. the rich trade the Guptas had with countries around the world
   d. tribute paid to the Gupta rulers by the southern kingdoms of India, the forest kingdoms and the republics
6. Harshavardhana, like the Guptas, paid his officials in land grants instead of money. This practice is said to have reduced the power of the king. Why do you think this happened? Tick the statements which you think are correct.
   a. The officials, over time, built up their wealth and power, became powerful feudal lords and challenged the might of the emperor.
   b. This practice actually helped the king become richer, as he did not have to pay his officials any money.
   c. This practice cost the king considerable revenue as the officials collected the revenue from the land given to them.
   d. All of the above.
7. Harsha was also an accomplished writer. He is believed to have written the:
   a. *Harshacharita* and *Priyadarshika*
   b. *Ratnavali* and *Priyadarshika*
   c. *Meghaduta* and *Ratnavali*
   d. *Vinayaka Pitaka* and *Harshacharita*
8. The Chalukyas ruled over large parts of the Deccan from the 6th to the 8th century CE. What was their most enduring legacy?
   a. Pulakesin II's victory over Harshavardhan
   b. The Aihole inscription by Ravikriti, written in praise of Pulakesin II
   c. The rock-cut temples at Pattadakal, Badami and Aihole
   d. All of the above
9. The capital of the Pallavas was at:
   a. Kanchipuram b. Badami
   c. Madurai d. Aihole

HOTS: Think and Answer

Harshavardhana, like the Guptas, paid his officials in land grants instead of money. This practice is said to have reduced the power of the king. Why do you think this happened?

Values that enrich

Travellers like Faxian and Xuanzang were welcomed in India and could travel the length and breadth of the kingdoms without fear. What does this tell you about the values practised by the Indians of that time?

Life skills

Empathy

These days, an increasing number of elderly people live on their own. The number of old-age homes, or retirement homes, has also gone up. Many of the people in these homes are extremely lonely. Visit a retirement home and spend some time with the people there. You could:

- play card games, carrom, or board games like scrabble or chess;
- take some home-cooked food with you and share it with them;
- go with your friends and perform a play or sing songs for them
- ask them to talk about themselves, their childhood, their grandchildren, listen patiently—that is the biggest gift you could give them.

12. The Legacy of Ancient India

Sources from History

Bhartrihari was a king of Ujjain. He renounced the world to become an ascetic and went on to write the *Shataka* trilogy—the *Neeti, Shringara*, and *Vairagya Shatakas*. He writes, 'The man who knows nothing of literature, music or art is nothing but a beast without the beast's tail and horns and thank god that he does not eat grass.'

Do you agree with Bhartrihari? Have a discussion or debate in class.

The most enduring legacy of ancient India is the rich tradition of culture, art and architecture, literature, sculpture, science and mathematics that we have inherited from our ancestors. We have already seen glimpses of this wealth in the previous chapters of this book. Here, we will take a closer look at the art and culture of ancient India.

A 17th century illustrated version of the Ramayana from Benaras, showing Rama and his army of monkeys and bears preparing to attack Lanka.

LITERATURE

Compositions in Sanskrit

Precise, yet lyrical, Sanskrit is the forerunner of a large number of Indian languages. Several works of religious and literary significance were composed in this language, for instance, the *Vedas*.

The *Rig Veda* was composed in Vedic Sanskrit, an early form of the language. It is a collection of prayers offered to various gods like Varuna, Agni and Surya. The *Vedas* also give detailed descriptions of the geography of the land and the flora and fauna of the time.

The other *Vedas* that followed are the *Yajur Veda*, the *Sama Veda*, and the *Atharva Veda*. Apart from these, there are the *Vedangas*, the *Aranyakas* and the *Upanishads*. The two great epics, the *Ramayana* and the *Mahabharata*, are the religious cornerstones of the faith of the Hindus even today. Though they seem to be just simple tales of the triumph of good over evil, these epics are also complex philosophical texts.

There are hundreds of different interpretations and versions of the *Ramayana*. This great epic cuts across the barriers of culture, religion and language and is revered not just in India, but also in countries like Indonesia, Thailand, Myanmar and Cambodia. In Indonesia, both the *Ramayana* and the *Mahabharata* are studied in many universities. The Indonesian version of the *Ramayana* is called ***Kakaw***, in the old Javanese language.

The *Bhagavad Gita* is a part of the *Mahabharata*,

which continues to be studied by scholars even today.

There are 18 main *Puranas*, which deal with myths, legends, religious rites and customs. Law books or *smritis* were also written, such as the *Manusmriti*, which laid down laws for society. The Sanskrit grammarian Panini wrote the *Ashtadhyayi*—a masterful study of Sanskrit grammar. Another great grammarian, Patanjali, wrote the *Mahabhashya*—a commentary on the *Ashtadhyayi*.

An old surviving work of Sanskrit poetry is Ashvaghosa's *Buddhacharita*, which narrates the life story of Buddha. Sanskrit plays became popular in the royal courts under the patronage of the kings. Love, nature, moralising and storytelling were the main themes of Sanskrit plays. The most outstanding poet of the Gupta period was Kalidasa. His works, like the *Abhijnanashakuntalam*, *Meghaduta* and *Ritusamharam* are known for the rich quality of their poetry.

The *Panchatantra* is a well-known collection of fables originally written in Sanskrit. The stories contain moral messages especially of relevance to rulers.

Shakuntala looking back to glimpse at Dushyanta
a painting by Raja Ravi Varma (1848–1906)

Writings in Pali and Prakrit

The language most used by the common people during the ancient period was Pali. Several Buddhist religious texts were written in Pali. Jain teachings

The *Panchatantra* is thought to have been written around 250 ce by VishnuSharma. It consists of animal fables and tales of magic and moral values. Here is a story from the *Panchatantra* which teaches us that unity is strength.

Unity is Strength

One day, a flock of doves went flying in search of food. Tired after a long day's search, they landed on a banyan tree, below which some rice was scattered. As the doves started eating the rice, a net landed on them, trapping all of them. They saw a hunter come towards them with a club. The doves tried to escape, but it was of no use.

Then, the king of the doves had an idea. He told the doves that instead of each of them trying to escape in a separate direction, they should all try to fly upwards together. With their combined strength, they would be able to lift the net off the ground. Each dove picked up a bit of the net, and they all flew into the sky. The doves were free. The hunter was amazed to see his big net being carried off by a bunch of doves. In unity lies strength.

Discover more...

were later compiled into the *Purvas* and the *Angas* (sections). They were written in Prakrit.

The *Tripitakas*, i.e., the *Sutta Pitaka*, the *Abhidhamma Pitaka* and the *Vinaya Pitaka*, are three important Buddhist texts that contain the teachings of Buddha. They are known as *Sutras* in Sanskrit and *Suttas* in Pali. The *Dhammapada* is a collection of Buddhist verses. The *Jataka Tales* is a large collection of fables, and the characters are mainly talking animals. Most of the stories deal with previous births of Buddha and usually carry a moral.

ART AND ARCHITECTURE

Whatever remains of ancient Indian art is largely religious in character, though writings of the time do mention several works of art and architecture that are not religious in nature.

Pre-Mauryan art

The remains of the Indus civilisation reveal the practical nature of the people then—they believed that the value of a thing depended on its usefulness rather than mere beauty. This approach was reflected in their well-planned towns with elaborate drainage systems. The bronze statue of the dancing girl gives us an idea of the jewellery and hair-styles of the Indus people.

Mauryan Art

PALACES

Megasthenes has given detailed descriptions of the palace of Chandragupta Maurya. It was built of

The Jataka Tales are stories about the previous births of the Buddha. They are stories with a moral that teach the values of honesty, generosity, courage and self-sacrifice.

The Tale of the Two Parrots

In one of his previous births, Buddha was born as a beautiful parrot called Radha. One day, Radha and his brother Pottapadha were captured by a king who was fascinated by their beauty. The king kept the parrots in a golden cage and fed them the choicest of foods. The parrots were very happy.

An illustration from the Jataka Tales

One day, a huge ape was brought to the palace. The people were so busy watching the ape's funny antics that they forgot about the parrots. Hungry and deeply hurt, Pottapadha wanted to leave the palace. But the wise Radha said, 'Don't be sad. Praise and blame, honour and dishonour are only temporary things in life. Soon people will get tired of the ape's antics and recognise your true worth.'

Just as Radha said, the king soon got tired of the ape and sent him back to the forest. People once again started paying attention to the parrots.

Moral: True worth and ability always get recognised finally.

Discover more...

intricately carved wood. Wood was the preferred material for constructing buildings, but due to the tendency of wood to decay, these buildings have not survived.

PILLARS AND CAPITALS

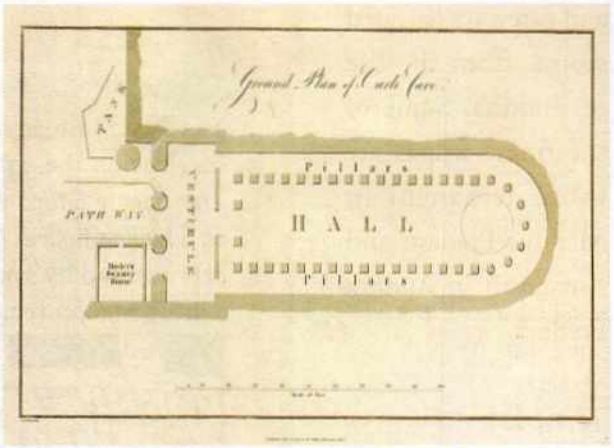
Towering pillars or columns were erected with beautiful capitals crowning them. (Capitals are pieces of sculpture on top of pillars.) Each pillar was made of a single piece of sandstone and highly polished. The capitals were usually sculptures of animals like horses, bulls or lions. Many pillars were erected across the Indian subcontinent from present-day Afghanistan to Karnataka. All the Mauryan pillars are from a quarry at Chunar near Varanasi.

CAVE TEMPLES

Cave temples, or **chaityas**, were hewn out of rock for prayer and to house Buddhist monks. The earliest example from the Ashokan period are the Barabar Caves near Gaya. Many cave temples were created later. Monasteries or **viharas** also sprang up in various parts of India. They housed a number of monks.

A number of chaityas were created in western and southern India. The cave at Karle (near Pune) is one of the most notable examples. Many chaityas have ornate pillars and stupas inside them.

Sometimes a cave monastery proved too small to house all the monks. And so, a complex of caves grew over centuries. The complex of caves at Ajanta, near Aurangabad, is the best example of this type of architecture. The earliest caves in Ajanta were from the 2nd century BCE, and there were additions over a period of 900 years till around the 7th century CE. Exquisite paintings and splendid sculptures can be found here.



The ground plan of the Karle chaitya hall—the half-ellipsoidal shape of the chaitya is characteristic of almost all Buddhist chaityas of ancient India. At the right-hand corner is the altar or stupa.

Interior of the rock-cut chaitya at Karle

STUPAS

After the death of Buddha, and other respected Buddhist monks, their remains or relics were placed in sealed caskets, and kept in small chambers. Over these chambers, hemispherical domes were built. These domes are called **stupas**. Over a period of time, wooden railings (later replaced by stone railings) were built around the stupas. Gateways were added at the four cardinal points of direction (east, west, north and south). Intricate carvings on the railings

and gateways narrated stories from the life of Buddha. Some of the finest stupas are those at Sanchi in Madhya Pradesh and Amaravati in Andhra Pradesh.

Temples

The earliest surviving temples are from the Gupta period. They are simple, small structures. The brick temple at Bhitargaon in Kanpur and the temple at Deogarh near Jhansi are important ruins from this time.

In southern India, at Mamallapuram, near Chennai, a number of stone temples were constructed by the Pallavas. Of these, the seven rathas or pagodas and the Shore Temple are the most well known. The Shore Temple is one of the earliest examples of structural architecture in India. (A **structural** temple is one that is built with blocks of cut stone, unlike **monolithic** or rock-cut temples, which are carved out as a single unit from surrounding rock. The rathas are rock-cut structures.)

The Pallavas also built the Kailasanatha temple at Kanchipuram in the 8th century CE. The Chalukyas built numerous temples at Aihole, Badami and Pattadikal in present-day Karnataka. (Look at the pictures in the previous chapter.)

The North and South Indian temples had some features in common. The heart of the temple was the main shrine-room or the *garbhagriha*, where the

Discover more...

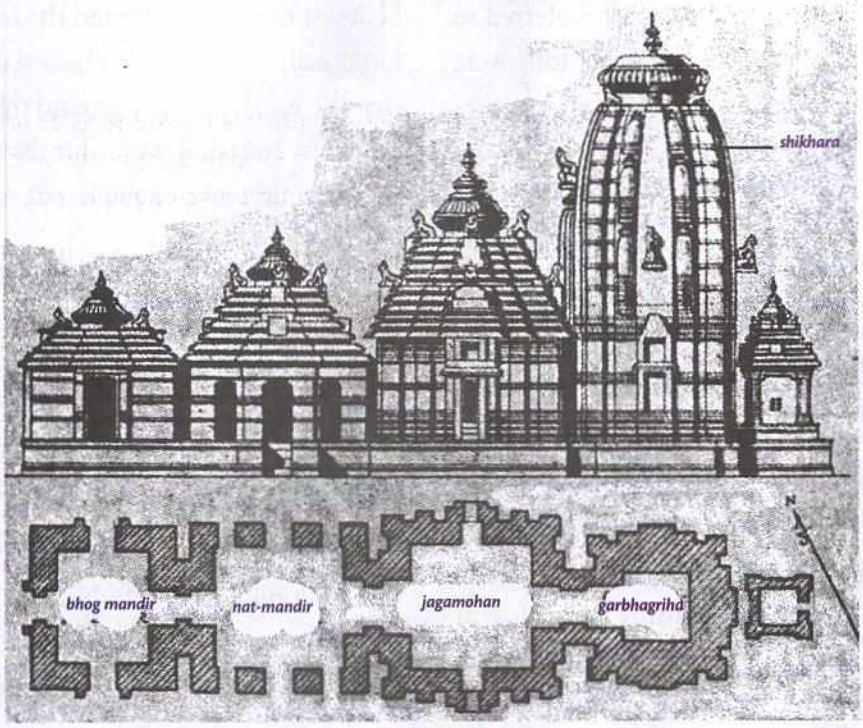
The Sanchi Stupa has four elaborately carved toranas or gates. The carvings on the gates represent incidents from the life of Buddha. The Sanchi Stupa was built at a time when Buddha was never shown as a human figure. Instead, he was represented by symbols like a tree, a lotus or a footprint.

Detail of carvings on the eastern gate, where Buddha is represented by a peepul tree

Close-up of the northern gate

Brick temple at Bhitargaon

The Shore Temple, Mamallapuram



Layout of a temple

main idol was consecrated. Above the *garbhagriha* was a *shikhara* or tower.

Sculpture

After the figure of the dancing girl and the priest-king, the earliest examples of sculpture are from the Ashokan pillars. These pillars were made of sandstone and were so highly polished that they shine to this day. These pillars had life-like figures of animals carved on their capitals. The lion capital at Sarnath is India's national emblem today.

The Lion Capital at Sarnath—note the highly polished quality of the sandstone.

During the reign of the Kushanas, several striking sculptures, mainly of Buddha, were created. Under the influence of the Greeks, two schools of sculpture evolved in northern India—the Gandhara school of art and the Mathura school of art. The Gandhara Buddhas had Greek features, and were made of grey

A statue of Buddha from the Gandhara school of art carved in grey stone, and one from the Mathura school in red sandstone

sandstone. The Mathura school of art preferred to use red sandstone, and the statues of Buddha were smaller with Indian features. (Look at the pictures shown.)

Paintings

Painting was a well-developed art in ancient India. The realistic cave paintings at Ajanta and Ellora depict scenes from the life of Buddha and the *Jataka Tales*. Vegetable dyes were used. At the Jain cave temple complex at Sittanavasal in Tamil Nadu, there are colourful paintings on the walls and ceiling.

Ajanta Buddha as Avalokiteshwara Padmapani

Music and dance

Indian music, as we know it today, is believed to have its origin in the chanting of the hymns of the *Sama Veda*. Later, in the 1st century BCE, a textbook on dance, drama and music was compiled. This is attributed to **Bharata** and is called the *Bharatanatyashastra*. From this common source emerged the Carnatic and Hindustani music traditions and dance systems of later times. Musical instruments like the veena, flute and drum were used in ancient India. Thus, an unbroken tradition of music and dance has come down thousands of generations to the present.

SCIENCE

In ancient times, science and religion were linked. Planets and their movements were observed and studied. **Aryabhata** and **Varahamihira** were two outstanding scholars of astronomy. Aryabhata is believed to have discovered the causes of solar and lunar eclipses. He is also believed to have realised that the Earth revolved around the Sun and not the other way round. It is possible that he also estimated the circumference of the Earth.

Varahamihira explained the movements of the planets. **Bhaskaracharya** possibly knew about gravity about 1,200 years ago, and wrote down his findings in the *Suryasiddhanta*.

The extraction of metals, the making of dyes and pigments, the making of rust-proof iron, and the extraction of sugar were successfully carried out.

The iron pillar in Delhi has been standing in the open for more than 1600 years without rusting. It is made of wrought iron, a very pure form of iron.

Mathematics

The people of the Indus Valley must have had some knowledge of mathematics to have built the well-planned cities they did. They also had a uniform and accurate system of weights and measures. Later the Vedic people needed to do mathematical calculations for their vedic rituals. Vedic mathematics dealt with arithmetic, geometry and algebra.

The concept of zero

The earliest inscription of zero was a record on the Sankheda Copper Plate found in Gujarat (585-586 ce). This paved the way for the decimal system, which simplified counting and calculations. Arab traders took this system and Indian knowledge and skills with them to the West. Over a period of time, the Indian decimal system came to be known as the Arabic number system.

Discover more...

The greatest contribution to mathematics by India has been the idea of **zero**.

Medical sciences

Impressive advances were made in ancient India in medicine, especially in the fields of plastic surgery, removal of cataracts and dental surgery. **Sushruta** was a great surgeon of that time.

Ayurveda is a branch of medicine that relies on herbal medicines to cure illness. **Charaka**, who wrote the *Charakasamhita*, was one of the first physicians to state that diseases are caused when the balance in the human body is disturbed. Today ayurvedic medicine is practised widely.

Another major contribution of ancient India to the world was the practice of **yoga**. Yoga is a system of exercises for both physical, emotional and mental health. **Patanjali** prepared the fundamentals of yoga as early as the 2nd century BCE.

A TRIBUTE TO ANCIENT INDIA

> 'We owe a lot to the Indians, who taught us how to count, without which no worthwhile scientific discovery could have been made.'
>
> —Albert Einstien

These words are indeed a fitting tribute to the achievements of our ancestors. Truly, it was a 'wonder that was India'.

Glossary

legacy: gift passed to younger generation
enduring: continuing
myth: traditional story or belief
capital: upper part of a column
ornate: richly decorated
garbhagriha: the main-shrine; *sanctum sanctorum*
shikhara: tower over the garbhagriha
astronomy: the study of the planets, stars, etc.

In Brief

- The ancient sacred books were in Sanskrit and include the *Vedas, Vedangas, Aranyakas, Upanishads* and the epics.
- There were also books on law (*Manusmriti*) and grammar (*Ashtadhyayi* and *Mahabashya*).
- Sanskrit plays became popular in royal courts; Kalidasa composed his famous plays in the Gupta period.
- Buddhist and Jain writings were in Prakrit and Pali—the languages spoken by the common people.
- The architecture of the Indus people was practical rather than decorative.
- Not many buildings survive from the Mauryan Age because they were made of wood.
- Mauryan stone pillars with animal capitals are found throughout the subcontinent.

- Cave temples and stupas are proof of the skill of the Mauryan architects.
- The Shore Temple at Mamallapuram is one of the earliest examples of structural architecture.
- The Gandhara and Mathura schools of art evolved due to the influence of the Greeks.
- Ancient paintings created with vegetable dyes still exist in Ajanta, Ellora, Sittannavasal, etc.
- The *Bharatanatyashastra* is a textbook of dance, drama and music written by Bharata.
- Instruments like the veena, flute and drum were used in ancient India.
- Aryabhata, Varahamihira and Bhaskaracharya were profound scholars of astronomy.
- In mathematics, the most outstanding contribution of India is the concept of zero and the decimal system.
- Charaka and Sushruta were great physicians of ancient India.
- Ayurveda, the ancient system of medicine, relies on herbal medicines to cure illness.
- Patanjali prepared the fundamentals of yoga in the 2nd century CE.

Enrichment Activities

- **Project/Presentation:** Do a project, or make a presentation, on the contribution of the ancient Indians in the field of science, mathematics and medical science.
- **Chart work:** Search the Internet and source pictures of sculptures of Buddha made during the ancient period of Indian history. Study their features and determine whether they belong to the Gandhara or the Mathura school of art. Paste their pictures on a chart paper and write a few sentences about each, explaining why you have classified it as belonging to either the Gandhara or the Mathura school of art.
- **Find Out:** Search the Internet or read relevant books for a project on the Indian-Arabic system of numbers. You can include details about the decimal system and the four attributes of the system. Try writing the numbers 0-9 in your mother tongue.
- **Chart Work:** Paste pictures of the 12 postures of Surya Namaskar, one of the most effective poses in yoga, and explain each posture.
- **Discussion:** When we visit historical places such as temples and forts, we often see graffiti on the walls, unclean surroundings and hawkers selling their wares. In your opinion what can we, as citizens, do to protect our heritage? Have a discussion in class.

Exercises

I. Fill in the blanks.

1. An old surviving Sanskrit book of poetry is the _____ by Ashvaghosa.
2. The complex of caves at _____ near Aurangabad is known for ancient paintings.
3. The Kailasanatha temple at Kanchipuram was built by the _____ kings.
4. The lion capital of the Ashoka pillar at _____ is India's national emblem today.
5. The _____ is a textbook on dance, drama

and music compiled in the 1st century BCE.

6. _____ is an ancient Indian system of medicine that uses herbal remedies.

II. True or false?

1. *Smritis* are books of law.
2. The *Dhammapada* is collection of Buddhist verses.
3. Kalidasa wrote his works in the Prakrit language.
4. Chandragupta Maurya's palace was made of sandstone.
5. Stupas are domed structures that house Buddha's remains.
6. Charaka was a great astronomer of ancient India.

III. Answer in brief.

1. Name the works of Kalidasa.
2. Write a note on the *Jataka Tales.*
3. Distinguish between structural temples and monolithic temples. Give one example of each.
4. Give an example to illustrate the greatness of architecture during the Pallava period.
5. Mention one similarity and one difference between the Gandhara and the Mathura schools of art.
6. Give an example to illustrate the mastery of ancient Indians in metallurgy.

IV. Answer in detail.

1. Write an essay on ancient Sanskrit literature.
2. Give an account of the expertise of ancient Indians in architecture.
3. Write a note on the greatness of sculpture in India in ancient times.
4. Write in detail about the contributions made by ancient Indians in the field of science, mathematics and medicine.

Multiple Choice Questions

1. The earliest known body of literature in Sanskrit is the
   a. *Ramayana* b. *Mahabharata*
   c. *Upanishads* d. *Rig Veda*
2. The *Mahabhashya*, a commentary on the *Ashtadhyayi*, was written by
   a. Patanjali b. Panini c. Ashvaghosa d. Manu
3. Which are the important Buddhist texts which contain the teachings of the Buddha?
   a. The *Tripitakas* b. The *Dhammapada*
   c. The *Jataka Tales* d. The *Purvas* and *Angas*
4. The remains of the Indus civilisation consist mainly of well-planned towns with elaborate drainage systems. There are very few beautiful sculptures or massive monuments. What do these remains tell us about the nature of the Indus people?
   a. They had no appreciation of beauty.
   b. They were too lazy to build massive structures, or spend time creating works of beauty.
   c. They were practical people who believed the value of a thing depended on its usefulness rather than its beauty.
   d. They did not have the technical knowhow to make beautiful sculptures or massive structures.
5. Why are there hardly any remains of Mauryan palaces, public buildings and houses?
   a. The Mauryans were not great builders, with even the kings and nobles living in temporary huts.
   b. The remains were destroyed by natural calamities like floods or earthquakes.
   c. The Mauryans mainly built with wood. But wood, unlike stone, decays, leaving little evidence behind.
   d. Later rulers tore down the Mauryan buildings and used the material to build their own structures.
6. The earliest examples of cave temples, or Chaityas, are from the Ashokan period. They are

a. the Barabar Caves near Gaya
b. the cave at Karle, near Pune
c. the caves at Ajanta, near Aurangabad
d. at Sanchi, in Madhya Pradesh

7. What was the significance of the stupas for the Buddhists?
   a. Stupas were places where the Buddhists met to listen to religious discourses.
   b. Stupas were places of rest for the monks. They lived and prayed here.
   c. Stupas were originally built over the relics or remains of Buddha or of other respected monks. They were, hence, sacred to the Buddhists.
   d. All of the above.
8. A structural temple is one that is
   a. carved out as a single unit from surrounding rock
   b. built with blocks of cut stone
   c. monolithic
   d. built along the coast, facing the sea
9. In the Gandhara school of art,
   a. statues of Buddha were made of grey sandstone and had Greek features
   b. statues of Buddha were made of red sandstone, with Indian features
   c. statues of Buddha were made of bronze with emphasis on the clothes worn
   d. Buddha was shown mainly in the form of symbols like the lotus flower or a banyan tree, as Buddha was not supposed to be shown in the human form
10. The scholar of astronomy who is believed to have discovered the causes of solar and lunar eclipses is
    a. Bhaskaracharya b. Aryabhata
    c. Varahamihira d. None of the above
11. The greatest contribution to mathematics by India was
    a. geometry b. algebra
    c. the concept of zero d. Vedic mathematics
12. Who laid down the fundamentals of yoga in the 2nd century BCE?
    a. Patanjali b. Charaka
    c. Sushruta d. Varahamihira

HOTS: Think and Answer

Why is the invention of the zero considered to be of such great importance by scientists?

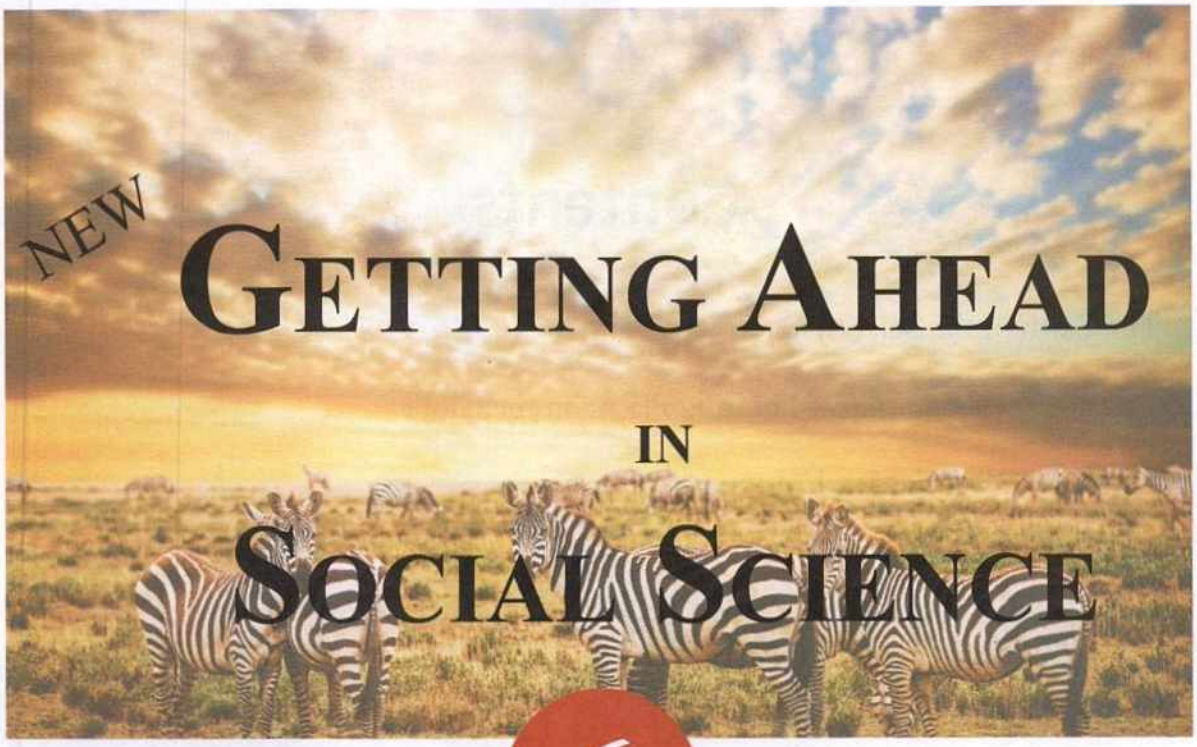
Values that enrich

The Indian epics, the *Ramayana* and the *Mahabharata*, have stood the test of time. They are as popular today as they were thousands of years ago. What values do these epics teach us?

Life skills

Self-awareness

Do you have any special talent that you are too shy to share with your class? Do you learn music or dance? Do you play any sport, like badminton, tennis or football? Would you like to become an actor or a chef? Tell your class about it. Speak for a few minutes about your secret ambition. You could put up a variety entertainment show in which each of you could showcase your talents.



NEW GETTING AHEAD IN SOCIAL SCIENCE

6

Geography

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Orient BlackSwan

Contents

1. Earth in the Solar System

This is a photograph of the sky at night. If you live in a city, chances are that you might never have seen such a star-spangled night sky. But this is what the sky actually looks like on a clear moonless night, away from the lights of the city.

The bodies you see in the sky from the Earth are called **heavenly bodies** or **celestial bodies**. They include the stars, planets, comets and the moons. Let us find out more about these heavenly bodies.

STARS

The twinkling spots of lights that we see in the sky at night are called **stars**. There are billions and billions of stars in the universe. Stars are huge balls of very hot gaseous matter. They are **self-luminous** celestial bodies that emit heat and light. The Sun is the star nearest to the Earth.

Stars are formed from huge clouds of dust and gas. When the centre of the cloud becomes thicker and denser, it starts shrinking into a thick disc and starts spinning rapidly. The centre of the spinning mass becomes hotter and hotter. Finally, a chain of reactions occurs where huge amounts of energy, in the form of heat, light and other radiations, are released into space, and a star is formed.

Stars are found in very large clusters or groups.

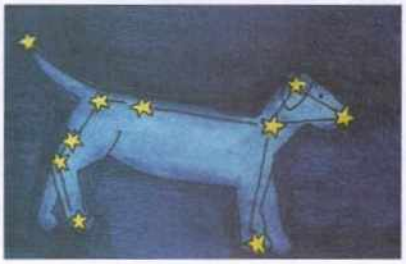
The Milky Way Galaxy

ENRICHMENT ACTIVITY: STARRY NIGHT

- Take a black piece of cloth. Make several small holes in it using the point of a small pair of scissors. Now tie the cloth tightly around the front of a torch.
- Darken your room and switch on the torch.
- Your starry room is ready. Enjoy seeing the stars on the wall and ceiling of your room.
- Paint a picture of a starry night or the Milky Way Galaxy. Use different styles or materials to make the picture look as realistic as possible.

Orion

Ursa Major



Canis Major

These clusters are called **galaxies**. A galaxy consists of groups of stars, dust, gas and other matter, bound together by a force called gravity. There could be several million stars in a galaxy. All the galaxies together make up our **universe**.

There are hundreds of billions of galaxies, with more getting formed every moment. Our galaxy is the **Milky Way**. It is known as the ***Aakash Ganga*** in Hindi.

THE CONSTELLATIONS

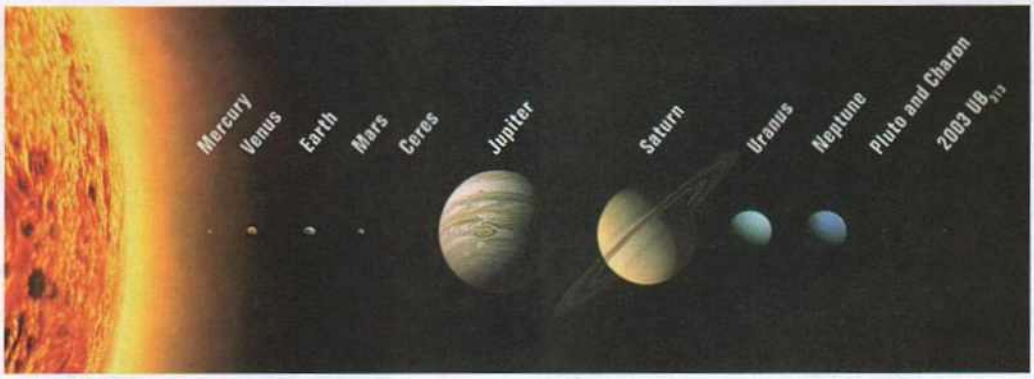
When seen from the Earth, some of the stars in the sky appear to be arranged in recognisable patterns. Some look like animals, some look like people, while some look like objects. These patterns stars appear to make in the sky are called **constellations.** Since ancient times, hundreds of constellations have been identified in the sky, of which scientists accept 88 names now. Two of the more easily recognisable constellations are **Ursa Major** and **Orion**. Others include Canis Major (the Great Dog), Leo (the Lion) and Taurus (the Bull).

Ursa Major is also known as the **Great Bear** or the Big Dipper. It is known as the Big Dipper because it takes the shape of a large ladle. While three stars form the handle, four stars form the bowl. If you draw a straight line joining the first two stars of the bowl and extend it due north, the line points to the **Pole Star** or the North Star (***Dhruva nakshatra***). The Pole Star is always found directly over the northern horizon. During ancient times sailors and other travellers used the Pole Star to find directions at night.

Orion is shaped like a hunter with a raised club.

THE SOLAR SYSTEM

The Sun and the various objects that move around it (like the planets, their satellites or moons, asteroids, comets and meteors), together form the **Solar System**. Solar means 'of the Sun'. The Sun



The Solar System showing the Sun and the relative sizes of the objects that revolve around the Sun.

occupies the central position in the Solar System and all the other celestial bodies in the system revolve around it.

Early astronomers thought that the Sun and all the planets revolved around the Earth. This belief was supported by the **geocentric** (meaning 'centred around the Earth') theory put forward by **Claudius Ptolemy** in 140 CE.

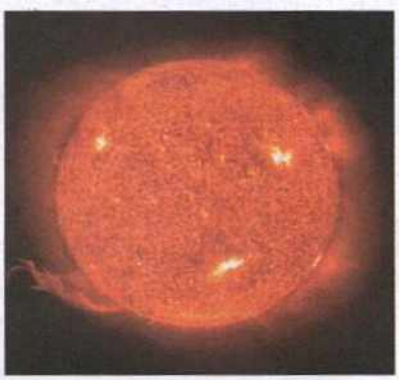
After years of scientific observation, however, **Nicolaus Copernicus,** in 1543 CE, put forward a new model of the Solar System, with the Sun at the centre and the Earth, the Moon and the other planets revolving around the Sun. This new theory was known as the **heliocentric** or Sun-centred theory.

The Sun

The Sun is around 4.6 billion years old. The gravitational field of the Sun holds the entire Solar System together. The Sun is made up of hot gases, mainly helium and hydrogen.

The surface temperature of the Sun is 5,500 °C. You can imagine how hot this is when we say that the heat from the Sun, after travelling 149 million km (the distance from the Sun to the Earth), is still strong enough to fry an egg in the Sahara Desert. At the centre of the Sun, the temperature is about 15 million °C.

The Sun's diameter is around 1,392,000 km. It is around 109 times bigger than the Earth. The distance of the Moon from the Earth is less than half the diameter of the Sun—that is how big the Sun is! However, there are stars that are hundreds of times bigger than the Sun.



The Sun is the primary source of heat and light for living beings on Earth. Life on Earth is possible because of its optimum distance from the Sun. This means that the Earth is neither too far from the Sun nor too close to it. Sunlight reaches the Earth in about 8 minutes.

Enrichment Activity

Light travels at a speed of almost 300,000 km per second. Calculate the distance travelled by light in one year. The distance travelled by light in a year is called a **light year**.

The Planets

A planet is a celestial body that orbits (goes around) a star. All the planets are spherical in shape. They are non-luminous, i.e., they do not produce light of their own. Instead, they reflect the light of the Sun that falls on them.

Every planet spins on its own axis. This is called **rotation**. One rotation is referred to as a **planet-day**. Planets also move around the Sun along a fixed elliptical path of their own called an **orbit**. One complete orbit around the Sun is called a **revolution** or **planet-year**.

There are eight major planets in the Solar System. They are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. When the Sun was formed, the colder outer parts of the disc broke up to form the four giant planets—Jupiter, Saturn, Uranus and Neptune. They are mainly made of gas and are cold. They are called the **outer planets** or the **Jovian planets**. In the warm, inner part of the disc, rock and metal lumps came together to

EXPLORE SOME MORE...

Planets do not usually twinkle the way stars do. Stars twinkle when seen from the Earth because we see them through thick layers of the Earth's turbulent (moving) atmosphere. They are so far away that when their faint light passes through the atmosphere, it is refracted (bent) in different directions. This causes the star's image to change slightly in brightness and position, and hence the 'twinkle'. Planets, being much closer to the Earth, appear much bigger than the stars, and so the twinkling is not noticeable.

Think: Would stars twinkle if viewed from outer space (or from a planet or moon that does not have an atmosphere)?

The inner planets (left to right): Mercury, Venus, Earth and Mars

Jupiter *Saturn* *Uranus* *Neptune*

The outer planets

form the **inner planets** or the **terrestrial planets**—Mercury, Venus, Earth and Mars.

There is an easy way to remember the planets in the order of their distance from the Sun. Just remember this sentence. The first letters of the words give you the order of the planets—My Very Elegant Mother Just Served Us Noodles.

Till recently, Pluto was also considered a major planet. But in August 2006, the International Astronomical Union declared that Pluto was just a **dwarf planet** like Ceres, Eris, Sedna and UB313.

The Earth

The Earth is a unique planet, as it is only here that life has been found. It is the third planet from the Sun, and the largest among the inner planets. The Earth is not a perfect sphere. It is flattened at the poles and, therefore, its shape is referred to as a spheroid.

ENRICHMENT ACTIVITY

All the planets are named after ancient Greek and Roman gods. Find out which god each of the planets is named after.

About two-thirds of the Earth is covered by water. The Earth is, therefore, known as the **Blue Planet**. Here water is found in all three states (solid, liquid and gas) in nature. The Earth is surrounded by a blanket of air called the **atmosphere**.

The Earth rotates (or turns) on its axis, and revolves around the Sun. While the rotation of the Earth causes day and night, the revolution of the Earth causes the seasons.

The favourable conditions that facilitate life on the Earth are:

- optimum distance from the Sun
- an average surface temperature of 14 °C
- suitable seasons and weather conditions

EXPLORE SOME MORE...

A planet should not have any other object of its own size in its neighbourhood (immediate surroundings), other than its own satellites. Pluto shares its neighbourhood with several other bodies called plutinos. Hence, it was classified as a dwarf planet.

A COMPARATIVE STUDY OF THE PLANETS

Name	Significant facts	Distance from the Sun	Diameter	Rotation time	Revolution time	No. of discovered moons till 2010
Mercury	• Nearest to the Sun and the smallest planet • Surface temperature ranges from a scorching 430° C to minus 180° C	58 million km	4879.4 km	58.6 Earth days	88 Earth days	0
Venus	• Brightest planet in the sky • Almost the same size as the Earth, has an iron core like the Earth • Called 'morning star' when it appears in the east before sunrise and 'evening star' when it appears in the west after sunset.	108 million km	12,104 km	243 Earth days	225 Earth days	0
Earth	• Largest and densest among the inner planets • The only planet known to have life • Called the Blue Planet	150 million km	12,756 km	24 h	365.5 Earth days	1
Mars	• Known as the Red Planet because of its colour	227 million km	6,787 km	24 h 37 min	687 Earth days	2
Jupiter	• Largest planet; known for its Red Spot	778 million km	142,800 km	9 h 55 min	11.86 Earth years	79
Saturn	• Has several rings (bands) made of ice and dust around it	1,427 billion km	120,660 km	10 h 40 min	29.46 Earth years	82
Uranus	• Lightest among the outer planets • Rotates on its side because of its highly tilted axis	2,870 billion km	51,118 km	17 h 14 min	84 Earth years	27
Neptune	• Coldest among the major planets • Blue-green in colour with rings around it	4,498 billion km	49,528 km	Around 19 hours	164.8 Earth years	14

Source: NASA

STARS AND PLANETS DIFFER IN MANY WAYS.

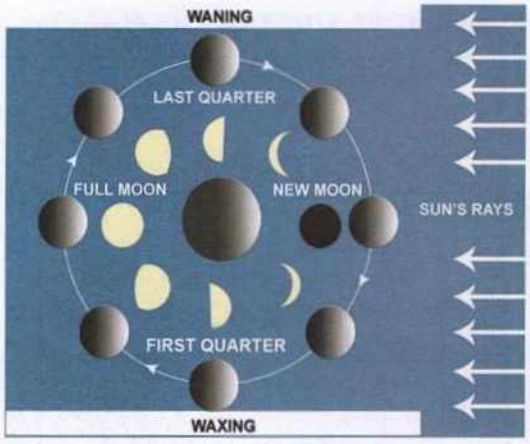
Stars	Planets
1. They are self-luminous—they emit their own light and heat. 2. They are very hot. 3. They twinkle. 4. They are very large. 5. The Sun is an example of a star.	1. They are non-luminous—they only reflect the light of their star. 2. Surface temperature depends on distance from the star. 3. They do not twinkle the way stars do. 4. They are usually smaller than stars. 5. The Earth is an example of a planet.

- adequate availability of liquid water
- the presence of an atmosphere that protects living things from harmful ultra-violet radiations from the Sun.

IS THE EARTH FLAT?

The ancient astronomers believed that the Earth was a flat disc, and that if you travelled far enough, you could fall off the edge of the Earth. But over the

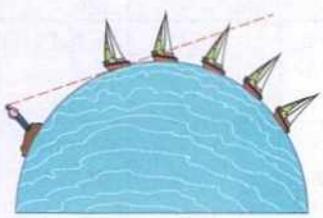
Photograph of the Earth, taken from the spaceship Apollo 17

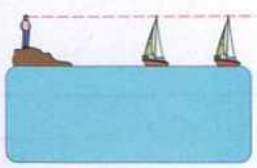


Phases of the Moon

years it was proved that the Earth is like a sphere.

- Explorers who set out on voyages in one direction around the world came back to the place they started from. This could happen only if the world was round.
- The shadow cast by the Earth on the Moon during a lunar eclipse is circular. (The shadow of a rotating disk would keep changing.)
- The length of the shadow cast by a stick at 12 noon increases as you keep going further north or south of the equator. If the Earth were flat, the shadow cast by the stick would be the same everywhere.





- The images of Earth taken from space show that it is spherical.
- When you see a ship coming to a port, you first see the mast or top of the ship, and then gradually the base of the ship. If the Earth were flat, you would see the whole ship at once.

The Moon

The celestial objects that revolve around planets are called their **natural satellites**. They are also called the moons of the planets. Except Mercury and Venus, all the other planets have moons.

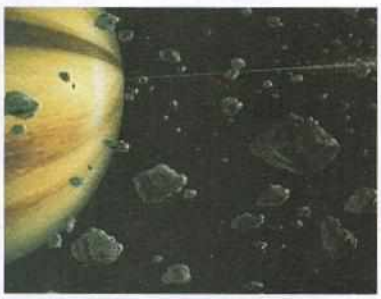
The Moon that we see in the sky is the only satellite of the Earth. It shines because it reflects the light of the Sun. It is about 384,400 km away from the Earth. The Moon takes 27 days and 8 hours to complete one revolution around the Earth. Since the time taken for the Moon to rotate is also the same, we always see the same side of the Moon.

There is no air on the Moon. But recently minute amounts of water has been discovered. It gets hot (100 °C) in the day and cold (–150 °C) in the night. It has an uneven, rough and rocky surface with huge craters.

The shape and position of the Moon as seen from the Earth, however, varies each day. We have a **full moon night** (***purnima***) about once a month. The full moon wanes, or gets smaller, till a fortnight from the full moon night, it cannot be seen from the Earth. This is called the **new moon night** (***amavasya***).

On 20 July 1969, Neil Armstrong became the first human to walk on the Moon. He and his co-astronauts, Edwin Aldrin and Michael Collins, brought back a wealth of information about the Moon.

Asteroids



Asteroids

Celestial bodies that revolve around the Sun between the orbits of Mars and Jupiter are called **asteroids**. Scientists believe that these are parts of planets which exploded millions of years ago. They could also be matter that was left over after the planets were formed. They are also known as **planetoids**.

Meteors

Meteoroids are pieces of rock moving at tremendous speeds around the Sun. When these rock masses come near the Earth, they are pulled in by the Earth's gravity. As the meteoroids enter the Earth's atmosphere, they begin to glow as a result of heating due to friction. The streaks of light the burning meteoroids produce as they fall to the Earth are called **meteors** or **shooting stars**. The partly burnt fragments of rock materials sometimes fall on the surface of the Earth causing huge dents or craters. These rock fragments are called **meteorites**. We can see such craters caused by meteorites in Arizona, USA.

Today, space research has become an integral part of global development. New discoveries are being made about the nature of space and the formation of the universe every day. One of the best known international space research centres in the world is NASA in the USA. In India, space research is conducted by the Indian Space Research Organisation (ISRO). ISRO has many achievements to its credit. Apart from launching several satellites into orbit around the Earth, ISRO has also undertaken successful space missions, such as Chandrayaan-1 and 2 (missions to the Moon), and Mangalyaan (a mission to Mars).

Glossary

star: a luminous body in the sky, made of hot gases
galaxy: a cluster of millions of stars
constellation: a group of stars that resemble a figure
universe: the space where galaxies exist
asteroid: a celestial body that orbits the Sun between the orbits of Mars and Jupiter
meteor: streaks of light produced by meteoroids that are vapourised as they enter the Earth's atmosphere
meteoroid: pieces of rock moving in interplanetary space

In Brief

- Stars are huge balls of hot gaseous matter that emit light; the Sun is a star.
- Galaxies are large clusters of stars; the Earth is in the Milky Way galaxy.
- Constellations are groups of stars and other heavenly bodies that form recognisable patterns.
- Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune are the eight planets that revolve around the Sun.
- Rotation of the Earth around its axis produces day and night while its revolution around the Sun causes the seasons.

Enrichment Activities

- **Project work:** Do you know how and when the Earth was formed? Search the Internet or read relevant books to understand how the planet was formed, how old it is, the distance between the Earth and the nearest planet and other fascinating facts. Present your work in class in the form of a chart.
- **Find out:** You must have heard of the terms lunar and solar eclipse. Some of you might have witnessed the event too. Write how the lunar and solar eclipses occur and draw appropriate diagrams to show the event. Explain it to your class.
- **Model making:** Imagine how humans could tell time before the invention of clocks and watches. They did it by looking at the Sun. Sundials helped humans know what time of the day it was. Make a sundial using any material you can find at home or at school.

Exercises

I. Fill in the blanks.

1. Asteroids are also known as _____.
2. Neil Armstrong landed on the Moon in the year _____.
3. The planet which has the Red Spot is _____.
4. The outer planets are also known as _____ planets.

II. True or false?

1. Millions of stars together form the solar system.
2. Jupiter has several rings.
3. The Earth is called the Blue Planet.
4. Venus is called the 'evening star' when it is seen in the western sky after sunset.
5. The distance travelled by sunlight in a year is called a solar year.

III. Define the following terms.

1. Star
2. Solar System
3. Planet
4. Asteroid
5. Meteor

IV. Answer the following.

1. How do stars differ from planets?
2. What makes the Earth a unique planet?
3. What are constellations? Name any two of them.
4. List the planets in the order of their distance from the Sun.
5. What are the different phases of the Moon?
6. Why do we get to see only one side of the Moon from the Earth?

Multiple Choice Questions

1. Stars are
   a. huge balls of very hot gases that emit heat and light
   b. formed from huge clouds of dust and gas
   c. found in very large clusters called galaxies
   d. all of the above
2. The Earth is located in
   a. the Milky Way Galaxy b. Ursa Major

c. Orion d. Canis Major

3. The star that is always found directly over the northern horizon is
   a. Taurus b. the Pole Star
   c. Canis Major d. Orion
4. The planet closest to the Sun is
   a. Venus b. Mars
   c. Mercury d. Jupiter
5. What was the geocentric theory put forward by Ptolemy in 140 CE?
   a. The universe was created by god in seven days.
   b. The Sun is at the centre of the solar system, with the Earth, moon and other planets revolving around it.
   c. The Earth is at the centre of the universe, and all celestial bodies revolve around it.
   d. The Earth is the only body in this universe that supports life.
6. The movement of the Earth about its own axis is called
   a. revolution b. rotation
   c. a solar day d. orbit
7. The Jovian planets are:
   a. Mercury, Venus, Mars and Earth
   b. Venus, Mars, Jupiter and Saturn
   c. Mars, Jupiter, Uranus and Neptune
   d. Jupiter, Saturn, Uranus and Neptune
8. Which of these phenomena prove that the Earth is round, and not flat?
   a. When you see a ship coming to port, you first see the top of the ship, and gradually the base of the ship
   b. The circular shadow cast by the Earth on the Moon during a lunar eclipse
   c. The length of the shadow cast by a stick at 12 noon increases as you go further north or south of the equator
   d. All of the above
9. The rotation of the Earth causes
   a. seasons b. eclipses
   c. day and night d. unequal lengths of day and night
10. Why do we always see the same side of the Moon?
   a. The Moon, unlike the Earth, does not rotate. So we see the same side of the Moon.
   b. The Moon takes the same time to rotate on its axis and revolve around the Earth. So we see the same side of the Moon.
   c. We actually see different sides of the Moon, but since the surface of the Moon looks the same all over, we feel that we are seeing the same side.
   d. Both the Earth and the Moon take the same time to rotate once around their axis, therefore, we always get to see the same side of the Moon.
11. When a meteoroid falls on the surface of the Earth, it is called a
   a. meteor b. meteorite
   c. planetoid d. satellite

HOTS: Think and Answer

Travellers through the ages have used the constellations and the Pole Star to find directions during the night. Imagine you are a space traveller. Would you be able to use the same constellations to find your way through space? Explain your answer.

Values that enrich

The Earth is the only planet that is believed to support life. Life exists on Earth because everything is in balance here. It is neither too hot (like the planet Mercury) nor too cold (like the planet Neptune). What values can you learn from this?

Life skills

Creative skills/Communicative thinking

Set up an experiment or a model to demonstrate how the same side of the Moon faces the Earth at all times. For your experiment, you could use objects like the globe, plastic balls, or balls made out of modelling clay with a stick passing through to represent the axis of rotation, etc. Explain your experiment or model to the class.

2. Latitude and Longitude: Locating Places on the Globe

Thousands of years ago, when there were no space shuttles or rockets sending down images of the Earth from space, people had no way of knowing what our planet looked like. To get a better idea about the Earth, to be able to visualise it, and to know where exactly the continents and oceans lay on its spherical surface, the ancient people created the **globe**. The first globes were built by the ancient Greeks around 150 BCE.

What is a globe?

A globe is a three-dimensional model of the Earth in miniature (i.e., in a greatly reduced size). It is a true representation of the Earth. A globe is more accurate than a flat map, as it follows the curvature of the Earth. It also gives us the correct shape and size of continents and countries, and shows distances and directions without distortion.

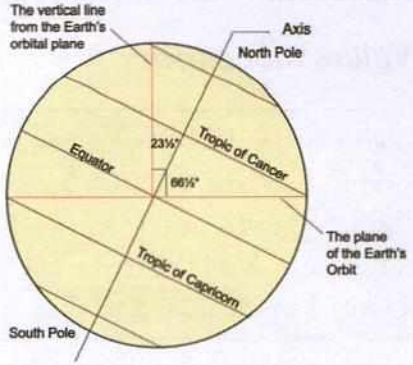
Globes are of different sizes and types. There are large, small and inflatable pocket globes (like balloons). Some globes can be placed on the table and some can be suspended from the ceiling. While it is cumbersome to carry huge globes, it is easy to carry pocket globes or inflatable globes.

Apart from being used to locate places, globes are often used to plan long-distance sea and air routes, called **great circle routes**. They are also used to determine the routes of satellites.

Points of reference on a globe

You already know that the Earth spins around an imaginary line called the **axis**. The two end points of the axis are the **North Pole** and the **South Pole**. The axis of the Earth is tilted at an angle of 23½ degree (23½°) to the vertical. The South Pole and the North Pole act as reference points to locate places on the globe.

Ask your teacher to show you a globe. You will notice that the globe is tilted at an angle, just as



ACTIVITY

MAKING A SPINNING GLOBE

- Take a plastic ball and pierce it with a knitting needle as shown in the figure.
- The two points on the ball through which the needle passes can be considered the North Pole (at the top) and South Pole (at the bottom) respectively.
- Hold the bottom of the needle and spin the ball from west to east.
- The knitting needle can be considered the **axis** around which the Earth rotates.

the Earth is. See if you can locate the North Pole and the South Pole on the globe.

Another imaginary line running around the globe at its middle is called the **equator**. The equator divides the Earth into two equal halves, the Southern Hemisphere and the Northern Hemisphere. Try and locate the equator on your globe.

Relative and absolute location

The **relative location** of a point on the Earth's surface is its location in relation to another place or nearby landmarks. For example: Meena's house is to the north-west of the Chennai Airport;Pune is to the south of Mumbai.

The **absolute location** of a place is its location using a recognised coordinate system formed by **lines of latitude** and **longitude**. They are imaginary lines that circle the Earth. The lines of latitude circle the Earth horizontally, while the lines of longitude circle the Earth vertically. The two sets of lines cross each other at right angles forming a grid. Lines of latitude and longitude are used to accurately plot the location of a place on the surface of the Earth.

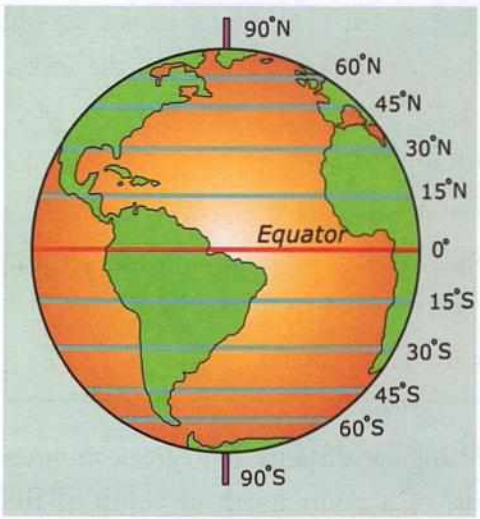
LINES OF LATITUDE

Lines of latitude are imaginary lines that run horizontally across the surface of the Earth. They measure the angular distance in degrees, minutes and seconds, of a point north or south of the equator. Lines of latitude are also referred to as **parallels**.

The equator is the 0° latitude. It divides the Earth into the **Northern** and **Southern Hemispheres**. All the parallels to the north of the equator (in the Northern Hemisphere) are called north latitudes. Similarly, all the parallels to the south of the equator (in the Southern Hemisphere) are called south latitudes.

Characteristics of parallels

- Lines of latitude run parallel to the equator, in an east-west direction. However, they give the north-south co-ordinates of a place.
- They are equidistant from each other.
- The equator is the longest parallel. The parallels decrease in length from the equator to the poles. The 90° north and south parallels are just dots, and represent the North Pole and South Pole respectively.
- They are numbered upwards and downwards from the equator. They increase from 0° at the equator to 90° at the poles.
- The letters 'N' and 'S' are used to indicate the north and south parallels, respectively.



Lines of latitude or parallels

- There are 180 degrees of latitude on the whole—90 in the Northern Hemisphere and, 90 in the Southern Hemisphere.

Important parallels

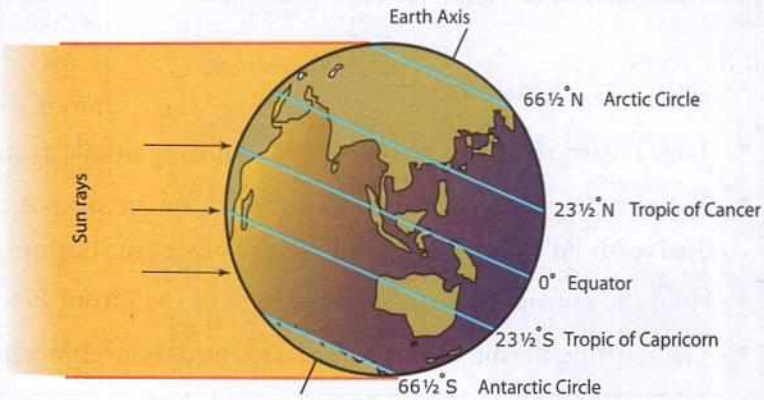
The important parallels are as under:

- The **equator** or 0° latitude
- The **Tropic of Cancer** is at an angular distance of 23½° N from the equator.
- The **Tropic of Capricorn** is at an angular distance of 23½° S from the equator.
- The **Arctic Circle** is at an angular distance of 66½° N from the equator.
- The **Antarctic Circle** is at an angular distance of 66½° S from the equator.

These parallels help differentiate the temperature zones of the Earth.

ENRICHMENT ACTIVITY

In your notebook, draw the globe and show the important lines of latitude.

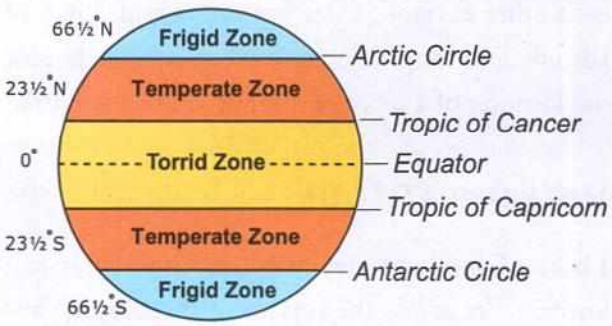


Temperature Zones of the Earth

Due to the tilted nature of the Earth's axis, there is an unequal distribution of heat or solar energy on the surface of the Earth. The amount of heat a place gets depends on the angle of incidence of the Sun's rays (solar energy) at that point. Based on the amount of solar energy received, each hemisphere is divided into three temperature or heat zones—the **torrid zone**, the **temperate zone** and the **frigid zone**.

THE TORRID ZONE

As the Earth revolves around the Sun, due to the tilted nature of the Earth's axis, the Sun appears to move between the Tropic of Cancer and the Tropic of Capricorn. In the parallels between the two tropics, the mid-day Sun shines perpendicularly overhead at least once a year. As these parallels get the direct rays of the Sun, this is the hottest zone. This zone is known as the **torrid zone** or the **tropical zone**. No place beyond the tropics gets the



direct rays of the Sun. Most of southern India lies in the torrid zone.

THE TEMPERATE ZONES

The parallels lying between the Tropic of Cancer and the Arctic Circle in the Northern Hemisphere, and between the Tropic of Capricorn and the Antarctic Circle in the Southern Hemisphere, get the inclined rays of the Sun. These regions are, therefore, moderately heated. They are called the **temperate zones**.

THE FRIGID ZONES

The angle of the Sun's rays keeps decreasing as we move towards the poles. The parallels between the Arctic Circle and the North Pole in the Northern Hemisphere, and between the Antarctic Circle and the South Pole in the Southern Hemisphere, get the least solar energy. These regions are very cold, and are therefore known as **frigid zones** or **polar regions**.

ENRICHMENT ACTIVITY

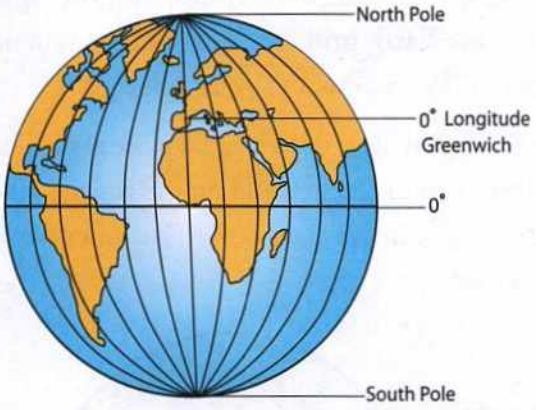
Observe and note the latitude passing through the following cities.

Places	Latitude
Chennai	
Delhi	
Sydney, Australia	
Rio de Janeiro, Brazil	
New York, USA	

LINES OF LONGITUDE

The imaginary lines that run vertically across the surface of the Earth, from the North Pole to the South Pole, are called **lines of longitude** or **meridians**. A longitude can be defined as the angular distance, in degrees, minutes, and seconds, of a point east or west of the **Prime Meridian**. The Prime Meridian is the 0° longitude. It passes through Greenwich in England, where the British Royal Observatory is located. It divides the Earth into the Eastern and Western Hemispheres.

The lines of longitude give us the vertical coordinates of a place or the east-west location of a place. Both the horizontal coordinates and the vertical coordinates are needed to locate a place on the Earth's surface accurately.



Characteristics of meridians

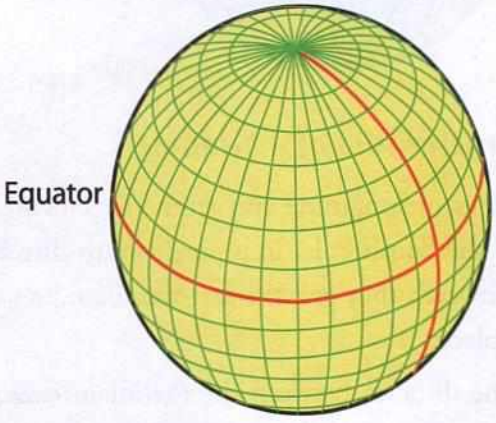
- Lines of longitude run from the North Pole to the South Pole, in a north-south direction. However, they give the east-west coordinates of a place.
- The distance between the meridians decreases pole-ward from the equator. It decreases from a maximum of about 111 km at the equator to zero at the poles, where they all meet.
- The meridians are numbered from the prime meridian. The lines to the east of the Prime Meridian are called longitude 0-179° E, and those on the west as 0-179° W. The 180° longitude is neither west nor east.
- There are 360 degrees of longitude.
- The meridians form **Great Circles** around the Earth. A Great Circle is a line that divides a sphere into two equal halves. For example, the 0° and 180° longitudes form a Great Circle, and

divide the globe into two. Routes that follow Great Circles mark the shortest distance between any two places, so most long distance flights follow this route.

The Earth grid

The lines of latitude and longitude intersect (as shown in the figure) at right angles. The grid formed by these criss-crossing lines is called the **geographic grid** or the **Earth grid**. The absolute location of a place is its location on this geographic grid.

The Earth grid helps us to locate a place easily. Take the help of your teacher, and do the activity given here to clearly understand how to locate a place on a grid map.



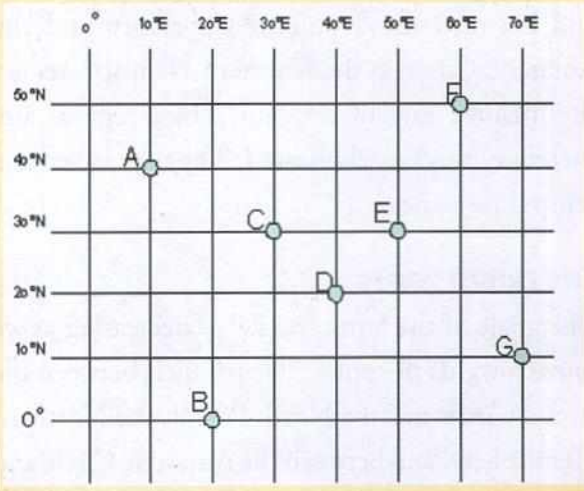
Intersecting lines of latitude and longitude that form the Earth grid

Longitude and time

Before the railways were started in the 1800s, each place had its own time. The length of the shadow cast by an object indicated the time. The shadow was shortest at noon, and longest at sunrise and sunset. At each place, whenever the Sun was directly overhead, it was considered to be noon. This was called **solar time** or **local time**, and it was defined by the position of the Sun. The **solar day** was the time it took for the Sun to return to the same point in the sky.

Enrichment Activity

Identify and write down the geographical locations of the stations A, B, C, D, E, F and G based on the following grid. Always put the N/S value first and then the E/W.



As the Earth rotates, the Sun shines directly over each meridian once every day. When the meridian of Greenwich (0°) has the Sun directly overhead, every place along this meridian has noon or mid-day. As the Earth rotates from west to east, the places which are to the east of Greenwich are ahead of Greenwich time, and those to the west are behind it. Thus, the Sun rises in Delhi before it does in London. It is night in London when it is sunrise in Delhi. Similarly, when the Sun rises in London, it is still night in New York, which lies to the west of London.

Time taken by the Earth to rotate once around its own axis = 1 day

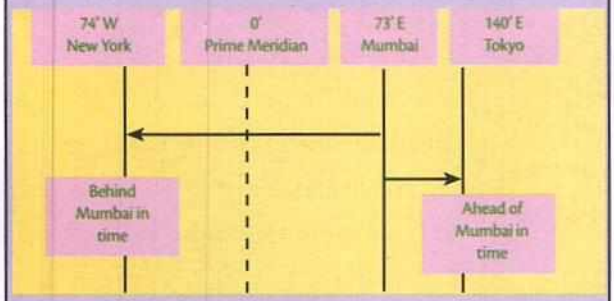
1 day = 24 hours = (24 × 60) = 1440 minutes

One rotation of the Earth = 360° longitudes

Therefore, time taken to turn a distance of 1° = 1440/360 = 4 minutes

Therefore, time taken to turn 15° of longitudinal distance = 15 × 4 = 60 minutes = 1 hour

Let us calculate the time in (a) New York and in (b) Tokyo when its 10:00 AM in Mumbai. (Mumbai lies at 73° E longitude, New York at 74° W, and Tokyo at 140° E.)



- The difference in longitude between Mumbai and New York is 73° + 74° = 147°. (Since New York lies to the west of the Prime Meridian, and Mumbai to the east of the Prime Meridian, add the longitudes of the two places.)
- The difference in time between the two places is 147° × 4 minutes = 588 minutes.

  588 minutes = 588/60 hours

  = 9 hours 48 minutes.

  Since New York is to the west of Mumbai, its time is behind Mumbai. So subtract the difference from the time in Mumbai.

  So, 10:00 AM – 9 hours 48 minutes

  = 0 hours 12 minutes.

  Therefore, the time is 12 minutes past midnight in New York when it is 10:00 AM in Mumbai.
- Similarly, the difference in longitude between Mumbai and Tokyo is 140° – 73° = 67°. (Since both places are in the eastern hemisphere, subtract the longitude of one from the other.)

  The difference in time between the two places is 67° × 4 minutes = 268 minutes.

  268 minutes = 268/60 hours = 4 hours 28 minutes.
- Since Tokyo is to the east of Mumbai, its local time is ahead of Mumbai. So add the difference to the time in Mumbai.

  So, 10:00 AM + 4 hours 28 minutes = 14 hours 28 minutes = 2:38 PM

  Therefore, the time is 2:38 PM in Tokyo when it is 10:00 AM in Mumbai.

TIME ZONES OF THE WORLD

Worldwide time zones

In 1884, Sir Sandford Fleming's (1827–1915) system of worldwide time zones that we still use today was accepted at the International Prime Meridian Conference in Washington DC. He proposed that the world be divided into 24 time zones, each separated by 15° of longitude. He chose this figure because the Earth completes a rotation every 24 hours, and there are 360° of longitude; so the Earth rotates through 360°/24 of a circle, or 15°, every hour.

Standard time

The local time of a place depends on the meridian that passes through it. There are several lines of longitude passing through India. There would be great confusion if each place in the country followed its local time. It would not be possible to prepare a common railway or airlines time-table for the country if each place were to follow a different local time. To avoid this confusion, most countries follow a standard time. The standard time for each country is usually taken as the time of the central meridian of that country.

The local time of the central meridian of India, 82°30'E, is taken as the standard time for the entire country. It is called the **Indian Standard Time (IST)**. The central meridian passes through Mirzapur near Prayagraj (Allahabad).

Time zones of the world

The standard time of a country can be used to calculate how far it is ahead or behind **Greenwich Mean Time (GMT)**. Greenwich Mean Time is the local time at Greenwich. Thus, it can be used for the purpose of calculating time globally. GMT is now known as the Universal Time Co-ordinated (UTC).

Since India is to the east of Greenwich, IST is five and a half hours ahead of GMT. Countries like Canada, USA and Russia with a vast longitudinal extent have more than one standard time. Russia has 11 time zones—more than any other country!

The International Date Line

The **International Date Line (IDL)** is an internationally agreed time change line. It is drawn approximately along the 180° meridian, deviating carefully to avoid land areas in the Pacific Ocean. There is a difference of one calendar day on either side of the IDL. For example, if it is 25 June to the west (left) of the IDL, it will be 24 June to the east (right) of the IDL. When you cross the IDL from west to east, you subtract a calendar day (from 25 June to 24 June), and you gain a day. When you cross the IDL from east to west, you add a calendar day (from 24 June to 25 June), and you lose a day.

The longitudinal extent of India

The concept of measuring time in terms of seconds, minutes, hours, days, weeks, fortnights and years will become more clear when we study the motions of the Earth in the following chapter.

Glossary

axis: an imaginary line running through the centre of the Earth from the North to the South Pole, on which the Earth spins

equator: 0° latitude; an imaginary line that divides the Earth into the Northern Hemisphere and the Southern Hemisphere

globe: a spherical (round) model of the Earth

latitude: an imaginary line running horizontally across the globe

longitude: an imaginary line running vertically around the globe

Prime Meridian: 0° longitude that passes through Greenwich

Tropic of Cancer: 23½° N; during the summer solstice (June 21), the Sun is directly overhead

Tropic of Capricorn: 23½° S; during the winter solstice (December 22), the Sun is directly overhead

In Brief

- A globe is a three-dimensional model of the Earth; it rotates on a slanted axis.
- Lines of latitude (or parallels) are imaginary parallel lines that run horizontally across the globe.
- The equator is 0° latitude and divides the Earth into the Northern and Southern Hemispheres.
- Depending on the amount of heat received from the Sun, the Earth is divided into the torrid (tropical), temperate and frigid (polar) climate zones.
- Lines of longitude (or meridians) are lines of equal length that run vertically across the globe.
- The meridian that runs through Greenwich, England, is assigned 0°. It is called the Prime Meridian.
- The Earth has been divided into 24 time zones; each zone differs from its neighbour by one hour.
- The International Date Line is a broken line, drawn roughly along the 180° meridian; passengers crossing it lose or gain a day as they move from east to west and west to east, respectively.

Enrichment Activities

- **Map work:** 1) On the world map, show the three temperature zones and name the countries that lie in each of the zones.
  2) On a world map, mark the degrees of longitude and latitude.
  3) Imagine that you are planning to visit your aunt in Sydney, Australia, this summer. On a world map, find the location of Sydney. Describe the relative and absolute location of the city to your friend.
- **Calculation:** A plane is travelling from the United States of America to Japan. The flight leaves the United States of America at 11 pm on Tuesday. The flight takes 15 hours. When will it land in Japan? Have you lost or gained a day? Likewise, the plane is travelling back to New York from Japan. It is leaving Japan at 3.30 am on Monday. When will it reach New York?

Exercises

I. Fill in the blanks.

1. The _____ is 0° latitude, and is a great circle.
2. The Antarctic Circle is found in the _____ Hemisphere.
3. The Temperature Zone falling between 23½° N and 23½° S is called the _____.
4. The distance between lines of longitude _____ towards the poles.
5. The standard meridian of India is _____.

II. True or false?

1. A latitude is the angular distance from the equator to the poles.
2. All lines of latitude are of the same length.
3. The north temperate zone lies to the north of the Arctic Circle.
4. The 0° longitude passes through the British Royal Observatory.
5. A country can have more than one standard time.

III. Answer the following.

1. Define the globe.
2. Draw a neat diagram showing the temperature zones of the Earth.
3. What makes the torrid zone the hottest among the temperature zones?
4. Why is Bangladesh half an hour ahead of India?
5. What is 'solar time'?
6. Why is a standard meridian important for a country?
7. How can we measure the time difference between countries? Explain, giving an example.
8. How are the lines of latitude and longitude useful to us?

Multiple Choice Questions

1. Which of these statements is correct?
   a. A globe is more accurate than a map as it follows the curvature of the Earth. It is therefore able to give the correct size of continents and show distances without distortions.
   b. A map is more accurate than a globe as it is drawn very precisely and carefully by cartographers.
   c. A map is more accurate than a globe as it is two dimensional, unlike a globe, and can show us the whole Earth at a glance.
   d. A globe is more accurate than a map because it can be turned around its axis just like the real Earth.
2. The axis of the Earth is tilted at an angle of
   a. 66 ½ ° to the vertical
   b. 23 ½ ° to the horizontal
   c. 23 ½ ° to the vertical
   d. None of the above
3. When you say that your school lies to the south of the airport, you are giving the
   a. absolute location of your school
   b. relative location of your school
   c. location of your school
   d. address of your school
4. Lines of latitude are imaginary lines
   a. that run horizontally across the surface of the Earth
   b. that run vertically across the surface of the Earth
   c. that run diagonally across the surface of the Earth
   d. that run horizontally and vertically across the surface of the Earth
5. The equator is drawn
   a. inside the globe b. at the top of the globe
   c. around the middle of the globe
   d. at the bottom of the globe
6. Why is there an unequal distribution of heat energy on the surface of the Earth?

a. The surface of the Earth, with its high mountains and deep valleys, vast oceans and deserts, is so varied, that the amount of heat energy received by different parts of the Earth is unequal.
b. Different parts of the Earth face the Sun for unequal amounts of time, thus leading to unequal distribution of heat across the surface of the Earth.
c. Due to the tilted nature of the Earth's axis, the angle of incidence of the Sun's rays differs from place to place. The more slanting the rays, the less the heating that occurs. This causes the unequal distribution of heat energy across the surface of the Earth.
d. All of the above.

7. The torrid zone lies between the
   a. Tropic of Cancer and the Tropic of Capricorn
   b. Arctic Circle and Tropic of Capricorn
   c. equator and Antarctic Circle
   d. equator and Tropic of Cancer
8. The Prime Meridian
   a. is the 0° latitude
   b. passes through Greenwich, England, where the British Royal Observatory is located
   c. is a great circle
   d. all of the above
9. In 1884, Sir Sandford Fleming divided the world into
   a. 24 time zones b. 12 time zones
   c. 360 time zones d. None of the above
10. Why did India adopt the Indian Standard Time (IST)?
    a. to avoid the confusion that would be caused if every place in India followed its own local time
    b. to be able to prepare a common railway or airline time table for the whole country
    c. to enable the smooth and efficient administration of the country
    d. all of the above
11. The time difference between GMT and IST is
    a. 2 hours b. 5 hours c. 3 ½ hours d. 5 ½ hours
12. If a person crosses the International Date Line while moving from the west to the east, he or she
    a. gains a day b. loses a day
    c. neither loses nor gains a day d. gains an hour
13. One degree of longitude is equal to
    a. 15 minutes of time b. 4 minutes of time
    c. 30 minutes of time d. 10 minutes of time
14. The meridian that passes through Greenwich is called
    a. the International Date Line
    b. the Prime Meridian
    c. the Tropic of Cancer
    d. the Antarctic Circle

HOTS: Think and Answer

Hema lives in Kolkata, India (roughly 90° E). She wants to view a football match played in London, England (0° longitude). The match is scheduled to be telecast on TV from 3.00 PM GMT. When should she switch on her TV to tune in?

Values that enrich

Jakob lives in Greenland. He and his people traditionally depended on walruses and seals for food. But today, because of the climate change that is taking place in these regions, traditional food sources are becoming scarce. He and his people have adapted to the changing environment and found new ways to feed themselves. What values can you learn from Jakob and his people?

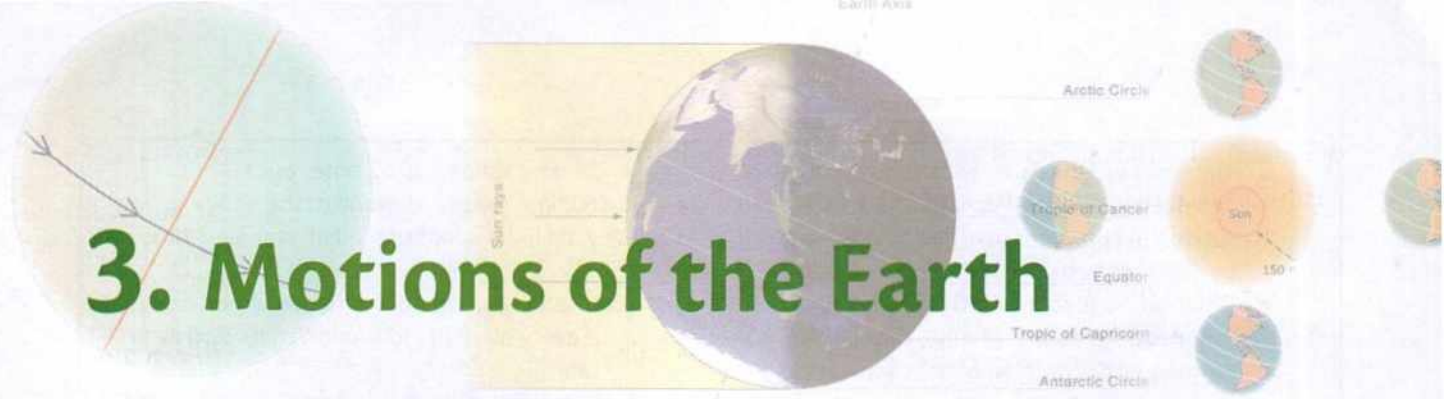
Life skills

Self-awareness

The world is shrinking and people are travelling like never before. Many travellers are often noisy and rude. They break rules, litter public spaces and demand being served food they are accustomed to.

Given below is a list of dos and don'ts for all travellers. You could add more to this list.

- Travel light
- Read up about the place before going there
- Try to understand the culture of the local people; dress and behave accordingly
- Avoid talking loudly in public spaces
- Do not litter

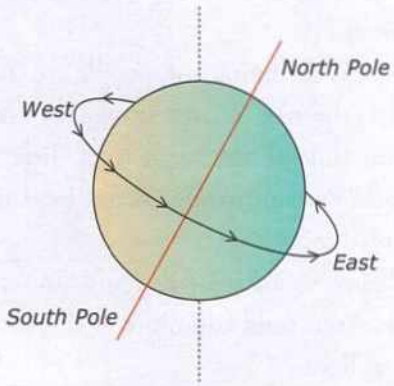


3. Motions of the Earth

Everything in space moves—the Sun, the stars, the planets and other heavenly objects. The Earth too is constantly in motion. The two main motions of the Earth are **rotation** and **revolution**. The Earth **rotates on its axis** and **revolves around the Sun**. The motions of the Earth cause the occurrence of night and day, the seasons, and the varied climate in different regions.

ROTATION OF THE EARTH

The Earth spins on its axis from west to east. This spinning of the Earth around its own axis is known as **rotation**. The Earth takes about 24 hours to complete one rotation. One rotation makes an **Earth day**. It is also called a **solar day**. The speed of rotation at any point along the equator is approximately 1670 km per hour, decreasing to zero at the poles.



The axis of the Earth, as you learnt in the last chapter, is tilted, or inclined, at an angle of 66½° to the plane of the Earth's orbit around the Sun, or the **ecliptic**.

Effects of the Earth's rotation

The rotation of the Earth causes:

- day and night
- bulging of the Earth at the equator, and flattening at the poles
- the deflection (pushing away from the straight path) of winds and ocean currents
- tides (the alternate rise and fall of the oceans due to the gravity of the Moon and the Sun, and the rotation of the Earth)
- the apparent movement of all the heavenly bodies from the east to the west

Day and night

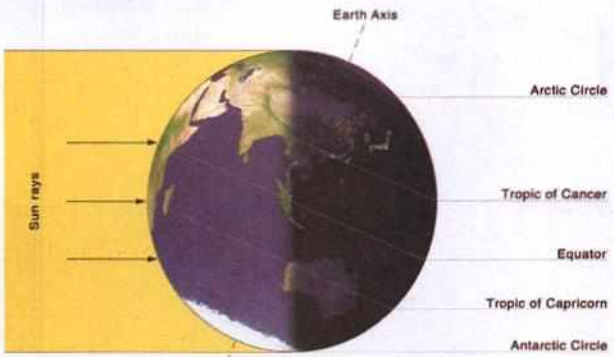
Day and night are caused by the rotation of the Earth. Since the Earth rotates from west to east, the Sun appears to rise in the east.

EXPLORE SOME MORE...

Besides spinning on its axis and revolving around the Sun, the Earth also follows the Sun's movement through the Milky Way, our galaxy. The Solar System moves through the Milky Way at a speed of more than 200 km per second. All the galaxies of the Universe appear to be moving outwards from an unseen point. The Universe, it seems, is still expanding.

Because the Earth is spherical, only one side of the Earth can face the Sun at any time. The side that faces the Sun experiences day, and the side that is turned away from the Sun experiences night. As the Earth's axis is tilted, different places experience different amounts of sunlight and darkness each day.

The line that separates the lighted half from the darker half of the Earth is called the **circle of illumination**. In the course of 24 hours, places on Earth experience each of these stages one after the other—dawn, sunrise, mid-day, sunset, dusk and mid-night and then dawn again. **Dawn** is that time of day just before sunrise, when the eastern horizon starts getting lighter. **Dusk** or twilight, on the other hand, is just after the Sun sets in the west. Most of the sky is dark but there is a lingering light along the western horizon.



Circle of illumination

What do you think will happen if the Earth fails to rotate?

It will be disastrous if the Earth fails to rotate.

- While the side of the Earth facing the Sun will always be lighted, the other side will always remain dark.
- The lighted side of the Earth will become extremely hot and the dark side will be freezing cold.
- Life forms would not be able to exist in such extreme conditions.
- The patterns of tides, ocean currents and wind systems would be very different from what they are now.

Revolution

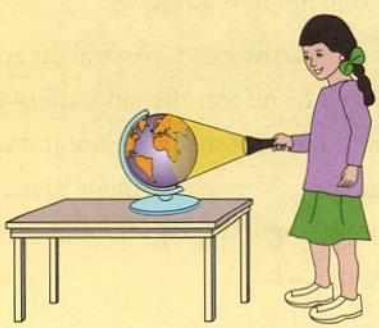
While the Earth spins on its axis, it also goes around the Sun. This movement of the Earth around the Sun is called **revolution**. It takes the Earth a little over 365 days or one year to complete a revolution around the Sun. The path it takes around the Sun is known as the orbit. The Earth's orbit is elliptical(i.e., shaped roughly like an egg). The distance between the Earth and the Sun varies from a minimum of roughly 147 million km in early January, called the **perihelion**, to a maximum of roughly 152 million km in early July, called the **aphelion**. The average distance of the Earth from the Sun is roughly 150 million km. The plane in which the Earth goes around the Sun is called the **ecliptic**.

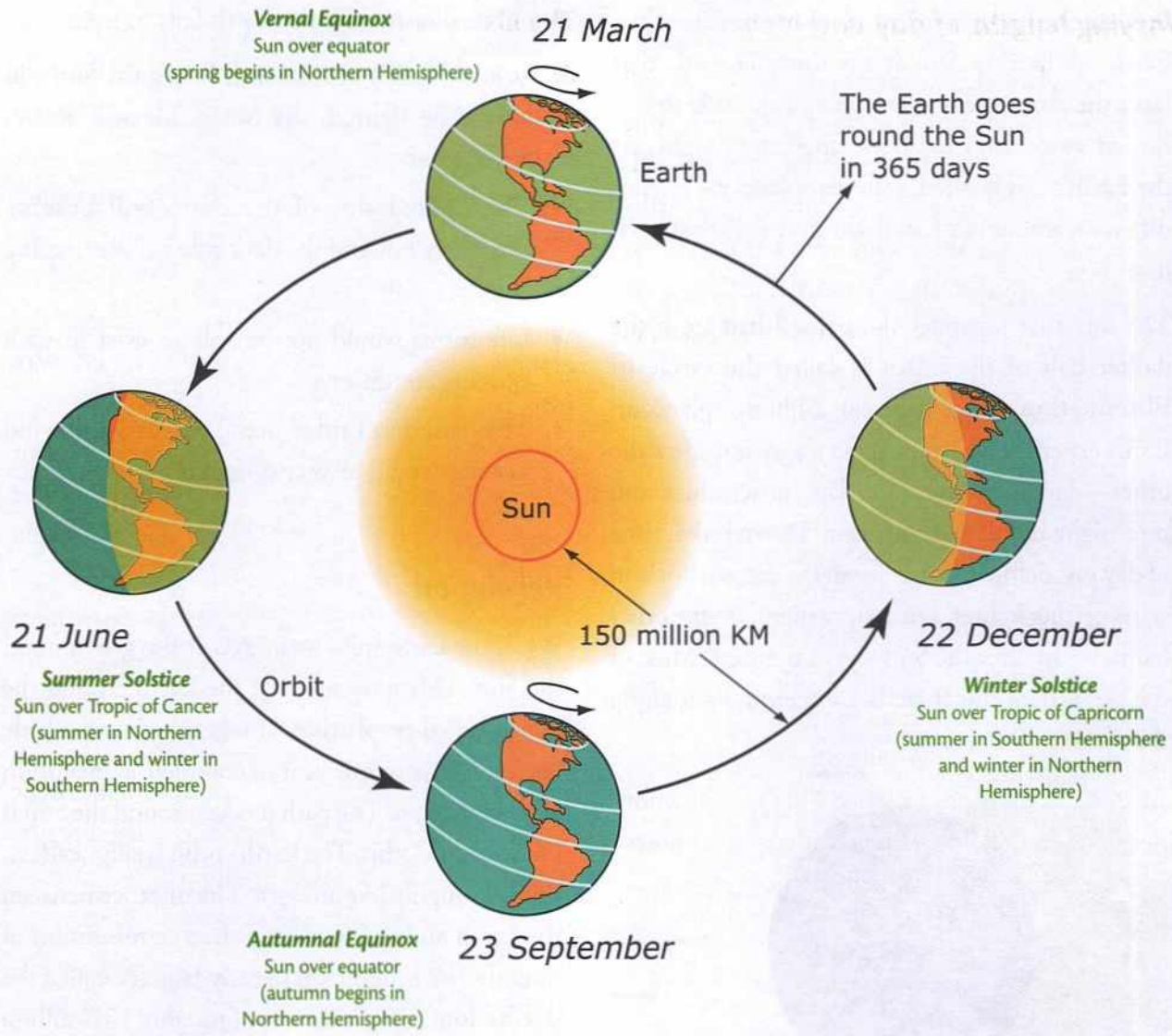
Enrichment Activity

Things needed: a globe and a torch

Shine the torch on one side of the globe. Turn the globe slowly as though it is rotating.

Draw a neat labelled diagram of what you observe. In the diagram, mark the North Pole and South Pole. Which part of the figure is experiencing dawn? Write 'dawn' there. Similarly, mark sunrise and mid-day in the correct places.





Effects of the Earth's revolution

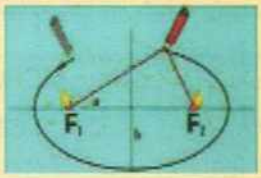
The revolution of the Earth, along with the tilt in the Earth's axis, causes:

- varying lengths of day and night
- changing seasons

If the Earth's axis were straight and not tilted, there would be no seasons, since every point on the Earth would receive the same amount of light each day of the year. Nor would there have been any variation in the lengths of day and night—they would last 12 hours each.

ENRICHMENT ACTIVITY

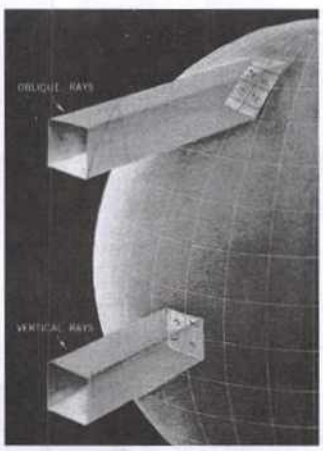
Fix two nails to a drawing board. Tie a piece of string to the nails. Place a pencil along the inner side of the string and draw a line using the string to guide the pencil. The result on the drawing board is an ellipse.



Varying lengths of day and night

If you travel to different parts of the world you will notice that the lengths of days and nights can be very different, even at the same time of year. This variation is due to the inclination of the Earth's axis. Suppose you take a train from Kerala to New Delhi in December, you will notice that the length of days and nights varies between the two places. In Kerala there is not much difference in the length of day and night, while in New Delhi, the days are very short, with sunrise at 7 a.m. and darkness setting in by 5 p.m.

Look at the figure on the next page. You can see that for half the year, the Northern Hemisphere faces the Sun, while for the next six months, the Southern Hemisphere faces the Sun. A larger part of the hemisphere that faces the Sun gets sunlight. This means that the hemisphere facing the Sun gets longer days and shorter nights. This phenomenon is more noticeable the closer you go to the poles. At the equator, the days and nights are of equal length.



The slanting rays of the Sun gives less energy at the Earth's surface than vertical rays. This is because—(a) their energy is spread over a larger surface, and (b) because they pass through a thicker layer of reflecting and absorbing atmosphere.

The changing seasons

As we have already seen, the axis of the Earth is inclined at an angle of 23½° to its perpendicular plane. When this tilt in the axis is combined with the revolution of the Earth, we get the changing seasons. Look at the figures on pages 22 and 24. You can see that between 21 March and 23 September, the Northern Hemisphere is inclined towards the Sun and the Southern Hemisphere is turned away from it.

Since the North Pole is inclined towards the Sun during this period, the Northern Hemisphere has longer days and shorter nights. This part of the Earth also gets heated more. It is summer here. During this period, the Southern Hemisphere faces away from the Sun. It only gets the slanting rays of the Sun and has longer nights and shorter days. It is winter there.

During this period, the area to the north of the Arctic Circle experiences continuous daylight for a period of six months. The condition reverses when the Sun is inclined towards the Southern Hemisphere.

On **21 June** the Sun's rays fall vertically on the Tropic of Cancer. This is the northernmost point that the vertical rays of the Sun can reach. In the Northern Hemisphere, it is the longest day of the year. It is called the **summer solstice**.

On **22 December**, the Sun's rays fall vertically on the Tropic of Capricorn. This is the southernmost point that the vertical rays of the Sun can reach. In the Southern Hemisphere, it is the longest day of the year. In the Northern Hemisphere, it is the shortest day of the year. It is called the **winter solstice**.

EXPLORE SOME MORE...

The revolution of the Earth around the Sun covers a distance of 942 million km in 365 days, 6 hours, 9 minutes and 9.5 seconds. The speed at which the Earth revolves around the Sun is about 30 km per second (or about 107,000 km per hour).

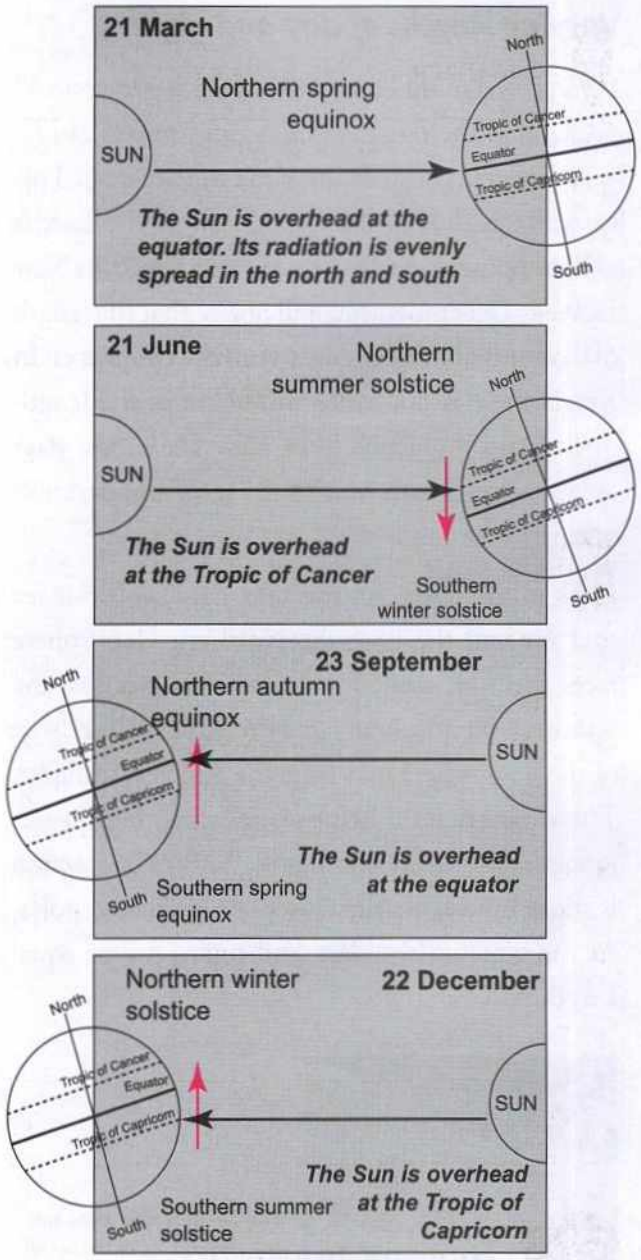
Equinoxes

On 21 of March and 23 September every year, the Sun's rays fall vertically on the equator. These days are known as the **equinoxes**. The North Pole and South Pole are neither inclined towards the Sun, nor are they inclined away from it. On these days, maximum heat and light is received at the equator. Since the inclination does not affect the duration of the day, both hemispheres receive the rays of the Sun almost equally. Therefore, the length of day and night is equal all over the world.

March 21 is known as the **vernal** or **spring equinox** and **September 23** is known as the **autumnal equinox**.

The four seasons

The different positions of the Earth during its revolution around the Sun are responsible for the seasons. Thus, in the Northern Hemisphere, the seasons follow the pattern of spring beginning in March, summer in June, autumn in September, and winter in December. In the Southern Hemisphere, the pattern is reversed, with autumn beginning in March, winter in June, spring in September and summer in December. Can you think of some other factors that affect the climate of a place?



Leap years

The Earth takes 365¼ days to complete one revolution around the Sun. For our convenience, we take only 365 days as a calendar year. The 6 hours (¼ day) left are added as one more day (6 × 4 = 24 hours) to February every fourth year. Such a year has 366 days, and it is called a **leap year**. Thus, every leap year has an extra day, and all leap years are divisible by four. Centenary years are leap years only if they are divisible by 400. Thus, the year 1900 was not a leap year, though it is divisible by 4.

EXPLORE SOME MORE...

The name 'solstice' is derived from the Latin words **sol** (Sun) and **sistere** (to stand still).

Glossary

orbit: path of the Earth's revolution around the Sun
perihelion: the point in the orbit of the Earth where it is nearest to the Sun
aphelion: the point in the orbit of the Earth where it is farthest to the Sun
solstice: the time when the Sun is directly above the Tropic of Capricorn or Cancer
equinox: the time when the Sun is directly above the equator
seasons: the four periods into which the year is divided by the solstices and equinoxes—spring, summer, autumn and winter
leap year: a year with 366 days

In Brief

- The rotation of the Earth around its axis causes day and night and the apparent movement of all heavenly bodies across the sky.
- The Earth revolves around the Sun in an elliptical orbit once every 365 ¼ days.
- Since the Earth is tilted on its axis, each hemisphere turns towards the Sun in turn, leading to summer in that hemisphere and winter in the other hemisphere.
- The times when the Sun is directly above the Tropic of Cancer or the Tropic of Capricorn are known as summer solstice and winter solstice, respectively.
- Twice a year, the Sun is directly over the equator, and these days are known as spring equinox and autumnal equinox.
- The periods between the two solstices and the two equinoxes form the four seasons of the year.
- To account for the quarter day more than a year that the Earth takes to go around the Sun, an extra day is added to February once in every four years. The resulting year with 366 days is called a leap year.

Enrichment Activities

- **Project/Presentation:** Do a project or make a presentation on the movements of the Earth. Show how rotation causes day and night, bulging of the Earth at the poles, and the deflection of the winds. Also show the effects of the revolution of the Earth, like varying lengths of day and night and changing seasons.
- **Chart work:** Which is the one place on Earth that you really want to visit? Find out all about it. Is it in the Northern or Southern Hemisphere? Find out the seasons the place has, and say which would be your favourite season to visit the place. Present your findings in the form of a chart.
- **Find out:** You now know how the leap year is calculated. Say whether the following years are leap years or not: 2023, 2090, 2100 and 2050.

Exercises

I. Fill in the blanks

1. The Earth's orbit around the Sun is _____ in shape.
2. The spinning of the Earth on its own axis is called _____.
3. A leap year has _____ days.

II. True or false?

1. The gravitational force is the pulling force of the Earth.
2. The angle of inclination of the Earth to its perpendicular plane is $22\frac{1}{2}^0$.
3. When it is summer in the Northern Hemisphere it is winter in the Southern Hemisphere.

III. Match the following.

1. June 21	vernal equinox
2. September 23	summer solstice
3. March 21	autumnal equinox
4. December 22	winter solstice

IV. Answer in brief.

1. Which are the two main motions of the Earth?
2. How are days and nights caused?
3. What will happen if the Earth fails to rotate?
4. What is the angle of inclination of the Earth's axis with its orbital plane? What is its effect?
5. Why do we have different seasons?
6. During which season is Christmas (December 25) celebrated in New Zealand?
7. Distinguish between summer solstice and winter solstice.
8. What is an equinox?
9. What is a leap year?

V. Draw a diagram to show the angle of inclination of the Earth to its orbital plane and the perpendicular plane.

Multiple Choice Questions

1. The Earth rotates on its axis from the
   a. north to the south b. east to the west c. west to the east d. south to the north
2. Which of the following effects is not caused by the rotation of the Earth around its axis?
   a. Day and night b. The deflection of the winds and ocean currents
   c. Seasons d. Tides
3. Which of the following statements is not true? If the Earth failed to rotate:
   a. One side of the Earth would experience freezing temperatures and permanent night, while the other side would become extremely hot, and experience permanent daylight.
   b. Life forms would not be able to survive in such extreme conditions.
   c. There would be no winds.
   d. There would be no water left on Earth.
4. The Earth's orbit around the Sun is
   a. circular b. oval c. elliptical d. ecliptic
5. As the Earth revolves around the Sun, the distance between the two bodies varies. The Earth comes closest to the Sun in January. This position is called the
   a. perihelion b. aphelion c. equinox d. solstice
6. Seasons are caused due to the
   a. rotation of the Earth and the tilt in the Earth's axis
   b. revolution and rotation of the Earth
   c. revolution of the Earth and the tilt in the Earth's axis
   d. elliptical nature of the Earth's orbit
7. Between 21 March and 23 September,
   a. the Northern Hemisphere is inclined towards the Sun and it is summer here

b. the Southern Hemisphere is tilted towards the Sun and it is summer here
c. the Sun is directly over the equator, so days and nights are of equal length in the Northern Hemisphere
d. the Sun is directly over the Tropic of Capricorn, so it is autumn in the Southern Hemisphere

8. On December 22, the Sun's rays fall directly over the Tropic of Capricorn. It is called the
a. Summer solstice
b. Vernal equinox
c. Winter solstice
d. Autumnal equinox

9. On the equinoxes
a. the Sun's rays fall directly on the equator
b. neither the North Pole nor the South Pole are inclined towards the Sun
c. the length of day and night is equal all over the world
d. all of the above

10. A leap year
a. has 366 days, and comes once in 4 years
b. has 365 days and comes once in 4 years
c. has 365 and ¼ days and comes once in 5 years
d. has 365 and ¼ days and comes once in 4 years

HOTS: Think and Answer

Ruins of ancient civilisations show that the people could predict the equinoxes and solstice with great precision. How do you think they were able to do so?

Values that enrich

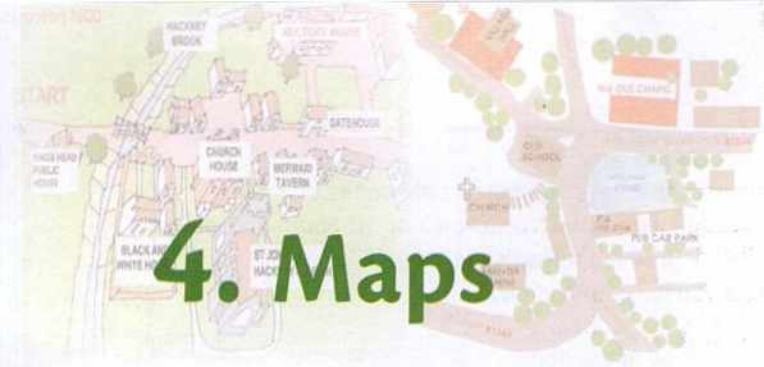
Mr Das works in a multinational corporation (MNC). He has several cars at his disposal. But Mr Das prefers to cycle to his office every day. He also insists that his children either take the public transport or cycle to school. What values would you associate with Mr Das?

Life skills

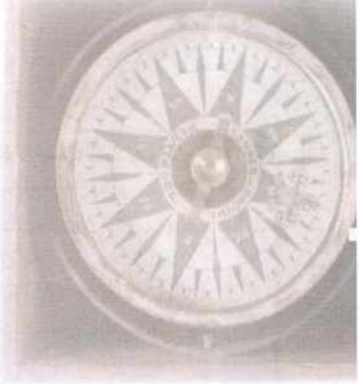
Creative thinking/Awareness

These days we often hear people talking about 'climate change' and 'global warming'. Scientists feel that deforestation, increased industrialization and a growing population are affecting the climate of the Earth drastically.

Each of us can help reverse this process in our own small ways. Make a list of things you can do to help fight global warming.



4. Maps



In the previous lesson you studied about the features of a globe. A globe can be used to study the Earth as a whole. However, a globe cannot provide specific details about a country, city, district or village. For that, you would need a very big globe indeed! When we need detailed information about places, we use maps.

WHAT ARE MAPS?

A **map** can be defined as a two-dimensional representation of the whole or part of the Earth, drawn to **scale**, on a flat surface. Can we flatten all the three-dimensional features of the Earth on a flat surface accurately? It is nearly impossible. In a map, the shapes and sizes of places get slightly distorted. The larger the area covered by a map, the greater the distortion.

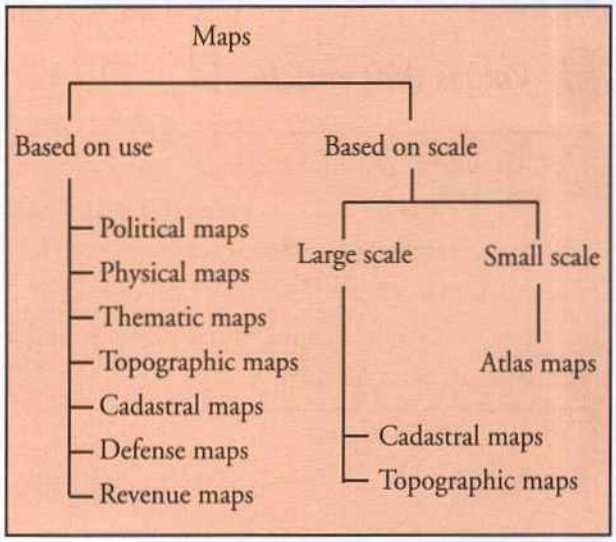
Maps are a rich source of information. Maps help us answer basic geographic questions like—Where am I? What else is here? Where am I going? How do I find my way? What are the places I will pass through before reaching my destination?

There are different types of maps. A collection of maps is called an **atlas**. Atlases are of different sizes. An atlas may carry different maps of varied scales.

The art and science of making maps is called **cartography**. In the past, maps were manually made by the cartographers using pen and paper. These days, most cartographers use the computer to draw maps.

CLASSIFICATION OF MAPS

Maps serve different needs of map users. Therefore, maps vary in content. Maps are classified on the



EXPLORE SOME MORE...

The word **cartography** is derived from the Greek words **chartis** (meaning 'map') and **graphein** (meaning 'write'). Any collection of maps is called an atlas since the mid-16th century. Gerardus Mercator 1512-1594, a cartographer from Germany, was the first to use this word. Maps have been an important part of our lives for over 4000 years. Ancient Egyptians drew maps on clay tablets. Maps of Babylon in ancient Mesopotamia and maps of Chinese trade routes are some of the earliest examples of map-making. Ptolemy, a Greek scholar, was one of the earliest map-makers.

Differences between a globe and a map

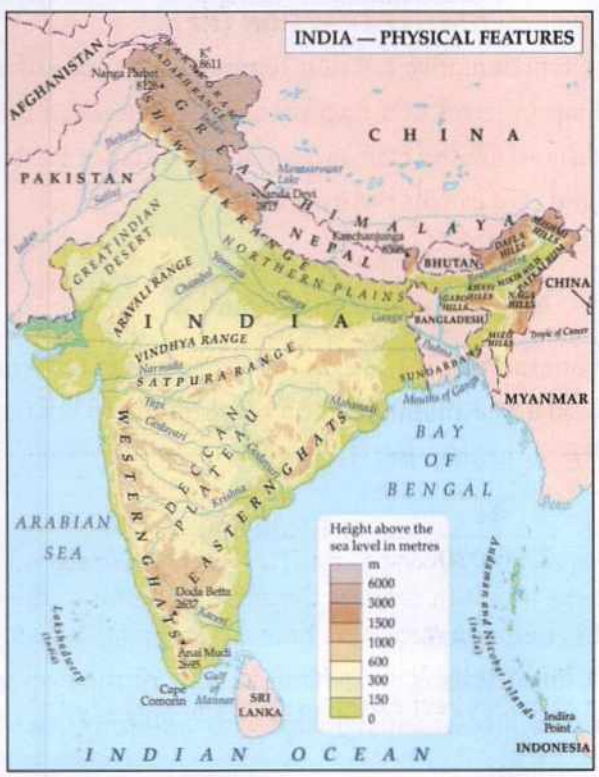
A globe	A map
• A globe is a three-dimensional model of the Earth. • Globes show very few details. • Globes show the shapes and sizes of countries accurately. • One can view only a part of the world at a glance on a globe. • A globe shows the whole Earth; it cannot show only a part of the world. • It is usually inconvenient to carry a globe.	• A map is a two-dimensional representation of the Earth. • Maps can show large amounts of detail. • The shapes and sizes of countries get distorted in a map. • One can view the entire world at a glance in a world map. • Maps can be drawn to show the whole world, or a part of it. • It is easy to carry maps.

basis of (a) **scale** of the map (b) the **content** of the maps or (c) the **purpose** they serve.

Let us learn some more about some of the more frequently used maps.

Physical maps

Physical maps show **natural features** like mountains, plateaus, hill ranges, plains, rivers, lakes, seas and oceans. They are also known as **relief maps**.



Political maps

Political maps show **cultural features** like countries and states, districts, cities, towns and villages.

Thematic maps

Thematic maps show **specific information**. They deal with a single theme like distribution of rainfall, population, industries, crops, temperature, vegetation, roadways, railway networks, etc.

Cadastral Maps

Cadastral maps are village or local level maps that show property boundaries. They are used to measure land and to prove ownership of land.

THE COMPONENTS OF A MAP

A map should include the following components to make it user friendly—title, scale, direction, latitude and longitude, and a key or legend.

Title

It states the purpose or theme of the map. For example, India—Political, World—Physical, Chennai—Road Map.

Scale

One of the main purposes of a map is to show the distance between places accurately. To ensure that this is done effectively, the distance on the ground is graphically reduced on the basis of a **scale**. Every map has to have a scale. It is essential for measuring distances, and to work out the area of a place.

The scale of a map is defined as the ratio between the distance on the map and the corresponding distance on the ground. To put it simply, scale is the relationship between distance on the map and distance on the ground. For instance, if the market is at a distance of 5 km from your house and you reduce it to 5 cm on a map, it means 5 cm distance on the map is equal to an actual distance of 5 km on the ground.

The scale of a map can be represented in different ways.

VERBAL OR STATEMENT SCALE

A verbal scale describes the scale in words. For example: 'one centimetre on the map is equal to one kilometre on the ground.' (1 cm scale to 1 km distance on the Earth's surface)

REPRESENTATIVE FRACTION (RF)

A representative fraction represents the scale of a map in terms of a fraction or a ratio between the distance on the map and the actual distance on the land. We can also write it as:

$$\frac{\text{Distance on the map}}{\text{Actual distance on the land}}$$

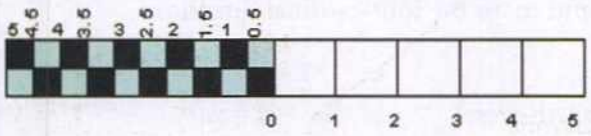
For example, if 1 cm on the map represents 1 km (equal to 1,00,000 cm) on the ground, we say the RF of the map is:

$$\frac{1}{1{,}00{,}000} \text{ or } \mathbf{1 : 1{,}00{,}000}$$

LINEAR SCALE

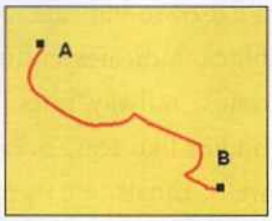
A linear scale is one where the scale of the map is represented by a straight line with uniformly spaced divisions.

The division on the extreme left of the scale is further graduated to show the sub-divisions of the main unit of measure. These subdivisions help us measure even smaller lengths than the main unit.



1: 1, 00, 00, 000

Suppose you need to know the distance between two places A and B shown on the map. Take a piece of string. After fixing one end of the string at A, carefully measure the distance between A and B. Mark point B on the string. Now place the string along the linear scale given above. If A to B on the map covers 5 divisions of the linear scale, the actual distance on the ground between the two places is 50 km, since 1 cm on the scale represents 10 km on the ground.



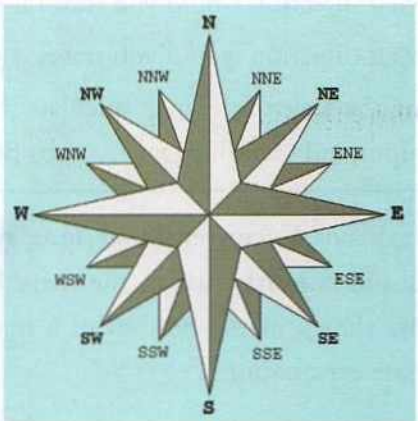
LARGE SCALE AND SMALL SCALE MAPS

Maps are also classified as **large scale** or **small scale** maps. Scale, as you saw, is the ratio of distance on the map to the distance on the ground. So the larger the scale of the map, the smaller the area it will cover. For example, if a map has a large scale of 1:1000, it means that 1 unit on the map represents 1000 units on the ground. If a map has a small scale of 1:5,000,000, it means that 1 unit on the map represents 5,000,000 units on the ground.

Large scale maps	Small scale maps
Cover smaller land area on the map	Cover larger land area on the map
Provide a great deal of detail	Provide small amount of details
e.g., a city map or a street map or a village map	e.g., world map in an atlas
scale = 1:100,000	scale = 1:10,000,000

Direction

The other main component of a map is direction. The four principal directions—north, east, south and west—are indicated as arrowheads on a map. They are called **cardinal points**. The inter-cardinal points are north-east, north-west, south-east and south-west.



A compass rose shows the cardinal and inter-cardinal points

The mariner's compass is an instrument used to find the direction on a ship; its magnetic needle always points towards the north.

A mariner's compass

Latitude and longitude

Maps also show the **latitude** and **longitude** within which the area being mapped is located. This is called the coordinate system or the Earth grid. This helps locate places on the surface of the Earth accurately.

The key or legend

The **key** or the **legend** of a map helps us to interpret and understand the information contained in it.

Enrichment Activity

Study the political map of India in your school atlas.

1. What is the scale of the map?
2. On the right-hand corner of the map draw a cross and mark the four cardinal directions.
3. Which is the easternmost state of India?
4. Which countries border India on the east and the north-west?
5. In what direction would you travel if you were going from Mumbai to New Delhi?
6. In what direction would you travel if you were going from Kolkata to Hyderabad?
7. Using the scale of the map calculate the distance between
   a) Jaipur and Gandhinagar b) Bhopal and Bengaluru c) Dispur and Patna

The key explains the **conventional signs**, **symbols**, **patterns** and **colours** used in the map. Legends are always shown at the bottom of a map, with appropriate explanations.

Conventional signs and symbols

In a map, signs and symbols are concrete representations of real life objects. Therefore, generally, the symbols look very similar to the real life features they represent. So, even people who cannot read can understand the common signs and symbols used in a map.

Conventional signs provide maximum information accurately at a glance. Too many words will make a map look crowded and untidy. Conventional signs and symbols help in preventing this. They also enable the map-maker to explain all the information provided in the map.

Colour or hue

Colours used in a map make the map look good and also provide definite information. Different colours are used to indicate specific features. For example, **black** indicates cultural features like buildings, roads, railway lines, etc.; **blue** indicates water bodies like seas, oceans, lakes, rivers, reservoirs, wells, canals, etc.; **green** indicates plains, forests or grasslands; yellow indicates deserts and **brown** indicates mountains, plateaus and hills.

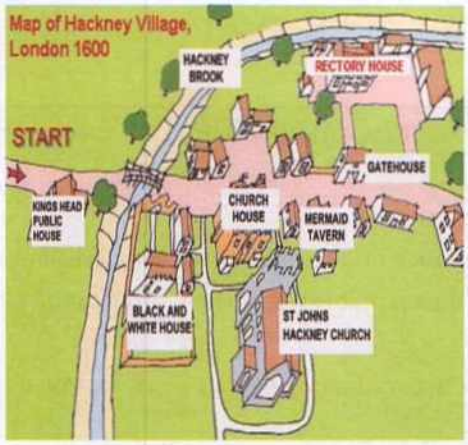
A SKETCH AND A PLAN

A **sketch** is a rough freehand map drawn on the basis of observation. It represents the main features of an area, or a specific place. It is a drawing that is **not drawn to scale**. Sketches usually serve to quickly record ideas for later use.

Enrichment Activity

Study the key or legend of the political map of India on page 29. In your notebooks, draw the signs used to show country boundary, state boundary, country capital, state capital.

Now study the key of the physical map of India on page 29. What colour has been used for land over 6,000 m; for land between 600 and 1000 m? How are mountain peaks shown?



Sketches may vary from hasty to complete and detailed ones. The level of detail depends on the purpose they serve and the degree of accuracy required. For example, a sketch of a minefield will need more accuracy than a sketch you give your friend showing a few landmarks to reach your house.

A **plan** is a detailed and accurate drawing of a very small area on a large scale. Plans are always drawn to scale. They give a lot of information about a specific area. For example, they show even the length and breadth of the rooms in a house or school to scale. These details cannot be shown on a map. Thus plans give minute details of the interiors of buildings.

DEVELOPMENTS IN CARTOGRAPHY

Modern mapping has come a long way from the time of Ptolemy, when maps were made on paper using ink. Today we use **digital maps**. These are maps stored in a digital format accessible on a computer, rather than paper. With the advent of computer technology, maps are now made with map-making software. Cartographers get additional information from satellites which take images of the Earth from space using remote sensing devices.

Remote sensing is the science and art of acquiring information about objects, area, or phenomena, without coming into physical contact with the objects or area under study.

ENRICHMENT ACTIVITIES

- Draw a sketch map of the route you take from home to school each day. The drawing does not have to be accurate. Mark some important landmarks you cross on the way, like a post office, a police station or a vegetable market.
- Draw a plan of your house. The plan should have a scale, for example, 1 cm in your notebook could represent 1 m on the ground. If your bedroom is actually 3 m by 2 m, it will be shown as 3 cm by 2 cm in your plan.

Glossary

map: a two-dimensional representation of the Earth or part of it, drawn to scale
atlas: a collection of maps
cartography: the art of drawing maps
scale: the ratio of the distance on a map to the real distance on Earth
legend or key: a collection of signs or symbols that represent features on a map
plan: an accurate drawing of a small area on a large scale

In Brief

- Maps are two-dimensional representation of the Earth's surface or a part of it. The art of making maps is called cartography.
- Maps are of many types, like physical, political, thematic or cadastral maps.
- Maps are always drawn to scale, which is the ratio of the distance on the map to the actual distance.
- The legend or key of a map helps us to read and understand the map. It explains the symbols and colours used in the map.
- A rough map not drawn to scale is called a sketch, while the accurate drawing of a small area on a large scale is known as a plan.
- Today computers and satellite imaging are used extensively to make maps.

Enrichment Activities

- **Group work:** Work in groups and do a project on remote sensing. Search the Internet to find out the following information:

(1) What is remote sensing?
(2) How it is used in geography with special reference to cartography?
(3) How advanced is remote sensing in India?
Present your findings in the form of a booklet.

- **Write a navigation log:** You have drawn a sketch of the route you took from your house to the school. Now write a navigation log. Your navigation log must include:

(1) Direction travelled (N,S,E,W)
(2) Names of major streets
(3) Landmarks
(4) Speed of travel
(5) Time taken to travel between house and school
(6) Date and time the observations were taken

- **Map work:** Trace the outline map of your state onto another paper. Now mark the following information on the map. The capital, major tourist sites, wildlife and bird sanctuaries, hill stations and major museums. Remember to give the scale of the map, a title, a key or legend which helps interpret the map.

Exercises

I. True or false?

1. Political maps show natural features.
2. Secondary divisions are the sub-divisions of the primary scale.
3. The magnetic needle always points east–west in a mariner's compass.
4. Latitude and longitude, the co-ordinate systems form the basic grid for a map.
5. The key or the legend of a map helps us read the codes of a map.

II. Fill in the blanks.

1. The art of map-making is called _____.
2. Maps used at village levels or local levels to measure land are called _____.
3. The arrow depicting the cardinal point on the top of a map shows _____ direction.
4. A _____ is a collection of maps.

III. *Answer in brief.*

1. What is a map? Distinguish between a map and a globe.
2. Mention three uses of maps.
3. Write a detailed note on the different types of maps.
4. What are the essential components of a map?
5. What do you understand by the 'scale of a map'? State the ways in which map scales are represented.
6. What are the differences between small-scale and large-scale maps?
7. Name the four cardinal points. Draw a compass rose and show the cardinal and inter-cardinal points.
8. Distinguish between a sketch, a plan and a map.

Multiple Choice Questions

1. Which of these statements is correct?
   a. A map is a three-dimensional reproduction of the Earth's surface.
   b. A map is able to reproduce the Earth's surface perfectly without any distortion.
   c. In a map, the shapes and sizes of places get slightly distorted.
   d. The larger the area covered by the map, the less the distortion.
2. A collection of maps is called
   a. an atlas b. chartis
   c. cartography d. topographic maps
3. Cadastral Maps are
   a. maps dealing with single themes
   b. maps showing physical features
   c. maps showing village level features
   d. maps showing cultural features like countries and their capitals
4. The scale of a map
   a. is the ratio between the distance on the map and the corresponding distance on the ground
   b. is the ratio between the distance on the ground and the corresponding distance on the map
   c. is the key or legend of a map
   d. can only be shown as a representative fraction
5. The key of a map
   a. is used to open and lock the atlas
   b. helps us interpret and understand information contained in a map
   c. is always shown on the top of the map
   d. shows the political boundaries of countries
6. Which of these statements is correct?
   a. A sketch is a freehand drawing that is not to scale.
   b. A sketch is a freehand map that is to scale.
   c. A sketch is a detailed and accurate drawing made to a scale.
   d. A sketch is a detailed and accurate drawing that is made digitally.

HOTS: Think and Answer

How do map makers deal with the distortions that come with flattening the 3-dimensional features of the Earth?

Values that enrich

Mr Jacob is a retired cartographer. He made maps during a time when there were no computers to assist him. During his time, map-making was a slow, painstaking process. Yet Mr Jacob enjoyed his work immensely. What skills do you think a cartographer would need to excel at his job?

Life skills

Creative thinking/ Effective Communication

Become an architect

Design the house of your dreams. First draw the plan of your dream house (remember it has to be drawn to scale). Then try to recreate it using clay. Create a house that will be energy efficient and stay cool in summer and warm in winter. Explain it to your class.

5. The Four Realms of the Earth

As far as we know, the Earth, our home, is the only planet in the Solar System which supports life. It is, therefore, a unique planet.

The three main components of the Earth, which makes life possible here, are water, air and soil. They are not only in contact with each other but are also interactive and interdependent. Life exists only where these three components interact.

Thus, the Earth's system consists of four major subsystems. They are known as **domains** or **realms**. They are the **lithosphere** (land), **hydrosphere** (water), **atmosphere** (air) and **biosphere** (the parts of the Earth where life is found, including land, water, and the lower part of the atmosphere).

LITHOSPHERE

The lithosphere is the solid surface layer of the Earth. It is generally referred to as the crust. It consists of all the land masses on the surface of the Earth. The surface of the Earth is very uneven. There are:

- High mountains, like the Himalayas, the Rockies, the Andes, the Alps

ENRICHMENT ACTIVITY

- Study the world map shown below and identify the continents.
- Are the continents interconnected?
- Name the continents that lie to the north of the equator.
- Name the continents that lie to the south of the equator.
- Name the continents that are spread over both the Northern and Southern Hemispheres.

- Vast plains, like the great plains of India, USA and Brazil
- Deep valleys along the ocean floor, like the Mariana Trench

The two main features on the Earth's surface are the continents and oceanic basins.

The Continents

Continents are large, distinct land masses separated by vast water bodies (oceans and seas). There are seven major continents in the world. They are Asia, Africa, Europe, North America, South America, Australia and Antarctica.

Most of the land masses lie in the Northern Hemisphere. The Southern Hemisphere has relatively fewer land masses.

Asia

Asia is the largest continent. It covers nearly one-

Enrichment Activity

Study the map. Locate and note down the names of the countries in Asia. Also note down their capitals. You are travelling from Mumbai to Tokyo by ship. Mark your route on the map. Which ports are you likely to stop at?

third of the total land area of the Earth.

The entire continent lies in the Northern Hemisphere; it also lies entirely in the Eastern Hemisphere, i.e., east of the Greenwich Meridian. The Tropic of Cancer passes through this continent. The continents of Asia and Europe are joined together and make a huge continuous land mass. The Ural Mountains and the Caspian Sea separate Asia from Europe on the west. Europe and Asia together are called Eurasia.

Asia is also the world's most populous continent with over 4 billion people living here, which is more than 60% of the world's population.

EUROPE

Europe is a smaller continent compared to Asia. It lies to the west of Asia. The Ural Mountains form the easternmost edge of Europe. Europe is a peninsula with water bodies surrounding it on three sides. They are the Atlantic Ocean, the Mediterranean Sea and the North Sea. The Greenwich Meridian passes through this continent.

ENRICHMENT ACTIVITY

Can you locate and name the countries in Europe? You are planning to visit Spain. Mark the route your flight would take from Delhi to Madrid.

AFRICA

Africa is the second-largest continent on Earth. It is bounded by the Atlantic Ocean on the west, the Indian Ocean on the east and south, the Mediterranean Sea on the north, and the Red Sea on the north-east. The Strait of Gibraltar in the northwest and the Mediterranean Sea in the north separate it from Europe. It is separated from Asia by the Suez Canal, which cuts through the Isthmus of Suez. The Suez Canal is one of the busiest marine routes in the world. It has reduced the distance between Europe and India by 7000 km.

The equator, the Tropic of Cancer and the Tropic of Capricorn pass through Africa. Most of the African land mass lies in the Northern Hemisphere.

The continent is also known for its rich natural resources. All kinds of climatic regions (e.g. equatorial, tropical and temperate) are found in Africa. Africa is rich in flora and fauna. The largest hot desert of the world, the Sahara desert is located here. It stretches from the Atlantic to the Red Sea in the north. The longest river of the world, the Nile, cuts through Egypt in northern Africa and empties into the Mediterranean Sea.

NORTH AMERICA

North America is the third largest continent of the world and lies completely in the Northern and Western Hemispheres. It is surrounded by three oceans, the Arctic in the north, the Atlantic in the east and the Pacific in the west. The Isthmus of Panama links it to South America.

North and South America are named after the Italian explorer Amerigo Vespucci, who arrived here.

SOUTH AMERICA

Most of South America lies in the Southern Hemisphere. The equator passes through the northernmost part of this continent. It is surrounded by the Pacific and the Atlantic Oceans. The Andes, the world's longest mountain range, is located in this continent. The world's largest river (and the second longest after the Nile), the Amazon, drains South America. It is along this rich alluvial Amazon Basin that the ancient Inca civilisation flourished.

AUSTRALIA

Australia is a continent, a country and an island. The continent of Australia also includes neighbouring islands like those of Tasmania and New Guinea. The oceans surround it on all sides making it an island. Therefore it is called an island continent.

Australia is the world's smallest continent but sixth largest country. It gets its name from the Latin word *australis*, which means 'southern'. It is located in the Southern Hemisphere, between the Indian Ocean and the Southern Pacific Ocean. Australia is also called the 'land down under' as it is located in the Southern Hemisphere. The mean altitude of the land is just 300 m above mean sea level. The Tropic of Capricorn passes through the middle of this country.

The kangaroo and the koala are unique animals of this continent. The Great Barrier Reef off the eastern coast of Queensland is the largest coral reef on the Earth.

ANTARCTICA

Antarctica is a huge continent around the South Pole. The South Pole lies almost at the centre of Antarctica. Since it is in the polar belt, Antarctica is covered with ice caps throughout the year. It is, therefore, known as the Icy Continent. It is also known as an 'isolated continent' since the inhospitable climatic conditions do not permit permanent settlement here. However, many countries, including India, have their base camps and research stations here.

ENRICHMENT ACTIVITY

Locate and name the countries in the African continent. Form groups to do a project on different regions of Africa—the Savanna, the Sahara, the Kalahari, the Congo and Nile Basins.

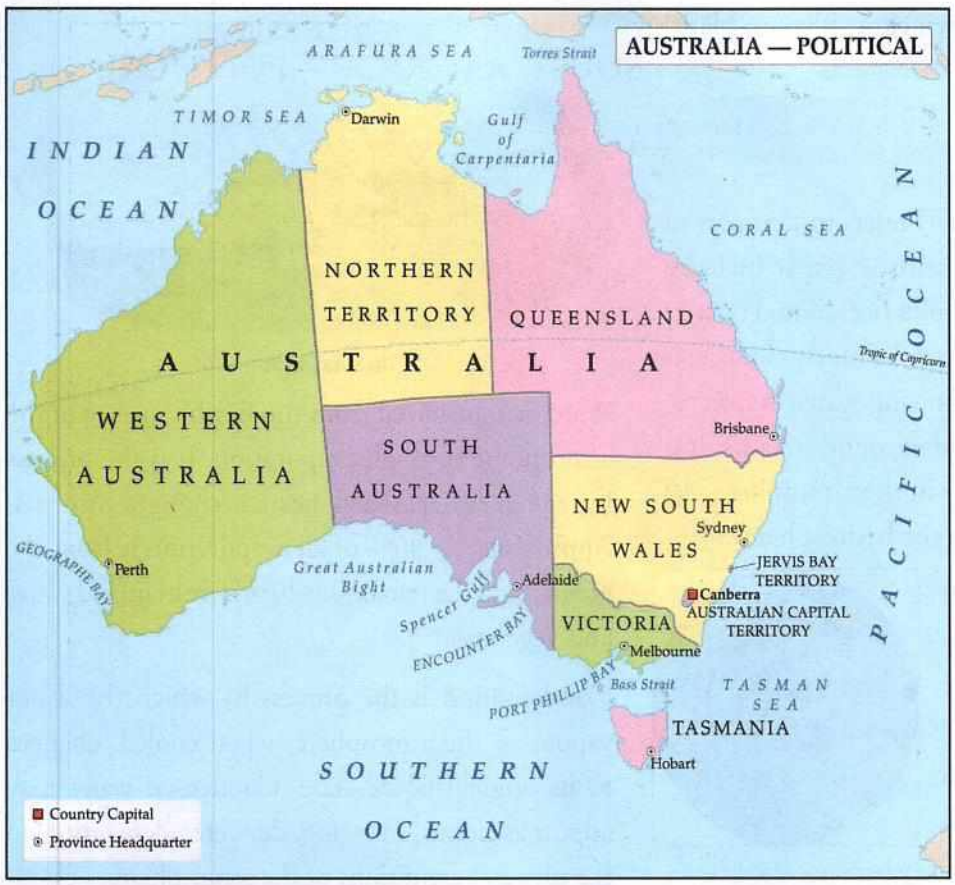
NORTH AMERICA — POLITICAL

ENRICHMENT ACTIVITY

Locate the countries in North America. Make a scrap book on the life of the native Americans of North America.

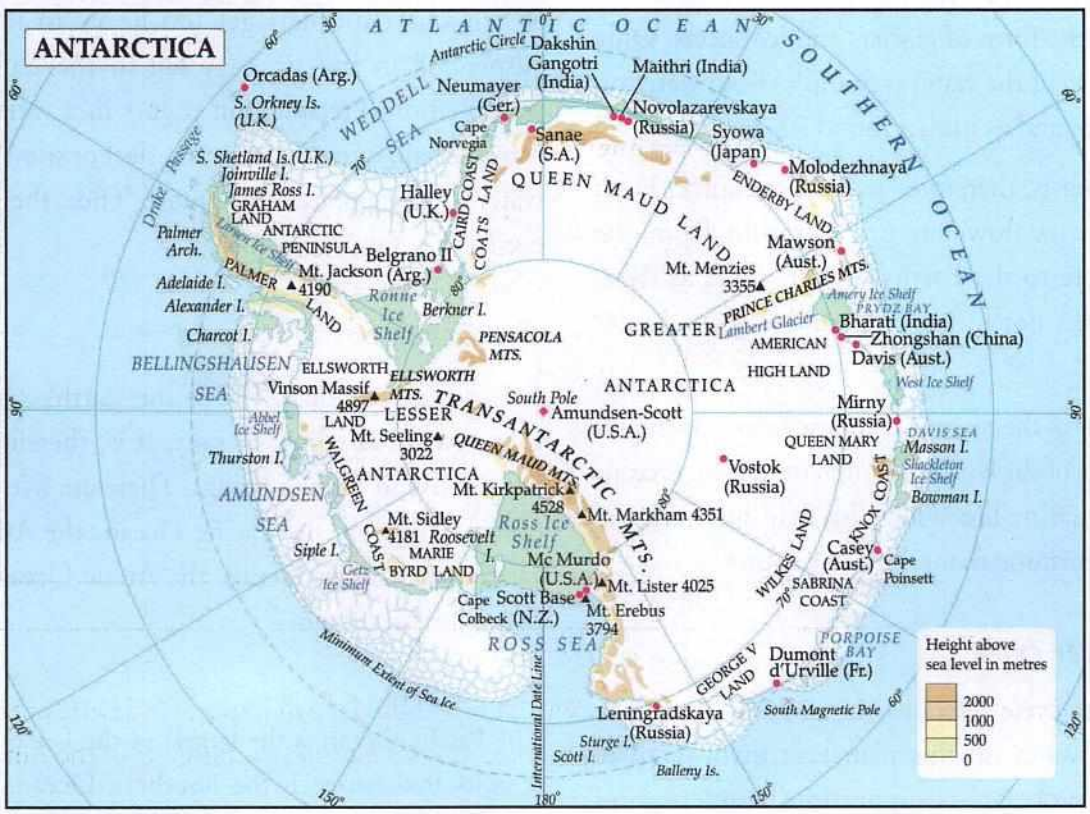
ENRICHMENT ACTIVITY

Locate and name the countries in South America. Write a report on the two important deserts of South America. Mark the river Amazon on the map. Do a project on the vanishing rainforests of the Amazon Basin.



ENRICHMENT ACTIVITY

Identify Bharati in the map of Antarctica. Name the research stations to the south and west of it. Imagine that you are a scientist based at Bharati. Write a report on some of the experiments you are working on. Also describe the conditions of life in Antarctica.



The Indian research stations include Bharati, Maitri and Dakshin Gangotri.

THE HYDROSPHERE

Hydrosphere ('hydro'=water) refers to that part of the Earth that is covered with water. It includes water in all forms, namely, solid (ice), liquid (water) and gas (water vapour). Water is found as ice sheets in glaciers. It is found as flowing water in oceans, rivers, lakes, ponds and underground streams. It is also found as water vapour in the atmosphere. All these forms together make the hydrosphere.

Percentage of water and land on the Earth's surface

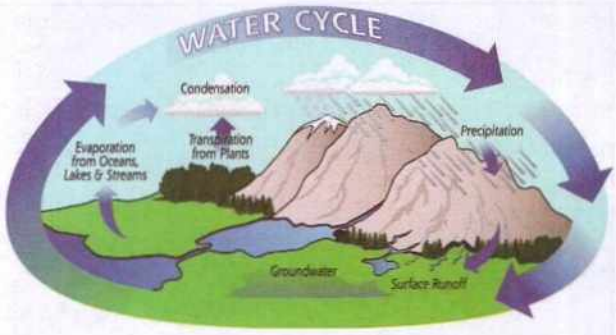
Of the Earth's surface, 71% is covered by water, and only 29% by land. This gives the Earth another name—the Blue Planet. Around 97% of the Earth's water is found in the oceans, and is salty. Around 2% of the water is found in the form of glaciers and ice sheets. Only around 1% of the water is found as fresh water on the surface and as underground streams.

Fresh water is, therefore, a critical resource. Fresh water comes down as precipitation from the atmosphere to the Earth's surface, flows as rivers and streams along it, and is found as groundwater beneath it.

Oceans form the major part of the hydrosphere. All the oceans of the world are interconnected. Oceans support marine life. They also help international trade by forming natural marine routes.

The water cycle

The water cycle refers to the interchange of the forms of water on this planet. It involves three different processes—**evaporation**, **condensation** and **precipitation**.



The water cycle

Water is transferred from the Earth's surface to the atmosphere through evaporation. It is the process by which water, when heated, changes into gas. Approximately 80% of all evaporation is from the oceans, and the remaining 20% is from inland water and vegetation.

Condensation is the process by which the water vapour in the atmosphere, when cooled, changes to its original liquid state. Condensed water may appear as clouds, mist, fog, dew, etc., depending on the physical conditions of the atmosphere.

When water droplets get too heavy to remain suspended in the air, they fall to the Earth as precipitation. Precipitation occurs in a variety of forms—hail, rain, freezing rain, sleet or snow. This water gets evaporated once more. Thus, the water cycle is a continuous process.

The Oceans of the World

Oceans cover about 71% of the Earth's surface. Ocean water is saline, or salty. It is, therefore, of limited use to human beings. There are five main oceans. They are the Pacific Ocean, the Atlantic Ocean, the Indian Ocean, the Arctic Ocean and the Southern Ocean.

THE PACIFIC OCEAN

The Pacific Ocean is the largest of the five oceans. It is located between the Southern Ocean, Asia, Australia, and North and South America. The Pacific

is roughly circular in shape. The length of its coastline is 135,663 km. This is the deepest ocean. Its lowest point is Challenger Deep in the Mariana Trench at 10,924 m below mean sea level. This is the deepest point on the surface of the Earth. The average depth of the Pacific Ocean is around 4,030 m.

ENRICHMENT ACTIVITY

Look for the following ports and harbours along the Pacific in a World Map.

Hong Kong (China), Los Angeles (USA), Shanghai (China), Singapore, Sydney (Australia), Vladivostok (Russia)

THE ATLANTIC OCEAN

The Atlantic Ocean is the second largest of the world's five oceans. It lies between Africa, Europe, the Southern Ocean, and the Western Hemisphere. The length of its coastline is 111,866 km. The lowest point in this ocean is Milwaukee Deep in the Puerto Rico Trench at 8,605 m below the mean sea level.

The shape of the Atlantic is like the letter 'S', and its average depth is approximately 3,646 m. Though this ocean is smaller than the Pacific, it has a large number of natural ports and harbours. This is because its coastline is highly indented. It is one of the busiest oceans and supports international trade greatly.

ENRICHMENT ACTIVITY

Identify the following ports on the Atlantic in a world map:

Buenos Aires (Argentina), Copenhagen (Denmark), Dakar (Senegal), Helsinki (Finland), Las Palmas (Canary Islands), Lisbon (Portugal), Marseille (France), Montreal (Canada), New York (USA), Rio de Janeiro (Brazil)

THE INDIAN OCEAN

The Indian Ocean is the third largest of the world's five oceans. It is located between Africa, the Southern Ocean, Asia and Australia. The extent of coastline of this ocean is 66,526 km. The Java Trench at 7,258 m deep is its lowest point. This ocean is triangular in shape.

ENRICHMENT ACTIVITY

Locate the following ports on the Indian Ocean in a world map:

Chennai (India), Colombo (Sri Lanka), Durban (South Africa), Jakarta (Indonesia), Kolkata (India), Melbourne (Australia), Mumbai (India)

THE ARCTIC OCEAN

The Arctic Ocean is the smallest of the world's five oceans. It lies well within the Arctic Circle around the North Pole. The coastline is around 45,389 km. Molloy Deep at a depth of 5,607 m forms the lowest point of the Arctic Ocean. The Arctic is connected to the Pacific by a narrow stretch of shallow water body called the Bering Strait. In the northern coast, it is bound by North America and Eurasia. Most of the year, the Arctic Ocean remains frozen. Therefore, economic activity over it is limited.

ENRICHMENT ACTIVITY

Identify the following ports on the Arctic Ocean in a world map:

Churchill (Canada), Murmansk (Russia), Prudhoe Bay (USA)

SOUTHERN OCEAN

The Southern Ocean is also known as the Antarctic Ocean. It is found between 60° S latitude and Antarctica. Its coastline is around 17,968 km long. Its deepest point lies at the southern end of South

Sandwich Trench at 7,235m.

ENRICHMENT ACTIVITY

Identify the following ports in a world map:
McMurdo and Palmer in Antarctica

Oceans are restless

The ocean waters are always moving. The three major movements of the ocean waters are **tides, waves** and **currents**.

Tides are the periodic rising and falling of the water, caused by the gravitational attraction of the Moon and Sun acting upon the rotating Earth.

Waves are the rising and falling movements of surface sea water caused by the force of the winds.

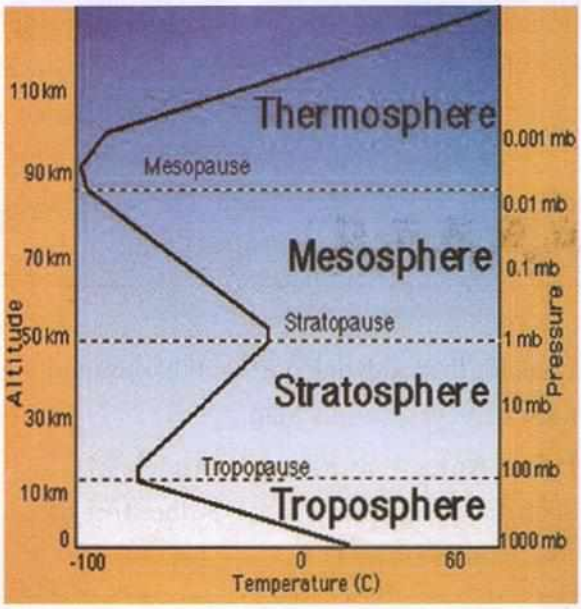
Currents are the horizontal movements of sea water caused by many factors including wind and the Earth's movement.

ATMOSPHERE

The layer of air that surrounds our Earth is called the **atmosphere**. The word atmosphere is derived from *atmos* which means 'vapour' in Greek. This is the most dynamic part of the domains of our planet. The atmosphere is a mixture of gases. This thin blanket of air which covers the Earth provides us with the life giving gas, oxygen, and also keeps us warm. It also protects us from the harmful ultra-violet rays of the Sun.

The atmosphere, which extends to about 10,000 km above mean sea level, is divided into five main layers on the basis of its composition, temperature and pressure.

They are the **troposphere**, **stratosphere**, **mesosphere**, **thermosphere** and **exosphere**.



Structure of the atmosphere

The **troposphere** is the layer that is closest to the Earth, and the place where all weather changes occur. Ninety percent of all air is found in this layer, and it contains most of the water vapour and dust particles present in the atmosphere. The troposphere extends from the surface of the Earth to an altitude varying from 8 to about 15 km. Temperature and pressure decrease with increase in altitude here. This is the most important layer for life on Earth.

The **stratosphere** stretches beyond the troposphere, and is the zone where aeroplanes fly. The stratosphere extends from the troposphere to altitudes ranging from about 15 to 50 km above sea level. The stratosphere contains the **ozone layer**, the part of the Earth's atmosphere which has high concentrations of ozone, a form of oxygen. It is the ozone layer that blocks the harmful ultraviolet rays of the Sun from reaching the Earth. Temperature increases in this zone.

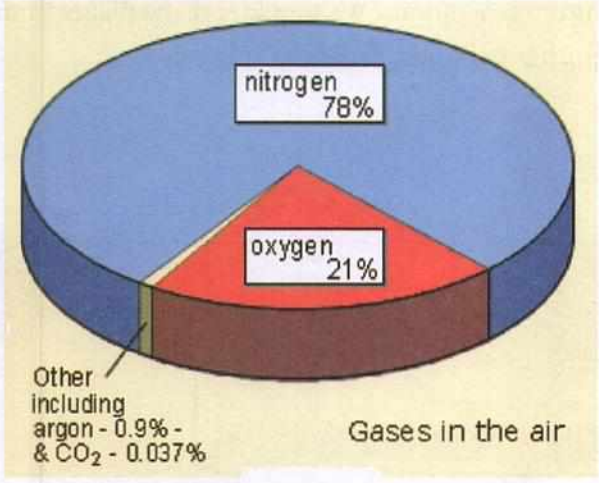
The **mesosphere** extends from the stratosphere to around 85 km above sea level.

The **thermosphere** extends from the mesosphere to a height of 600 km. Overlapping the mesosphere

and the thermosphere is the electrically charged layer called the **ionosphere**. The **exosphere**, the upper limit of our atmosphere, extends from the thermosphere to around 10,000 km.

Composition of the atmosphere

The Earth's atmosphere is a mixture of several gases. The atmosphere contains 78% nitrogen, 21% oxygen and 1% of other gases like carbon dioxide, argon, helium, etc. Thus, nitrogen and oxygen, the life-enabling gas, make up nearly 99% of clean and dry air. The atmosphere also contains water vapour and dust particles.



The composition of the atmosphere influences the climate of a place. For example, the more the water vapour in the air, the more humid the place will be.

Though only a minute amount of carbon dioxide is present in the atmosphere, it is responsible for keeping the planet warm. It traps the heat of the Sun and prevents it from going back into space. It thus acts like a blanket for the Earth. This warmth is essential for the germination of plants and the survival of life. This process of heat getting trapped by the atmosphere to keep the Earth warm is known as the **greenhouse effect**.

Atmospheric pressure and wind

Air has weight. The total weight of the air above any point is called air pressure or **atmospheric pressure**. Air pressure varies from place to place and over time. Atmospheric pressure decreases with increase in altitude.

Air always moves from a region of high pressure to a region of low pressure. Moving air is called **wind**.

BIOSPHERE

The biosphere can be defined as the narrow contact zone between the lithosphere, the hydrosphere and the atmosphere, where life forms exist. As you have already seen, life on the Earth is possible because of

- its optimum distance from the Sun (neither is it too far nor is it too close to the Sun)
- the presence of a protective atmosphere
- the availability of adequate water required for life forms.

The word *bios* means 'life' in Greek. The biosphere is formed by the interaction of plants (flora), animals (fauna) and other living things with their environment. Living organisms range in size from microscopic bacteria to huge mammals. All of them, including humans, are interdependent. They interact with each other continuously to maintain the balance between organisms and their environment.

In the biosphere, living things form communities based on their physical surroundings. These communities are referred to as **biomes**. Biomes are classified according to their predominant vegetation. For example, deserts, grasslands and forests are some important types of biomes.

Biomes are forever changing and are affected by various factors like:

- **lumbering:** when humans cut trees for wood
- **primitive agriculture:** when humans clear forests for agriculture
- **natural calamities:** when disasters like earthquakes, volcanic eruptions, floods or tsunamis occur
- **excessive grazing:** when livestock destroy grasslands through excessive feeding
- **forest fire:** when there is a forest fire, either due to natural or human-made causes

PROTECTING THE FOUR REALMS OF THE EARTH

The major domains of the Earth are constantly interacting with each other and, thus, affecting the lives of human beings. In recent times, human activities have led to the degradation of the four realms. It is important to protect them from further degradation. Industrial emissions pollute the air. Industrial effluents pollute water bodies. An increase in the level of carbon dioxide has caused the temperature of the Earth to rise. This is known as **global warming**. Human activities are causing the depletion of the ozone layer. The ozone layer protects the Earth from the harmful ultra-violet rays of the Sun.

The most urgent need today is for humans to learn use less resources, and conserve the same for the future generations. We should save the planet from further pollution, and keep it liveable.

Glossary

lithosphere: the solid surface layer of the Earth
hydrosphere: the part of the Earth that is covered by water
water cycle: the interchange of the forms of water on Earth
atmosphere: the layer of air that surrounds the Earth
biosphere: the regions of the surface and atmosphere of the Earth where life forms exist
isthmus: a narrow strip of land connecting two larger land areas
global warming: the rapid rise of the Earth's temperature
biomes: the major communities of the world

In Brief

- The lithosphere or the surface of the Earth is made up of mountains, plains and valleys.
- Asia, Africa, Europe, North America, South America, Australia and Antarctica are the seven continents of the world.
- The hydrosphere includes water in its three forms—ice, liquid water and water vapour.
- The Pacific, Atlantic, Indian, Arctic and Southern oceans form the major water bodies of the Earth.
- The atmosphere consists of five main layers—the troposphere, stratosphere, mesosphere, thermosphere and exosphere.
- Oxygen and nitrogen form 99% of the atmosphere.
- The biosphere is made up of various biomes such as deserts, grasslands and forests.
- It is important to protect the realms of the Earth from degradation.

Enrichment Activities

- **Make a poster/collage:** Make a poster on Global Warming; or make a collage to show the impact of pollution on the environment.
- Make a chart to show the water cycle or the layers of the atmosphere.
- **Make an Earth Day card:** Make an Earth Day Card, and send it to your best friend or relative. Find out when Earth Day is celebrated. You can use anything found in your home or school to make the card, such as sand, leaves and soil.

- **Find out:** Recycling is an easy way to protect the environment and help stop global climate change. Make a chart of everyday things you find at home or in school that you can recycle and things you cannot recycle. Paste pictures to make the chart colourful.

Exercises

I. True or false?

1. The lithosphere is the solid surface layer of the Earth.
2. The equator passes through Asia.
3. The oceans and seas cover more than 70% of the Earth's surface.
4. Waves are caused by the Moon's gravity.
5. Atmospheric pressure decreases with altitude.

II. Fill in the blanks.

1. The water bodies form the realm of _____.
2. _____ is the most populous continent.
3. The _____ Sea separates Africa from Europe in the north.
4. The _____ layer blocks the harmful ultra-violet rays from the Sun.
5. Seventy eight percent of the atmosphere consists of _____.
6. The rapid rise in temperature of the Earth is termed _____.

III. Answer the questions.

1. Name the four realms of the Earth.
2. What is the importance of the Suez Canal?
3. List the continents that the equator passes through.
4. Why is Antarctica not suitable for human settlement?
5. Why is fresh water a critical resource?
6. Differentiate between waves, tides and currents.
7. Describe the water cycle briefly.
8. What are the different layers of the atmosphere? Describe each in brief.
9. What is the biosphere?
10. What are biomes? What factors affect them?

Multiple Choice Questions

1. The solid surface layer of the Earth which consists of all the landmasses is called the
   a. hydrosphere b. biosphere c. lithosphere d. atmosphere
2. Name a deep valley along the ocean floor:
   a. the Andes b. the Bermuda Triangle c. the Caspian Sea d. the Mariana Trench
3. Africa is separated from Europe by
   a. the Red Sea and the Mediterranean Sea b. the Black Sea and the Caspian Sea
   c. the Suez Canal and the Red Sea d. the Straits of Gibraltar and the Mediterranean Sea
4. The longest river in the world, the Nile, flows into
   a. the Red Sea b. the Mediterranean Sea c. the North Atlantic Sea d. the Indian Ocean
5. North America is linked to South America by the
   a. Isthmus of Panama b. the Suez Canal c. the Straits of Gibraltar d. the Andes
6. What percentage of Earth's water is salty?
   a. 7% b. 2% c. 97% d. 80%
7. Condensation in the atmosphere happens when
   a. temperature rises
   b. temperature falls
   c. evaporation occurs
   d. all of the above
8. Precipitation occurs when
   a. temperature rises b. temperature falls
   c. the water droplets become too heavy to remain in the air
   d. none of the above
9. Tides are caused due to the
   a. the gravitational attraction of the Moon on the ocean waters
   b. the rotation of the Earth
   c. the gravitational attraction of the Sun on the ocean waters
   d. all of the above
10. The layer of atmosphere where all weather changes occur is the
    a. stratosphere b. troposphere c. Ionosphere d. mesosphere
11. The layer of the atmosphere which blocks out the harmful ultraviolet rays of the Sun is the
    a. stratosphere b. troposphere c. Ionosphere d. exosphere
12. Which of these would not affect a forest biome?
    a. a forest fire
    b. people cutting trees for agriculture
    c. excessive grazing
    d. a lion killing animals in the forest

HOTS: Think and Answer

What would happen if all the ice in the oceans melted due to global warming? Would it cause a rise or fall in the levels of the ocean? Think and answer.

Values that enrich

Renu and her mother regularly shop at the neighbourhood department store. The shop gives plastic bags to its customers. Renu and mother convinced the shop owner to use recycled paper bags. What values can you learn from Renu's behaviour?

Life skills

Self-awareness/Developing empathy

It is easy to sit and blame the world about the state of the environment, the high levels of pollution, global warming and rapid loss of forest cover. But what have you personally done about it? Have you made any changes in your lifestyle? Make a list of ways in which you feel you can make a difference. Let the class vote for the student whose ideas are most innovative. Name him/her Earth student of the month.

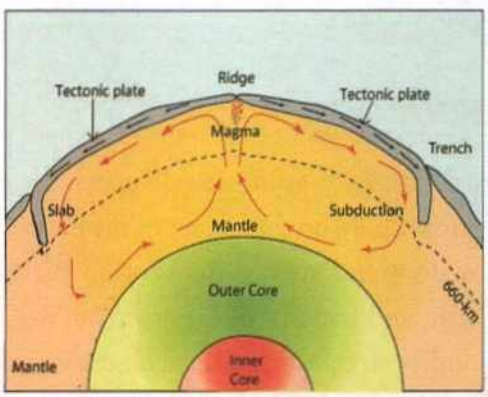
6. Major Landforms of the Earth

The surface layer of the Earth is called, as you have already seen, the lithosphere. The lithosphere consists of different types of landforms. Landforms are features that make up the Earth's surface. The different types of landforms include mountains, plateaus, hills, valleys, plains, trenches (in the ocean bed) etc. How are these landforms formed? How are they useful to humans? We will find answers to such questions in this chapter.

The surface of the Earth constantly undergoes changes due to the action of various forces. These forces are of two types—**internal forces** and **external forces**.

INTERNAL FORCES

Internal forces, or **tectonic forces**, are forces acting from within the Earth that lead to **sudden changes** on the face of the Earth. The crust of the Earth is actually divided into several pieces which we call **plates**. These plates float over the liquid molten rock (called **magma**), which lies below the solid crust. The core of the Earth heats the molten magma. The molten magma rises upwards when heated, spreads, cools and then sinks again, to get heated and rise once more.

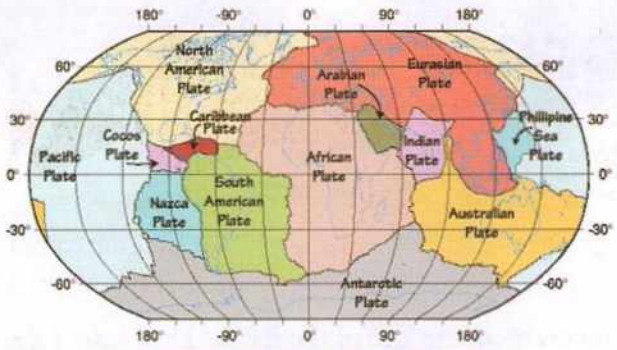


This constant rising and sinking of the magma keeps pushing the plates that rest on it. Thus, the plates are also constantly moving. This movement of the plates is termed **plate tectonics**. Sometimes the plates move towards each other, or **converge**. Sometimes the plates move away from each other, or **diverge**. Sometimes, the plates slide by each other in a **transverse movement**.

Plate tectonics is responsible for the formation of mountains and valleys on the surface of the Earth. These features can take millions of years

EXPLORE SOME MORE...

Generally, the lithosphere is thicker below the continents and thinner under the ocean surface. The thickness of the lithosphere varies from 35-70 km below the continents, and from 5 to 10 km under the oceans.



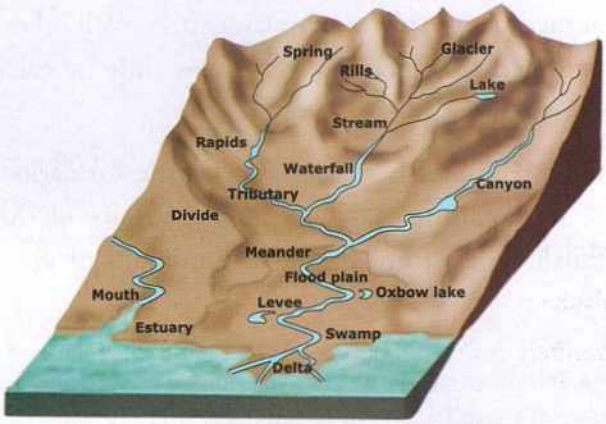
The major tectonic plates of the Earth

to form. However, sometimes, sudden and strong movements take place within the Earth, which bring about massive changes on the surface of the Earth. Examples are the changes brought about on the Earth's surface by earthquakes, volcanoes and landslides. Internal forces are also known as **endogenetic** forces.

EXTERNAL FORCES

External forces, or **gradational forces**, are forces acting from above on the surface of the Earth. They lead to **slow and steady changes** on the face of the Earth, and include all the agents of gradation like wind, water and glaciers. The external forces lead to wearing away and rebuilding of the Earth's surface. They are also known as **exogenetic** forces or **denudational** forces.

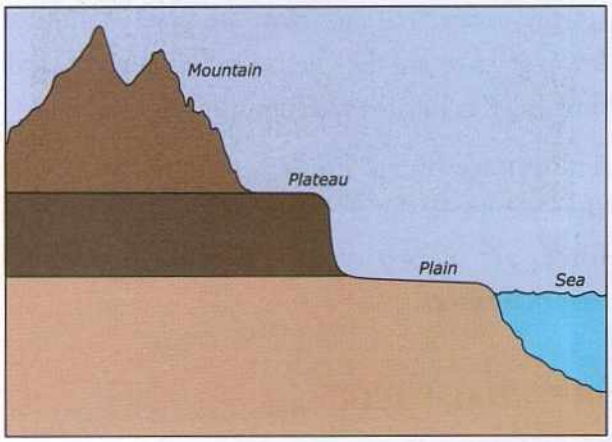
The agents of gradation physically change the Earth's surface by **eroding** (wearing away) land surfaces, transporting the eroded material and depositing the weathered soil, sand and other debris at other places. For example, rain, wind and rivers erode the mountains and highlands; the eroded particles are carried and deposited further down to form plains.



Landforms caused by erosion and depositions

DIFFERENT TYPES OF LANDFORMS

Geographers classify major landforms on the basis of their elevation and slope. On this basis, there are three types of landforms—mountains, plateaus and plains.



Mountains

A **mountain** is a natural elevation of the Earth's surface rising high above its surroundings. Mountains have narrow summits and broad bases. They are found both on land and on the ocean floor. Mountains are of different types.

Some of them are very high and some relatively short. Some have pointed peaks, while some have rounded tops. Some have steep slopes and some have gentle slopes.

The higher reaches of the mountains can be very cold. The higher the altitude, the lower will be the temperature.

The towering peaks of the Himalayas—the Himalayas have some of the highest mountain peaks in the world.

The gently rounded hills of the Aravalli Mountains—compare these with the sharply defined snow-covered peaks of the Himalayas. Hills are highlands that are not as high as mountains, and have gentler slopes than mountains.

Types of Mountains

Fold mountains

Fold mountains are formed by the upliftment and folding of land masses due to lateral compression caused by tectonic or internal forces. When two plates move towards each other, the place where the two plates meet or converge gets compressed. The crust along the point of convergence gets crumpled or folded. Massive layers of the Earth's crust get uplifted as a result of these converging forces, resulting in the formation of fold mountains.

Formation of fold mountains

The Himalayas and the Alps were formed in this way.

The Himalayas and the Alps were formed in the recent geological past, and are therefore known as young fold mountains. They have rugged relief, and high, conical peaks. The Aravalli range in Rajasthan is one of the oldest fold mountain ranges in the world. The range has been lowered greatly due to continuous erosion over million of years. The Urals in Russia and the Appalachians in North America are also examples of very old fold mountains. They have been worn down considerably and have rounded features.

Block mountains

When two plates on the Earth's crust diverge or get pulled apart, fractures appear on the Earth's surface. These fractures are called **faults**. When two faults are formed alongside each other, large areas get displaced vertically along the two fault lines. The land between the fault lines either subsides (falls) or rises (gets uplifted). The uplifted part of the land is

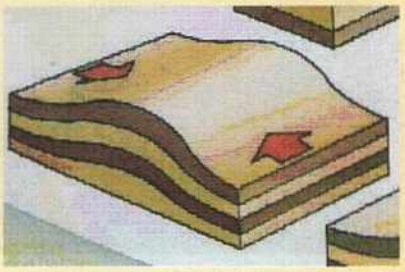
EXPLORE SOME MORE...

Mountains are classified on the basis of various factors.

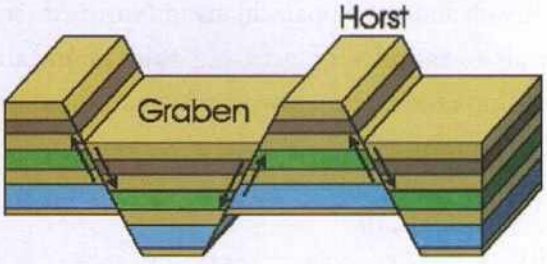
- On the basis of height, they are classified as **low** (between 700 and 1000 m), **rough** (1000-1500 m), **rugged** (1500-2000 m) and **high** (above 2000 m) mountains.
- On the basis of location, they are classified as **coastal**, **inland** and **oceanic** mountains.
- On the basis of origin, they are classified as **fold**, **block** and **volcanic** mountains.
- On the basis of their period of origin, they are classified as **Pre-Cambrian**, **Caledonian**, **Permian** and **Alpine** mountains.

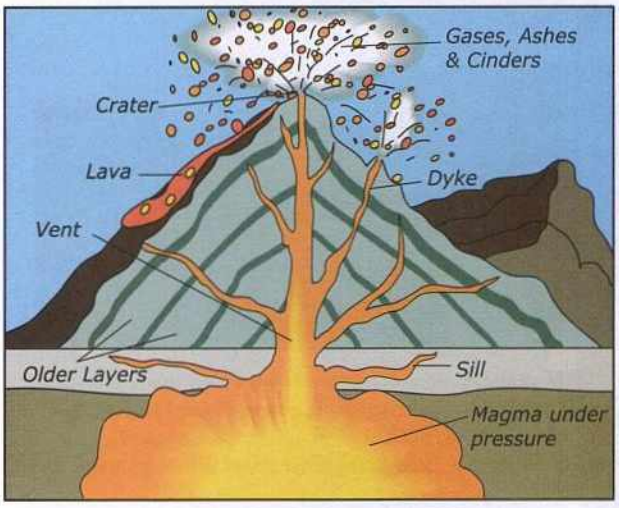
Enrichment Activity

- Take three foam sheets or three thick rubber/jute floor mats.
- Stack them one over the other carefully. (You may paste or stitch them together if you like.)
- Push the opposite ends towards each other laterally (keeping them on the same plane), as shown in the picture.
- You can see folds forming in the centre. Fold mountains are created in a similar fashion.



called **horst** or block mountain, and the subsided part is called **graben** or rift valley. Sometimes, rivers may flow through the rift valleys. The Rhine Valley is a rift valley, and the Vosges Mountains in Europe are block mountains. Can you name a peninsular river in India that flows through a rift valley?





Structure of a volcano

Volcanic mountains

Sometimes, conical or dome-shaped structures are formed as a result of magma escaping to the surface of the Earth through an opening which is called a **vent**. These are called volcanic mountains, or **volcanoes**. Magma that reaches the surface of the Earth is called **lava**.

The hot lava flows over the surface of the Earth, cools and then hardens to forms lava sheets. Over thousands of years, several layers of such lava sheets are deposited on top of each other to form **volcanic mountains**. If the magma is thin and flows easily, gently sloping mountains are formed, such as Mauna Loa in Hawaii. However, if the lava is thick and viscous, the mountains formed are cone-shaped with steeply sloping sides, for example, Mt Vesuvius in Italy, Mt Kilimanjaro in Africa and Mt Fuji in Japan.

A view of Mt Fuji—compare its steeply sloping sides to the gentle slopes of Mauna Loa

Mauna Loa, Hawaii, in the process of erupting—note the gentle slopes.

The Hamm Plateau, Ethiopia, Africa

THE IMPORTANCE OF MOUNTAINS

Mountains influence the climate of a land. They help cause rain by forcing clouds carrying moisture to rise, condense and come down as rain.

Several perennial rivers (rivers that carry water throughout the year) originate from mountain glaciers. The Indus, Brahmaputra and Ganga are some rivers fed by mountain glaciers.

Many fresh water lakes and springs are also found in mountains. They act as reservoirs of water.

Mountains are rich in flora and fauna. We get various products like fuel, timber, lac, nuts, fruits, medicinal herbs and fodder from mountains. Many mountains are a rich source of minerals.

Dams built across river valleys provide irrigation and hydro-electricity (for example, the Bhakra Dam built on the river Satluj).

Mountains and their picturesque valleys encourage tourism. They also support sporting activities such as paragliding, rock climbing, hand gliding, river rafting and skiing.

Plateaus

A **plateau** is a broad, level, elevated area of land. Since a plateau has a flat top with sharply falling sides, it also called a **tableland**. Often a plateau may have one gently sloping side and one steep side. The steep side of a plateau is called an **escarpment**.

A large part of the surface of the Earth is made up of plateaus. Most of the continents have large plateaus. The largest and highest plateau in the world is the Tibetan Plateau (4,000–6,000 m above mean sea level). The Pamir Plateau to the north of India is called the 'roof of the world'.

The Deccan Plateau in India is one of the oldest plateaus of the world. Most of the African continent is made of plateaus. East Africa, Kenya, Tanzania and Uganda are all located on a plateau. Western Australia is also a plateau. However, it is just 300–400 m above mean sea level.

Plateaus are of different types. **Intermontane plateaus** are those that are surrounded completely or partially by mountains, for example, the plateau of Tibet. **Continental plateaus** are vast areas of tableland that rise abruptly from the coast or surrounding plains, e.g., the plateaus of Africa. **Lava plateaus** are formed when lava flows out of fissures and spreads thickly over extensive areas. The Deccan Plateau is a lava plateau.

THE IMPORTANCE OF PLATEAUS

- Lava plateaus, like the Deccan Plateau, are

The plains of Kafue, Africa

Wet rice cultivation in the plains of South India

largely composed of black soil, which is very fertile. It is useful for the cultivation of crops.

- Most plateaus have rich deposits of minerals. The Chhota Nagpur Plateau in India has rich deposits of iron ore, manganese and coal. The African plateau is rich in gold and diamond deposits.
- Many of the rivers flowing along plateaus fall from a great height when they flow across the escarpments. They form waterfalls. The water falls with great force and helps rotate turbines to generate electricity. Hundru Falls on the river Subarnarekha and Jog Falls on the Sharavati River in the Deccan Plateau are some examples.

Plains

A low-lying, vast flat land is called a plain. Generally plains are at 200 m above mean sea level. Plains are formed in different ways. Most of them are levelled alluvial tracts. Alluvial tracts are formed by the deposits brought down by rivers and their tributaries. Rivers bring down eroded material from the mountains, which is called **debris** or **alluvium**. It contains sand, silt, clay, and animal and plant matter. They provide the rich nutrients required for the soil. Plains are usually fertile and are extensively used for the cultivation of crops.

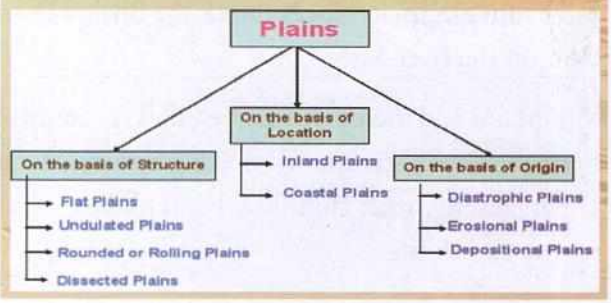
Plains are the most densely populated regions on Earth. People settle in plains for many reasons.

- Usually water is abundant.
- The land, being flat and fertile, enables cultivation of crops.
- It is possible to build an excellent network of roads and railways.
- The ports and harbours in coastal plains promote international trade.

The Nile Basin in Egypt, the Huang He Basin in China and the Indo-Gangetic Basin in India are some examples of plains.

EXPLORE SOME MORE...

We can classify plains on the basis of different factors.



LANDFORMS AND THE PEOPLE

People have settled down in different kinds of landforms. Settlements are more in the plains as life is hard in mountainous tracts. Plains, being very

fertile and flat, are suitable for growing crops. They provide better conditions for living. It is possible to build excellent road and railway networks on the plains. People live on plateaus and high mountains too. They also live in areas prone to natural disasters like volcanic eruptions, earthquakes and floods. Human beings today are able to brave such situations and have learnt to cope with them. Accessibility to more scientific information and advanced technology helps minimise the risk.

Human carelessness and selfishness has led to large-scale pollution of air and water bodies, deforestation and degradation of land. It is time we realise the need to use natural resources intelligently and frugally so that people in the the future continue to enjoy nature.

Enrichment Activity

- Can you list some differences in the lifestyle of people who live in plains, mountains and plateaus?
- Collect some pictures to support your findings and make a scrap book.
- Make a poster highlighting the need to conserve nature and the ways of doing so.

Glossary

magma: molten rock inside the Earth
plate tectonics: the movement of the plates of the Earth's crust
endogenetic/exogenetic: internal/external forces that alter the Earth's surface
plateau: a flat highland
escarpment: the steep side of a plateau
alluvium/debris: eroded material from mountains brought down by rivers
lateral compression: to be squeezed from both sides

In Brief

- The major landforms include mountains, hills, plateaus, valleys and plains.
- The movement of the Earth's plates is termed plate tectonics.
- Internal forces like earthquakes, volcanoes, etc. and external forces like wind, glaciers, etc. change the surface of the Earth.
- Mountains are of immense value as they induce rain, are rich in flora and fauna, and serve as origins of perennial rivers.
- A plateau is large, flat, elevated land.
- Plains are fertile due to the alluvial deposits brought down by rivers, and are the most densely populated regions of the Earth.

Enrichment Activities

- **Model/Chart making:** Work in groups of four. Each group should choose one landform and make models or charts showing the different types of that landform. For example, the groups working on mountains should show the different types of mountains—fold, block and volcanic. The difference between each should be explained and examples shown.
- **Project work:** Do a project, or make a presentation, on plate tectonics. Explain the process and its effects, with suitable illustrations
- **Map Work:** On an outline map of India, mark the Chhota Nagpur Plateau. You must show the states that this Plateau extends to and also mention the major minerals that are available in this region.
- **Discussion:** The Himalayan ecosystem is fast changing. There have been drastic changes in climate, as a result of which the glaciers at even the higher reaches of the mountain range are melting. Find out about the changes that are happening to this ecosystem. Have a discussion about it in class. Is there any way in which each of us can contribute to the protection of the Himalayas?
- **Letter to the editor:** Write a letter to the editor of your local newspaper, drawing attention to the large number of dead fish found in the river flowing by your town or city. Mention how experiments conducted by the local research institute prove that their death is due to the high levels of pollution in the river caused by the industries located along the river.

Exercises

I. Fill in the blanks.

1. The Alps and the Urals are _____ mountains.
2. The sunken part of a block mountain is called a _____.
3. The Nile Basin is in _____.
4. Mt Kilimanjaro is a _____ mountain.
5. Among the different landforms, _____ are rich in mineral deposits.

II. Answer the following.

1. Name the major landforms of the world.
2. Distinguish between internal and external forces.
3. How are mountains different from plateaus?
4. How are block mountains formed? How are they different from fold mountains?
5. How are mountains useful to humans?
6. Define a plateau. How are they useful to human beings?
7. What are plains? How are they formed? Why do people prefer to live on plains?
8. Name some human activities that pollute water and degrade land. Suggest two measures to prevent pollution and degradation.

Multiple Choice Questions

1. Mountains and hills differ on the basis of
   a. elevation b. temperature
   c. location d. shape
2. Rivers of ice on mountains are called
   a. horsts b. glaciers
   c. valleys d. snow
3. Weaknesses in the Earth's crust are called
   a. folds b. faults
   c. cracks d. horst
4. The Deccan Plateau is a(n)
   a. intermontane plateau b. continental plateau
   c. lava plateau d. none of the above
5. The movement of large pieces of the Earth's crust when pushed from below by heated magma is called
   a. plate tectonics b. denudational forces
   c. gradational forces d. volcanoes
6. One of the main agents of gradation or denudation is
   a. earthquakes b. water
   c. volcanoes d. folding and faulting
7. The land that subsides between two faults is called
   a. horst b. vent
   c. graben d. tableland
8. The Appalachian Mountains are formed due to
   a. uplift and folding of the land
   b. volcanic forces
   c. formation of faults
   d. all of the above
9. Plains are the most densely populated parts of the world because
   a. the land is excellent for cultivation
   b. transport networks can be established with ease
   c. life is hard in mountainous areas
   d. all of the above

HOTS: Think and Answer

There is a close connection between tectonic plate boundaries and the location of earthquakes. Why is this? Think and answer.

Life skills

Creative thinking/Effective communication

"Building of dams should be stopped as they destroy the environment." Have a debate on this topic in class.

Values that enrich

A tsunami destroyed the village of Aripakkam. Many people lost their families, houses and means of livelihood. But with the help of voluntary organisations, the villagers have rebuilt their lives once more. What values could you learn from this incident?

7. Our Country—India

India is a vast land with immense geographical and cultural variations. It is an ancient land with a rich culture. The Indus Valley civilisation, one of the four earliest river valley civilisations in the world, thrived here around 5,000 years ago.

Towering mountains, extensive plains and plateaus, rivers, deserts and long coastlines make up the diverse landscape of this land. The country also enjoys diverse climatic conditions. The north experiences hot summers and cold winters, while the southern parts of the country remain warm throughout the year. The diversity in its climatic conditions is reflected in the rich flora and fauna that is found in India.

India is spread over an area of 3.28 million sq. km, making it the **seventh largest country** in the world. After China, India is the **second most populous** country, with a population of 1.379 billion (as of 2020). It is the largest democracy in the world.

ENRICHMENT ACTIVITY

Have a discussion in class on the topic 'Diversity and India'. Now form groups of four. Take the help of your teacher to prepare charts on the following features of India.

- The major languages of India
- The different races of India
- The different religions practised in India

While India accounts for almost 18% of the world's population, it has only 2.4% of the total land area. It is a country that supports a variety of languages, races, cultures and religions. However, despite the great diversities of this land, there is an underlying unity that binds this nation together.

LOCATION

India is located in the southern part of the continent of Asia.

India is a **peninsula**. A peninsula is a land surrounded by water on three sides. India is bounded by the Himalayas in the north, the Indian Ocean in the south, the Arabian Sea in the west and the Bay of Bengal in the east.

India is located in the Northern Hemisphere, i.e. it is to the north of the equator, and in the Eastern Hemisphere, i.e., to the east of the Greenwich Meridian. The Tropic of Cancer (23½° N latitude), passes through almost the centre of India.

The Indian mainland extends between 37° 6' N and 8° 4' N latitudes from north to south and 68° 7' E and 97° 25' E longitudes from west to east. The longitudinal width of India is almost 30°. The **time lag**, or the difference in time, between the easternmost and the westernmost parts of India is two hours. For example, places in Gujarat experience sunrise almost two hours after places in Arunachal Pradesh. However, it is important for the entire

*Amaravati is the legislative capital (proposed) of Andhra Pradesh, Visakhapatnam the executive capital (proposed), and Kurnool the judicial capital (proposed).

country to follow the same time to avoid confusion. Therefore, 82° 30' E, the central longitude, is chosen as the standard meridian of India. The time on this meridian is referred to as the **Indian Standard Time (IST)**.

EXPLORE SOME MORE...

- The northernmost point of India lies in the **Pamir Knot** (37° 6' N). The southernmost point of the Indian mainland lies at **Kanniyakumari (Kanyakumari)** (8° 4' N). The distance between these two points is 3,214 km.
- The easternmost point of India lies in **Arunachal Pradesh** (97° 25' E). The westernmost point of India lies in **Rann of Kachchh in Gujarat** (68° 7' W). The distance between these two points is 2,933 km. The length of India's coastline (its **maritime** boundary) is 7,516 km. The length of India's terrestrial border is 15,200 km.

INDIA'S NEIGHBOURS

Seven countries share terrestrial (land) boundaries with India. We have Pakistan and Afghanistan on the north-west and Bangladesh and Myanmar on the east. In the North, we share our boundary with China, Nepal and Bhutan. Across the sea, to the south, our neighbouring countries are the islands of Sri Lanka and Maldives. India is separated from Sri Lanka by the Palk Strait and the Gulf of Mannar.

Political and administrative divisions

After more than 200 years under British rule, India became independent on 15 August 1947. For better administration, India was divided into states on the basis of language. Today there are **28 states** and **8 union territories** including New Delhi (now called the National Capital Territory of Delhi). Rajasthan is the largest state and Goa is the smallest state.

Glossary

flora and fauna: plant and animal resources of a country or region
population: the number of people living in a country
subcontinent: a distinct region of a continent
peninsula: a region surrounded on three sides by seas
standard meridian: the meridian on which the standard time of a country is based
union territory: a region under the direct administration of the Union Government

In Brief

- India is rich in flora and fauna and has great geographical and cultural diversity.
- India is the seventh largest and second most populous country in the world.
- The Tropic of Cancer passes through the middle of India; 82° 30' E is taken as the standard meridian of India.
- There are seven countries that share their borders with India.
- India is divided into 28 states and 8 union territories.

Enrichment Activities

- **Map work:** Label the following with appropriate symbols in an outline map of India:
  1. The Tropic of Cancer
  2. The standard meridian of India
  3. The states and their capitals (also colour the state or union territory in which you live)
- **Project/Presentation:** Make a presentation on India and its neighbouring countries.
- **Diary Entry:** Imagine you are going on a vacation to a place in India, which you have longed to visit. In about a 100 words write a diary entry describing the place and things you want to see and do there.
- **Quiz Time:** Divide the class into groups. Each group writes down five quizzing questions from the chapter. The questions are handed to the teacher. The teacher should use these questions to conduct a quiz in class. Each group is asked questions provided by the other group.

Exercises

I. *Fill in the blanks.*

1. India has _____% of the world's land area and _____% of the world's population.
2. The latitude that runs through the middle of India is _____.
3. The capital of India is _____.
4. The largest state in India is _____.
5. The capital of the state or union territory to which you belong is _____.

II. *True or False?*

1. India is the second largest country in the world.
2. India is located in the Northern Hemisphere.
3. The Palk Strait lies between India and Pakistan.
4. There are 35 states in India.

III. *Answer the following.*

1. What is the latitudinal and longitudinal extent of India?
2. What do you understand by 'time lag' between Arunachal Pradesh and Gujarat? Add a note on the Indian Standard Time.
3. Which are the countries with which India shares its borders?
4. How many states and union territories are there in India?

Multiple Choice Questions

1. India's neighbours are
   a. Pakistan, Bhutan and Israel
   b. Pakistan, Laos and Afghanistan
   c. Pakistan, Sri Lanka and Turkey
   d. Pakistan, Nepal and Bangladesh
2. India is the second most populous country after
   a. Russia
   b. China
   c. Bangladesh
   d. None of the above, as India is the most populous country in the world
3. The Indian mainland stretches from
   a. 37° 6′ N and 8° 4′ N latitude; and 68° 7′ E and 97° 25′ E longitude
   b. 37° 6′ E and 8° 4′ E latitude; and 68° 7′ N and 97° 25′ N longitude
   c. 30° 5′ N and 8° 4′ S latitude; and 68° 7′ E and 97° 25′ W longitude
   d. 37° 6′ S and 8° 4′ N longitude; and 68° 7′ E and 97° 25′ W latitude
4. The easternmost part of India lies in
   a. Tripura b. Assam
   c. Nagaland d. Arunachal Pradesh
5. The neighbouring island country to the south-east of India is
   a. Sri Lanka b. the Maldives
   c. Australia d. Lakshadweep
6. At present, India has
   a. 28 states and 8 union territories
   b. 28 states and 7 union territories
   c. 27 states and 9 union territories
   d. 29 states and 7 union territories

HOTS: Think and Answer

India is a land of diversity. Is that good or bad for the people of the country? Think and answer!

Values that enrich

India is an amalgam of people belonging to 28 states and 8 union territories. People here follow different faiths, speak different languages and dress differently. Yet we all call ourselves Indians. What values does this reflect?

Life skills

Critical thinking/Effective communication

"People from the states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura have been demanding the creation of a separate time zone for the North-East."

Does India need to have more than one standard time? If yes, why do you think so? Have a debate in class.

(Ideas you could use: The Sun rises in Kohima at 4 am, two hours before it rises in Mumbai; working and sleeping hours get postponed; daylight hours are wasted, leading to higher power consumption; this could cause confusion).

8. The Physical Divisions of India

Every country is divided into regions on the basis of certain similar physical features. For example, a country could be divided into a region made up of mountains, another of plains, and yet another of plateaus. India, as you saw in the last chapter, is a vast land with a wide range of physical features.

The physical features of India range from the mighty mountains of the Himalayas to the fertile plains of north India; from the plateaus of the Deccan to the eastern and western coastal plains; and from the dry deserts of Rajasthan to the wet hills of Arunachal Pradesh.

Geographers usually divide India into **six major physical divisions**.

- The Great Northern Mountains
- The Northern Plains
- The Peninsular Plateau
- The Thar Desert or the Great Indian Desert
- The Coastal Plains
- The Islands

EXPLORE SOME MORE...

The Himalayas form the youngest chain of fold mountains in the world. These mountains were thrown up by the gradual northward movement of the Indian continental plate. Remains of ocean-dwelling organisms found at different places on the Himalayas suggest that this area was originally a sea. This sea has been named the Tethys Sea.

THE GREAT NORTHERN MOUNTAINS

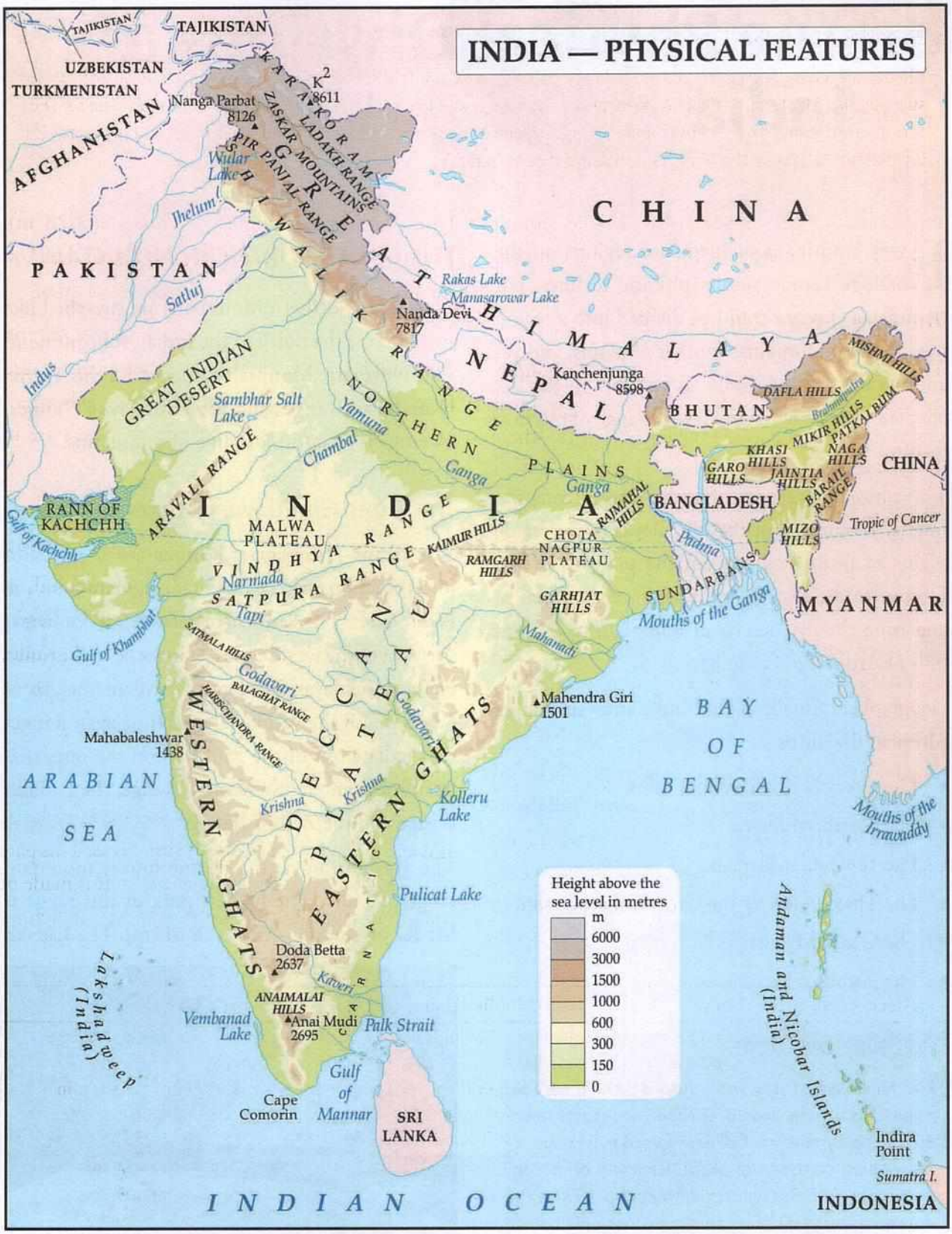
The Great Northern Mountains are stretched like a wall across the north of the Indian subcontinent. The Northern Mountains consist of the **Trans-Himalayan Ranges** and **the Himalayan Ranges**. (A range is a continuous line of mountains.)

The Trans-Himalayan Ranges

The Trans-Himalayan Ranges are a series of towering mountain chains that originate from the Pamir Knot. The Pamir, a plateau, is also known as the 'roof of the world'. These ranges lie to the north of the Himalayas and have an average height of 6,000 m. Of the various Trans-Himalayan Ranges that radiate out of the Pamir Knot, the ones that lie in India are the Karakoram Range, the **Ladakh Range** and the **Zaskar Range**.

The **Karakoram** is the northernmost mountain range of India. The highest peak of this range is **Mt K2** or **Godwin-Austin** (8,611m). The Ladakh

Karakoram


INDIA — PHYSICAL FEATURES
TAJIKISTAN
TAJIKISTAN
UZBEKISTAN
TURKMENISTAN
AFGHANISTAN
Nanga Parbat 8126
K2 8611
KARAKORAM
LADAKH RANGE
ZASKAR MOUNTAINS
PIR PANJAL RANGE
GREAT HIMALAYA
SHIWALIK RANGE
Wular Lake
Jhelum
CHINA
PAKISTAN
Satluj
Rakas Lake
Manasarowar Lake
Nanda Devi 7817
NEPAL
Kanchenjunga 8598
BHUTAN
MISHMI HILLS
DAFLA HILLS
Brahmaputra
PATKAI BUM
MIKIR HILLS
KHASI HILLS
NAGA HILLS
GARO HILLS
JAINTIA HILLS
BARAIL RANGE
CHINA
Indus
GREAT INDIAN DESERT
Sambhar Salt Lake
NORTHERN PLAINS
Yamuna
Ganga
Chambal
ARAVALI RANGE
RANN OF KACHCHH
Gulf of Kachchh
INDIA
MALWA PLATEAU
VINDHYA RANGE
KAIMUR HILLS
RAMGARH HILLS
CHOTA NAGPUR PLATEAU
RAJMAHAL HILLS
BANGLADESH
Padma
Tropic of Cancer
MIZO HILLS
SATPURA RANGE
Narmada
Tapi
GARHJAT HILLS
SUNDARBANS
Mouths of the Ganga
MYANMAR
Gulf of Khambhat
SATMALA HILLS
Godavari
Mahanadi
DECCAN PLATEAU
BALAGHAT RANGE
HARISCHANDRA RANGE
Mahabaleshwar 1438
WESTERN GHATS
Godavari
Mahendra Giri 1501
BAY OF BENGAL
ARABIAN SEA
Krishna
Krishna
Kolleru Lake
EASTERN GHATS
Mouths of the Irrawaddy
Pulicat Lake
Height above the sea level in metres
m
6000
3000
1500
1000
600
300
150
0
Andaman and Nicobar Islands (India)
Doda Betta 2637
Kaveri
ANAIMALAI HILLS
Anai Mudi 2695
Vembanad Lake
Palk Strait
Lakshadweep (India)
Gulf of Mannar
Cape Comorin
SRI LANKA
Indira Point
Sumatra I.
INDIAN OCEAN
INDONESIA

EXPLORE SOME MORE...

There are many passes in the Himalayas. A pass is a point in a mountain range that is lower than the surrounding peaks. It forms a natural way across a mountain chain. Look for the following passes that are located along the Greater Himalayas in your school atlas. Zoji La, Shipki La, Nathu La, Bomdi La, Baralacha La. (La in the Tibetan language means 'pass'.)

and Zaskar Ranges cut across Ladakh and Jammu and Kashmir from the north-west to the south-east.

The Himalayan Ranges

The word *Himalaya* means 'the abode of snow' in Sanskrit. The Himalayas consist of three great ranges that run parallel to each other. In India, these ranges extend from west to east (from Jammu and Kashmir to Arunachal Pradesh) covering about 2,500 km in length. They are broader in the west (about 400 km) and narrow down to the east (around 150 km).

The three parallel ranges of the Himalayas are the Himadri, the Himachal and the Shiwalik.

HIMADRI

The northernmost range of the Himalayas is called **Himadri**. It is also known as the **Greater Himalayas** or the **Inner Himalayas**. The average altitude of this range is 6,100 m. It houses some of the highest peaks of the world. Some of them are the Everest (8,848 m), Kanchenjunga (8,586 m), Makalu (8,481 m), Dhaulagiri (8,172 m), Annapurna (8,078 m), Nanda Devi (7,817 m). Can you locate them on the physical map of India in your school atlas?

Mt Everest is the highest peak in the world and is located in Nepal. Of the other peaks listed here, Kanchenjunga (on the India-Nepal border,) and Nanda Devi lie in India. The others are in Nepal.

HIMACHAL

The range that lies to the south of Himadri and north of Shiwalik is called **Himachal**. It is also called the **Middle Himalayas** or **Lesser Himalayas**. Many hill stations like Shimla, Kullu, Manali, Mussoorie, Nainital and Darjeeling are in this region.

SHIWALIK

Shiwalik is the southernmost range of the Himalayas. It is also known as the **Outer Himalayas**. This part of the Himalayas is the youngest fold. It is made of unconsolidated (loose) deposits and is, therefore,

Greater/Inner Himalayas	Lesser/Middle Himalayas	Lower/OuterHimalayas
• The highest mountain range of the Himalayas • Under perpetual snow • Average height is about 6,100 m • Has mountain peaks with a height of more than 8,000 m, e.g., Everest (8,848 m) and Kanchenjunga (8,586 m) • Source of the rivers Ganga and Yamuna	• Situated to the south of the Himadri • Average height is above 3,700 - 4,500 m • Has many hill stations on the southern slope, e.g., Shimla, Darjeeling	• The outermost range, to the south of the Lesser Himalayas • Discontinuous ranges; join the Lesser Himalayas in the extreme east • Average height is about 1,200 m • Has long and flat valleys running parallel to the mountain ranges (duns), e.g., Dehradun

EXPLORE SOME MORE...

A delta is the place where a river joins the sea. It is also called the mouth of a river. A delta is usually triangular in shape and is formed by the eroded material brought down and deposited by the river. A delta gets its name from the Greek alphabet 'delta'. Can you say why?

The Shiwalik range

prone to earthquakes and landslides. There are flat valleys between the Himachal and Shiwalik ranges called **duns**, for example, Dehradun, Patli Dun, etc.

An eastward extension of the Himalayas into the north-east of India forms the **Purvanchal.** The Purvanchal consists of six small ranges. They are the Garo, Khasi and Jaintia Hills, Patkai Bum, the Naga Hills and the Mizo Hills.

The Gangetic plain with the Himalayas on the top right corner

THE NORTHERN PLAINS

The fertile **Northern Plains** lie between the Himalayas in the North and the peninsular plateau in the South. This is one of the most extensive plains in the world, extending for a length of over 2,500 km. It is drained by mainly three rivers systems, the Ganga, the Indus and the Brahmaputra.

The plains are built up of rich alluvial deposits. Alluvial deposits are fine sand, silt and clay brought down by the rivers and deposited in the basins.

An area drained by a river system is called a **drainage basin** or a **river basin**. A river system consists of a main river and its various tributaries and distributaries. A **tributary** is a stream or river that flows into or joins a bigger stream or river. A **distributary** is a branch of a river that flows away from the main stream and does not rejoin it.

On the basis of drainage basins, we can divide the Northern Plains into three major regions—the Indus Basin, the Ganga Basin and the Brahmaputra Basin.

The **Indus Basin** is drained by the river Indus and its tributaries (Jhelum, Chenab, Beas, Ravi and Satluj). The Indus originates near Lake Manasarovar and drains Ladakh, Jammu and Kashmir, Himachal Pradesh and Punjab.

The **Ganga Basin** is drained by the river Ganga and its tributaries and distributaries. The Ganga originates in Gangotri in the Himalayas, and drains most of the Northern Plains. The northern tributaries of the Ganga are the Ghaghara, Gandak,

Gomti and Kosi. The Yamuna is the main southern tributary of the Ganga. The other southern tributaries are Betwa, Ken, Sindh and Son. The major distributary of the Ganga is the river Hugli.

The **Brahmaputra Basin** is drained by the river Brahmaputra and its tributaries. The Brahmaputra also originates near Lake Manasarovar in Tibet and flows through three countries—China, India and Bangladesh. In India it drains the states of Arunachal Pradesh and Assam. This river is known as **Tsangpo** in China. In Bangladesh, it is joined by the Ganga (known here as Padma), and flows through Bangladesh as Jamuna.

The Ganga and Bramhaputra together form the world's largest delta, called the Ganga Delta. The world's largest mangrove forest, the **Sundarbans**, is found on the Ganga Delta. Most of the Sundarbans lies in Bangladesh.

THE PENINSULAR PLATEAU

The Peninsular Plateau is a triangular plateau to the south of the Northern Plains. It is bounded by the **Aravalli Range** in the north-west, the **Vindhya** and **Satpura ranges** in the north and the **Eastern Ghats** and the **Western Ghats** towards the south. The surface of this region is highly uneven, consisting of mountains, valleys and plateaus.

Several rivers originate in the Deccan Plateau, most of which flow towards the east.

The Peninsular Plateau is divided into three distinctive parts—the Malwa Plateau, the Chhota Nagpur Plateau and the Deccan Plateau.

The Malwa Plateau

The Malwa Plateau is located on the west of the Peninsular Plateau. It slopes northwards and merges with the plains in the north. Some of the tributaries of the Ganga, like the Chambal and the Son, originate here.

The Chhota Nagpur Plateau

The Chhota Nagpur Plateau is located in the north eastern part of the Peninsular Plateau. It is rich in minerals like iron and coal.

The Malwa and Chhota Nagpur Plateaus together form the **Central Highlands**.

The Deccan Plateau

The Deccan Plateau is a typical triangular plateau, located to the south of **Vindhyas** and **Satpuras**. It is flanked by the **Western Ghats** and the **Eastern Ghats**. These ghats are connected by the **Nilgiri Mountains** in the south. The plateau largely slopes towards the east. There are many east-flowing rivers that emerge from the Western Ghats and empty into the Bay of Bengal such as the **Mahanadi**, **Godavari**, **Krishna** and **Kaveri**. There are just two major rivers that flow towards the west—the **Narmada** and **Tapi**, which flow through rift valleys and meet the **Arabian Sea**.

The rugged terrain of the Deccan Plateau

THE DIFFERENCE BETWEEN THE WESTERN GHATS AND THE EASTERN GHATS

Western Ghats	Eastern Ghats
1. Rise abruptly from the western coastal plain and form the western edge of the Deccan Plateau	1. Do not have any structural unity and form the eastern edge of the Deccan Plateau
2. Continuous	2. Discontinuous and dissected by many east-flowing rivers
3. Known as the Sahyadris in the north and as the Nilgiris, Anaimalai and Cardamom Hills in the south	3. Known by different names like Mahendragiri, Malayagiri, Nallamalai, Kollimalai, Shevoroy Hills and Javadi Hills
4. Average height 1,200 m	4. Average height 900 m
5. Gain height from north to south; Anaimudi (2,695 m), the highest peak, is found in the southern part of the Anaimalai Hills	5. Gain height from south to north; There are no prominent peaks here

The north-western part of the Deccan Plateau is one of the largest lava plateaus in the world. The Deccan Trap, as this region is called, was formed over millions of years ago by lava flows from volcanic eruptions. The black soil that was formed by the breaking down of these volcanic rocks is excellent for the cultivation of cotton. The Deccan Trap is one of the most important cotton-growing regions in India.

THE THAR DESERT

The Thar Desert is also known as the Great Indian Desert. It is situated in the north-western part of Rajasthan. It is a dry sandy stretch which merges with the desert in Pakistan. This region gets very little rainfall as it lies in the rain-shadow area of the Aravalli Mountains.

THE COASTAL PLAINS

India has two strips of coastal plains. The one lying to the west of the Western Ghats is known as the Western Coastal Plains, and the one lying to the east of the Eastern Ghats is known as the Eastern Coastal Plains. They are fertile, and are used for cultivation. Several important ports like Mumbai, Chennai and Kolkata lie on the coastal plains.

THE ISLANDS OF INDIA

The **Lakshadweep** and the **Andaman and Nicobar Islands** are the two main island groups of India.

The Laccadive, Minicoy and Amindivi island groups in the Arabian Sea are part of the Lakshadweep. They are made of corals—the skeletons of a particular form of marine life. Many of these islands are horse-shoe shaped and are called **atolls**.

Lakshadweep – Agathi Island

The Andaman and Nicobar Islands lie in the Bay of Bengal. They are numerous and also larger than the Lakshadweep Islands. They are of volcanic origin and are submerged hills.

Both the Lakshadweep and the Andaman and Nicobar Islands are of vital importance to India, for trade, tourism and defence.

Glossary

dun: flat valleys between the Himachal and the Shiwalik ranges
drainage basin: river basin; an area drained by a river and its tributaries
tributary: a branch of a river that flows into the main stream
distributary: a branch of a river that flows away from the main stream
mangrove: a kind of tropical tree that grows along coasts, partly in water
ghat: a mountain range
atoll: an island made of a circular coral reef surrounding a lagoon

In Brief

- The Great Northern Mountains consist of the Trans-Himalayan Ranges and the Himalayan Ranges.
- The Himalayas consist of three parallel ranges - the Himadri, the Himachal and the Shiwalik.
- The Northern Plains are drained by the Ganga, the Indus and the Brahmaputra river systems.
- To the south of the Northern Plains lies the triangular Peninsular Plateau; several rivers originate here and flow towards the east (except Narmada and Tapti).
- The Thar Desert is situated in the north-western part of Rajasthan.
- The Western and Eastern Coastal Plains are fertile lands and also have important ports.
- The Lakshadweep Islands in the Arabian Sea and the Andaman and Nicobar Islands in the Bay of Bengal are the two major island groups of India.

Enrichment Activities

- **Map work:** Label the following with appropriate symbols in an outline map of India — 1. Islands of India; 2. Aravallis and Satpuras; 3. Mahanadi; 4. Himalayas
- **Find out:** On the banks of which river are the following cities and towns situated? Find out with the help of an atlas.
  Delhi, Kolkata, Vijayawada, Thanjavur, Surat, Bharuch, Guwahati, Cuttack, Prayagraj
- **Diary entry:** Imagine you are travelling from Kerala to Jammu and Kashmir (or from Arunachal Pradesh to Gujarat) by train.

Write a diary entry, an essay, or a letter to your friend, describing the journey, focussing on the changing landscape, climate, dress and food of the states you passed through.

- **Project Work:** The Sundarbans are part of the world's largest delta. Read relevant books or search the Internet to find out more about this place. Make sure you include information about the people, their occupation, the animal species and the mangrove forests. Show the location of the place on a map and paste pictures to make your project look colourful.
- **Make a model:** Make a model of the Thar Desert showing its boundaries. Include models or pictures of wells, camels and important towns that are there in the desert.

Exercises

I. Name the following.

1. The physical divisions of India
2. The delta formed by the Ganga and the Brahmaputra
3. The mountains that connect the Western and the Eastern Ghats
4. The northern part of the Western Coastal Plains

II. Fill in the blanks.

1. The _____ is the northernmost mountain range of India.
2. The central range of the Himalayas is called _____.
3. The river Godavari flows into the _____.

III. Distinguish between:

1. a tributary and a distributary
2. the Western Ghats and the Eastern Ghats
3. the Western Coastal Plains and the Eastern Coastal Plains

IV. Match the following.

A	B
1. Youngest mountain range	a. The Thar Desert
2. Island of corals	b. Anaimudi
3. Of volcanic origin	c. Narmada
4. Highest peak in peninsular India	d. Sundarbans
5. Tropical sandy desert	e. Himalayas
6. Flows through a rift valley	f. Amindivi
7. World's largest mangrove forest	g. Brahmaputra
8. Tsangpo	h. Andaman and Nicobar

V. Answer the following.

1. Name four important peaks in the Himalayas.
2. Why are plains very thickly populated compared to hills?
3. Name the water bodies that make India a Peninsula.
4. Name the two major rivers that flow towards the west.
5. What are atolls?
6. Differentiate between the three parallel ranges of the Himalayas.

Multiple Choice Questions

1. The northernmost mountain range of India is the
   a. K2 or Godwin-Austin b. the Zaskar
   c. the Karakoram d. the Himadri
2. The earthquake prone belt of the Himalayas is the
   a. Himadri b. Himachal
   c. Shiwalik d. the Ladakh
3. In which mountain range is Mount Everest located?
   a. Karakoram b. Himadri
   c. Shiwalik d. Himachal
4. The term 'Dun' as in Dehradun, means
   a. mountain peak b. mountain slope
   c. flat valley d. river bank
5. The Ganga originates in
   a. Lake Mansarovar b. Gangotri
   c. Purvanchal d. Haridwar
6. The Sundarbans is the world's largest
   a. delta b. mangrove forest
   c. island d. freshwater lake
7. The two rivers of India which flow into the Arabian Sea are the
   a. Cauvery and Mahanadi
   b. Narmada and Tapti
   c. Godavari and Krishna
   d. Jhelum and Indus
8. The highest peak in the Western Ghats is
   a. Mahendragiri b. Anaimalai
   c. Anaimudi d. Nilgiri

HOTS: Think and Answer

The delta of a river is very fertile and the soil is ideal for cultivation of crops. Yet there are certain disadvantages to farming in river deltas. Can you state some?

Values that enrich

Most of India's rivers are inter-state, that is, they flow through more than one state. The states involved are constantly fighting over how the river water should be distributed. As a result, millions of farmers across the country suffer every year. Lack of what values does this reflect?

Life skills

Creative thinking/Effective communication

Over the past few years, several new states have been formed in India. Do you think this is a good idea? Is it better for the country and the people to have a few big states or several small states? Have a discussion. Support your argument with concrete examples.

9. India—Climate

WEATHER AND CLIMATE

When you get home today, remember to watch the news on television. At the end of the news, you will notice that the newsreader gives the weather report of that day, and the weather forecast for the next day.

What do people mean when they talk of the weather? **Weather** is the daily state of the atmosphere. It describes the temperature, wind speed and direction, and the amount of **precipitation** in a place on a particular day, or over a few days. Look out of the window, and see what the weather is like. The weather could be hot or cold, cloudy or windy, sunny or wet.

Precipitation refers to all the different forms of water that fall from the skies. It can be water (rain), ice (hailstones or snow) or a mixture of snow and rain (sleet).

Climate, on the other hand, is the average weather in a place over more than 30 years. Climate refers to the long-term average weather pattern of a region, while weather describes the short-term state of the atmosphere. The weather of a place often changes unexpectedly during the course of a day. So weather is variable. But the climate of a place remains unchanged over long periods of time.

Climate is usually described as equable or extreme, tropical or temperate, etc. For example, let us see the differences between two major types of climate—**equable** and **extreme climate**.

Regions which are neither too hot nor too cold are said to have equable climate. Such places are generally located close to the sea, such as Chennai and Mumbai. On the other hand, regions which are too hot and too cold, where extremes of temperature prevail, are said to have extreme climate. Places experiencing extreme climate are land-locked, such as Delhi and Haryana.

The climate of a region has a strong influence on the people who live there. Climate also controls the soil, vegetation and animal life of a region. The very lifestyle of the people—their food habits, clothing and types of shelter—is determined by the climate of the place. Climate also influences the natural resources of a country. This, in turn, determines the occupations or the economic activities of that country.

There are various factors that affect the climate of

ENRICHMENT ACTIVITY

Watch the weather bulletin on television every evening for one week. Note the symbols used to show sunny days, cloudy or overcast days, rain and snow. In your notebook, note the maximum (highest) and minimum (lowest) temperatures recorded in Delhi, Mumbai, Chennai and Kolkata. Which city was the hottest, and which was the coldest? Draw up a table with columns and show, with the help of symbols, the weather that was experienced through the week in your city or town.

EXPLORE SOME MORE...

What are seasons? When you study the weather of a region, you will notice certain fixed weather patterns that continue over a few weeks or months, i.e., it is hot, cold or rainy continuously for weeks. This rhythmic pattern is called **season**. The main seasons are winter, summer, autumn and spring. In India, we also have the monsoon season. Seasons, as you have already learnt, are caused by the tilt of the Earth's axis, and the revolution of the Earth around the Sun.

a place. The major factors are:

- Latitude
- Distance from the sea
- Altitude
- Relief (the kind of landforms)
- Atmospheric pressure and winds
- Upper air currents

The world is divided into a number of climatic regions. You will learn about them in detail in your next class. Climatically, India falls in the **Monsoon Asia** region of the world.

THE CLIMATE OF INDIA

India is a vast land stretching from the Himalayas to the Indian Ocean. It therefore exhibits a wide range of climatic conditions. Climates in India range from the arid desert type of climate found in the Thar Desert, to the humid tropical climates of the south, and the icy climate of Ladakh in the north. In general, however, India is said to have a tropical monsoon type of climate.

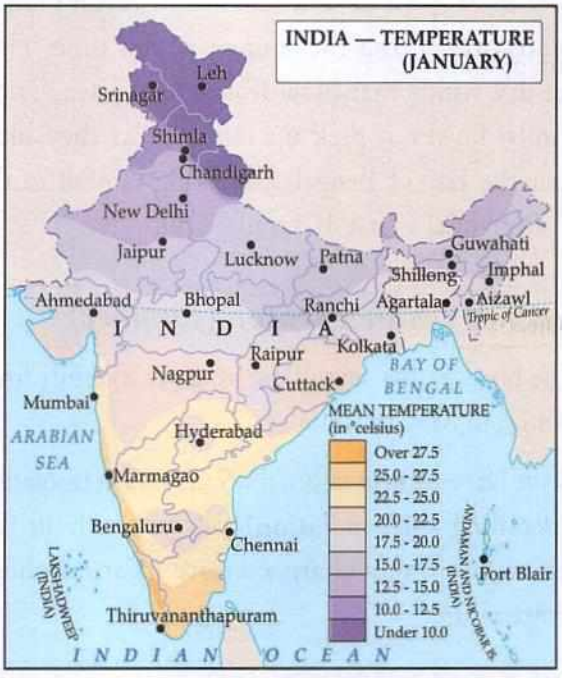
In a year, India experiences **four major seasons** that follow each other in a cycle.

- the cold weather season (December to February)
- the hot weather season (March to May)
- the advancing monsoon season (June to September)
- the retreating monsoon season (October and November)

The cold weather season (winter)

In India, winter usually falls between the months of December and February. **December** and **January** are the coldest months. Winter is more severe in North India than it is in South India.

The mean temperature in the Northern Plains is very low (10–15 °C). Sometimes the temperature



ENRICHMENT ACTIVITY

Collect pictures of, and compare, houses found in different parts of India—compare those of Kerala with those of Rajasthan, or those found in Meghalaya with those of Kashmir. How do you think climate has influenced the style of the houses in these places? Do a project on this. You could build model houses of clay or building blocks to demonstrate the different types of houses.

drops to –45 °C in Leh, the capital of Ladakh. The days are warm, while the nights are cold. In the Thar Desert, the night temperature falls below 0 °C in winter.

The coastal areas of India, however, hardly experience winter. Here temperatures range between 20 and 25 °C. In the Andaman and Nicobar Islands, for example, the difference between the day and night temperatures (6–7 °C) is hardly felt.

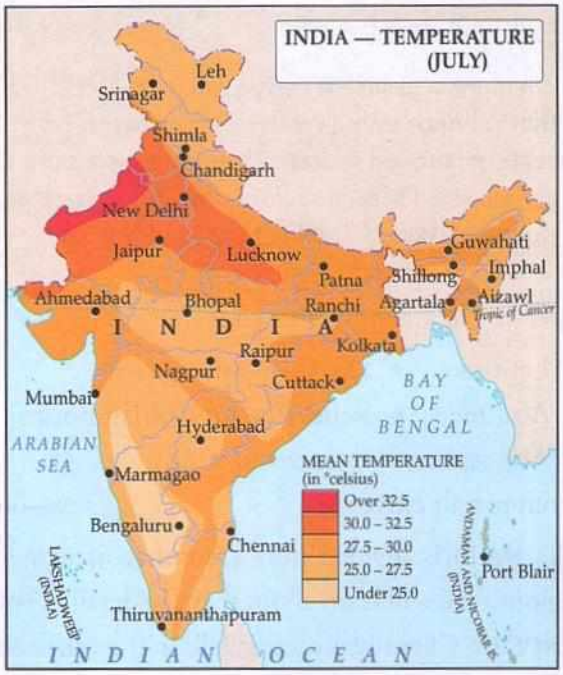
Winter in India is predominantly dry. But parts of North India and Tamil Nadu experience rainfall during the winter months. The north-western parts of the Northern Plains experience rain or snowfall caused by cyclonic depressions originating in the Mediterranean Sea. Widespread snowfall occurs in the Himalayan region.

The Northern Plains also experience **cold waves** after these spells of snowfall. North-east monsoon winds prevail over the country at this time. They are dry winds that blow from land to sea. These winds, however, pick up moisture as they blow over the Bay of Bengal, and bring rainfall to the Coromandel Coast of Tamil Nadu.

The hot weather season (summer)

The hot weather season, or summer, extends from March to May in India.

In the hot weather season, the Sun's rays or insolation (**in**coming **sol**ar radi**ation**) falls vertically in this region, causing a sharp increase in atmospheric temperature.



During summer the temperature increases from the south to the north. The Deccan Plateau records an average temperature of around 38 °C. The average temperature recorded in the Northern Plains is about 41–43 °C. In the north-western parts of Rajasthan, in the Thar, the mercury level even touches 55 °C at times.

Strong, hot and dry winds, called the **loo**, blow during the day in the Northern Plains and in the north-western parts of India. Summer is also the season for fruits like mangoes and jackfruits.

The south-west monsoon season

The south-west monsoon season, or the advancing monsoon season, lasts from June to September. The intense heat of summer causes the development of a powerful low pressure trough over the north-western

EXPLORE SOME MORE...

A **cyclone** is an area of low atmospheric pressure into which winds spiral with great force and speed. Cyclones are always formed over the sea and travel towards land with great speed. Enormous damage is often caused by cyclones when they reach land. The force of the winds and the flooding rains that accompany cyclones can wreak havoc.

parts of the Indian subcontinent. Winds originating from a high-pressure area centred over the southern Indian Ocean are drawn to the low pressure trough in the north. Since the winds originate over the sea, they absorb an enormous amount of moisture as they blow across the sea. These moisture laden winds cross the equator and approach the Indian landmass from the south-west.

Onset of the monsoon in India

As it hits the Indian landmass, the south-west monsoon breaks up into two distinct streams—one, the **Arabian Sea branch**, enters India from the Arabian Sea and the other, the **Bay of Bengal branch**, enters India from the Bay of Bengal. The onset of the south-west monsoon occurs each year around the first week of June. The monsoon advances to the north and, by 15 July, the entire country comes under the spell of the monsoon.

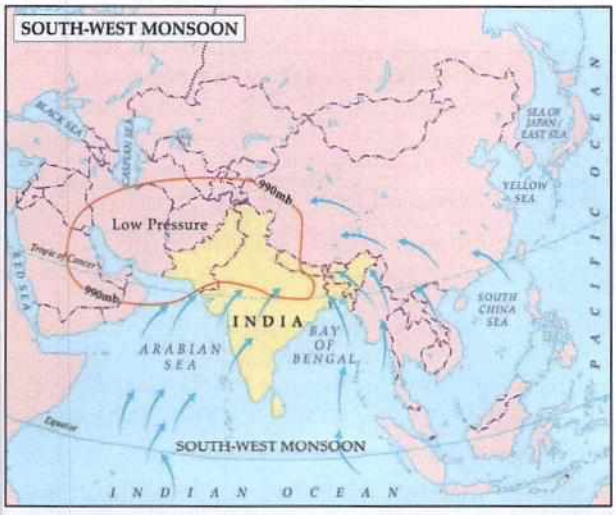
The Arabian Sea branch hits the Western Ghats and gives heavy rainfall to the coastal areas of Kerala, Karnataka and Maharashtra. The amount of rainfall keeps decreasing as the monsoon winds reach the interior parts of the subcontinent. Tamil Nadu, which lies in the rain shadow of the Western Ghats, receives very little rainfall from the south-west monsoon.

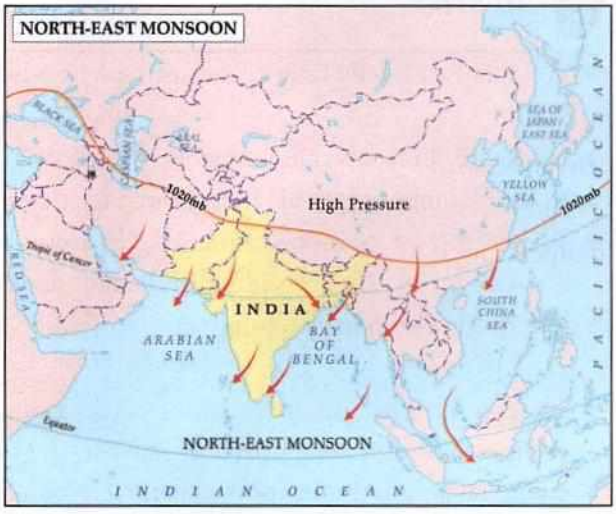
The Bay of Bengal branch travels north till it hits the Himalayas. It causes heavy rainfall in the eastern and north-eastern states of India, like Assam, Meghalaya, Arunachal Pradesh, West Bengal and Odisha. The rainfall goes on decreasing as the monsoon winds travel westwards into India. Thus, while Mawsynram in Meghalaya receives more than 1,000 cm of rain, Jaisalmer in Rajasthan gets less than 3 cm of rain a year.

In the northern parts of India the amount of rainfall decreases from east to west. Mawsynram, in the state of Meghalaya, gets the highest rainfall in the world. Cherrapunji, which is 16 km east of Mawsynram, also experiences very heavy rainfall.

The north-east monsoon or the retreating monsoon season

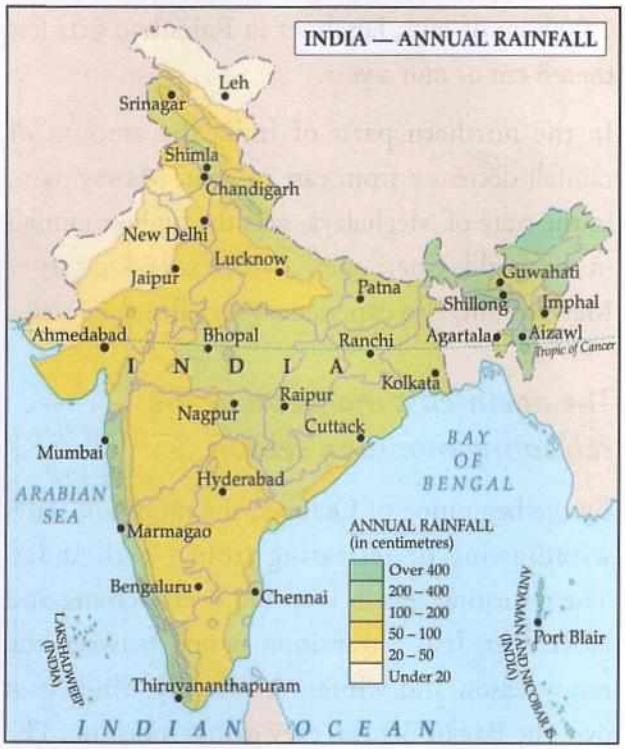
By the beginning of October, the monsoon starts withdrawing or retreating from North India. The retreating season is spread over October and November. It is a transition period between the rainy season and winter. As the dry winds pass over the Bay of Bengal, they gather moisture. The retreating monsoon brings heavy rainfall to coastal





Tamil Nadu and some other parts of South India. These regions receive most of their rainfall from the north-east monsoon during November and December. However, the rest the country receives more than 80% of its rainfall from the south-west monsoon from June to September.

During this period in North India, the sky generally remains clear and the weather is comfortable. In Tamil Nadu, however, weather conditions become quite uncomfortable as the temperature and humidity rise sharply. This situation is known as October Heat.



India is known for its climatic contrast.

- While the Thar Desert in Rajasthan experiences 55 °C in summer, Leh in Ladakh experiences -45 °C in winter.
- While Mawsynram and Cherrapunji record an annual rainfall of over 1,000 cm, the north-west of Rajasthan records less than 2 cm.
- All types of precipitations (snow, sleet, hail, rain, fog, mist, haze and dew) can be seen in India.
- While one region suffers from flood, another region may suffer from drought at the same time.

The influence of the changing seasons

The life of the people in India revolves around the cycle of seasons. Their culture, art, occupations, crops and festivals, depend on the variations of the seasons. More than half the population of Indian farmers depend on the rains for growing their crops.

In Brief

- Weather is the daily state of the atmosphere while climate is the long-term average weather pattern of a place.
- Moderate climate is called equable, and very hot or cold climate is called extreme.
- In India, summer extends from March to May, and winter falls between December and February.
- The south-west monsoon begins in India around the first week of June and, by 15 July, the entire country is covered. Since Tamil Nadu is in the rain shadow, it receives very little rainfall from this.
- The north-east monsoon brings rains to Tamil Nadu and parts of other southern states during November and December.
- Though India belongs to the Monsoon Asia climate, all kinds of climates—from very hot to cold, rainy to dry—exist in different parts of India
- A country's climate influences its natural resources, which in turn determines the occupation and cultural activities of the people; this applies to India too.

Glossary

weather: daily state of the atmosphere
climate: long-term average weather pattern of a region
equable climate: climate which is neither too hot nor too cold
extreme climate: too hot or cold climate
monsoon: moisture laden seasonal winds that approach India from the south-west
precipitation: condensation of water vapour in the form of rain, snow, sleet, etc.
drought: continued absence of rain

Enrichment Activities

- **Map Work:** On a map of Asia, show the pressure conditions and wind patterns over southern Asia, at the onset of the south-west monsoon. On another map, show the pattern of the north-east monsoon. Write a few lines below each map explaining the mechanism of the south-west monsoons and the retreating monsoons.
- **Project work:** Do a project explaining the mechanism of the monsoons and factors that affect the timely onset of the monsoons.
- **Analysing temperature graphs:** You have read about the cold wave in the Northern Plains. Find out and make a bar graph of the maximum and minimum temperature from January 12 to January 18. You can choose any city located in the Northern Plains for this activity. For the same city note down the maximum and minimum temperatures for each of the days from May 30-June 5. Make a bar graph. Write a report analysing the graphs. What are your conclusions?
- **Model making:** Make a model of a rain gauge. You can use materials that are available at your home. Measure the rain water collected in the gauge. Share your findings in class.

Exercises

I. Fill in the blanks.

1. Climatically, India falls in the _____ region.
2. The hot, dry and dusty winds that blow in the Northern Plains in summer are called _____.
3. The onset of monsoon in India is around the first week of _____.
4. _____ is the season of fruits like the mango.

II. Answer the following.

1. Define weather. How is it different from climate?
2. Distinguish between equable and extreme climate.

3. How does the climate of a place affect people?
4. What factors affect the climate of a place?
5. Which are the four major seasons of India?
6. To which climatic region does India belong?
7. Name the winds that provide rainfall to India. Write a detailed note on them.
8. What is the reason for the high moisture content of the south-west monsoon winds?
9. What is October Heat?
10. The climatic contrast of India is striking. Explain.

Multiple Choice Questions

1. The climate of a place is affected by
   a. altitude
   b. relief
   c. atmospheric pressure and winds
   d. all of the above
2. The cold weather season in India prevails from:
   a. December to March
   b. October to December
   c. January to March
   d. None of the above
3. During the winter months, northern India experiences rains that are caused by
   a. cyclonic depressions
   b. the south-west monsoon
   c. the retreating monsoon
   d. none of the above
4. The monsoons are caused due to the
   a. formation of a powerful low pressure trough over north-western India
   b. the moisture laden winds that are drawn towards the low pressure trough
   c. only 'a'
   d. both 'a' and 'b'
5. Which monsoon winds bring major rainfall to Tamil Nadu?
   a. south-west b. south-east
   c. north-east d. north-west
6. The world's highest rainfall has been recorded in
   a. Cherrapunji b. Aizwal
   c. Mawsynram d. Silent Valley

HOTS: Think and Answer

When would you expect the monsoons to arrive if you were staying in
a. Cochin b. Delhi c. Chennai d. Guwahati

Values that enrich

Viru is a daily labourer who lives in Chandigarh. He has no place to stay and so sleeps in the open. One day Manoj, a school student, passes by. He sees Viru shivering in the cold. Manoj and his friends collect blankets and give them to Viru. What values does this reflect?

Life skills

Observation/Creating awareness

Having read the lesson you must be aware that India has extreme climatic conditions. To deal with the hot summers and cold winters, people these days are increasingly depending on air conditioners, coolers, heaters and geysers.These gadgets use up a lot of energy. They also damage the environment.

Suggest ways to stay cool/ warm inside your home without wasting energy. Maybe we must look at old buildings that had high ceilings and well ventilated rooms.

10. India—Natural Vegetation and Wildlife

India exhibits a wide range of physical features and climatic types. These varied physical and climatic conditions have resulted in a stunning variety of plant and animal life in India. In this chapter, we will take a closer look at the natural vegetation and wildlife of India.

NATURAL VEGETATION

Natural vegetation refers to the plant life which grows on its own in an area (i.e., without any human effort). Natural vegetation is, therefore, found in places that have been left undisturbed by human beings for a long time. The plant life in a particular region is also called the **flora** of that region.

Plant communities grow in the wild by adapting themselves to their natural environment. Natural vegetation varies with relief and climate. For example, the natural vegetation found on mountains is different from that found on the plains, and plants found in deserts vary from those found in wet and humid regions.

The natural vegetation of India can be divided into five types:

- Tropical rainforests
- Tropical deciduous forests
- Thorn forests and desert vegetation
- Mangrove forests
- Mountain vegetation

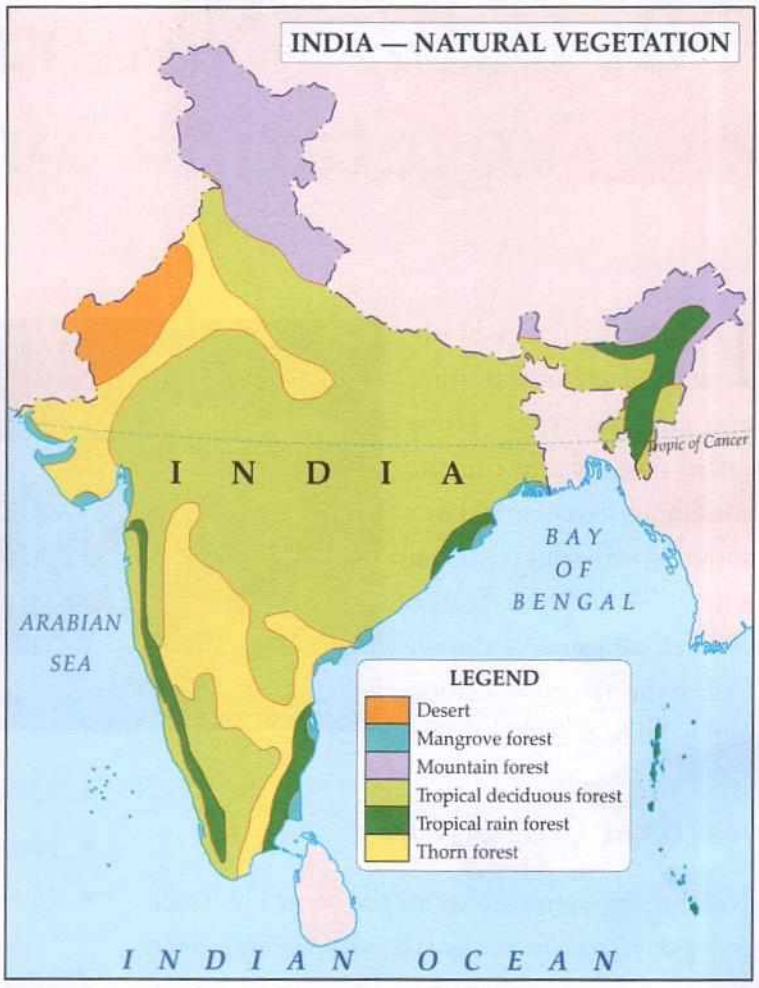
Tropical rainforests

Tropical rainforests are found in warm and wet regions with an annual rainfall of more than 250 cm and temperatures ranging from 25 to 35°C. These forests are very dense. The trees here are several metres tall (40–60 m). They form a canopy at the top, and very little light reaches the floor. The undergrowth in tropical rainforests is often limited by the lack of sunlight. This scanty undergrowth makes it easy for people and animals to move through the forest. The different species of trees found in these forests shed their leaves at different periods of the year. This is responsible for the permanent green cover in these forests. They are, therefore, also known as **evergreen forests**. Tropical rainforests are called **wet evergreen forests** in the

heavy rainfall regions of the western slopes of Western Ghats, Assam and Meghalaya. They are called **semi-evergreen forests** in the slightly drier regions of the Sahyadris, West Bengal, Odisha, and the Andaman and Nicobar Islands.

Wet evergreen forests, Cherrapunji, Meghalaya

The major species found here includes ebony, mahogany, rosewood, jamun and chinchona.



Tropical deciduous forests

Tropical deciduous forests occur in regions experiencing 70–200 cm annual rainfall and with a temperature range of 20–35 °C. These forests are widespread in India. Deciduous trees have a definite leaf shedding period spread over six to eight weeks each year. However, the forests are never completely bare as different species shed their leaves at different times. The trees here are usually not as close together as in the tropical rainforests, so more light can reach the forest floor, especially when the deciduous trees have shed their leaves. The availability of sunlight on the forest floor results in a dense undergrowth of vines, shrubs and small trees, which makes walking difficult.

Deciduous trees shed their leaves in dry weather.

Tropical deciduous forests are of two types:

- Moist deciduous forests (regions of 100–200 cm annual rainfall)
- Dry deciduous forests (regions of 70–100 cm annual rainfall)

Major species of trees found here are teak, sal, sandalwood, pipal, neem, shisham, etc. These forests are found in the eastern slopes of the Western Ghats, Madhya Pradesh, Chhattisgarh, Jharkhand, Bihar, Odisha, Tamil Nadu and Uttar Pradesh.

Thorn forests

Thorn forests occur in regions receiving less than 70 cm of rainfall a year. These regions have hot dry spells that last for 9–11 months. The tropical thorn forests are also referred to as desert vegetation. They have needle-like leaves, while some plants have leaves in the form of spines to prevent loss of water. The trees here have radial and tapering roots which go deep into the soil in search of water.

Major species of trees in these forests include cactuses, khair, keekar, babul, ber, date palms and dhak. These forests are found in the states of Rajasthan, Gujarat, Punjab, Haryana, parts of Madhya Pradesh, and the central rocky regions of the Deccan Plateau.

Cactus

Thorn and scrub forests, Tumkur, Karnataka

Mangrove forests

Mangrove forests can survive in both saline and fresh water. They are found along the tidal belts of deltas, where fresh water from the rivers mixes with the salt water of the sea. Therefore, they are also called tidal forests.

The Sundari tree is the most common species in the mangrove forests of the Sundarbans.

They are found in the Sundarbans in West Bengal, Pichavaram in Tamil Nadu, near Chilika in Odisha, and in the Andaman and Nicobar Islands.

The Sundarbans are named after the sundari tree, a common species in these forests.

Mountain forests

Lofty mountains like the Himalayas house different types of vegetation. The type of vegetation depends on the altitude. This is because the temperature decreases with increase in the altitude. In the higher reaches, most of the precipitation is in the form of snow. This feature of the mountains affects the type of vegetation found on them.

- On the lower reaches of the Himalayas, we come across rainforests and deciduous forests. They are also called wet hill forests.
- Between 1,500 and 2,000 m, we find coniferous forests. Important species found here include chir pine, silver fir, deodar and spruces.

Coniferous forest, Pithoragarh, Uttarakhand

- Above 3000 m, alpine grasslands are seen. A few trees like junipers and birches are found scattered in this region.
- Vegetation starts decreasing drastically beyond this level; at around 4000 m, only mosses and lichens are found.

Moss- and lichen-covered rocks

- Above 4500 m, the ground is covered with snow. The point beyond which there is no vegetation, and snow cover takes over, is called the **snow line**.

The snow line can be seen clearly in this picture of Arroyo Hondo, New Mexico.

The significance of forests

Forests are useful to us in many ways:

- Trees inhale carbon dioxide and exhale oxygen, the life-giving gas.
- Forests provide habitats for wildlife.
- Trees moderate the temperature of a place.
- Trees hold the soil firmly together and prevent soil erosion.
- They enable percolation of water into the ground.
- Forests help to bring about ecological balance.
- They provide forest products like timber, fuel, wood, lac, gum, honey, medicinal herbs, fruits and nuts, etc.

WILDLIFE

An Asiatic lion at Gir National Park

Wildlife refers to all those animals that have not been tamed or domesticated by humans. Wildlife is also called **fauna**. India has a rich and varied fauna. India is home to about 75,000 animal species. These include a wide variety of mammals, reptiles, amphibians, birds, fishes, insects, etc.

A peacock with its tail feathers spread out

- The elephant, one of the largest animals on Earth, is found in the forests of Kerala, Tamil Nadu, Karnataka, West Bengal, Madhya Pradesh and Assam.
- Camels, most of which have now been domesticated, are found mainly in the Thar Desert of Rajasthan.
- Wild asses are found in the marshy Rann of Kutchch of Gujarat.
- Tigers are mainly found in the wildlife reserves created by the government to protect them, like the Ranthambore National Park of Rajasthan and Kanha National Park of Madhya Pradesh.

- One-horned rhinoceroses are found in the Kaziranga National Park and swampy regions of Assam.

One-horned rhinoceroses

- Blackbuck, spotted deer and nilgais are found in the various forests of peninsular India, and in the wildlife sanctuaries of Rajasthan and Uttar Pradesh.

A herd of spotted deer or chital

- Lions are found in the Gir National Park of Gujarat, the only remaining habitat of this proud and majestic species.
- Wild goats (like the ibex), yak, snow leopards and chiru are found in the Ladakh region of the Himalayas.
- Brown and black bears are found in the Himalayan ranges, while the sloth bear is found all over peninsular India.

Himalayan brown bear

Besides these, there are different species of monkeys. There are also many other animals like cheetahs, gaur, wolves, jackals, leopards, wild boars, etc.

There are several varieties of snakes found in India ranging, from huge pythons, poisonous vipers, cobras and kraits to small water snakes. There are different types of crocodiles like the gharial, saltwater crocodile and mugger found in the rivers of India.

Grey langur (also called Hanuman langur)

India is also rich in bird life.

Gharial (a Gangetic crocodile)

The peacock is India's pride. It is our national bird. Bharatpur and Vedanthangal are important bird sanctuaries.

Indian mynah

The other colourful feathered species found in India include ducks, mynahs, pigeons, geese, hornbills, bulbuls, cranes, herons, cuckoos, etc.

Migratory birds

Many birds like flamingos, storks and pelicans fly a very long distance from cold countries to reach India during mid-November, and stay till the summer begins here in March. They are known as migratory birds.


INDIA — WILDLIFE
TAJIKISTAN
UZBEKISTAN
TURKMENISTAN
AFGHANISTAN
PAKISTAN
CHINA
NEPAL
BHUTAN
BANGLADESH
MYANMAR
SRI LANKA
INDIAN OCEAN
ARABIAN SEA
BAY OF BENGAL
Dachigam
Kishtwar
Hemis High Altitude
Pin Valley
Great Himalayan
Valley of Flowers
Renuka
Rajaji
Corbett
Nanda Devi
Sultanpur
Dudhwa
Sariska
Keoladeo Ghana
Nahargarh
Desert
Ranthambore
Madhav
Panna
Sanjay
Bandhavgarh
Kanha
Pench
Satpura
Pachmarhi
Melghat
Bor
Tadoba-Andhari
Indravati
Kanger Valley
Kawal
Great Indian Bustard
Sanjay Gandhi
Karnala
Kinwat
Eturnagaram
Pocharam
Pakhal
Kolleru
Radhanagari
Ghataprabha
Nagarjunasagar-Srisailam
Bhagwan Mahavir
Ranibennur
Seshachalam Hills
Nellapattu
Bhadra
Adichunchanagiri
Pulicat
Guindy
Vedanthangal
Rajiv Gandhi (Nagarhole)
Bannerghatta
Ranganathittu
Bandipur
Nilgiri
Mudumalai
Anamalai
Silent Valley
Eravikulam
Point Calimere
Vettangudi
Periyar
Agastyamalai
Marine
Gulf of Mannar
Kalakad-Mundanthurai
Lakshadweep (India)
Andaman and Nicobar Islands (India)
Saddle Peak
Button
Mount Harriett
Marine
Great Nicobar
INDONESIA
Khangchendzonga
Neora Valley
Singalila
Valmikinagar
Mahananda
Jaldapara
Chandra Prabha
Nokrek
Dihang Dibang
Mouling
Namdapha
Pakhui
Nameri
Manas
Sonai-Rupai
Dibru-Saikhowa
Buxa
Orang
Kaziranga
Intangki
Balphakram
Sirohi
Keibul Lamjao
Hazaribagh
Betla (Palamu)
Bethuadahari
Dampa
Parmadan
Sajnakhali
Pakhiralaya
Simlipal
Sunderbans
Nandankanan
Lothian I.
Bhitarkanika
Chilika
Rann of Kachchh
Nal Sarovar
Ratan Mahal
Kachchh
Marine
Khijadia
Velavadar
Gir
Bansda
Yawal
Pench
Nagzira
Nawegaon
Fossil
Tropic of Cancer
LEGEND
Bird Sanctuary
National Park
Wildlife Sanctuary
Kanha Tiger Reserve
Nilgiri Biosphere Reserve
Manas Tiger Reserve & Biosphere Reserve

ENRICHMENT ACTIVITY

Study the map given on the previous page and write down in your notebooks the names of the following. Also mention the state in which they are found.

1. Tiger Reserves
2. Biosphere Reserves
3. Tiger and Biosphere Reserves
4. Wildlife Sanctuaries
5. National Parks
6. Bird Sanctuaries

EXPLORE SOME MORE...

A strange fact about elephants is that, despite their huge size and immense weight, they walk on their toes! The heels are elevated with the five digits coming down at a steep angle. Under the heel is a cushioning pad of cartilage, which relieves stress on the bones and also allows the animal to be surefooted and silent while walking. The elephant can attain speeds up to 40 km per hour on these feet.

CONSERVATION OF FLORA AND FAUNA

Scientists maintain that we need 33% forest cover to maintain the ecological balance. The world average is 27%, while India has just 19.39% of its land under forests. We have to go a long way to step up the same. Deforestation is taking place on a large scale, and it affects our wildlife directly. Many species of Indian wildlife have been hunted to the point of extinction. Many of our animals are listed as **endangered** (on the verge of extinction), and a large number are already **extinct** (no longer exist).

The Asiatic lion, of which India is the last refuge on Earth, is rated as the most endangered large carnivore globally. The Indian bear is also endangered. Bears are poached for their skins as rugs and trophies, and for their body parts which supply the traditional Chinese medicine trade.

The chiru, or the Tibetan antelope, is classified as critically endangered. In India it is found in Ladakh. Chirus are poached for their very fine under-fleece to satisfy the demand for shahtoosh wool, used to make shawls and scarves. Several Tibetan antelope are killed to make just one shawl.

There is an urgent need to prevent deforestation, cruelty to animals and poaching. A step forward was taken in 1988 with the adoption of the National Forestry Policy.

The government has set up a number of **biosphere reserves** (the first one to be set up was the Nilgiris Biosphere Reserve in Tamil Nadu), **wildlife sanctuaries** and **national parks** to protect our animal wealth.

The government also started many animal-specific projects to prevent them from becoming extinct, such as **Project Tiger** and **Project Elephant**. Project Tiger was launched in 1973, while Project Elephant was launched in 1992.

Glossary

relief: physical features of an area, like mountains, hills, etc.
mammals: animals that feed their young ones with their own milk
endangered: whose existence is threatened
extinct: no longer exists in the wild
deforestation: clearing of trees
poaching: to hunt or shoot animals without permission

In Brief

- India has an enormous wealth of plant and animal species.
- The major vegetation types found in India are rainforests, deciduous forests, thorn forests, mangrove forests and mountain vegetation.
- Rainforests have permanent green cover, and are also known as evergreen forests.
- In mountains, the vegetation varies from conifers to grasses to mosses and lichens, depending on the altitude.
- Forests protect the soil and groundwater. They provide habitat for wildlife. Timber, honey, herbs, fruits and nuts are obtained from forests.
- India is endowed with a huge variety of animals that includes mammals, reptiles, birds, fishes and insects.
- Since we have less than the desirable forest cover and deforestation threatens wildlife, we need to take all measures possible to protect the forests and wildlife.

Enrichment Activities

- **Scrap book/Report writing:** Collect articles connected to forest and wildlife conservation, and make a scrapbook (or) write a detailed report on your visit to a wildlife sanctuary.
- **Map work:** Locate and mark the wildlife sanctuaries, national parks and bird sanctuaries on a map of India.
- **Project/Presentation:** Do a project, or make a presentation, on the impact of deforestation on the environment, and the urgent need to protect and conserve our flora and fauna.
- **Poster making:** Make a poster on the topic 'Save our forests' or 'Save the tigers'. You could also collect photographs and make a collage.
- **Conservation Tips:** You must have by now realised how important trees are to humans. Become a conservationist. Write 5 to 6 tips on how to conserve things at home and when you go on a vacation. It may be paper, electricity or even your soap.
- **Project Work:** Find out how paper is made. How many trees are cut down to make paper? Write an article in about 100 words stating why paper and paper products need to be used wisely.

- **Be Aware:** Find out the names of some prominent animal rights organisations active in India. Write a short article in about 50 words or a slogan about how you feel about animal rights issues. It could be about eating meat, buying leather items, using animals in circuses or even about testing beauty products on animals. You can send your article to one of the organisations or a wildlife magazine for publication.

Exercises

I. Name the following.

1. major vegetation belts of India
2. trees found in coniferous forests
3. any two types of monkeys found in India
4. any four types of snakes found in India
5. any three migratory birds that visit India every year
6. any two bird sanctuaries found in India
7. any two wildlife sanctuaries found in India

II. Give reasons for the following.

1. There is not much undergrowth in rainforests.
2. Vegetation is absent beyond 4,500 m in the Himalayas.
3. The leaves of the trees in the Thar are like needles or in the form of spines.
4. Biosphere reserves are set up by the government.

III. Answer the following.

1. Define natural vegetation.
2. What are the main features of deciduous forests?
3. Why are rainforests called evergreen forests?
4. What is the special feature of mangrove forests? Where are they found in India?
5. How are forests useful to us?
6. Write a brief note on the wildlife in India.
7. What are the steps taken by the government to conserve our flora and fauna?

Multiple Choice Questions

1. In tropical rainforests
   a. there is a heavy undergrowth of plant life making movement difficult
   b. the trees all shed their leaves together
   c. the trees are very tall and form a canopy at the top
   d. the rainfall received is moderate to low
2. In India, tropical deciduous forests are found in
   a. the Andaman and Nicobar Islands
   b. the Sundarbans
   c. Madhya Pradesh
   d. Rajasthan
3. In which forest would you expect to find the khair, keekar and babul?
   a. evergreen forest
   b. thorn forest
   c. mountain forest
   d. tropical deciduous forest
4. In India, what kind of vegetation would you most likely find above 3,000 m?
   a. mosses and lichens
   b. alpine grasslands
   c. rainforests
   d. no vegetation

5. In India, the one-horned rhinoceros is found in the
   a. Ranthambore National Park
   b. Kanha National Park
   c. Kaziranga National Park
   d. Gir National Park

6. Two biosphere reserves found in South India are
   a. Bandipur and Periyar
   b. Silent Valley and Nagarhole
   c. Madumalai and Kalakad
   d. Nilgiri and Agastyamalai

HOTS: Think and Answer

Would keeping animals in zoos help in the preservation of animal species from extinction? Think and answer.

Values that enrich

In the 1970s and 80s, the Chipko Movement spread to many villages in Uttarakhand. The meaning of Chipko is to 'embrace'. The villagers hugged the trees to save them from the contractor's axes. What values can you learn from these acts of the villagers?

Life skills

Observation/Creating awareness

The forests of India are home to many trees, animals and even medicinal plants. But these areas are under threat. In the name of development, large-scale cutting of trees for agricultural purposes, building roads and reservoirs and mining is taking place in many of these regions. This could lead to a number of environmental issues.

Have a discussion/debate in class about whether this kind of industrialisation would eventually help the people of the area or harm them.

NEW GETTING AHEAD IN SOCIAL SCIENCE

6

Social and Political Life

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Contents

1. Human Diversity

WHAT IS HUMAN DIVERSITY?

Look around you as you sit in class. Each one of you is different from the other. Some differences are obvious, like some of you are boys, and some of you are girls. And some of you have long hair, while some have it short; some are short while some are tall. These are differences you can make out at a glance. But there are other differences, like the language we speak at home, or the religion we follow, or the kind of food we like to eat, or the kind of music we enjoy. These differences might be less obvious, but they are equally important in making each of us what we are—unique human beings.

This state of being different, of being unique, is known as **diversity**. Diversity includes such factors as age, gender, ability, race, religion, education, occupation and food.

Diversity need not mean that each of us does different things all the time. Very often we might be doing the same thing, but we just do it differently. Thus, we all eat. But some of us eat with our hands, while some use forks and knives, or chopsticks. Most of us read. But some like to read comics, while some like to read story books. Many pray. But some of us go to a temple to pray, while some to a mosque or church. Some prefer to pray at home. We all speak to communicate. We just use different languages to do so.

THE NEED FOR DIVERSITY

Diversity or variety is one of the most beautiful aspects of life on Earth. No two humans are alike, just as every snowflake that falls on Earth is shaped differently. Just as diversity is beautiful, it is also very necessary. We need this diversity.

Humans have different skills. Some people are skilled carpenters, while some prefer to be teachers; some build aeroplanes, while some prefer to fly them. If everyone had the same skill, could we

survive? No, humans with diverse interests and skills are a necessity for society.

Diversity also enriches our lives. Imagine if you had to live in a world of identical people. Every one would look the same, dress the same, talk the same, and behave in the same way. Would you like to live in such a world? When you live with a diverse group of people, you learn from them. You absorb different cultures; you become more tolerant and broad-minded. Think about it!

INDIA—UNITY IN DIVERSITY

India is one of the most diverse countries in the world. India is heir to a civilisation that is more than 5,000 years old. Different groups of people from different places of the world migrated to India over the years adding to its richness. Today, India is a land of varied cultures, religions and communities. More than 1,600 languages are spoken here. A wide range of ethnically different people populate our land. We find people following different customs, traditions and lifestyle.

However, despite all this diversity—the different styles in dress, food habits, language and culture—there has always been interaction, exchange and an underlying unity among Indians.

ENRICHMENT ACTIVITY

This is a photograph of a group of friends. It is a diverse group; but they are also similar in some ways. Have a discussion in class on the various ways in which the children are diverse. Also explain any similarities you may notice in the group.

Unity in diversity—the painting on the wall shows Ganesha, a Hindu deity, alongside the symbols of Islam and Christianity. It sums up the real nature of India better than any words.

CHARACTERISTICS OF INDIA'S DIVERSITY

The wide diversity seen in India can be studied under the following heads— economic inequality, social diversity, and regional diversity.

Economic inequality

India has some of the richest people in the world. India's economy is booming, and people are earning more money than ever before. There are people in India who own several cars, who spend their vacations in expensive places, and who can afford to spend several thousands of rupees on a single meal or a single item of clothing.

But sadly, India also has some of the poorest people in the world. According to the Tendulkar Committee, the population below the poverty line in 2011–2012 was 269.3 million (21.9% of the population). The poverty line is the minimum level of income needed to achieve an adequate standard of living. As per the Government of India, the poverty line is Rs 816 per month in rural areas and Rs 1,000 per month in urban areas. In other words, more than one-fourth of Indians earn less than Rs 35 a day. Of these, more than 75% live in rural areas. The people living below the poverty line are mainly engaged as daily wage earners, self-employed householders or landless labourers. Economic inequalities are closely connected to social inequalities.

Economic inequality is growing in India

Social diversity

India is a country plagued by social differences. The caste system, which has existed in India for over 2,000 years, has created several unequal divisions in society. There are hundreds of castes and sub-castes in India today. People are discriminated against on the basis of the caste to which they belong. People belonging to some sections of society continue to be treated badly in many parts of India even today.

Another example of the social differences that exist in India is the family system that we practice. Many of us live in large families consisting of grandparents, aunts, uncles and cousins. This is the **joint family** system. Some of us live only with our parents and siblings. This is known as a **nuclear family**. Individuals choose to be in either of these according to their preference or family situation.

Social diversity is also seen in the variety of religions practised in India today, and the celebration of their respective festivals. However, whatever the religion followed, colour, gaiety, celebration feasts, prayer

Bihu—the dance of Assam

Bharatanatyam—the dance of Tamil Nadu

Christmas

Holi

Baisakhi

Id-ul-Fitr

Festivals of India

and rituals characterise our festivals. Dussehra, Muharram, Christmas, Diwali, Buddha Jayanthi and Jamshed Navroz are observed by people of different faiths in a spirit of harmony. Some social customs and festivals are typical of a particular region. For example, Pongal is celebrated in Tamil Nadu, the cattle-fair is celebrated annually in Pushkar, Rajasthan, and Bogali Bihu is celebrated in Assam. The different classical dance forms, Bharatanatyam, Kathak, Odissi, Manipuri, Mohiniattam and traditional folk dances, provide a colourful spectrum of Indian culture.

Regional diversity

Both the history and the geography of a land influence diversity. Each region of India enjoys a culture that is vastly different from that of other regions. Historically, India has had people of different cultures migrating into the country at regular intervals. All of these people have left their mark on India, and have thus contributed to the diversity of this country. Similarly, the geography of a land causes diversity. People living on the coast have different food habits, dress differently, and enjoy a very different culture from those who live in the mountains. We can understand these differences better if we study a few places in detail.

Case study: Punjab and Kerala

Punjab

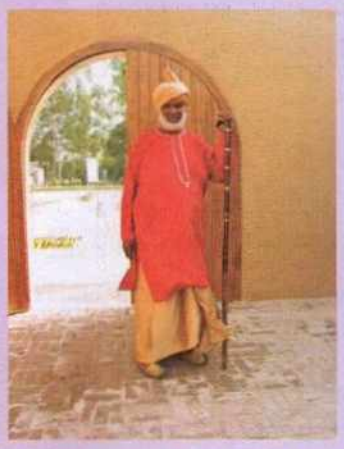
Punjab is a state located in the north-west of India. Punjab, or the 'land of the five rivers', is one of the most fertile tracts of land in the country. The climate is largely dry but agriculture is made possible by the extensive network of irrigation channels.

The flat and fertile land of Punjab

A house in Punjab

A village scene

Agriculture is the main occupation of this state. The region is ideal for growing wheat. Rice, sugarcane, fruits and cotton are also grown. Punjab is called the 'granary of India' or 'India's bread-basket.' It produces 14% of India's cotton, 20% of the wheat, and 9% of the rice. Punjab has one of the lowest poverty rates in the country, with only 8.26% of its people living below the poverty line.



Clothing of Punjab—the kurta–dhoti and pagdi worn by the men, and the salwar kameez worn by the women

The climate is one of extremes, with winter temperatures dropping upto minus 5 °C and summer temperatures often touching 47 °C.

The majority of the people in Punjab are Sikhs. Sikhism is practised by about 57.69% of the population, while 38.49% practise Hinduism. There is also a small Muslim population in Punjab. The people mainly eat wheat-based foods.

Punjab is famous for its tandoori chicken.

KERALA

Located at the southern tip of India, Kerala is a land carved out of the Western Ghats. It is a land of mountains, plains and peaceful backwaters. The people of Kerala have one of the highest life-expectancy rates in India (on an average they are expected to live for 75 years, which is the highest in India). It is the most literate state in India (94%), and has the highest female–male ratio in India. Women comprise 52% of the population. Kerala has a diverse religious make-up, consisting of 54.72% Hindus, 26.56% Muslims, and 18.38% Christians.

The backwaters of Kerala

Unlike Punjab, in Kerala it is the service sector (which includes tourism, public administration, information technology, banking and finance, transportation, and communications) that is the major industry.It accounted for around 62% of Kerala's revenue in 2017–18. The agricultural and fishing industries together accounted for around 10% of Kerala's revenue.

Kerala has a wet and maritime tropical climate with 120–140 rainy days per year. The pattern of rainfall is influenced by the seasonal heavy rains of the south-west monsoon. The climate of Kerala hardly changes throughout the year. There are no extremes of heat or cold. Kerala's maximum daily temperature averages 36.7 °C; the minimum is 19.8 °C.

The mundu is worn by the men, and the mundum-neriyathum by the women, of Kerala

A typical house in Kerala

The dances of Kerala—Mohiniattam and Kathakali

Traditional Kerala meal

The diversity of India's culture has helped its people to develop the values of tolerance, respect and co-operation. However, diversity, apart from encouraging people to appreciate each other, also gives rise to conflicts. It is important that we study them and resolve them to build a stronger India.

Glossary

diversity: variety
culture: customs, beliefs and achievements of a particular time or people

In Brief

- People being different from each other in language, religion, culture, etc is called diversity.
- Diversity is necessary for proper functioning of society.
- Social diversity in India can be seen in the variety of religions practiced, languages spoken, clothes worn and dance forms performed across India.
- India possesses a huge regional diversity, which is evident from a study of different states.
- Agriculture is the main occupation of people of Punjab; Kerala is an important tourist destination.

Enrichment Activities

- **Compare and contrast:** Work in groups. Make a presentation comparing four states of India—one each from the north, south, east and west. First locate them on a map of India, and then compare their physical features, style of dress worn by the people, food, economy, language, religious composition and culture.
- **Collage making:** Paste pictures, draw and write captions to make a collage that reflects the diversity of India. The collage must reflect the cultural, regional and social diversity of the country.
- **Find Out:** Work in groups. Dharavi in Mumbai is known as the largest slum in Asia. Find out about the people who have settled in Dharavi. Did you know that Dharavi is home to several million-dollar-industries? Find out about the people behind these industries.
- **Quiz Time:**
  1. Which city in Himachal Pradesh is the home of the Tibetan government in exile?
  2. Which city in Kerala is known for its Jewish heritage?
  3. Which festival celebrated in Delhi is associated with the poet Amir Khusrau and the colour yellow?
  4. Where in India can you buy the spiciest chillies?

Exercises

I. True or false?

1. India does not have economic inequality.
2. Punjab is called the 'Granary of India'.
3. Kerala has a wet climate.
4. Many religions are practised in India.
5. Agriculture is the main occupation of Kerala.

II. Fill in the blanks.

1. The state of being different, or unique, is called _____.
2. Bogali Bihu is celebrated in the state of _____.
3. _____ is a festival celebrated in Rajasthan.
4. A large family consisting of grandparents, parents, aunts, uncles and cousins is called a _____.

III. Answer the following.

1. Why does society need diversity?
2. Though each region has its own culture, there is unity in India's diversity. Justify this statement.
3. How has the caste system harmed society?
4. Use the examples of Kerala and Punjab to illustrate the nature of regional diversity in India.
5. What is the poverty line?
6. Write a note on the nature of economic inequality in India.
7. What steps can be taken to reduce economic inequalities?

Multiple Choice Questions

1. Diversity is a good thing because
   a. it makes us more tolerant and open minded
   b. people with different skill-sets are needed for humans to survive
   c. it enriches our lives
   d. all of the above
2. Pushkar is famous for
   a. the annual cattle fair
   b. its forts and palaces
   c. its cool climate
   d. its textile industry
3. What is the poverty line?
   a. a line drawn by villagers separating the houses of the poor from that of the rich
   b. a queue of poor people waiting for free food
   c. the minimum level of income needed to achieve an adequate standard of living
   d. the minimum level of income below which people do not pay income tax
4. Punjab is called
   a. India's shopping capital
   b. India's electronic heartland
   c. India's car factory
   d. India's bread basket
5. The majority of people in Punjab are
   a. Hindus b. Muslims
   c. Sikhs d. Christians
6. Kerala has the
   a. highest life-expectancy among all the Indian states
   b. highest literacy among all the Indian states
   c. highest female-male ratio among all the Indian states
   d. all of the above
7. The main industry in Kerala is
   a. agriculture b. the service sector
   c. manufacturing d. fishing

HOTS: Think and Answer

Most of the houses in Punjab have flat roofs, while most of the houses in Kerala have sloping roofs. Can you say why this is so?

Values that enrich

Lakshmi works in a house as a helper. Every year, her employer gives her a bonus, which Lakshmi deposits in her account in the Post Office. Lakshmi plans to use this money to send her daughter to college. What values does Lakshmi exhibit?

Life skills

Developing empathy

As per the Census of India, 2011, the literacy rate of India has increased to 74.44% in 2011 from 65.38% in 2001. But do you know that most of these people barely know how to read and write?

What can you do about this? Each of you can decide to teach at least one other person—child or adult. You can give your old books to them, encourage them to read story books, give them small writing assignments. You will thereby help change a person's life.

2. Diversity, Prejudice and Discrimination

Human diversity, as you learnt in the last chapter, refers to the differences in physical, social and economic conditions of human beings. Some people are short, while some are tall; some people are educated, while some are not; some speak Bengali, while some speak Tamil; some are men, while some are women.

You also saw why the world needs diversity. A world full of identical human beings would be disastrous. Unfortunately, diversity also seems to give rise to **prejudice** and **discrimination**.

PREJUDICE AND DISCRIMINATION

What is prejudice? When we make a judgment about someone or have an idea about them before we actually know anything about them, it is called **prejudice**. It is an unfair judgment about or attitude towards something or someone, a kind of behaviour that is not based on reason. Most of us tend to look at people who are different from us with a certain amount of prejudice. When we express this feeling of prejudice in action, it is called **discrimination**. For example, many people view cleaners and waste collectors with prejudice. These occupations, and the people engaged in them, are assumed to be 'dirty' and 'polluting'. They are often treated badly. In some places, they are not allowed to enter places of worship or draw water from village wells. These are acts of discrimination born out of prejudice.

Today, many people are discriminated against on the basis of colour, caste, race, religion, gender and ability. Some are mocked (or made fun of) for having a different skin colour, some for being mentally or physically disabled, some for being overweight, some for being poor, and some for belonging to an oppressed section of society.

Describe the scene in this picture. Why are the children laughing at the girl? How do you think she is feeling?

People who are discriminated against feel sad, lonely and hurt.

Such acts of discrimination are born out of prejudice.

Discrimination on the basis of colour

In many places in India, people have a prejudice against people with dark skin. This makes them discriminate against them (i.e., treat them differently or unfairly). The number of 'fairness creams' in the market is silent proof of the discrimination people born with dark skin face. Be it in school, at the work-place, or in marriage, discrimination often takes place because of this prejudice for fair skin.

The impact of discrimination on the basis of colour

Discrimination on the basis of colour can affect people in many ways.

- Right from childhood, dark skinned people are made to feel that they do not look beautiful. This can affect their mental and physical health.
- Dark-skinned people often find it difficult to get jobs that involve interacting with the public, such as flight attendants, sales staff and actors, due to prejudices against them.

These are only some ways in which discrimination can impact the lives of people. Discrimination on the basis of colour can have a lifelong impact on the person. We should remember, skin colour does not determine how talented, capable, skilled, qualified or beautiful a person is.

ENRICHMENT ACTIVITY

Sit quietly for a few minutes and think. Have you teased or laughed at any of your classmates because of their shape, colour or inability? Why did you do it? Do remember it is the person who teases or bullies who has the problem, and not the person who is mocked.

Discrimination on the basis of caste

There are several other discriminatory practices that have harmed the growth of our society. Among the more harmful ones is the hold of the caste system on the nation. A hierarchical system that originated in the distant past, it differentiates between people on the basis of 'superiority' and 'inferiority'. Among the most inhuman aspects of the system was the treatment meted out to those who were considered the outcastes, and treated as 'untouchable'. Though declared unlawful today, untouchability is still practised in many forms in many parts of the country. In fact, even now, the oppressed castes are not allowed to enter temples and many common areas in many places, as their presence was considered 'polluting'. The oppressed castes

Manual cleaning of sewer inspection holes is a dangerous form of human labour, often reserved for people belonging to the oppressed classes.

also face caste-based discrimination in many areas like education, employment opportunities, political representation, social relationships and so on.

Our Constitution has abolished untouchability, and its practice is a criminal offence. Positive steps have been taken by the government to provide relief to the oppressed castes, who now call themselves **dalits**, in the form of scholarships, reservations in colleges, universities, public sector undertakings and government services.

Dr Babasaheb Ambedkar, an eminent lawyer and social activist, was the chief architect of the Indian Constitution. He belonged to the Mahar caste, which is one of the oppressed castes. Till the end of his life, he fought against the prejudices of the caste system and the ill-treatment of women. He was the first law minister of independent India. In 1951, he introduced the Hindu Code Bill in Parliament, which tried to give women equal rights with regard to the laws of inheritance, marriage and the economy. He resigned from his post when the bill was not passed.

Read the passage below. It is an extract from the writings of Dr Babasaheb Ambedkar, where he tells the story of a young man, a dalit, who gets a job as a clerk in a government office but is abused and threatened until he gives up the job.

...On 19th February 1936, I was appointed a Talati in the office of the Mamlatdar of the Borsad Taluka in the Kheda District. ...I was surprised to find the attitude of the clerk of the Mamlatdar's office when I presented myself to take charge of the post of the Talati.

The Karkun contemptuously asked, "Who are you?" I replied, "Sir, I am a Harijan *." He said, "Go away, stand at a distance. How dare you stand so near me! You are in office; if you were outside, I would have given you six kicks. What audacity to come here for service!" Thereafter, he asked me to drop on the ground my certificate and the order of appointment as a Talati. He then picked them up. While I was working in the Mamlatdar's office at Borsad, I experienced great difficulty in the matter of getting water for drinking. In the verandah of the office there were kept cans containing drinking water. There was a waterman in charge of these water cans. His duty was to pour out water to clerks in office whenever they needed it. In the absence of the waterman, they could themselves take water out of the cans and drink it.

That was impossible in my case. I could not touch the cans, for my touch would pollute the water. I had therefore to depend upon the mercy of the waterman. For my use there was kept a small rusty pot. No one would touch it or wash it except myself. It was in this pot that the waterman would dole out water to me. But I could get water only if the waterman was present. This waterman did not like the idea of supplying me with water. Seeing that I was coming for water, he would manage to slip away, with the result that I had to go without water; and the days on which I had no water to drink were by no means few.

Source: Dr. Babasaheb Ambedkar: Writings and Speeches, Vol. 12, edited by Vasant Moon (Bombay: Education Department, Government of Maharashtra, 1993)

** Harijan is a word that was used for people of the oppressed castes, but today, it is generally not accepted by them.*

'Boys don't cry. If you cry, you're acting like a girl.'

'Football is only for boys.'

Examples of stereotypes

Furthering stereotypes

A **stereotype** is a generalisation, or an assumption, people make about a person or groups of persons on the basis of their identity. For example, 'women are too weak to join in the army' or 'boys don't cry.' These are generalisations that do not hold true for many who belong to the group. There are women who join the army and do very well. Similarly, men and boys do cry, and there is nothing wrong with it either.

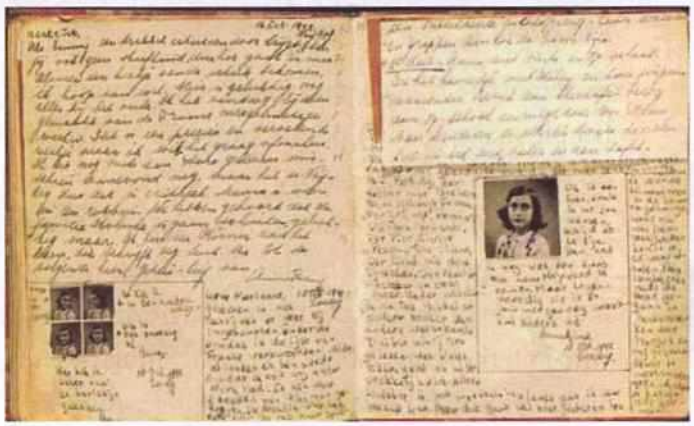
Read the newspaper article given below. This article appeared in *The Hindu* dated 6 May 2008.

Pulling down the wall of shame

Social discrimination is often subtle and attitudinal, but in Uthapuram village of Madurai district in Tamil Nadu it was embodied for nearly two decades in a 600-metre wall separating Dalits from caste Hindus. A report in *The Hindu* on April 17 on the electrification of the fence atop the wall resulted in a public outcry, and prompted the government to first disconnect power supply and then to demolish the portion of the wall that denied Dalits access to areas of common use. The Dalit community of about 2,000 families is numerically dominant in the village, but they are denied space in village squares and community halls and main pathways. The wall was blocking common entry points to the village, effectively cutting the Dalits off from the village mainstream.

trenched traditions of social exclusion. Uthapuram is not the only village where Dalits encounter discrimination on the basis of caste. Despite strong governmental action, in many tea shops across the State, Dalits continue to be served in a different set of tumblers; in community halls they are not allowed to mingle with those belonging to other castes. The main pathways directly leading to areas of common use are usually out of bounds for Dalits, and funeral processions of Dalits have to take circuitous routes to separate burial grounds and churches. Temple festivals remain a source of potential trouble in several villages as Dalits are kept out of chariot-pulling rituals. Economic advancement of the few Dalits who are able to find jobs outside the village becomes a problematic issue for caste Hindus who see themselves as superior in the social hierarchy. In rural areas, life is thus a constant struggle for Dalits as they come face to face with social discrimination. The portion of the Uthap-

This was part of an editorial in *The Hindu*, condemning the shameful treatment of the oppressed castes in present-day India. Have things changed in India since Ambedkar's time? According to the report, how are oppressed castes treated even today in various parts of Tamil Nadu? Such ill treatment of the oppressed castes continues to happen in every part of the country. Have you come across any such story? Share it with your class. Each of us should take a solemn vow never to let such ill treatment of the less-privileged go unchecked. **Raise your voice against it wherever and whenever you see it happen.**



This is a page from the book The Diary of Anne Frank, *the story of a 13-year-old Jewish girl and her family, who were forced into hiding by the Nazis during World War II. The diary, which was written by Anne Frank while in hiding, was found after her death at the hands of the Nazis. Try and get a copy of this book and read it.*

There are more dangerous types of stereotyping, which have resulted in the large-scale killing of people of a particular group or race. For example, during World War II, the Jewish people were stereotyped as being racially, impure, by Hitler and the Nazis (Hitler's followers). Millions of Jewish people were killed by the Nazis as a result of this stereotyping.

Stereotypes are promoted when we are unable or unwilling to search for all the information we would need to make a fair judgement about people. Such generalisations often lead to discrimination, especially when the stereotyping is unfavourable. There are stereotypes about people from particular regions or states, about people belonging to various castes or religions, about boys and girls. Thus, you can hear people freely using terms like lazy, stupid, rude, greedy and stingy, when they talk about particular communities.

Enrichment Activity

Write down the first word that comes to your mind when you hear each of these words—villager, city-dweller, vegetarian, non-vegetarian, Indian, American, Chinese, working mother, shopkeeper, brother, sister.

Read out your words to the rest of the class. Compare and discuss. How many of your words reflect stereotyping?

Enrichment Activity

Have you seen any movie recently where any of the characters have been stereotyped? For example, the typical South Indian, the typical Gujarati, the typical mother-in-law/daughter-in-law, etc. Describe it in class. How do these people feel when they are stereotyped?

We all tend to learn or develop prejudices about people who are different from us. We should stop and think whether we are being fair to those people. History can show us many examples of how prejudice and discrimination can lead to violence and death. If we need to put an end to prejudice, discrimination and stereotyping, each of us has to take a brave stand. The next time jokes are made or prejudices are expressed about a particular community or group, you could choose to explain to the person why it is wrong to say what they did, and voice your protest.

INEQUALITY AND DISCRIMINATION

Inequality is another basis for discrimination. Inequality takes on various forms like the unequal distribution of wealth, or the unequal status of

men and women. Discrimination on the basis of inequality is different from that based on diversity.

Economic inequality

The unequal distribution of property and wealth in a society causes economic inequality. People who are poor do not have access to good food, clothing, shelter or education. The poor suffer if they are ill, as they cannot pay for expensive medical treatment. As they lack a good education, they are unable to get high-paying jobs. Thus, the poor get discriminated against in many different ways.

In India, the issue of poverty and the issue of exploitation of the oppressed castes have become intertwined. After centuries of exploitation, in India, many people belonging to socially backward castes are also economically backward.

A number of welfare schemes and employment programmes have been started by the government to remove unemployment but the problem continues to be one of the greatest challenges Indian democracy faces today.

Economic inequality exists all around us. While some people can afford to travel long distances on vehicles, many others still have to walk.

Gender inequality

Gender inequality is a form of discrimination that has been practised against women for hundreds of years now. The girl child is usually given less importance and attention in terms of healthcare, food and education. **Female foeticide** and **infanticide** (the killing of female foetuses and babies) are two harmful practices prevalent not only in our villages but also in educated urban families. The demands for dowry, made on the parents of the bride, is another example of social injustice.

The girl child is expected to help out with chores while boys play.

Some of the laws—especially inheritance laws—are biased. For the most part, society in India is patriarchal i.e., a man is the head of the family and the family name is traced through the male line. In India, though the law has given women equal rights to inherit property, it will be a long time before most women are actually given a share of their ancestral property.

A number of steps have been taken for the emancipation and empowerment of women.

Education of the girl child is being given a lot of importance. Laws to prohibit dowry and child marriages have helped to improve the status of women, though in a small way. If women are educated and economically independent, they will be able to understand and fight better for their rights. The Constitution has given special concession to women in various fields. A reservation of 33% seats for women in Parliament has also been proposed.

The union government has taken several steps to encourage the education of girls in India.

But it is an uphill task to remove centuries of injustice, humiliation and lopsided domination by only acts of legislation. Prejudice continues to remain against particular castes, religions and gender. Caste clashes, communal violence and dowry deaths are common even today. An attitude change is essential to overcome these social obstacles; and only education can bring this in.

ENRICHMENT ACTIVITY

Have a discussion in class examining prejudice against people who cannot speak English.

Our Constitution protects diversity

We adopted our Constitution in 1950. It is a vital document that contains the basic framework of government, and the rights of the people of India.

The **preamble**, or the introduction, to the Constitution has declared India a sovereign, socialist, secular, democratic republic, and guarantees social, economic and political justice to all. Our Constitution lays down an impressive list of **fundamental rights** that offers to all citizens those basic freedoms which alone can make life significant and democracy fruitful. Some of the important fundamental rights include the right to freedom of religion, right to equality, and right to freedom of speech.

Fundamental rights can be enforced in a court of law. The right to equality is one of the most important fundamental rights the Constitution of India gives its citizens. This means that no one can be discriminated against on the basis of their gender, caste, religion, race or economic status. If this right is violated, you can seek its enforcement through a court of law. The fundamental rights also ensure that the citizens of India have the right to practise the religion of their choice. The Constitution of India thus protects and encourages diversity.

DO YOU KNOW?

For a long time, the *varna* system which divided society into four classes formed the basis for the Indian social system.

An individual's status and influence in society were determined by birth.

The lowermost in these four classes were the labourers, and they were not given access to places of worship, rivers, wells or places of public entertainment. Apart from the four classes,

there were the oppressed castes, who were not allowed to live in among the other classes. They were humiliated and considered 'untouchables' and their mere presence was thought to 'pollute' the environment.

Glossary

prejudice: a judgment made unfairly without knowing the facts
discrimination: unfair treatment
hierarchical system: a system that accords higher/lower status to different people
affirmative step: favourable action
public sector undertaking: a company run by the government
stereotype: a fixed notion about a group of people
empowerment: giving power
lopsided: unbalanced
constitution: a book of law that lays down the principles on how a country should be run

In Brief

- A judgment made about somebody without getting to know them is known as prejudice.
- Treating people unfairly or in a biased manner is discrimination.
- Skin colour, caste, economic status, gender, etc., can become a basis for discrimination.
- Girls and women are widely discriminated against.
- The Indian Constitution guarantees the equality of all citizens by granting fundamental rights to all.

Enrichment Activities

- **Project/Presentation:** Read about the life and achievements of eminent women in India, for example, Savitribai Phule, Mother Teresa, Mary Kom and Lata Mangeshkar. Working in groups, create a project, or presentation, on any of these women. Each group can choose a different person. Focus on any challenges they might have faced because of their gender.
- **Find out:** Find out about the laws of inheritance for women in India.
- **Diary entry:** Your friend has had an accident and is in a wheelchair. Write a diary entry on all the different ways you and your other friends tried to help her.

Movies to watch:

- *Taare Zameen Par* (about a boy with dyslexia)
- *Iqbal* (about a boy who cannot speak or hear, wanting to become a cricketer)
- *Anjali* (about a mentally challenged girl)
- **Role Play:** Given below are certain situations that reflect prejudice. The students can form groups and role play these situations. The students can also suggest ways in which the person discriminated against could deal with the situation. How can such prejudices be removed from the minds of people?

1. Making fun of someone's weight
2. Not playing with someone because he or she does not dress 'smartly'
3. Teasing people because they speak a different language
4. Calling people names because of skin colour.
5. Ignoring someone because he or she is in a wheel chair
6. Not letting a girl play cricket because she is a girl
7. Not letting a boy take dance lessons because he is a boy

- **Make a Poster:** Do you know that the International Girl Child Day is celebrated on September 24? Make a poster to celebrate this day. You can paste pictures, draw or write a slogan. You can even make a 3D poster. You could get ideas from the following site: http://www.ehow.com/how_6462303_create-3d-craft-poster.html

Exercises

I. True or False?

1. Untouchability no longer exists in India.
2. A stereotype is an unfair generalisation.
3. Inequality can form the basis for discrimination.
4. The law has given the women equal rights to inherit property.
5. The Constitution discourages diversity because it causes discrimination.

II. Fill in the blanks.

1. When prejudice is expressed in action, it is called _____.
2. The practice of untouchability is a _____ offence.
3. The chief architect of the Indian Constitution was _____.
4. The Constitution has granted fundamental _____ to all Indians.

III. Answer the following.

1. Explain the terms 'prejudice' and 'discrimination'.
2. Explain how caste forms a basis for discrimination.
3. What is meant by 'stereotype'? Give an example.
4. Give two examples to show how girls and women are treated unfairly.
5. Why does the law prohibit dowry and child marriage?
6. How does the Indian Constitution prevent discrimination?

Multiple Choice Questions

1. Which of these actions is not born out of prejudice and discrimination?
   a. an underprivileged child not being allowed to play football with the other children
   b. the person who cleans the bathrooms being told to enter the house from the backdoor
   c. children laughing at a boy who is mentally disabled
   d. a child with chickenpox not being allowed to play with the other children
2. Which of these is not a stereotype?
   a. Radha enjoys cooking because she is a woman.
   b. Women travelling alone late in the night face more danger than men.
   c. Shyam is better at science than his sister because he is a boy.
   d. Tejvinder is a jovial person because she is Punjabi.
3. Gender inequality means
   a. discrimination against women
   b. boys are stronger than girls
   c. girls can do things better than boys
   d. the killing of female babies
4. Which of these does not violate a fundamental right of a citizen of India?
   a. Ali is denied a job because he is a Muslim.
   b. Rekha's salary is less than half that of her male counterparts.
   c. A man is arrested for damaging a national monument.
   d. A man is arrested for taking part in a peaceful procession.
5. A patriarchal society is one where
   a. a man is the head of the family
   b. a woman is the head of a society
   c. a man alone can inherit property
   d. a man alone can take part in religious functions

HOTS: Think and Answer

Have you ever seen anybody being discriminated against? Why do you feel the person was discriminated against? In what way was the person discriminated against? Share your thoughts with your classmates.

Values that enrich

Sai is an eleven-year-old boy. He is a little plump. Whenever the class plays football, they never ask Sai to join their team. Sai feels very hurt. Is this good behaviour? What values must the class adopt?

Life skills

Developing empathy/Decision making

Manual scavenging is banned in India. However, millions of Indians continue to earn their livelihood by cleaning human excreta. This is a violation of our Fundamental Rights, where every citizen of India is promised a life of equality, dignity and justice. How can this practice be stopped? What can each of us do to solve this problem? Remember: Just banning the practice is not enough. These people have to be given alternate jobs.

3. Understanding Government

Imagine a life without any order, rules or laws. Imagine what would happen in your school if there were no rules—no fixed time to attend school, no minimum attendance, no one to tell you to maintain silence, no school uniform, teachers not taking classes because they did not have to take classes after all... Does it sound like fun? Think about it for a little while.

Now extend this 'no-rules life' a little further—imagine if your neighbours decide that they like your house more than theirs, and just move into your house one day. Imagine if thieves steal everything from your house one night, and there were no police to catch the thieves. Imagine if

Does this look boring? ... And does this look like fun?

No electricity?

Not a drop of water to drink?

the garbage in your area is not cleared for days, electricity and water supply to your area gets cut off ,and there is no one to whom you can complain to get it repaired. That is no longer fun, is it?

There would be total confusion if each person decided to do what he or she wanted, without bothering about the rest of society. To live in a community, peacefully and fruitfully, human beings need some rules and laws; they need to be **governed**.

THE MEANING OF GOVERNMENT

What is government? The word government comes from the Latin word *gubernare,* which means to steer a ship, to guide, or to rule. In every society there is a person, or a group of people, whose commands the rest of the community has to obey. This body is called the government of the country,

and the varieties which may exist in the way the body is formed, and the way in which it rules, are known as forms of government.

A government has the power to settle disputes, to administer the land, to make and enforce laws, and to use force (i.e., the police, the army, etc.) when necessary to protect the interests of the people. So a government is the body that rules a state.

THE NEED FOR GOVERNMENT

As people started leading settled lives, their needs and requirements grew and became more complex. They needed some person, or a group of people, who could take care of the administration of the settlements; someone who could settle disputes; someone who could protect them from enemies. One of the earliest forms of government was the monarchy, where the king looked after the needs of the people and maintained order in the kingdom. Nowadays, most nations are run by democratic governments.

Can a society run without a government? It can, if every person in society cooperates totally with everyone else in that society. But that can never happen. Can your class maintain perfect discipline, and will all of you study quietly, if there is no teacher or monitor in class?

Without government, our lives would be full of chaos and confusion. While laws and rules might seem irritating and unnecessary, they are there for our own welfare.

A modern-day government has certain basic functions to fulfil. They are as follows.

- **Administration**—to manage the day-to-day affairs of the country. The government provides basic infrastructure like roads, railways, postal services, public transport, street lighting, public facilities like parks and libraries, etc. It maintains relations with other nations.
- **Security**—to protect the state from attacks from other countries. For this purpose, governments maintain an armed force consisting of an army, an air force and a navy. Governments also have to maintain law and order within the country.
- **Economics**—to ensure the economic security of the country. The government controls the finances of the state, issues currencies, controls trade, and decides the economic policies of the state.
- **Social security**—to take care of the people by providing health care facilities and old age pension, preventing the discrimination of disadvantaged groups and ensuring equal opportunities to all. In times of natural disaster, the government rescues and takes care of the affected.

Roads

Railways

Post and telegraph

The Indian Army rescuing people during floods in Gujarat

- **Environmental security**—to protect the natural environment of the state. The government tries to keep pollution and overexploitation of resources under control.

VARIOUS FORMS OF GOVERNMENT

Over the past 5,000 years, human beings have tried various forms of government. The earliest form of government was probably that of tribal chieftains over their tribes. They were followed by monarchies and then democracies. Let us look at some of the forms of government present in the world today.

Monarchy

For a long time, monarchies were the most common form of government in the world. In a monarchy, the king or the queen is the head of the government. All power rests with the monarch, and he or she has the final say in running the country. The position of the monarch is hereditary, i.e., the position passes from the king or queen to one of their children.

Most of the monarchies that survive today, however, are ruled by kings or queens in name alone, like Britain. The monarch no longer has much power. Actual power lies in the hands of an elected parliament.

Dictatorship

A dictatorship is a form of government where a person or small group of people rule the country without the collective approval of the people. The common people have no say in such a government. No elections are held. All power lies with the ruling group or the dictator, who can rule as long as they are able to hold on to power. People have no freedom of expression under this system of governance.

ENRICHMENT ACTIVITY

Make a list of all the countries that are currently ruled by dictators.

Democracy

In the course of time, monarchies were replaced by democracies. A democracy is a form of government that is of the people, by the people, for the people. In a democracy, people elect representatives who rule the country on their behalf. The government,

People of different religions, gender and economic backgrounds waiting to cast their vote in a village in Bihar

which consists of the elected representatives of the people, has the collective approval of the people to rule the country. The government is answerable to the people who have elected them to power.If the people are not happy with the performance of the government, they can vote it out of power in the next elections.

Democracy is the most widespread form of government in the world today.

FEATURES OF DEMOCRACY

Collective decision-making and participation

In a country like India, which has such a diverse population, a government's role is of special importance. Any decision the government takes has to involve all the groups in the state; only then can there be justice. All the members of a country should therefore participate, i.e., take part, in the decision-making process of the government. Decisions have to be made collectively by all sections of society. If only the wealthy and powerful people take decisions, the poor will suffer.

For example, suppose the government needs to build a new airport. The place where they decide to locate the airport is agricultural land where several farmers have their fields. In a democratic government, where decisions are made collectively after debate and consultation, the representatives of the farmers would try to make the rest of the government see the impact such a decision would have on the farmers. The government may then have to reconsider its decision.

This is the benefit of collective decision-making through participation. A government which includes representatives from every group of society

Participative democracy—an all-women political rally in progress

is called a **representative democracy**.

Universal adult franchise

Most early democracies were not truly participative. Usually, the nobles and the wealthy people of the country were the only ones who were allowed to vote. Over time, however, the common people started demanding the right to vote too. After a long and often bitter struggle, first all men and then women were allowed to vote. When all the adult citizens of a country have the right to vote, it is known as **universal adult franchise**. In India, every person over the age of 18 has the right to vote.

The joy of being eighteen and voting for the first time

CASE STUDY: THE SUFFRAGETTE MOVEMENT

As you just read, for a long time women were not allowed to vote. It was thought

that women were not capable of taking sensible decisions. Women were supposed to stay at home and take care of the family. Men claimed that women who took part in politics would destroy the peace of the house by arguing. These are stereotypes which were used to oppress women for a long time.

Feminist suffrage parade, New York City, 1912

The Suffragette Movement was the name given to the struggle taken up by women demanding the right to vote. It gets its name from the word suffrage, which means 'to vote'. This movement was started in 1848 in the USA.

The fight for suffrage for women soon spread to several countries of Europe, America and Australia. In 1902 Australia, and in 1920 the USA, allowed women to vote for the first time. In Britain, where the movement gathered strength towards the end of the 19th century, educated women over the age of 30 were allowed to vote in 1918. In India, universal adult franchise was adopted at the time of independence, so women have had the right to vote from the first general election in 1952. All citizens over the age of 18 can vote.

Case study: The Anti-Apartheid Movement

In white-ruled South Africa, between the years 1948 and 1994, non-white people were not allowed to live in areas occupied by white people. They had separate schools and separate public facilities. They were denied basic human rights and political rights. They were treated as outsiders in their own land by the whites. This policy of discrimination against the blacks by the whites of South Africa came to be called apartheid. Apartheid means 'apartness' in Afrikaans language. (Locate South Africa in an atlas.)

The Anti-Apartheid Movement was launched by the blacks of South Africa to fight against this discrimination. This movement was led by **Nelson Mandela** of the African National Congress.

Nelson Mandela and his wife Winnie after he was released from prison in 1990

Mandela was sent to prison for 27 years by the South African government for leading the Anti-Apartheid Movement. The blacks finally got their freedom and the right to form their own government in 1994. The blacks of South Africa voted freely for the first time in the elections of 1994. The election was won by Nelson Mandela. He formed the first mixed-race government of South Africa, where the blacks and the whites had equal rights under the law.

These two movements—the Suffragette Movement and the Anti-Apartheid Movement—were important events which helped in spreading the principle of universal adult franchise and upholding the principles of democracy.

Glossary

franchise: the right to vote
suffragette movement: a women's movement demanding the right to vote
apartheid: a policy of discriminating against non-whites in South Africa
monarchy: rule by king or queen
dictatorship: rule by a person or group with absolute powers
democracy: rule by the citizens

In Brief

- The government of a country takes care of the administration and enforces law.
- Governments perform administrative and economic functions, and provide social and environmental security.
- In India, every person above the age 18 has the right to vote.
- The suffragette movement of many democracies and the anti-apartheid movement in South Africa were important movements in history that spread the principles of democracy.
- Democracy is the most widely followed form of government today.

Enrichment Activities

- **Debate:** Have a debate in class on the topic, 'We do not need rules and laws in our lives.'
- **Presentation:** Make a presentation on the Anti-Apartheid Movement. Focus on the nature of the movement, what they were fighting against, the leaders of the movement, main events and eventual victory.
- **Make a collage:** Collect pictures of people voting, or Election Day, in different countries of the world. Make a collage with the pictures, and give it an appropriate title.
- **Project work:** Choose any country in the world. Find out the kind of government it has, who the present leader is and for how many years it has had this form of government. You can present your work in the form of a chart or a booklet.
- **Diary entry:** Write in a 100 words what kind of a government you would like India to have. Would you like India to be ruled by a monarch, a dictator, or in a democratic fashion? Give reasons for your choice of government.

Exercises

I. True or false?

1. The government issues the currency of a country.
2. In India, women were not allowed to vote in the first general elections in 1952.
3. The position of a king is hereditary.
4. A dictator holds regular elections.

II. Fill in the blanks.

1. The _____ is the body that rules a state.
2. A _____ is a form of government where one person or a group of people rule the country without the approval of the public.
3. _____ was imprisoned for 27 years for leading the anti-apartheid movement in South Africa.
4. _____ is the most widespread form of government in today's world.

III. Answer the following.

1. Why is a government necessary?
2. What are the different functions a government performs?
3. What are the administrative functions of a government?
4. What are the economic functions of a government?
5. What do you understand by collective decision-making?
6. Explain the meaning of the term 'universal adult franchise'.
7. Write a note on the suffragette movement.
8. Write a note on the anti-apartheid movement.
9. Describe the features of a monarchy.
10. Describe the features of a dictatorship.
11. Explain why democracy is the fairest form of government.

Multiple Choice Questions

1. Which of these can we manage without a government?
   a. providing infrastructure like roadways, railways, postal services and street lighting
   b. the security of the nation
   c. the economy of the nation
   d. growing crops and make pots for sale in the village market
2. In a monarchy
   a. the president is the head of the government
   b. the prime minister is the head of the government
   c. the king or queen is the head of the government
   d. the power rests with the people
3. A form of government where a person rules the country without the collective approval of the people is called
   a. democracy
   b. monarchy
   c. dictatorship
   d. republic
4. Which of these is not a feature of a democracy?
   a. collective decision making and participation
   b. position of the ruler is hereditary
   c. universal adult franchise
   d. equality of all in the eyes of law
5. Universal adult franchise means
   a. all the males above the age of 18 have the right vote
   b. all the women in the country have the right vote
   c. all the people of the country have the right vote

d. all the men and women above the age of 18 have the right to vote

6. The struggle by women demanding the right to vote was called the
   a. Suffragette Movement
   b. Anti-Apartheid Movement
   c. Adult franchise
   d. Feminist Movement
7. Apartheid was practiced by the whites of
   a. England
   b. United States of America
   c. Russia
   d. South Africa
8. In India,
   a. all citizens over the age of 18 can vote
   b. all citizens can vote, except those who live below the poverty line
   c. only the literate can vote
   d. men over 18, and women over 22 can vote

HOTS: Think and Answer

What are the benefits of universal adult franchise as compared to selective franchise?

Values that enrich

The Delhi-Howrah Express was running late by three hours. The people in the train were restless and angry with the government for its inept running of the Indian Railways. Later they learnt that the delay was not the fault of the Railways. It was caused by a group of protesters blocking the railway tracks. What values can you learn from this incident?

Life skills

Critical thinking/Effective communication

'Power corrupts, and absolute power corrupts absolutely.' What is the meaning of this sentence? How can it be used to explain why a democracy is the most popular form of government in the world today? Think about it and have a discussion in class. Give examples to prove your point.

4. Elements of a Democracy

A democracy has certain key elements which make it the most preferred form of government today. These elements include participation, accountability, conflict resolution, and concern for equality and justice.

Participation

What does participation mean? Participation means 'to take part in'. In a democracy, every citizen has the right and the means to participate in the decision-making process of the government.

In a democracy, there is a free and fair system of **election** for choosing representatives to the government. People participate in governance by electing the person whom they feel understands their problems the best. This person acts as their representative in the government.

However, participatory citizenship goes beyond just taking part in elections to actively taking part

Campaigning for the elections

Casting the vote

Counting the votes

Celebrating victory

The process of participation in a democracy through elections

in policies and decision-making. In democracies, citizens directly participate in, and influence, government decisions, through methods like **strikes**, **protest marches** and **rallies**. Some democracies also use **referendums** as a method of letting people participate directly in government decisions. A referendum happens when a law or act is referred to the citizens for final approval. The citizens decide the issue by popular vote.

The **media** is another powerful tool of direct participation. In a democracy, the government does not control the media. People can therefore express themselves freely through newspapers, television and radio. The opinions expressed thus often force the government to change its decisions. The media acts as a protector of freedom and justice in a democracy.

Accountability

Accountability means being responsible for one's actions. Every citizen has the power to hold their elected representatives accountable if they are dishonest, inefficient or irresponsible, or if their actions violate the fundamental rights of the citizens.

Enrichment Activity

Find out at least one instance where the government's decision has been changed, or the government has had to postpone a decision, because of the active protest of the citizens of the country. One such example is that of Nandigram.

Nandigram near Kolkata in West Bengal is a fertile farming area consisting of around 38 villages. In December 2006, the government of West Bengal decided to acquire thousands of acres of land in Nandigram for the purpose of setting up a special economic zone (SEZ). This move would have destroyed the homes and livelihoods of around 40,000 people in Nandigram.

Instead of giving in, however, the people of Nandigram fought back. Finally under pressure from people from all sections of society who now came out in support of the villagers, the government withdrew its decision to build an SEZ in Nandigram.

Read up more about what happened in Nandigram. Remember, a government is always under pressure to build industries to make the state develop faster. To build industries, however, the government needs to acquire land. But what happens to the people whose land is taken away? Think about this and then have a discussion in class.

This picture shows people protesting against the commissioning of the Kudankulam Nuclear Reactor in Tamil Nadu. Find out more about this project. Why were the local people objecting to it? Why did the government want to set up the plant?

The elected representatives are accountable to the people who elected them. In case the elected representatives turn out to be dishonest or inefficient, there are independent bodies like the **judiciary** and the **police** to take them to task and punish them. By making the judiciary an independent body, the Constitution has ensured that judges cannot be influenced by political leaders or forced to obey them. Citizens can register complaints or lodge cases against erring political leaders, however powerful they may be, in courts of law.

No one is above the law—popular actor Sanjay Dutt leaving the court after a hearing

Every democracy has a **constitution** which specifies the powers of the government and the rules which govern the country. The constitution also contains laws to safeguard the interests of everyone. It lists the fundamental rights of the citizens, which the government has to protect. The constitution thus acts as a check on the misuse of power by the government. The provisions of the constitution are protected by the judiciary.

In 1975, Indira Gandhi, the prime minister of India at the time, declared a state of Emergency in India. It gave her the power to suspend elections and the civil liberties of the people of India. In 1976, when a citizen of India challenged the right of the government to violate a citizen's right to life, Supreme Court judge Justice Khanna ruled that — *fundamental rights, especially the right to life, cannot be violated even during Emergency.* The people of India voted Indira Gandhi out of power in the next General Election.

Justice Khanna

Conflict resolution

The Earth has limited natural resources like land, water, petrol, etc. However, the demands on these limited resources are increasing each day with our steadily growing population. When the resources are limited, but the demands on it many, there is conflict or trouble between the various people or groups who need that resource. In every society, there are different interest groups. When these interest groups clash over some issue, conflict results. In India, for example, many states are locked in conflict over the issue of sharing river waters.

In a country like India where there is such human diversity, conflict also arises between people belonging to different religious groups, castes and regions, and even between the rich and the poor.

In a democracy, there are various established methods to resolve such conflicts. The **judiciary**, or the court of law, is the main body which deals with conflict resolution in a democracy. The court is an impartial body and is, therefore, expected to resolve conflicts in a fair and just manner.

The **police** is another body which deals with conflict resolution. The police is responsible for maintaining law and order in the country on a daily basis. In cases where the police is unable to control the situation, the army is brought in. The army imposes curfew in troubled places, and conducts flag marches to make people feel safe.

Police dealing with picketers at the scene of a train blockade in Tamil Nadu

Concern for equality and justice

Another key element of democracy is the provision of equality and justice for all its citizens. In a democracy all should be treated equally, whether they be rich or poor, whatever be their religious belief, caste, race, language, etc.

All are equal in the eyes of the law. Not even the prime minister or president of a country is outside the force of law in a democracy.

In India, which has seen millions suffer because of the caste system and the system of 'untouchability', the constitution makes special provision for the welfare of the oppressed and backward castes. Seats are reserved for them in parliament, educational institutions and government undertakings. Several laws have been passed prohibiting the discrimination of people on the basis of caste, creed or colour.

One of the most pressing problems facing the government is the gender bias in India. Girls are often treated as second-class citizens. Female foetuses and babies are killed, as the birth of a girl child is seen as unwelcome. The government has launched several projects to try and prevent female infanticide (the killing of baby girls). Girls are given free schooling. In some states, parents are paid money by the government if they let their girl child study in school.

This effort to treat all people as equal, regardless of their sex, race or religion, is a hallmark of democracies around the world.

These are some of the more important elements of a democracy, which make it the most accepted form of governance in the modern world.

Glossary

referendum: a direct poll on a government decision
media: newspapers, radio, television, etc.
judiciary: the courts of law
curfew: an order that bans people from being out on the streets
foetus: a developing baby inside the womb
hallmark: a distinctive characteristic

In Brief

- Participation of people in decision-making is a key element of democracy.
- Elected representatives are answerable to the people. This is known as accountability.
- The judiciary is the major body that deals with conflict resolution in a democracy.
- Democracies provide equality and justice to all citizens.

Enrichment Activities

- **Debate:** Have a debate in class on the topic—'A country progresses faster under a dictatorship.'
- **Group work:** Divide the class into 4 groups. Each group can choose a topic from the ones given below. The group can collect information on the topic. They can go through old newspapers or search the Internet and source pictures and news items on the topic they are working on.
  - The protest to save Silent Valley in Kerala
  - The protest for the introduction of the Lokpal Bill
  - Each group would have to find out the outcome of the protest. Did the government agree to the protesters and change its decision or was the protest in vain? Present your work in the form of a booklet or a chart.
- **Chart work:** Find out and make a chart on the following information. Remember to paste pictures of the political leaders.

1. When did the last parliamentary election take place?
2. Which political party won the maximum seats?
3. Which political party formed the government?

Exercises

I. True or false?

1. In some democracies, the government holds referendums on important issues.
2. The police are responsible for the maintenance of law and order.
3. The Prime Minister of India is not answerable to the courts.

II. Fill in the blanks.

1. Decision by popular vote is called a _____.
2. Elected representatives are answerable to the _____.
3. The _____ is the main body of conflict resolution in democracies.

III. Answer the following.

1. What are the key elements of democracy?
2. Explain the meaning of participation.
3. Explain the term 'accountability'.
4. What is meant by conflict resolution?

5. What are the steps taken by the government for the welfare of the people treated as untouchables?

6. Describe how democracies ensure equality and justice for all.

Multiple Choice Questions

1. In a democracy, people actively participate in decision-making through
   a. strikes and protest marches b. elections
   c. only 'b' d. 'a' and 'b'
2. The media in a democracy
   a. is controlled by the government
   b. is controlled by the big business houses of the country
   c. acts as the protector of freedom and justice
   d. cannot express the views of the common people
3. If an elected representative turns out to be dishonest, the people
   a. can throw him/her out of his/her house
   b. can register cases against him/her in a police station or court of law
   c. can force the police to arrest the leader
   d. cannot do anything till the next elections
4. In a democracy, which is the main body created to resolve conflicts peacefully and impartially?
   a. the judiciary b. the Constitution
   c. the Parliament d. the police
5. The measures taken by the Indian Constitution to ensure the welfare of the dalits include:
   a. reservation of seats in the Parliament for the dalits
   b. several laws passed prohibiting the discrimination of dalits
   c. reservation of seats for dalits in educational institutions
   d. all of the above

HOTS: Think and Answer

The government of India has, since independence, taken several steps to put an end to casteism in India. Do you think that discrimination on the basis of caste no longer takes place in India? Defend your answer with examples.

Values that enrich

In the 1970s, a group of villagers launched a movement to protect forests in the Himalayas. This movement, called the Chipko Movement, finally forced the government to ban the cutting of trees in the Himalayas for a period of 15 years. What values can we learn from their struggle?

Life skills

Decision making/Empathy

Your best friend tells you that she will not be coming to school anymore. She says that her parents cannot afford to send both her brother and her to school. So they want her to stay at home and help her mother with the housework. How would you react?

- You comfort your friend and tell her to accept what has happened, as in this world girls have to sacrifice their dreams for the good of the family.
- You comfort her. Then you go home and ask your parents if they could pay your friend's school fees too, so that she could continue her studies.
- You are shocked and upset. You run to your friend's house and plead with her parents to let her continue her studies.
- You go and talk to your class teacher. With her help you start collecting money for a fund that can be used to pay your friend's fees. Explain your decision.

5. Panchayati Raj—Local Government of Rural Areas

As you saw in the last chapter, the role of the government is to take care of the requirements of a society. To be able to rule a country efficiently, most governments work at different levels—the **national level**, the **state or regional level** and the **local level**. In India, the central government rules the country at the national level, the state governments rule at the state level, and Panchayati Raj takes care of government at the local level.

In this chapter, we will study the government of India at its lowest level—we will take a look at the **Panchayati Raj** system.

Panchayat

More than half of India's population lives in villages. But since independence, there has been a steady movement of people from the villages to the cities. All people, whether in villages, towns or cities, have certain basic needs in common. Everyone needs access to safe drinking water, health care, education, electricity and sanitation. These are requirements

A woman sarpanch at a panchayat meeting

which are specific to each area or locality. To take care of these services, local bodies are elected by the people.

LOCAL SELF-GOVERNMENT

Local self-government is a system where the problems of a local community are managed by

A well-maintained village in Tamil Nadu—the panchayat ensures the provision of street lights and drains, and the maintainence of streets.

people belonging to that community. The people of an area elect bodies that are responsible for solving their problems through the proper use of local resources. Issues like sanitation, water supply, electricity supply and the maintenance of public roads and other facilities are best managed at the local level as local governments are closer to the people of their areas. They understand the needs, requirements and problems of the people better than people sitting in the central or state governments would.

In India, the needs and problems faced by people living in villages are very different from those faced by people living in towns and cities. So, separate systems of local government have been developed for both areas. Villages, or rural areas, are governed by **gram panchayats**, **panchayats samitis** and **zilla parishads**. Towns and cities are governed by **municipal corporations**, **municipalities** and **nagar palikas**.

Local government

RURAL	URBAN
Zilla parishad	Municipal corporation
Block samiti	Municipality
Gram panchayat	Nagar Palika

PANCHAYATI RAJ

People face all kinds of problems in their day-to-day lives—a powerful landlord may have forcibly taken away a poor farmer's land, the village hand-pump might have run dry, someone's cattle might be eating someone else's crop, the roof of the panchayat school might have fallen in, or there might be no doctor in the local health centre. Our country being so vast, it is impossible for the central or the state governments to look into these issues directly. Therefore it was necessary to have a system of local government that could take care of the requirements of the rural population and implement policies meant for them. We call this system **Panchayati Raj**.

> It was Mahatma Gandhi's firm belief that 'Independence must begin at the bottom. Thus every village will be a republic or panchayat having full power. It follows, therefore, that every village has to be self sustained and capable of managing affairs even to the extent of defending itself against the whole world.'

Panchayati Raj in ancient India

The Panchayati Raj system is a three-tier system of local administration based on the concept of the **panchayat**. The panchayat, which literally means a group of five people, has been a part of our village life for several hundreds of years. The panchayat consisted of five respected elders of the village. They would meet regularly to hear out and try to solve the problems of the villagers. They were also concerned with the collection of land revenue in cash or as products. The revenue collected was given to the ruler of the area in return for the protection he offered. The villagers, in turn, trusted the judgement of the panchayat members, and had to obey their decision.

Ancient religious texts also mentioned the importance of the system. Indian kingdoms have had panchayats to speed up administration at the

Women panchayat members—empowerment of women

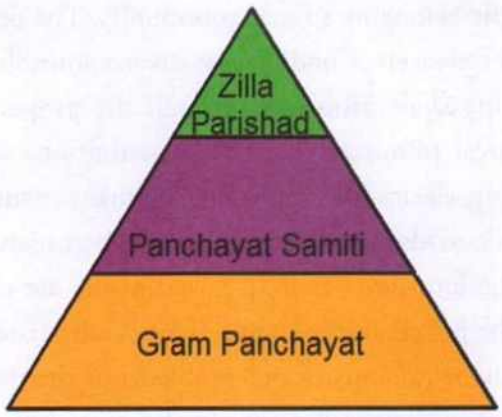
village level. You will learn in history how they dispensed justice as well. The system went into decline when the British started ruling India in the 19th century. The Panchayati Raj system was started once more by the Indian government after independence.

Why is Panchayati Raj essential?

1) Panchayati Raj is best suited for the development and administrative needs of rural people.
2) It gives villagers a chance to actually participate in decision-making.
3) Social and economic justice can be best achieved if local people are a part of the governing body.
4) No one can be as familiar and as concerned about their problems as the local people themselves. This understanding of their problems will help them find solutions suitable to their needs.
5) Panchayati Raj trains the people to manage their own affairs.
6) It helps them gain experience in administration.
7) It teaches the youth at the grassroot levels about the workings of a democracy, and trains them to be the leaders of tomorrow.
8) The villagers learn to cooperate and work together to solve their problems.

Enrichment Activity

Since 2005, the Ministry of Panchayati Raj gives awards for the best performing states and panchayats. Find out if panchayats in your state have won any award.



How does the Panchayati Raj work?

In 24 April 1993, a law came into effect which made it compulsory for all states with a population of more than 20 lakhs to have a three-tier system of Panchayati Raj. Constitutional status was given to the Panchayati Raj institutions. A system of local democracy was created at:

- The village level called the **gram panchayat**
- The block level called the **panchayat samiti**, consisting of 10–20 gram panchayats
- The district level called the **zilla parishad**, consisting of 4–10 blocks or panchayat samiti

The Gram Panchayat

The village panchayat consists of three bodies:

a) The **gram sabha**: This is the general body to which all adults of the village, above 18 years of age, belong.

b) The **gram panchayat**: This is a small committee elected by the members of the gram sabha. The number of members of the gram panchayat differs from state to state. Each panchayat is headed by a **sarpanch** or **pradhan**. The panchayat secretary, appointed by the government, maintains records of the work done by the panchayat. Seats are reserved for members of scheduled castes and scheduled tribes. One-third of the seats have been

reserved for women. In some states, upto 50% of the seats are reserved for women.

c) The **Nyaya Panchayat**, or the village court: This body provides speedy justice to the villagers. It has more than one village under its control. Nyaya panchayats deal with minor cases like petty thefts and only have the power to impose fines. They cannot send an offender to jail. Nyaya panchayats render valuable service by extending cheap and quick justice to the villagers.

A village market

A primary school in a village

A primary health centre

The Functions of the Gram Panchayat

The gram panchayat performs many functions. It is responsible for the

- construction and repair of village roads
- provision of electricity and street lighting
- provision of drinking water by maintaining public wells and tanks

Building and maintaining roads and the provision of electricity

- maintenance of public health and sanitation
- building and supervision of primary schools
- maintenance of records of births and deaths
- supply of seeds and fertilisers to farmers

Source of Income

Where does the gram panchayat get the money needed to carry out all its functions?

- The gram panchayat imposes and collects taxes on land, electricity, water, etc.
- It levies taxes on houses, markets, fairs, etc.
- It also gets aid in the form of grants from the government.

Children setting agendas for Panchayats

Many states in India have started Children's Panchayats (Bal Panchayats). This programme hopes to educate children in democratic values and practices. It will also help prepare them to become future citizens of India. They address issues such as fuel and water problems, building of roads and bridges, child labour and child marriage.

Panchayat samiti

The **Panchayat samiti** or **block samiti** is the middle rung or the second level in the Panchayati Raj system. The members of the panchayat samiti

are elected by the sarpanchs of all the villages of that block. Members of the legislative assembly (MLAs), members of the legislative councils (MLCs) and members of parliament (MPs) from that block are also members of the panchayat samiti. It is compulsory to have representatives from scheduled castes and scheduled tribes. From one-third to upto 50% the seats are reserved for women.

Members of a block samiti elect a **block chairman** or **block pramukh**. The members have the right to remove the pramukh if they are dissatisfied with him or her. The block samiti is elected for a term of five years. The **block development officer** (BDO) appointed by the state government is the secretary of the samiti and takes care of its administration.

Functions

- To prepare, execute and co-ordinate the programme of community development at the block level
- To implement plans for the development of agriculture—distribute seeds, implements, and fertilisers to the farmer
- To help in the development of animal husbandry, poultry and fishery
- To look after drinking water supply, sanitation, education and rural health

A doctor at a rural health centre, Bihar

- To promote small-scale and cottage industries and co-ordinate the working of the block development officer and the executive officer

Sources of Income

- Taxes on land, property, cattle, etc.
- Grants-in-aid from the state government

Zilla parishad

The zilla parishad is the highest body in the Panchayati Raj system. It co-ordinates the working of the block samitis in the districts. It provides a vital link between the village panchayat, the block samiti and the state government. It looks after the welfare of the district as a whole.

The success story of Mayatai Sorte

Mayatai Sorte was born into a dalit family in a village in the Latur district of Maharashtra. She faced poverty and discrimination in her childhood. She witnessed the hardships faced by the women of her village, especially the dalit women. They had to walk 3–4 km to fetch a pot of water. Roads and electricity were only available in the 'upper caste' areas.

But with courage and perseverance, Mayatai fought back against the caste and gender bias in her village. Mayatai is a respected member of the gram sabha now, and continues to lead the women of her village in their struggle on various issues. She fought against untouchability in her village. She has been able to install tube wells to supply drinking water for the poorer sections of the village. She has formed several self help groups (SHGs) to empower women.

Mayatai demonstrating against gender-based violence in Latur

Block development officers and health workers advising villagers

Empowerment of women by Panchayati Raj

Composition

All the presidents of the block samitis in a district are members of the zilla parishad. Members of the state legislature, members of parliament, chairpersons of municipal boards and mayors of corporations from the district, are also members of the zilla parishad.

Seats are reserved for representatives of scheduled tribes and scheduled castes. From one-third to upto 50% of the seats are reserved for women.

Functions

1. It prepares plans for the development of the district based on reports submitted by the block samiti and the gram sabha.
2. Improvement in agricultural production, sanitation and health, maintenance of roads and other developmental actions are some of the tasks taken up by the zilla parishads.
3. It distributes the funds allotted to the district by the central or state government among the panchayat samitis.
4. It builds and maintains secondary, vocational and industrial schools in the district.

Sources of Income

1. Government grants
2. Taxes
3. Rents from property

Thus, the Panchayati Raj system, if properly implemented, ensures that each citizen has a voice in the running of the nation.

Glossary

local self-government: democratic government at the level of villages and towns
gram panchayat: a village-level governing body elected by the gram sabha
panchayat samiti: a body with members elected by all sarpanchs of a block; also called block samiti
zilla parishad: a district-level body of local self-government
sarpanch: the head of a gram panchayat; also called pradhan
sanitation: maintaining cleanliness of the surroundings
vocational schools: an institute that trains students to become skilled workers for industries

In Brief

- Local self-government (Panchayati Raj) is a system by which people of a town or village govern themselves.
- Social and economic justice can be best achieved by local self-government.
- Local self-government of rural areas is a three-tier system consisting of gram panchayat, block samiti and zilla parishad.
- The head of the gram panchayat is known as the sarpanch or pradhan.
- Gram panchayats provide facilities like primary schools, drinking water and street lights, and maintain public health and sanitation.

Enrichment Activities

- **Newspaper reading/Report writing:** Read the newspaper daily for a month. Cut out articles which refer to the functioning of panchayats. Make a file of the paper cuttings. Write a report based on these cuttings, and share it with your class.
- **Field visit:** During your holidays, visit any village and see how the panchayat functions.
- **Role play:** Create a Panchayat in your class. Hold elections to choose the members of the Panchayat. The other students would take on the role of the people of the village, and come to the Panchayat with their problems. (Choose real problems villagers face, like disputes over land, water, cattle, and lack of civic amenities like drinking water, electricity, sanitation, schools and health centres.) The Panchayat has to try and solve the problems. Students could take turns to become members of the Panchayat.
- **Project Work:** Divide the class into groups of 4-5. Find out about women sarpanchs who are making changes at the village level. Find out about their work and the changes they have made. Present your work in the form of a chart or booklet.
- **Write a letter:** Write a letter to your Block Development Officer complaining about the road that links your village to the nearest

town. Tell the officer that your village lies 22 km from the town. The villagers need to take their fruits, vegetables and milk to the town-market to sell. Ask the Block Development Officer to build a road that takes a shorter route to the market, and also to make the road pucca so that it is usable even during the monsoon months.

Exercises

I. Fill in the blanks.

1. Local government of rural areas is also known as _____.
2. The head of the village panchayat is known as the _____.
3. The gram sabha elects the members of the _____.
4. The _____ or village court disperses speedy justice to the villagers.

II. True or False?

1. Members of the block samiti elect the sarpanch.
2. Members of the block samiti elect the panchayat secretary.
3. Members of the block samiti elect their pramukh.
4. Members of the block samiti elect their block development officer.

III. Give answers in brief.

1. Why is local self-government necessary?
2. Name the various levels of the Panchayati Raj system in rural areas.
3. What is a gram sabha?
4. Why is local self-government described as 'power to the people'?

IV. Give your answers in three or four sentences

1. Explain any three functions of the village panchayat.
2. Explain how a nyaya panchayat functions.
3. How does the block samiti directly encourage agriculture and cottage industries?
4. What is the composition of the zilla parishad?

Multiple Choice Questions

1. Panchayati Raj is
   a. the three tier system of local administration of rural areas in India
   b. a group of five village elders who solve the problems of the villagers
   c. the system by which urban areas are administered in India
   d. all of the above
2. Which of these is NOT a benefit of the Panchayati Raj?
   a. it gives the villagers a chance to participate in decision making
   b. the villagers are best able to understand and solve their problems
   c. with levels of literacy and awareness being low, the Panchayats can be cheated or taken advantage of by outsiders
   d. it gives the villagers experience in administration and politics
3. Which of these is NOT a function of the gram panchayat?
   a. construction and repair of village roads
   b. maintenance of public health and sanitation
   c. building of secondary and higher secondary schools
   d. provision of drinking water

4. The block development officer or BDO is
   a. elected by the members of the block samiti
   b. elected by the people living in that block
   c. appointed by the state government
   d. appointed by the central government

5. The highest body in the Panchayati Raj is the
   a. block samiti
   b. zilla parishad
   c. nyaya panchayat
   d. gram panchayat

HOTS: Think and Answer

"Do women make better administrators and rulers than men?" Have a debate or discussion in class on this topic.

Values that enrich

The people of Anmol gram panchayat were very happy. They had finally got access to drinking water. Instead of waiting for the government to act, the people joined together, contributed funds and completed the project. What values do you learn from this?

Life skills

Observation/Critical thinking

Spend a day in a village observing the workings of the village panchayat. Come back and write a detailed report describing your experiences. Mention any major decisions that were taken by the panchayat. How many of the members were women? Did you feel that the panchayat was honest and impartial? In what way could the working of the panchayat be improved? Give suggestions.

6. Local Government of Urban Areas

Our cities are huge and rather crowded. Look around you—there are markets full of people, good roads and bad roads, overflowing drains, traffic jams, people waiting in line for water, well-kept parks, street lights, and public buses and suburban trains carrying thousands of people across the city. Have you ever wondered who maintains your city? Who clears the garbage from your house each day? How does water come in your taps at home? Who replaced the light in your street that had stopped working, plunging the street into darkness?

Cities and towns, or **urban areas**, have problems and needs that are different from those of rural areas. To take care of these needs, urban areas in India have three categories of local governing bodies—**municipal corporations, municipal councils** and **nagar panchayats**. Though it varies from state to state, generally, municipal corporations govern cities with a population of more than 10 lakhs, municipal councils take care of cities with less than 10 lakhs but more than 20,000 people, and nagar panchayats take care of urban places with less than 20,000 people.

THE MUNICIPAL CORPORATION

Generally, cities with a population of 10 lakhs or more are governed by municipal corporations. The cities are divided into a number of municipal wards. The members of the municipal corporations are elected by the people of each ward. Members of parliament and members of the state legislature elected from the area are also members of the municipal corporations. Special seats are reserved for scheduled tribes and scheduled castes. From one-third upto 50% of the seats are reserved for women. The elected representatives of the municipal corporation are known as **councillors**.

The **mayor** and the **deputy mayor** are prominent members of the corporation. The mayor is the

Maintainence of roads and public transport is a function of the municipal corporation

presiding officer of the corporation. The chief executive officer of the municipal corporation is the **municipal commissioner**, who implements the decisions taken by the councillors. The commissioner is appointed by the state government. A municipal corporation is elected for a period of five years.

Maintaining the cleanliness of the city is one of the main functions of the municipal corporation.

Functions of the municipal corporation

The municipal corporation performs a variety of important functions. They include:

Compulsory Functions (Obligatory)

1. Supply of drinking water

Provision of clean drinking water

2. Construction and maintenance of public streets and roads
3. Cleaning of streets, sewers and public places
4. Maintenance of public health and sanitation, provision of vaccination and taking measures to control epidemics
5. Maintenance of public hospitals
6. Establishment and maintenance of primary schools

Municipalities run primary schools.

7. Registration of births and deaths
8. Naming streets and numbering houses
9. Ensuring public safety by removing obstructions and projections in public streets and maintaining fire engines to save life and property

Optional Functions (Discretionary)

1. Construction and maintenance of public parks, gardens, libraries, museums, rest houses, homes for people with leprosy, orphanages and rescue homes for women
2. Planting and maintenance of roadside plants and trees
3. Providing housing for low income groups
4. Providing a cheap and efficient transport system
5. Conducting surveys, organising public receptions and exhibitions, and promoting welfare schemes for the municipal employees

Sources of income

The municipal corporation finances its activities through the various taxes it collects. They include

property tax, vehicle tax, water tax, octroi or terminal tax (a tax on goods coming into the city), service tax (collected from shopkeepers and service professionals), toll tax (a tax for using certain bridges and roads), entertainment tax (collected from movie halls and cable TV operators), education tax and grants received from the state government.

THE MUNICIPAL COUNCIL

The **municipal council** or **municipality** is the body that governs smaller cities and towns that have a population of more than 20,000 but less than 10 lakhs. The city is divided into a number of wards. Just as with the corporation, the people of each ward elect and send a member to the municipality. From one-third upto 50% of the seats are reserved for women, and seats are reserved for the scheduled tribes and castes in proportion to their population in the city. Members of parliament and members of the state legislature elected from the area are also members of the municipal councils.

A municipal council is elected for a period of five years. It is headed by the municipal commissioner, who is appointed by the state government.

Functions of the municipal council

The functions of the municipal council are the same as those of the municipal corporation. They:

- Provide safe drinking water to the people
- Build and maintain roads and ensure proper street lighting
- Ensure the proper supply of electricity
- Establish hospitals, dispensaries, health centres and family planning centres
- Build and maintain primary and secondary schools, adult education centres and night schools to impart education

A municipal hospital in Kerala

- Ensure proper sanitation in the city—the collection and disposal of garbage, and the cleaning of drains and streets

Cleaning the streets by workers of the municipality
(Picture credit: M Vedhan, the Hindu)

- Make laws concerning housing, markets, and the supply of essential commodities like milk and water
- Keep a record of births and deaths in the municipal areas

Sources of Income

The main sources of income of the municipality are

a) Grants from the government
b) Taxes on land, property, etc.
c) Electricity and water charges

NAGAR PANCHAYATS

Nagar panchayats govern areas which are in the process of changing from rural to urban. People in such places are in the process of moving away from agriculture, to service and industry based occupations. These places face problems that are a mix of those faced by rural areas and by urban areas.

Nagar panchayats have a term of five years and consist of members elected from the various wards of the town. They look after sanitation, water supply, electricity, primary education, housing, healthcare and the maintenance of public parks and buildings.

Advantages of Local Self-Government

- Local government ensures the best management of local resources.
- It also ensures the best management of local affairs as local people understand their own problems best.
- Local government takes the benefits of democracy down to the grassroots. It gives each villager and city dweller the power to make changes in his or her life.
- If the local bodies function efficiently, the areas they look after develop faster and in a more balanced manner.
- The people of the area co-operate better with the local bodies as they know them personally, and feel that they working for their benefit.
- Administering an area locally is less expensive than managing the area from a distant capital.
- It is a good training ground for people who could go on to become the future political and administrative leaders of the country.

Glossary

municipal corporation: the local governing body of cities with population more than 10 lakhs
municipal council: the local governing body of cities with population more than 20,000 and less than 10 lakhs
nagar panchayat: the local governing body of areas that are changing from rural to urban and which have a population less than 20,000
councillor: a member of a municipal corporation or council elected by the people
mayor: the presiding head of the municipal corporation
commissioner: the chief executive of the municipal corporation and council
grassroots: at a local level
local body: a body that govern a village, town or a city

In Brief

- Depending on the population, urban areas are governed by nagar panchayats, municipal councils or municipal corporations.
- Elected members of the corporation or council are called councillors. The mayor is the head of the municipal corporation.
- Providing facilities like drinking water, roads, schools and street lights, and keeping records of births and deaths are some compulsory functions of all urban local bodies.
- Providing facilities like public transport, libraries and housing for the poor, and planting trees are some of the optional functions of urban local bodies.
- Local governments ensure the best management of local resources; they take democracy to the common people.

Enrichment Activities

- **Find out:** Find out the name of the mayor of your city or town; when was the last time that elections were held for your local body? Name any one woman councillor. Where is your corporation office located?
- **Make a chart:** Collect pictures that show the various functions of the municipal corporation. Use the pictures to make a chart that illustrates these functions.
- **Present graphically:** Find out from your local body, where its funds come from. Draw a pie-chart to show the different sources and their relative proportion. From where does the local body get most of its funds? What is the percentage?
- **Map work:** On an outline map of your state, mark the cities that have municipal corporations.

Exercises

I. *Fill in the blanks.*

1. The local governing body of cities is called the _____.
2. The mayor is the presiding officer of the _____.
3. The municipal council is elected for a period of _____ years.
4. Providing housing for low income groups is a _____ function of the municipal corporation.

II. *True or false?*

1. There is no reservation of seats for women in the municipal corporation.
2. The government gives grants to municipalities.
3. Imparting adult education is a duty of the municipal corporation.

III. *Answer the questions briefly.*

1. What is the need to have a local government in cities and towns?
2. Differentiate between municipal corporations, municipal councils and nagar panchayats.
3. Why is there compulsory representation of women in the local bodies?
4. Mention any two compulsory functions of municipal corporations.
5. Who are the important officials of the municipal corporation?
6. Write on any one of the obligatory functions of the municipality.
7. What are the advantages of local self-government?

Multiple Choice Questions

1. Nagar panchayats take care of
   a. urban areas with a population of less than 20,000 people
   b. urban areas with a population of more than 20,000 people
   c. rural areas with a population of less than 20,000 people
   d. urban areas with a population of less than 1 lakh people
2. The municipal corporation is presided over by the
   a. mayor b. commissioner
   c. councillor d. block development officer
3. Which of these is a discretionary function of the municipal corporation?
   a. supplying drinking water
   b. sanitation and public health
   c. providing a cheap and efficient system of public transport
   d. registration of births and deaths
4. The municipal commissioner is appointed by the
   a. the people of the city/town
   b. the Councillors
   c. the state government
   d. the mayor
5. Which of these is not a source of income of the municipal corporation and council?
   a. grants from the government
   b. taxes on property
   c. electricity and water charges
   d. income tax

HOTS: Think and Answer

Which of these are obligatory functions of the municipal corporation?

- Ramesh and his family stay in a city-slum. They want the municipality to provide them with drinking water.
- Ramesh and his neighbours want the municipality to provide them with free houses.
- Ramesh and his neighbours want the municipality to remove a huge tree which has fallen across the road leading to their houses.

Values that enrich

We very often see overflowing garbage bins at the end of the road or in market places. We see plastic packets thrown carelessly, lying around the bin instead of inside the bin. Lack of what values does this behaviour reflect?

Life skills

Being a good citizen/Creative thinking

When you hear your parents or elders talking about the problems faced by society, do you feel that you are too young to do something for the community?

No—you are never too young to be a good citizen, and to try and make the world around you a better place. Form groups. On the weekends, each group could try to contribute towards the community in different ways. You could:

- pick up litter at a park or the beach (if you live on the coast).
- improve the school grounds by planting more trees, and form school patrol groups to prevent littering.
- collect clothes from your neighbours and donate it to a local orphanage or old age home.
- read the newspaper to an elderly person who can no longer see well.

Add to this list. What else could you do to help society? Have a discussion in class. At the end of each month, have a meeting wherein each of you could share your experiences at community service.

7. District Administration

India, as you know, is divided into 28 states and 8 union territories. They, in turn, are divided, for the sake of efficient administration, into smaller units called districts. Each state has several districts. The district is the most important unit of administration in India. It is the level at which the common people come into direct contact with the government.

The office of the district collector, Guntur, Andhra Pradesh

THE STRUCTURE OF DISTRICT ADMINISTRATION

The **district magistrate** or the **district collector** is responsible for the general administration of the district. As executive head of district administration, the district collector has a three-fold role as:

- **district collector**
- **deputy commissioner**
- **district magistrate**

The district collector is an officer of the Indian Administrative Service (IAS), and is selected to the post by the state government. The district collector is the main representative of the government at the district level, and coordinates the activities of officers of other departments of the state government. The district collector is helped in the discharge of his/her functions by the **superintendent of police**, who is an officer of the Indian Police Service (IPS), and the **deputy conservator of forests**, an officer of the Indian Forest Service (IFS).

A district collector listening to the problems of a farmer in a village in Madhya Pradesh

The districts consist of several **tehsils**, **taluka** or **blocks**. A block, tehsil or taluka is made up of villages. At the tehsil level, there are **tehsildars**, **naib tehsildars** and **police inspectors** who take care of different aspects of administration. And at the village level, there is the **patwari** or **lekhpal**, who measures land and maintains land records, and the **station house officer** (SHO), who is in charge of the local police station.

Functions of the district collector

1. Land and revenue administration
2. Overall supervision of law and order
3. Disaster management
4. Overseeing elections to the parliament, state legislatures and local bodies
5. Overseeing civil supplies, public distribution and social welfare
6. Coordination of the activities of other agencies/ departments of the state government
7. Overseeing and regulating matters relating to excise, transport, mining and labour laws, and legal affairs
8. Overseeing the activities of the local self government

The changing role of the district collector

These days, with the increasing empowerment of local government (through the Panchayati Raj institutions), the role of the district collector is changing.

Till 1993, when the Panchayati Raj system was introduced, the district collector performed several vital functions. The district collector was responsible for the delivery of essential services, land revenue administration, execution of rural development programmes, managing disasters, and maintenance of law and order.

Now most of the development functions have been taken away from the collector. (Though, in most parts of rural India, the collector continues to be seen as the main representative of the government at the district level.)

The new role of the district collector is one of co-ordinator and facilitator; of providing leadership. They play an important role in the administration of the Gram Panchayat, Panchayat Samiti or Community Development Block, Zilla Parishads and the Municipal Committees, and in coordinating their work.

Read the story given here. It will give you an idea of the role of district administration in rural areas and the officers involved at the grassroot level.

Madhav was a farmer who owned 10 acres of agricultural land just outside the city of Prayagraj in Uttar Pradesh. His two sons and their families stayed with him and his wife Ganga. His daughter, Meena, lived with her husband, Shambhu, and their two children on the other side of the village.

Shambhu had taken a loan from the local bank to buy better quality seeds and fertilisers to improve the yield of his land. But the rains failed for two years in a row. Shambhu lost his crop. He was unable to repay his bank loan. With no hope in sight, Shambhu decided to go to the city to look for work. However, Shambhu had pledged his land with the bank while taking the loan. As he could not repay the loan, the house and the farm now belonged to the bank.

One day the bank officials came to Meena's house. They brought with them the **station house officer** or the **SHO**, the person in charge of the local police station. The SHO asked Meena to vacate the house as the farm and the house were now the bank's property.

Meena asked her father if he could give her a share of his property. She could pledge it with the local money lender or *sahukar* to get a loan. She could then use it to settle her husband's bank loan.

Madhav went to the village **patwari**, who kept all the land records of the village. At the office, Madhav asked the patwari to transfer one-fourth of his land in Meena's name.

Meena was relieved. She went back to the bank. The bank agreed to return Shambhu's land while keeping Meena's land as security. Shambhu soon came back from the city with enough money to pay back the loan. The bank gave the papers of ownership of Meena's land back to her. Shambhu and Meena went to thank Madhav for giving Meena her share of the property.

Shambhu had learnt many things in the city. He now knew that there were people who were appointed by the district Zilla Parishad who could teach them new methods of cultivation.

- ***Why were Meena and her children asked to vacate their house?***
- ***Who are the local officials Meena met?***

Glossary

tehsil: a sub-division of a district; also called a taluk

district collector: an officer who heads the district administration

tehsildar: an administrative officer at tehsil level

patwari: an official who maintains land records at village level; also called lekhpal

superintendent of police: the head of the police force of a district

loan: a sum of money that is borrowed

pledge: to leave something valuable with someone as a guarantee that you will return the money you have borrowed from them

In Brief

- In India, districts are divided into tehsils or taluks.
- The head of the district administration is the collector, who is an IAS officer.
- The superintendent of police and deputy conservator of forests look after the law and order and forests, respectively.
- Public services such as maintaining hospitals, educational institutions, highways, etc., are taken care of by the district authorities.

Enrichment Activities

- **Project work:** Work in groups. Do a project or make a presentation, on a district of your state. Each group could choose a separate district, ensuring in the process that all the districts are covered.
  Collect information about the physical features, characteristics of the population (size, mortality rate, literacy rate, and male-female ratio), languages spoken, religions practised and the economic structure of the district. Who are the district collector and superintendent of police in your chosen district? Remember to include a map of the district.
- **Comparison across districts:** Choose any two districts of India. Do a comparative study of the two.Compare their physical and cultural features. Also compare them on the basis of different indicators like population, sex ratio, per capita income, literacy rate, percentage of urban population, etc. Use pie charts, graphs and other forms of graphical representation to show the comparison. Present your findings in the form of a chart or booklet, or a Power Point Presentation.

Exercises

I. Answer the following.

1. Name the three main authorities at the district level.
2. Explain the terms 'tehsil' and 'tehsildar'.
3. What are the major functions of a collector?
4. Write a note on the changing role of the district collector.
5. Write the full form of IAS and IPS.

Multiple Choice Questions

1. Administration at the district level is headed by the:
   a. tehsildar b. superintendent of police
   c. district collector d. commissioner
2. At the village level, the measurement of land and maintenance of land records is done by the:
   a. patwari b. tehsildar
   c. block pramukh d. sarpanch

HOTS: Think and Answer

Suppose a factory in your neighbourhood is sending toxic waste into the river that supplies drinking water to your town. What can you, as an ordinary citizen, do about it? Is there any law or act that protects us from such pollution? What is the responsibility of the factory owner towards the people of your town?

Values that enrich

Kannan Gopinathan was the district collector of the estwhile union territory of Dadra and Nagar Haveli. In 2012, when Kerala was devastated by floods, he went there and worked for eight days at a relief camp, without revealing his identity. What values does his behaviour reflect?

Life skills

Creative thinking/Developing empathy

Make a poster highlighting any of the social-economic problems facing India. You could make a poster drawing attention to the evils of child labour, poverty, dowry, farmer suicides, etc.

8. Making a Living

What do you want to be when you grow up—a chef, a dancer, an engineer, a footballer, or maybe a teacher? Each of you will need to have some occupation or work when you grow up. Why do you need to work? You need to work to earn money. You need money to buy food, clothes and other basic necessities.





The means by which we get this money is called '**making a living**'. The different methods we use to earn a living are known as **occupations**. The various occupations humans engage in may be classified as belonging to three sectors—

A) The primary sector

B) The secondary sector

C) The tertiary sector

The primary sector

The primary sector consists of those activities where people are engaged in extracting or harvesting things from the Earth, for example, agriculture, fishing, lumbering, grazing, mining and forestry. It includes the production of raw materials and basic food. Without the help of people who are engaged in these activities, we cannot survive.


Mining in Jharkhand


Agriculture

The secondary sector

The secondary sector consists of those activities which convert raw materials to manufactured goods. For example, the raw material for the cotton textile industry comes from the cotton plant. Similarly, wheat is the main raw material needed


Making clothes from cotton


Making cars from steel


Making paper from wood

to make bread, cake, pizza and biscuits. The steel industry converts iron ore found in the raw state in nature to steel. The secondary sector adds value to the products of the primary sector by processing them and making them ready for consumption. This sector, therefore, plays an important role in adding to our national wealth.

The tertiary sector

The tertiary sector consists of activities that provide services to people. Services like health care, transport, communications, banking, insurance and entertainment come under this sector.

In most developed and developing countries, a growing proportion of workers are employed by the tertiary sector. In the USA, more than 80% of the labour force are tertiary workers.

The three sectors are interdependent.

PRIMARY	SECONDARY	TERTIARY
provide raw material	convert raw material into finished goods	transport the finished goods; provide services

Autorickshaws help transport people.

Doctors at work

Banking services

RURAL LIVELIHOODS

Let us look at the various ways in which people in our villages earn their livelihoods. Agriculture is the most important occupation in rural areas. Most of the people are dependent either directly or indirectly on farming. Apart from agriculture, you will also find people in rural areas working as teachers, hairdressers, potters, masons, metal-smiths, shopkeepers and carpenters. People are also employed by the government for the maintenance of law and order of the area (police) and for administering the area.

Farming

In India, at present, over 50% of the population is dependent on agriculture. There are different kinds of farmers in India. Some own several hundreds of acres of land, some own a few acres and some have no land of their own—they work on other people's land.

Large farmers own large tracts of land (i.e., from 5 hectares to hundreds of hectares of land). They use modern technology like tractors, harvesters, threshing machines, high yielding seeds and fertilisers to increase their yield. Many of the large farmers do not work on their own fields. They employ others for that, especially the landless farmers of the village. Many large farmers grow cash crops like cotton and sugarcane, along with food crops like wheat and rice.

Large farmers can afford to use machines like tractors to till the land and combine harvesters to gather the harvest.

Then there are the **medium farmers**, who own 2–5 hectares of land. They cultivate their own land. They produce just enough food for themselves, with a little left over for selling in the market. They are called **subsistence farmers**. They mainly grow food crops like wheat, rice and pulses.

A marginal farmer tilling his land with the help of a pair of bullocks

Marginal farmers own less than 2 hectares of land. They till their land either by hand or with the help of animal-driven ploughs. They grow food crops, which are often not sufficient even to feed the family. Marginal farmers often work on other farms to get more money.

Landless farmers marching to Delhi to demand land rights over the land they cultivate

Landless farmers do not own land. They are compelled to work on other people's lands to make a living. They are poorly paid. Often the large farmers on whose land they work pay them in kind, i.e., they give them grain instead of money.

Not all farmers grow crops. Some are engaged in occupations like dairy farming, poultry farming, cattle rearing, fishing, etc. **Dairy farms** are farms where cows are raised. Milk from the cows is sold or used to make milk products like cheese, butter, ghee and cream. **Poultry farms** raise chickens, ducks

Poultry farming

and other fowl for meat or eggs. In our coastal belt, **fishing** is an important occupation. The government is encouraging **aquaculture** (i.e., rearing aquatic animals like fish and shrimp for food) in a big way, and fish from India is exported to several other countries.

A fish market in a village in Maharashtra

Debt among farmers

Most of the farmers of India are small farmers. The success or failure of their crops still depends on the timely arrival of the monsoon rains. They often have no access to **irrigation**, which is the provision of water to the crops through tube wells and channels. Many of them grow barely enough food to meet their personal needs. They often end up borrowing money from local money lenders. These days, they also take loans from banks for buying seeds and fertilisers or digging tube wells. They pledge their land with the money lenders or banks to get the loans. If the farmers cannot repay the loans—the rains may have failed, or there might have been too much rain, and their crops

may have been destroyed—they lose the little land they had. There have been several cases of farmers who committed suicide because they were unable to repay their loans.

OTHER WAYS OF MAKING A LIVING

Shankar and Rangamma's idli kadai (eatery)

Shankar owns the only *idli kadai* (a small local eatery) in the village. Shankar's wife, Rangamma, is up at dawn each day to prepare hot vadas, idlis, sambar and chutney. She waits for Shaji, the village milkman, to bring in the milk. She boils the milk and keeps it ready for the several cups of tea and coffee which Shankar makes through the day for his customers. If Shaji is late, Shankar has to pacify angry customers.

- What do you call such small local eateries in your place?

Shaji the milkman

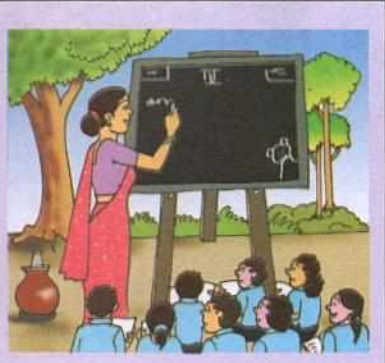
Shaji, who has four cows and five buffaloes, milks them early each morning. He first washes down the cows and buffaloes, and gives them piles of fresh green grass to chew while he milks them. Shaji cuts the grass each evening from the fields left fallow (uncultivated). The dry summer months before the coming of the monsoon are hard months for Shaji and his cattle. The dung of the cows is collected by his wife and children. Some of it is flattened into cakes and dried in the sun. The dried dung cakes are bought by the villagers as fuel for their *aduppu* or *chulha*. Some of the villagers also plaster the walls and floor of their huts with the dung. Shaji sells some of the milk to people in the village. He sells the rest of the milk to the local milk co-operative.

Shaji usually carries the cans of milk for delivery on his bicycle. But his bicycle has been given for repair to Yesudev.

Yesudev the mechanic and Mary the tailor

Yesudev is the local black-smith and mechanic. He also looked after the tractors and the harvestor belonging to Kumar, the largest farmer of the area. Yesudev's wife Mary is the only tailor in the village. Most of the village wear blouses and shirts stitched by Mary on her old sewing machine. She has just hired a young boy who knows how to stitch salwar-kameezes—very few of the girls wear sarees or half-sarees these days. Mary has just finished stitching some blouses for the new teacher, Vatsala.

VATSALA THE TEACHER



Vatsala has been appointed by the government as a maths teacher in the local primary school. When she joined work, Vatsala found that only one other teacher ever came in to teach. Vatsala was also shocked to find that the roof of the school building had fallen down in several places. There was no blackboard or chalk. Vatsala went to the village panchayat for help. The village panchayat collected money from all the villagers. With the help of Rafi, the local carpenter, the school was repaired. Fresh mats were put on the floor for the children to sit. Vatsala ended up teaching the children not just maths, but also English, Tamil and Social Science. But she enjoys herself thoroughly.

You have now read about some of the ways in which people living in villages earn their living. Now find out about at least five other means of livelihood in rural areas. If you live in a city, you could ask your teacher to take you to a village nearby. Or you could ask your parents, grandparents or other relatives, who may have lived in a village, to describe the life there for you.

Classify the various activities about which you have read so far into primary, secondary and tertiary. If you have learnt of some other occupations practised in rural areas, classify them in the same manner.

URBAN LIVELIHOODS

A large number of people live in our towns and cities. This is due to the variety of jobs available in urban areas. From administration to education, and from banking to health, there are many job opportunities in urban areas. But just as there are rich farmers and poor farmers in villages, not all the people living in urban areas have well-paying jobs. Let us look at some of the jobs available in cities and towns.

Industries

Many towns and cities grow up around manufacturing industries. For example, Mumbai grew around the textile industry. Factories manufacture a variety of things such as plastic goods, cloth, garments, footwear, electronic goods, paper, machinery, etc. There are also bakeries, which make bread and other eatables. The various factories that make up these industries employ thousands of people. These people work for a certain number of hours in the factory and get a fixed wage or salary at the end of each month. People who get regular employment are assured of a fixed income throughout the year.

The Tata Iron and Steel factory at Jamshedpur, Jharkhand

In some industries, like the iron and steel industry, the manufacturing process goes on without a stop. In such places, people work in shifts. There are three shifts of eight hours each day.

The owners of these factories rarely join their workers to operate the machines. But they have

Textile factory, Tirupur

to manage the entire process of production from sourcing raw materials to selling the finished goods in the market. Their income comes from the profits made by the factory or company.

Services

The service industry employs more than half the people working in cities. Shopkeepers, autorickshaw and taxi drivers, teachers, doctors and nurses all provide us with some service. Banks, insurance agencies, the railways, and the postal and telephone services are service providers that employ millions of people across the country.

Doctors, journalists, lawyers, teachers and bankers, are called professionals, as they follow a chosen profession. The services they provide society with are of vital importance. Doctors and nurses help cure the sick. Many doctors work in hospitals and earn a fixed salary. Some however set up their own clinics and practise independently. Teachers teach children in schools and colleges. A common sight in cities these days are the numerous centres that offer

A banana seller in a town in Tamil Nadu

Carrying sacks of grain on an ox-cart, Jaipur

extra coaching to students. Such 'coaching centres' also employ several teachers. People who work in banks help people manage their money. They also work for a monthly salary.

Shopkeepers and business organisations maintain the flow of goods and services in the city. They provide people with everything they need or want, from rice, bread and vegetables to clothes, footwear and household goods. Their income depends on the profits they make from their sales. Unlike people who earn a fixed salary, the earnings of those who run their own business varies a lot from month to month. Being an **entrepreneur**, i.e., someone who runs a business venture, involves a certain amount of risk. But if a business does well, the owner could make a lot of money. A large number of young people today are opting to become entrepreneurs rather than working for someone else.

Dhobis washing clothes, Mumbai

Vegetable sellers, Jaipur

A sweet shop, Mumbai

A neighbourhood general store, Delhi

Inside a call centre, Pune

Another major source of employment in cities these days are **business process outsourcing** (BPO) units. Many companies abroad outsource some of their processes like billing to BPO units in India because it is cheaper to have the work done here. Call centres are also BPO units. They are centralised offices which handle large volumes of information by telephone. For example, a computer company may get queries from customers about how to run their computers, or how to solve problems they might have encountered while working on their machines. The computer company asks a call centre to handle all such calls and solve the customer's problems by telephone.

Migration

More and more people are moving from rural areas to urban areas in search of jobs. This movement is called **migration**. There are many more job opportunities available in cities compared to villages. This encourages people to migrate to the cities leaving their homes in the villages.

What is the reason for this migration?

- lack of educational opportunities in rural areas
- lack of adequate health facilities in rural areas
- seasonal agriculture
- lack of employment in the rural sector
- the attractiveness of city life

Having moved to the cities, the migrants get to settle in areas that usually lack basic infrastructural facilities—they may not have electricity, water or drainage. In the course of time these areas develop into **slums**. The slum dwellers are the urban poor, that is, daily-wage workers, casual labourers, domestic workers, rickshaw pullers, and so on.

Unemployment

Even though employment opportunities are available in rural and urban areas, there are millions of people in India who do not find the right job. In rural areas, seasonal unemployment is a problem, while in urban areas many educated persons are unemployed. This is because they lack soft skills like communication skills, or have had fewer educational opportunities because of their socio-economic background.

Unemployment generally creates a situation where there is a wastage of human resources. Unemployment affects the overall growth of the economy. One of the indicators for a well-developed economy is 100% employment—with more people working in the secondary and tertiary sectors.

A number of measures have been taken for the removal of poverty and unemployment in India.

The National Rural Employment Guarantee Act, the Pradhan Mantri Rojgar Protsahan Yojana,

the National Rural Livelihoods Mission, skill development programmes and the introduction of self-help groups are some of the schemes formulated by the government to remove poverty and unemployment. The government provides loans to self help groups to start small and cottage industries. With a view to making optimum use of resources and generating proper employment opportunities, many industrial training industries and skill development schemes have been set up.

Glossary

chef: a professional cook
primary sector: industry that produces raw material, including agriculture
secondary sector: industries that convert raw materials to finished goods
tertiary sector: service industries
livelihood: financial means to live
cash crop: crop other than basic food grains; like cotton, oil seeds, etc.
co-operative: a commercial establishment owned jointly by many
cottage industry: very small business, like making pickles or papad
self-help group: a group of people who put their savings together for starting small business ventures

In Brief

- Agriculture and production of raw materials are part of the primary sector.
- Manufacturing industries that turn the raw materials into finished goods comprise the secondary sector.
- Service industries are termed as the tertiary sector.
- In rural areas, farming is the main occupation. People also work as potters, metal-smiths, carpenters, shopkeepers, etc.
- Erratic monsoon often pushes farmers into a debt trap.
- In towns and cities, people are employed in manufacturing and service industries.
- Migration of rural people to urban areas in search of jobs contributes to the creation of slums in cities.
- The government has taken many steps to eradicate unemployment and poverty; National Rural Employment Guarantee Act (NREGA) is one such important programme that aims at creating jobs for rural people.

Enrichment Activities

- **Think and write:** What do you want to become when you grow up?
- **Diary entry:** Imagine yourself to be any one of the following—a farmer, a casual labourer, an author or a baker (or any other occupation of your choice). Write a diary entry describing a day in your life.
- **Discussion:** What do you think are the main reasons for unemployment? Do you think people really benefit from the schemes introduced by the government to eradicate poverty? Have a discussion in class on this subject. Browse the Internet for research.
- **Role play:** Working in groups, prepare and enact a play depicting the interaction between a child and her/his parents about the career she/he would like to pursue.
- **Make a collage:** Collect pictures of people involved in different occupations. Make a collage with the pictures. Write an apt slogan

for the collage.

- **Group Work:** Work in groups. Each group should find out about the rarer occupations that people have in India. They can find out about occupations like yoga trainer, physiotherapist, psychiatrist, sports person and fiction writer. The students can find out about what these people study to engage in these kinds of occupation. What makes these people continue in their choice of occupation? The students can even interview people they know who have similar occupations.

Exercises

I. *Fill in the blanks.*

1. A/An _____ is a method of earning a living.
2. In rural India, _____ is the main occupation.
3. Mining comes under the _____ sector.
4. Cable TV operators belong to the _____ industry.
5. People's movement to urban areas is known as _____.

II. *True or false?*

1. Entertainment is a primary occupation.
2. The government has started many schemes for the unemployed youth of India.
3. Tractors and fertilisers are essential to increase productivity in agriculture.
4. The service sector does not produce goods.
5. Secondary occupations do not add to national wealth.

III. *Answer the following questions.*

1. What do most people do for a living a) in villages and b) in towns?
2. What do you understand by unemployment?
3. Why does the government provide loans to self-help groups?
4. Differentiate between primary, secondary and tertiary occupations.
5. Give two examples for primary, secondary and tertiary occupations.
6. Name some of the non-agricultural activities in a village.

Multiple Choice Questions

1. The term occupation refers to
   a. the different methods we use to earn a living
   b. the space occupied by a family
   c. the salary paid to a worker at the end of each month
   d. all of the above
2. Which of these activities is NOT a primary activity?
   a. mining b. banking
   c. fishing d. agriculture
3. Activities that convert raw material to manufactured goods belong to the
   a. secondary sector b. primary sector
   c. tertiary sector d. none of the above
4. Subsistence farmers are those who
   a. produce just enough food for themselves with little left over to sell in the market
   b. barely produce enough food for themselves and often work on other farms for money
   c. do not own land, but work on other's land for money
   d. own several hectares of land on which they grow food and cash crops
5. Farms where cows are raised are called:
   a. poultry farms b. dairy farms
   c. aquaculture farms d. marginal farms

6. One of the main reasons for the frequent suicide of farmers in recent times is
   a. poor quality of land, and their inability to buy better seeds
   b. increasing indebtedness among the farmers and their inability to repay the loans
   c. failure of the monsoon
   d. inability to pay dowry
7. Call centres are centralised offices which
   a. handle or process large volumes of information by telephone
   b. work as telephone exchanges, enabling long distance telephony
   c. provide general information on the services available in the city
   d. none of the above
8. Which of these is NOT a reason for migration from villages to cities?
   a. lack of employment in rural areas
   b. lack of educational opportunities in rural areas
   c. lack of adequate health facilities in rural areas
   d. shortage of houses for people to live in, in rural area

HOTS: Think and Answer

Will the rate of unemployment in our country come down if the number of entrepreneurs in our society increases? Think and discuss. (An entrepreneur, you learnt, is a person who runs a business venture.)

Values that enrich

Mr Mani is a school teacher. He gave up a successful career in the city as a banker, to return to his village to start a school for the village children. What values do Mr Mani's actions reflect?

Life skills

Creative thinking/Communicative skills

Working in groups, prepare and enact a play that tells the story of a landless labourer who has migrated to the city in search of a job. Describe the conditions that forced him to migrate, the dreams he sees about the city and the difficulties he faces when he finally reaches the city (like the problems in getting a job and finding a place to live). You could also describe the people who help him.

Test 1 (Total Marks 40)

General Instructions:

I. *The question paper has **14** questions in all. All questions are **compulsory**.*
II. *Marks for each question are indicated against the question.*
III. *Questions from serial number **1** to **3** are **1** mark questions.*
IV. *Questions from serial number **4** to **10** are **3** marks questions. Answers to these questions should not exceed **80** words each.*
V. *Questions from serial number **11** to **13** are **5** marks questions. Answers to these questions should not exceed **120** words each.*
VI. *Question **14**—Map work—is a 1 mark question.*

1. Which of these is an artefact—a) an ancient monument, b) a potsherd or c) a manuscript? Explain why you say so. (1)
2. What was the geocentric theory put forward by Ptolemy in 140 CE? (1)
3. What is diversity? Give an example of social diversity in India. (½ + ½)
4. 'The geography of a land has a powerful impact on its history.' Justify this statement with the help of examples from India. (3)
5. Describe the tools and weapons of the Palaeolithic Age. (3)
6. How did the development of farming lead to the growth of settlements and other occupations such as pottery during the Neolithic Age? Think and answer. (1½ + 1½)
7. Distinguish between meteoroids, meteors and meteorites. (3)
8. Poornima lives in Chennai, India (roughly 13°N 80°E). She wants to view a cricket match that is being played in Sydney, Australia (33°S 151°E). The match is scheduled to be telecast on television from 11.00 PM in Sydney. When should Poornima switch on her television? (3)
9. Why do you think economic and social inequalities remain closely connected to each other? Give reasons for your answer. (3)
10. What is gender inequality? Give two examples to show how girls and women are treated unfairly. (1 + 1 + 1)
11. Why do we study history? (5)
12. Prove with the help of relevant diagrams that the Earth is round and not flat.

    OR

    Make a comparative study of the planets Venus and Earth. (5)
13. How has the Constitution of India helped in allowing diversity to prevail? (5)
14. On an outline map of India, mark the location of:

    (a) the Himalayas (b) the Central Meridian of India (½ + ½)

Half Yearly Examination (Total Marks 80)

General Instructions:

I. *The question paper has **26** questions in all. All questions are **compulsory**.*
II. *Marks for each question are indicated against the question.*
III. *Questions from serial number **1** to **7** are **1** mark questions.*
IV. *Questions from serial number **8** to **18** are **3** marks questions. Answers to these questions should not exceed **80** words each.*
V. *Questions from serial number **19** to **25** are **5** marks questions. Answers to these questions should not exceed **120** words each.*
VI. *Question **26**—Map work—is a **5** mark question.*

1. Distinguish between epigraphy and numismatics. (1)
2. Give one example of an Indus Valley civilisation site discovered in (a) Gujarat and (b) Rajasthan. (½ + ½)
3. How was society classified during the Vedic Period? How did it change over time? (1)
4. What were 'gana-sanghas'? Give two examples of well-known 'gana-sanghas' from the Later Vedic Period. (1)
5. Distinguish between a sketch and a plan. (1)
6. Explain why Antarctica is not suitable for human settlement. (1)
7. What is a democracy? (1)
8. What according to you was more important—the discovery of fire or the invention of the wheel? Give reasons for your answer. (3)
9. Describe the Great Bath of Mohenjodaro. (3)
10. What could be the reasons for the decline of the Indus Valley civilisation? (3)
11. Assess the importance of the Vedic Age with regard to the things that the Vedic people are believed to have introduced in the Indian subcontinent. (3)
12. Explain the growth of Magadha into a powerful state. (3)
13. Explain what you understand by the terms 'aphelion' and 'perihelion'. (1½ + 1½)
14. What is a map scale? What is the difference between a representative fraction and a linear scale? (1+2)
15. Distinguish between (a) the equinox and the solstice (b) the summer and the winter solstice. (1½ + 1½)
16. Explain the meaning of participation in a democracy. (3)
17. Distinguish between a monarchy, a dictatorship and a democracy. (3)
18. Give examples of the ways in which citizens in a democracy can influence decisions taken by the government. (3)

19. Write in brief about the different sources of literature available to students of Indian history. (5)

20. What is a megalithic culture? Around what time did megalithic cultures emerge in South India? Give examples of the various kinds of graves that were found at megalithic burial sites. (1 + 1 + 3)

21. Describe the nature of economy of the Vedic society. (5)

22. What are the effects of the Earth's rotation? (5)

23. What are the different layers of the atmosphere? Describe each in brief. (1 + 4)

24. Comment on the significance of the Suffragette Movement and the Anti-Apartheid Movement in upholding the principles of democracy. (5)

25. What is a government? Describe any three important functions that a government fulfils. (1½ + 3½)

26. Mark the following on an outline map of India:

    (a) The extent of the Indus Valley Civilisation (1)

    (b) Harappa and Rakhigarhi (2)

    (c) The mahajanapadas of Magadha and Vrijji (2)

Test 2 (Total Marks 40)

General Instructions:

I. *The question paper has **14** questions in all. All questions are **compulsory**.*
II. *Marks for each question are indicated against the question.*
III. *Questions from serial number **1** to **3** are **1** mark questions.*
IV. *Questions from serial number **4** to **10** are **3** marks questions. Answers to these questions should not exceed **80** words each.*
V. *Questions from serial number **11** to **13** are **5** marks questions. Answers to these questions should not exceed **120** words each.*
VI. *Question **14**—Map work—is a 1 mark question.*

1. Distinguish between the svetambaras and the digambaras. (1)
2. Define intermontane plateaus. Give an example of the same. (½ + ½)
3. What is the three-tier system of the Panchayati Raj? Illustrate with the help of a diagram. (1)
4. What were the conditions that led to the 'second urbanisation' in the Gangetic Plains? (3)
5. Assess the importance of Alexander's conquest of India with special reference to the establishment of the Mauryan Empire. (3)
6. What are the similarities between Jainism and Buddhism? Think and answer. (3)
7. What is plate tectonics? How does plate tectonics affect the Earth's surface? Give appropriate examples. (3)
8. What are plains? How are they formed? What are the advantages of living in the plains? (3)
9. What is the gram panchayat? What are its main functions? (3)
10. Why is local government a good training ground for the future political and administrative leaders of our country? Think and answer. (3)
11. What were the major principles of Jainism? Explain the concepts of nirvana and karma as per Mahavira's teachings. (5)
12. Explain with examples how mountains are useful for humans. (5)
13. List the obligatory responsibilities of the Municipal Corporation. (5)
14. Mark the following on an outline map of India:
    (a) The Vindhya and the Aravalli Ranges (½)
    (b) Itanagar and Bengaluru (½)

Yearly Examination (Total Marks 80)

General Instructions:

I. *The question paper has **26** questions in all. All questions are **compulsory**.*
II. *Marks for each question are indicated against the question.*
III. *Questions from serial number **1** to **7** are **1** mark questions.*
IV. *Questions from serial number **8** to **18** are **3** marks questions. Answers to these questions should not exceed **80** words each.*
V. *Questions from serial number **19** to **25** are **5** marks questions. Answers to these questions should not exceed **120** words each.*
VI. *Question **26**—Map work—is a **5** mark question.*

1. Mention one similarity and one difference between the Gandhara and Mathura schools of art. (½ + ½)
2. Explain what you understand by Ashoka's concept of 'dhamma'. (1)
3. What was the result of the battle between (a) Pulakesin II and Harsha (b) Pulakesin II and Narasimha Varman? (½ + ½)
4. Why are rainforests called evergreen forests? (1)
5. Why are winters more severe in North India than in the southern parts of the subcontinent? (1)
6. Explain why the district is considered to be the most important administrative unit in India. (1)
7. Differentiate between the primary, secondary and tertiary sectors. (1)
8. Write a note on the nature of town planning in the cities of the Indus Valley civilisation (with special reference to the layout of the cities and to the drainage). (3)
9. Differentiate between structural temples and monolithic or rock-cut temples. Give an example of each. (2 + ½ + ½)
10. When and why was the Silk Route established? Why was it named so? (2 + 1)
11. Assess the impact of the reigns of the Sakas and the Kushanas on the history of India. (3)
12. Describe the nature of administration under the Guptas. (3)
13. What were the achievements of Aryabhata and Varahamira in the field of astronomy? (3)
14. What will happen if the Earth fails to rotate? (3)
15. Distinguish between fold mountains, block mountains and volcanic mountains. Give appropriate examples of each. (2 + 1)
16. 'Diversity is a necessity for society.' Do you agree with this statement? Give reasons for your answer. (3)
17. How has the role of the district collector evolved over the years and why? Think and answer. (3)
18. Why is agriculture the most important occupation in rural areas? Think and answer. (3)
19. List the key factors that collectively contributed to the growth of towns and cities during the phase of 'second urbanisation'. (5)

20. Explain how the Gupta rule was more decentralised than that of the Mauryas. (5)

21. Give an overview of developments in the field of sculpture in ancient India along with suitable examples. (5)

22. Write a note on the south-west monsoon, with special reference to (a) its origin and (b) its onset in India. (5)

23. Name the five groups that the natural vegetation of India can be classified into. Write a brief note on any one of them. (2 + 3)

24. Discuss the issue of debt among farmers in India. (5)

25. Distinguish between large farmers, subsistence farmers, marginal farmers and landless farmers. (5)

26. Mark the following on an outline map of India:

    (a) The Corbett National Park (½)

    (b) An area in North-East India where tropical rain forests grow (1)

    (c) An area in India where the annual rainfall is less than 20 cm (1)

    (d) The Anaimalai Hills (½)

    (e) The location of Harappa, Dholavira, Pataliputra, and the Chola kingdom (½+ ½+ ½+ ½)