

Social Science

Standard VIII

Part 2



Government of Kerala
Department of Education

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

2016

THE NATIONAL ANTHEM

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

PLEDGE

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

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

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

State Council of Educational Research and Training (SCERT)

Poojappura, Thiruvananthapuram 695012, Kerala

Website : www.scertkerala.gov.in, e-mail : scertkerala@gmail.com

Phone : 0471 - 2341883, Fax : 0471 - 2341869

Typesetting and Layout : SCERT,

First Edition : 2015, Reprint : 2016

Printed at : KBPS, Kakkanad, Kochi-30

© Department of Education, Government of Kerala

Dear Students

This Social Science text books of yours infuses History, Geography, Economics, Political Science, and Sociology. It reminds you that History is an ever flowing river. Geography tells the story of the unique bond between man and nature. Economics shares perceptions on how economic ideas and thoughts mould our society. Political Science and sociology explores the functioning of the government and the necessity of social life. Thus, this text book will guide you to engage in social construction activities and guide you to grow into ideal citizens.

With warm regards,

Dr. P. A. Fathima
Director
SCERT

Textbook Development Team

Participants

Abdul Azees V P VPKMM HSS, Puthoorpallikkal	Pradeepan T GHSS, Kallachi, Kozhikode
Ajayakumar N GHSS Bekoor, Kasaragod	Shanlal A B Govt. Model Boys HSS, Harippad, Alappuzha
Faizal V GGHSS, Parayncheri, Kozhikode	Shoujamon S PNMGHSS, Koonthallur, Chirayinkeezhu, Thiruvananthapuram
Jamal K RACHSS, Kadameri, Kozhikode	Varghese Pothen St. Johns HSS Mattam, Mavelikkara, Alappuzha
John Cristopher GHS Mangadu, Kollam	Wilfred John S MGHSS Kaniyapuram, Thiruvananthapuram
P N Muraleedharan Nair HSST Political Science, NSS HSS Anikkadu, Kottayam	Yusaf Kumar S M Govt. Model Boys HSS, Attingal, Thiruvananthapuram
Sabu C G Govt. HSS, Ayyankoickal, Kollam	

English Version

I P Joseph

Assistant Professor (Rtd.),
SCERT, Thiruvananthapuram

Chitra Madhavan

Research Officer, SCERT

John Cristopher

G H S S, Mangadu, Kollam

Dr. Alex Thomas

Associate Professor, Dept. of Economics,
Women's College, Thiruvananthapuram

Nisanth Mohan M

Govt. Tamil HSS Chalai,
Thiruvananthapuram

Vijay Kumar C R

Govt. Boys HSS, Mithirmala,
Thiruvananthapuram

Preetha P V

GVHSS, Mancha, Nedumangad,
Thiruvananthapuram

Experts

Dr. Abdul Razak P P	Associate Professor, Department of History, PSMO College, Thirurangadi
Dr. Alex Thomas	Associate Professor, Department of Economics, Women's College, Thiruvananthapuram
Chithra Madhavan	Research Officer, SCERT
I P Joseph	Assistant Professor (Rtd.), SCERT
Dr. N P Hafiz Mohammed	Co-ordinator, Department of Sociology, Calicut University
P S Manoj Kumar	Assistant Professor, Department of History, KKTM College, Kodungalloor, Thrissur
Dr. Priyesh M	Assistant Professor, Department of Economics, University College, Thiruvananthapuram
Sudheeshkumar J	Assistant Professor, Department of Political Science, VTM NSS College Dhanuvachapuram, Thiruvananthapuram

Academic Co-ordinator

Manoj K V, Research Officer, SCERT

Contents

08. TOWARDS THE GANGETIC PLAIN	127
09. FROM MAGADHA TO THANESWAR	145
10. BLANKET OF THE EARTH	165
11. ECONOMIC PLANNING IN INDIA	181
12. WATER ON EARTH	195
13. SOCIAL GROUPS AND SOCIAL CONTROL	211

Certain icons are used in this
textbook for convenience



For further reading (Need not be
subjected to assessment)



Questions for assessing the progress



Learning activities



Summary



Significant learning outcomes



Let us assess



Extended activities



Self assessment



08

TOWARDS THE GANGETIC PLAIN

B.C.E.2000. The Eastern European province from Poland to Middle East Asia was inhabited by pastoralists. The increase in population and the scarcity of green pastures for their herd forced them to move away to far off places. They travelled to the west, east and south in groups. They took along their cattle and tamed horses as well. During the course of their journey they met people of diverse types, fought with them and mingled with them. One group reached Europe. The group that travelled south reached north west frontier of India through Iran and Afghanistan. They are known as Aryans.

Courtesy: The Wonder That was India, A.L Basham

What ideas can you make out from the above description of the famous historian, A.L Basham?

- The Aryans were pastoralists.
- Increase in population forced them to travel to other lands.
-
-
-

Go through the table given below. Certain words similar in meaning and pronunciation from different languages are listed .

English	Latin	Greek	Sanskrit
• Father	• Pater	• Peter	• Pitr
• Mother	• Mater	• Meter	• Matr

Notice their similarity in pronunciation and meaning.

This similarity points to a common heritage of these languages. The languages spoken by the people who inhabited various parts of Europe and Asia are regarded as the Indo-European languages. Among them, the people who spoke Sanskrit came to be called as Aryans. The first literary work in Sanskrit is the Rigveda.

Certain reference about the migration of the Aryans can be noticed in the Rigveda. Look at the conversation given below.

Conversation between Sarama and Pani

- Sarama** : Respected Pani, I am a messenger of Lord Indra. He has sent me to you.
- Pani** : Sarama, for what purpose have you come here? How did you reach here?
- Sarama** : I crossed the river to get here. You possess a lot of cows. I desire to take them away.
- Pani** : How did you succeed in swimming across river Rasa at night?
- Sarama** : At first, I was afraid to swim at night. But I am protected by the Gods. So, I was able to swim across the river Rasa.

- Rig Veda

This conversation taken from the Rigveda is between Sarama, the hound of Lord Indra and the local inhabitants of the region, *Panikal*. The conversation is about the request placed by the Aryans to have possession of the cattle reared by the people of the area.

About 3500 years ago, Aryans arrived at the Sapta Sindhu region in the north western part of India. What assisted them most in their journey were the horses and the chariots pulled by the horses. The horse skeletons and the remnants of the chariots in the paths travelled by the Aryans are evidences for their arrival.



Prepare a note on the evidences available on the arrival of the Aryans in the Sapta Sindhu region in India.

Life of people

We get information regarding the life of the people in the Sapta Sindhu region from the Rigveda. What were the peculiarities of the life of the people there? Let's us explore it further.

- ❶ Aryans belonged to different tribes.
- ❷ Each tribe comprised of many families.
- ❸ The eldest member of the tribe was selected as the head of the tribe.
- ❹ There were different tribal assemblies to assist the tribal heads. These assemblies were known as Vidatha, Sabha and Samithi.
- ❺ The main occupations of the Aryans was cattle rearing and farming.
- ❻ They fought battles for pastoral grounds and cattle.



The Sapta Sindhu

The area including river Saraswathi together with river Sindhu and her tributaries Jhelum, Chenab, Ravi, Beas and Sutlej is regarded as the Sapta Sindhu region.



Gavishti

The battles fought by the Aryans for cattle and pastoral grounds are known as gavishti.

The priests who conducted sacrifices (Yagas) to ensure success in battles and the tribal heads who led the Aryans in war amassed more and more wealth. Thus, control over wealth came to these people.

The society was stratified in the Rigvedic period on the basis of occupation. Let us see what they are.



During their period the beliefs of the Aryans were simple and based on nature worship. Their main deity was Lord Indra. They also worshipped other Gods, namely Agni, Varuna, Maruthi and Surya. They also undertook various rituals and special prayers for increasing their cattle wealth.



What are the features of the life of the Aryans in the Sapta Sindhu region?

Towards the Gangetic plain

By B. C. E 1000, the Aryans started moving towards the Gangetic plain. What might be the reasons for this?

❶ Increase in population

❷

❸

From the Sapta Sindhu region, the Aryans migrated to the areas adjoining the gangetic plain by clearing the forests. Tools made of iron helped them a lot in this. We get information regarding the life of the Aryans from 1000 to 600 B.C.E from later vedas, namely Atharvaveda, Samaveda and Yajurveda.



There are archaeological evidences for the advancement made by the Aryans towards the east. Important among them are the grey earthen wares and iron tools found from different parts of Uttar Pradesh.



Remains of painted grey wares

Equipments made of Iron

Historians have discovered remains of Iron Implements used by people in the Gangetic plain especially from Atranjikhiera in the western part of Uttar Pradesh, Jodhpur in Rajasthan and Bhagvanpur in Haryana .



Discuss the evidences available on the eastward expansion of the Aryans.

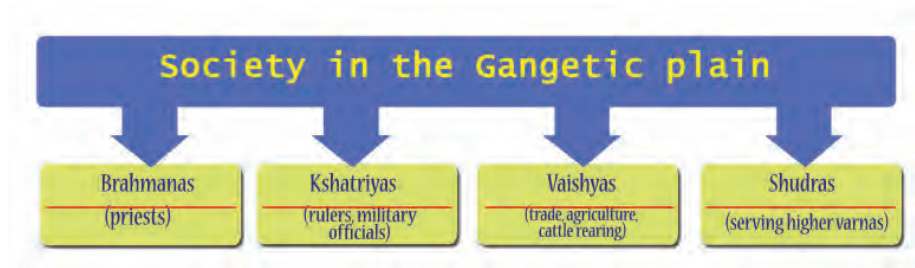
Towards an Agrarian Society


The Aryans who reached the gangetic plain cleared the forests using iron implements. They started farming in the fields using iron ploughshares. With the expansion of agriculture, the Aryans were transformed into a settled society.




The use of iron brought many changes in the life of the Aryans. Analyse?

The place where the nomadic people started to settle permanently came to be known as Janapada. The head of the tribe became the king. Kingship became hereditary. The importance of the assemblies of each tribe diminished. The farmers started the system of giving a part of their yield as tax to the king in return for protecting agricultural land. It was known as 'bali' and 'bhaga'. The society was stratified into four divisions. We can find out them from the given table.



 Compare the society of the Aryans in the Sapta Sindhu region and in the Gangetic plain.

Great changes occurred in beliefs and customs during this period. Lord Indra and Agni lost their prominence. The Gods like Prajapati and Vishnu became more and more important. Simple rituals and practices gave way to complicated and complex ways of worship. Means of worship and religious practices including the sacrifice of animals became costly. The priests became more powerful.

 *Examine the changes in the life of the Aryans when they migrated from the Sapta Sindhu region to the Gangetic plain. Complete the table given below accordingly.*

Sapta Sindhu region	Gangetic plain
The main occupation was rearing the cattle	-
Vidatha, Sabha, Samithi	-
The society was stratified into three	-
King, priests, common man	-
Simple beliefs and practices	-
Tribe	-

Rice of Cities

The fertility of the soil and the use of iron made the Gangetic plain a better agricultural land. This facilitated surplus production and also the growth of exchange centres. These exchange centres later developed into cities. People started to settle down in cities for trade. Among such cities, the most prominent were Rajagriha, Sravasthi, Vaishali, Benares, Kushinagara and Kausambhi. Trade routes connecting these cities came into existence. A new social category thus grew up in cities on the basis of trade and handicrafts. Coins began to be used for the exchange of goods. The coins that were used in early times are given in the picture. Observe the picture and write down their features.

- ❶ Coins are of different shapes.
- ❷
- ❸



Coins in the Gangetic plain

Formation of new ideas

The social changes stated above influenced the thoughts of the people. It was during 6th century B. C. E that these were more prominent. What factors might have prompted these changes?

- ❶ The increase of yagas and the animal sacrifice in association with them adversely affected the progress of agriculture.
- ❷ With an increase in rituals and sacrifices, the priests started amassing wealth and thereby, exerted supremacy over others.
- ❸ With the growth of trade and cities, the Vaishyas became wealthy. Though they were wealthy, they were placed in a lower position in the society.

Against this societal structure, various streams of thought emerged in the north eastern region of India. Followers of this

stream of thought were known as the Sramanas. Of these, two streames of thought that have acquired acceptability in society and influenced people heavily are Buddhism and Jainism. The Ajivikas and the Charvakas also belong to the category of the Sramanas.



Examine the reasons for the growth of Sramanas during 6th century B. C. E in the north eastern region of India.

Jainism and Buddhism

It was a spring season. The prince was standing in the garden enjoying the beauty of the nature. Over there, the snow capped Himalayas stand tall. The Prince stood there all engrossed in the splendour of the nature. He then noticed a flock of wild swans flying. Wow! What a beauty! Suddenly one among the swans fell down in front of the Prince. An arrow had pierced on its body. The Prince ran to it and laid it on his lap. He gently removed the arrow. He plucked leaves from the medicinal plants in the garden and applied its juice on its wound. The love and care of the Prince soothed the swan.

It was then that Devadatta, the cousin of the Prince approached him. He shouted, 'Return to me the swan that I shot.' For this the Prince answered, 'Killing this innocent creature is a sin. All living beings on earth have a right to live freely in this world. No one is nobody's owner'. When the argument worsened, the dispute was taken to the royal court. On hearing the pleas raised by both sides, the King said, 'The saviour owns more right than the slayer. So, the Prince is its owner.' The Prince later let the swan free.

**Courtesy: The Light of Asia
by Edwin Arnold**

You have read the story given above. What is the moral of this story?

The story tells us the need to be compassionate to all living beings. This concept is called ahimsa. The prince in the story is none other than Sri Buddha, who propagated the concept of ahimsa. Sri Buddha founded Buddhism.

*" I do not know the mystery of God
But I know the misery of man."*

Sri Buddha



A statue of Sri Buddha

The words given above throw light on the philosophy and outlook of Buddha. What all can you make out from this?

❖ Gave importance to human beings.

❖

❖

The philosophy of Buddhism was very much in tune with the agrarian economic setup that had grown up in 6th century B. C. E. The most important of the tenets was Ahimsa. Sri Buddha gave importance to one's own karma. He said that life is full of miseries and that the cause of all suffering was human desire. He stated that prayers and rituals or practices of any kind would never put an end to this suffering. Hence, rather than ritualistic practices, Buddha gave importance to the moral lives of people.

Buddhism spread fast within and outside India. The Tripitakas, written in Pali language, comprise the main tenets of Buddhism.

Buddhism has made many contributions to the Indian culture. The administrative system of the 'Sanghas' which were formed for spreading Buddhism helped the growth of democratic and value oriented awareness in the society. For spreading Buddhism, many caves, chaityas (temples), viharas (monasteries) and pillars were built. These are evidences for the progress in the field of art and architecture.

The
T
r
i
p
i
t
a
k
a
s

Vinaya Pitaka

Sutta Pitaka

Abhidhamma Pitaka



Saranath pillar

Buddhism also played a major role in promoting trade and cultural relations between India and neighbouring countries. Countries like Myanmar, Japan, China, Srilanka, Java and Sumatra became the main centres of Buddhism. The Buddhist viharas played an important role in the progress of education in India. The



The remains of Nalanda and Taxila

universities of Nalanda, Taxila and Vikramasila were key centres of education and Buddhist teachings.

Gradually, Buddhism started to decline in its mother land. Buddhist

teachings and ideologies failed to receive much support from the later rulers. Moreover, Buddhism lost its grandeur when it was split into two sects - the Mahayana and the Hinayana. The revival of vedic religion adversely affected the progress of Buddhism.



A statue of Mahavira

Vardhamana Mahavira, a contemporary of Sri Buddha, propagated Jainism. According to the beliefs of the Jains, there are 24 thirthankaras. Mahavira was the 24th thirthankara. Jainism also laid great importance on ahimsa. The teachings of Jainism condemned all sorts of harm meted to humans or living beings. As in Buddhism, Jainism was also against vedic practices and caste system.

Jainism brought radical changes in the Indian society. Mahavira advised the people to lead right life by following



A cave temple

the principles of right belief, right knowledge and right action. The Jain saints were abstained from telling lies, killing, stealing and acquiring wealth. They followed celibacy in life. Jainism encouraged construction of stone pillars, cave temples and statues. The best example for this is the statue of Gomatheshwar in Sravanabalgola in Karnataka. The separation of the followers of

the followers of Jainism into Svetambaras and Digambaras resulted in the decline of the religion.

The common feature of both Buddhism and Jainism was that they used the language of the common man - Pali and Prakrit- for propogating their ideologies.



The statue of Gomatheshwar



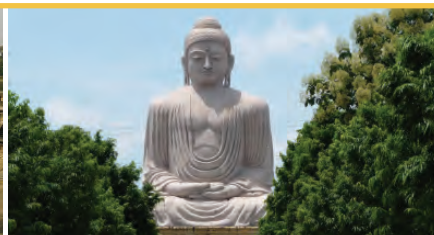
Examine the contributions of Buddhism and Jainism in Indian society and culture.



Given below are pictures of some places associated with Sri Buddha and Mahavira. Find out the importance of these places and prepare a note on them.



Vaishali



Bodhgaya



Kushinagar



Lumbini



Pavapuri



Sarnath

Mahajanapadas



Visit of Ajatashatru

Look at the picture. It is the depiction of a relief panel on a pillar in a Buddhist monastery in Bharhut, Madhya Pradesh. What are the scenes engraved in the pillar? Can you find them?

- ❶ A royal procession (below left)
- ❷ The king stands in front of two trees with his right hand raised (below right)
- ❸ The king and his queens stand in obeisance (up left)
- ❹ The king kneels down at a throne with Buddha's footprints (up right)
- ❺

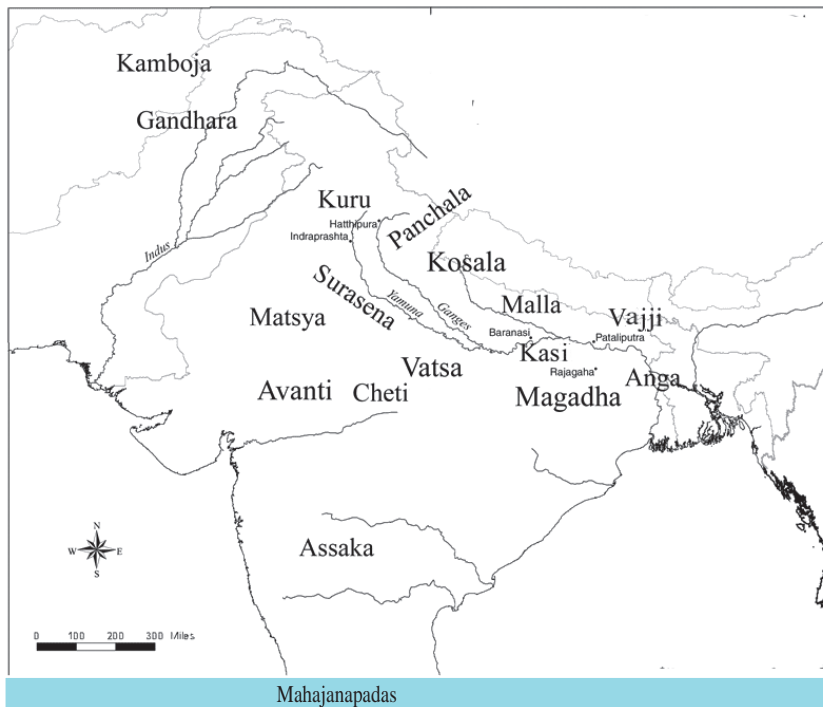
These are the different depictions of Ajatashatru, the ruler of Magadha, visiting Buddha. Magadha was one of the sixteen Mahajanapadas existed in ancient India. Let us have a look into the growth of Mahajanapadas.

We have already read about the transition from pastoral life to an agrarian one. With the development of agriculture, people began to settle down in a particular place. The places where people placed their foot or where the tribe placed its foothold came to be known as Janapada. Such Janapadas were known according to the tribes that had settled there. Thus, the people started to show their loyalty not only on to their tribes, but also on the places where they had settled. Some of these Janapadas combined together to form the Mahajanapadas. There were 16 such Mahajanapadas in the Indian subcontinent. The Mahajanapadas were either ruled by kings or by Ganasanghas. Regions lying close to the Himalayan foothills had more of Ganasanghas ruling them. Whereas most of the Mahajanapadas in the gangetic plain were under the rule of kings.



Ganasangha

Groups of tribes or tribal heads are called Ganasangha. This system of administration sustains unity based on public decision. If there was any difference of opinion, it was left to the opinion of the public. Administration was based on democratic principles.



Find out the Mahajanapadas from the map given above and list accordingly.

The most powerful among the Mahajanapadas was Magadha. What might be the reasons for their supremacy? Let's examine.

- ❶ Rich deposits of iron ore enabled the making of weapons and farming equipments.
- ❷ Ganga and her tributaries made Magadha a fertile land.
- ❸ Trees from nearby forests in the Gangetic plains were used for making big boats to facilitate trade.
- ❹ Made use of elephants in battles.
- ❺ Progress in agriculture and commerce
- ❻ Water transportation
- ❼ Powerful kingship and highly efficient military.



The position of Magadha

The main reason for the success of Magadha is its geographical location. Magadha shared its boundaries with the river Ganga in the north, the river Son in the west, the Vindhya mountains in the south and the river Chamba, in the east. Rajagriha was the first capital of Magadha and it was protected and surrounded more or less like a fort by five hills.

Find out the names of the main rulers of Magadha and their clans from the list given below.

Bimbisara Ajatashatru	Haryanka Dynasty
Shishunagan Kalashokan	Shishunaga Dynasty
Mahapadmanandhan	Nanda Dynasty

Foreign relations

An animal that carries on its forehead the entire grandeur of the forest, those who tame it and sit on its top, a land from where woolen clothes are weaved out from trees, people who use substances sweeter than honey, a land with no slaves and a place where people reap golden harvests without hardwork, .. and much much more....

Alexander



Alexander

Alexander was the ruler of Macedonia in Greece. He extended the Greek empire by defeating many Persian kings. He was a student of the famous Greek philosopher and thinker, Aristotle. Alexander was interested in geography and history and hence, recorded the historicity of the places he had captured and also their geographical settings.

These are the sights that Alexander, the ruler of Macedonia in Greece saw when he came to attack India in B. C. E 327. What are the factors that prompted Alexander to attack India?

- ❶ To capture all regions under the Persian emperor.
- ❷ To spread Greek culture.


Before the invasion of Alexander, the north western region of India were conquered by the Persian ruler, Cyrus. The knowledge of the wealth of India and the lack of unity among the rulers in the north western region had prompted him to attack India. Following Cyrus, Darius I attacked India and took hold of Sindh and Punjab.

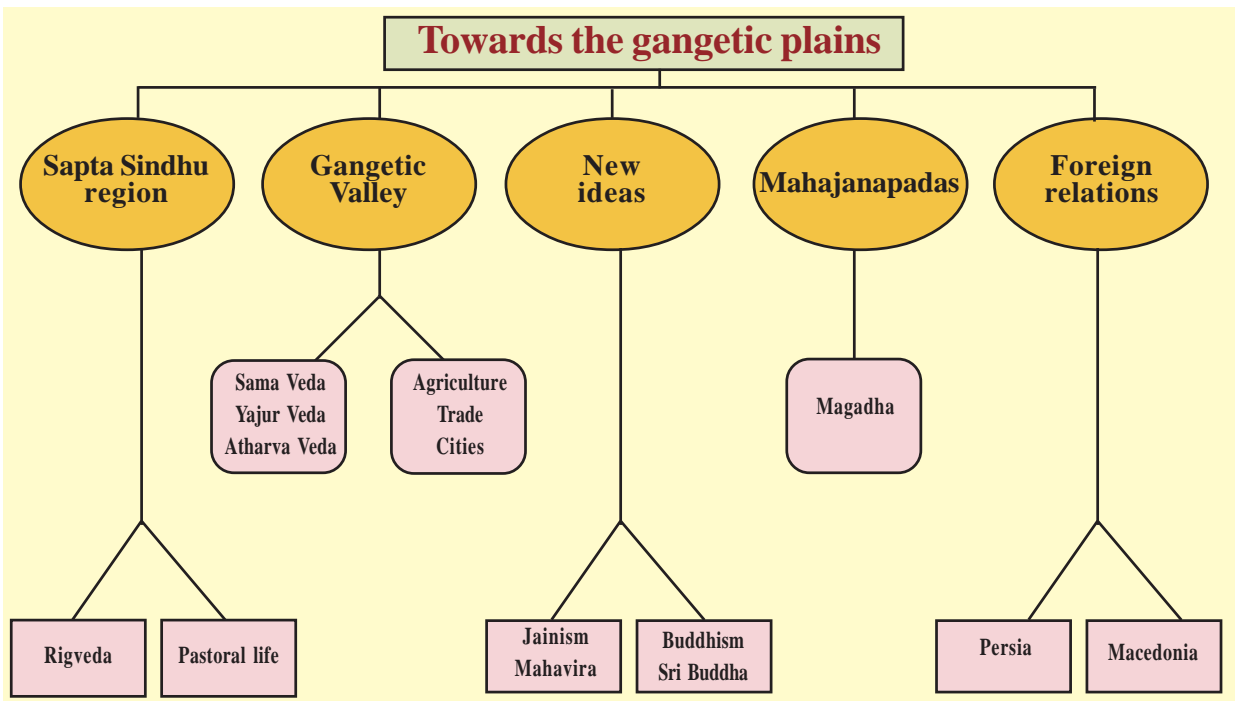
Let us look into the results of the invasions of the Persians and Macedonia.

Persia	Macedonia
<ul style="list-style-type: none"> • Trade relations between Persia and India increased. • A new script named kharoshti was introduced. • Influenced Indian sculpture. • Persian gold coins were circulated in India. • The philosophers and scholars in India got ample encouragement from the Persians. 	<ul style="list-style-type: none"> • Trade relations with Europe were strengthened. • New trade routes both land and sea developed • Geographical knowledge increased. • Unification of regions in the north western frontiers of India took place. • Greek architecture was introduced in India.



A coin picturing Alexander

 Evaluate the impact of Persian and Macedonian influences in India.





Summary

- ❖ The people who spoke the Indo-European language Sanskrit came to be known as Aryans.
- ❖ The main occupation of the Aryans was cattle rearing and their means of income were cattle.
- ❖ They followed a societal pattern of living in tribes.
- ❖ The use of iron weapons brought Aryans to the Gangetic plain.
- ❖ Agriculture became the main means of income and occupation.
- ❖ Society existed in four strata, namely Brahmanas, Kshatriyas, Vaishyas and Shudras
- ❖ Kingship began during this age.
- ❖ New ideas sprung up in 6th century B. C. E.
- ❖ Sixteen Mahajanapadas were formed in different parts of the Indian subcontinent
- ❖ A new power structure with Magadha at its centre came into existence.
- ❖ New trade relations started with Persians and Macedonians.

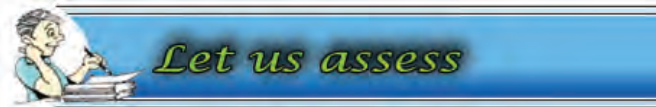


Significant learning outcomes

The learner

- ❖ describes the early lives of the Aryans.
- ❖ analyses the reasons for the migration of Aryans into the Gangetic plain.
- ❖ explains the progressive strides of the Aryans in agriculture in the Gangetic plain.

- ❖ analyses the societal times and lifestyles of the Aryans after settling in the Gangetic plains.
- ❖ analyses the reasons for the growth of cities in the Ganga Valley.
- ❖ infers that the societal changes in the 6th century paved way for the emergence of new religions.
- ❖ explains the reasons why Magadha turned out to be a political power.
- ❖ locates the Mahajanapadas in the map.
- ❖ evaluates the advantages of the relationships with foreign nations.



- ❖ 'The battles fought by the Aryans in the Sapta Sindhu region were mainly for cattles.' Substantiate this statement.
- ❖ Analyse the changes brought in the lives of the Aryans with the use of iron.
- ❖ Analyse the changes in the structure of the society when the Aryans migrated to the Ganga valley from the Sapta Sindhu regions.
- ❖ List the common features of Buddhism and Jainism.
- ❖ Match those in Column A with those in Column B

A	B
Darius I	Tribal assembly
Alexander	Mahajanapada
Sabha	Macedonia
Magadha	Persia



Extended activities

- 1 Prepare a list of similar words from different languages.



Self assessment

	Completely	Partially	Need improvement
I can describe the migration of Aryans to Europe and to different parts of Asia			
I can identify the similarity in words in Indo-European languages.			
I can analyse why the nomadic tribes settled down in the Gangetic valley and started farming			
I can identify the socio-political changes in the lives of the Aryans after permanent settlement in the Gangetic plains.			
I can recognize the reasons for the formation of different strata in society			
I can elaborate the reasons for the growth of new ideologies in India			
I can explain the reasons for the emergence of Magadha as a political power centre.			
I can explain how foreign relations promoted India's economic growth.			

09

FROM MAGADHA TO THANESWAR

The king appears before his people along with a colourful procession. He is carried in a golden palanquin. His bodyguards are sitting on an elephant having an ornamental covering for the forehead. Some people are carrying branches of trees on which trained parrots are seated. There are armed women as bodyguards around the king. The king fears that somebody may jeopardize him at any time. The king used to take his food only after the security tasted it. He does not sleep in a place for two nights consecutively..

Indica - Megasthenes

This is a description by Megasthenes who came from Greece, in his book 'Indica'. It is about the sights in the palace of Chandragupta Maurya who came into power at Magadha in 321 B. C. E. What do you understand about the Maurya reign from this description.

- ❶ The king received tough security.
- ❷
- ❸

If a king acts against science or is not able to defeat his own senses, he gets ruined easily even though he rules the whole world. Hence he should motivate his people to perform their duties through executing his deeds. One should attain humility from learning. Attain the love of the people by gaining wealth. Indolence, telling lies, luxurious dressings, deals arising from ego and misconduct etc. should be avoided.

Arthashastra - Kautilya

This is an excerpt from Kautilya's Arthashastra. What information can we gather from this about the responsibilities of the king?



Kautilya and Arthashastra

Kautilya was a teacher in Taxila before he became the Chief Minister of Chandragupta Maurya of the Maurya Dynasty. He was known by the names Chanakya and Vishnugupta. His contributions were in the fields of philosophy, economics, law, statecraft etc. His book Arthashastra written in Sanskrit gives a detailed description on statecraft.

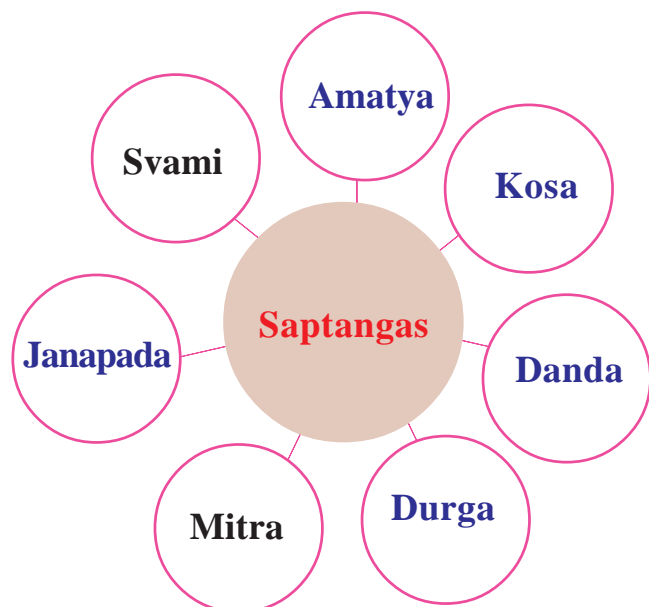
❶ The king should inspire his people to perform their duties.

❷

❸

Kautilya, in his Arthashastra mentions about the seven elements essential for a state. They are known as the 'Saptangas' (Seven limbs). That which has all these seven elements would be considered a state. They are listed below.

Seven Limbs	
Svami	The king
Amatya	The minister/official
Kosa	The treasury/Tax
Danda	The Judiciary
Durga	The fort/army
Mitra	The ally
Janapada	The territory





Discuss the relevance of the saptangas mentioned in the Arthashastra in modern period.

Chandragupta Maurya established a rule based on the Saptanga concept. Pataliputra was the capital of the Maurya dynasty. He formed a strong army and expanded his kingdom by conquering neighbouring states. He collected various taxes for meeting the administrative expenses. He made alliance with many foreign countries. The most important among them was his alliance with the Greek military officer Seleucos Nicator, who arrived India after Alexander. Megasthenes was the ambassador of Seleucos Nicator to the court of Chandragupta Maurya. Chandragupta Maurya was the head of the administration and judiciary. There were ministers and number of officials who helped him in the administration.

Seleucos Nicator

Seleucos Nicator was a military general under Alexander, the ruler of Macedonia. After the death of Alexander, Seleucos got the control of the Eastern Provinces where the Greek rule existed. He entered into a war with Chandragupta Maurya, but later he made a treaty with Chandragupta and exchanged his eastern satrapies (provinces) for a considerable force of 500 war elephants.



How far did the concept of Saptanga reflect in the reign of Chandragupta Maurya?

The kingdom which Chandragupta Maurya formed with Magadha as its centre developed into an empire. What are the factors that brought Maurya kingdom the status of the first empire in India?

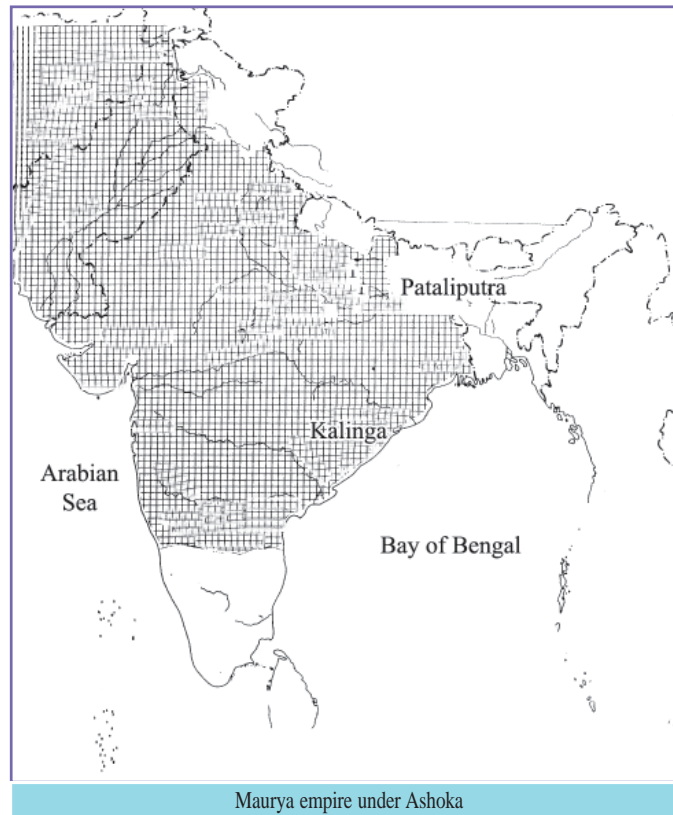
- ❶ Kingdom was extensively large.
- ❷ Administration was centred on the king.
- ❸ Unified administration established throughout the whole state.



Discuss the circumstances that led to the formation of the first empire in India with Magadha as its centre.

Chandragupta Maurya was succeeded by Bindusara. Ashoka became the ruler of the Maurya empire after Bindusara. He extended the

empire conquering Kalinga and Kashmir. You can get to know the details from the map given below.



Ashoka and Dhamma

In the past, killing or harming living beings and dishonouring relatives, Brahmanas and sramanas existed. We have to thank the king Piyadassi, who was the beloved of the Gods. Because of his effort that the wars in the empire ceased. The sound of the drum has been replaced by the Dhamma. By practicing Dhamma, people restrained from killing living beings. They started respecting relatives, Brahmanas and sramanas. They obey their mother, father and elders. In this way Dhamma went on spreading further.

Dhamma edict of Ashoka

Given above is the Dhamma edict of Ashoka. In this Asokha is referred as 'Piyadassi'.

What details can you gather from this edict about the Dhamma of Ashoka?

- ❶ Animal sacrifice was not permitted.
- ❷
- ❸

Ashoka was inspired by Buddhism to proclaim Dhamma. But the ideas of various religions can be seen in Dhamma. He considered the relation between the king and his people similar to the relation between father and children. He lessened the punishments and urged for a simple living.

What were the aims of establishing Dhamma?

You might have understood from the given map, how extended was the Maurya empire during the reign of Ashoka. There was a supreme need to instill unity, peace and harmony among the people in the vast country where the Brahmanas and non-brahmana sramanas (Jains, Buddhists, Ajivikas, etc.) inhabited. This motivated Ashoka to introduce the Dhamma.



Discuss the significance of Ashoka's Dhamma in the present day world.



Ashoka had clear political aims while implementing the Dhamma. Substantiate.

In order to propagate and make people aware of his ideas and rules, Ashoka erected edicts in various parts of the country and made inscriptions on rocks. Most of them were near cities and highways. The edicts can be classified as major rock edicts, minor rock edicts and pillar edicts. These edicts are also examples of artistic skills of that period.

Dhamma

The word Dhamma is the prakrit form of the sanskrit word Dharma



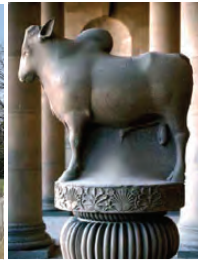
Edicts of Ashoka

Most of the edicts of Ashoka were written in Brahmi script. The script was deciphered in 1837 by James Prinsep. Some of these edicts, found in the northwestern part of India, were written in the Kharoshti script. This was due to the influence of the Persian language that existed there. Those edicts found from Afghanistan were in Aramaic and Greek scripts. Most of the edicts were in the Prakrit language.





Pillar edict - Topra (Delhi)



Rupnath edict



Dhauri edict



Pillar edict - Vaishali



Examine carefully the various edicts given in the pictures and prepare a note.

<p>Major Rock Edicts</p> <p>■</p> <p>■</p> <p>■</p>
<p>Minor Rock Edicts</p> <p>□</p> <p>□</p> <p>□</p>
<p>Pillar Edicts</p> <p>▲</p> <p>▲</p> <p>▲</p>



Places where the Edicts of Ashoka were erected.



Observe the map carefully and list out the places where the edicts of Ashoka were set up.

Ashoka sent officers to different parts of the country and other countries to propagate Dhamma. He sent his son Mahendra and his daughter Sangamitra to Ceylon (now Sri Lanka). Ashoka installed stupas containing the relics and left overs of Buddha in various parts of the country. The most important among them is the Sanchi stupa. These were the artistic profiles of that age.



Sanchi stupa

The Maurya empire and places where Dhamma was propagated were free from conflicts and sectarianism. During the reign of Ashoka's successors the power of the king and the influence of Dhamma were weakened. As a result, many farther province became independent.



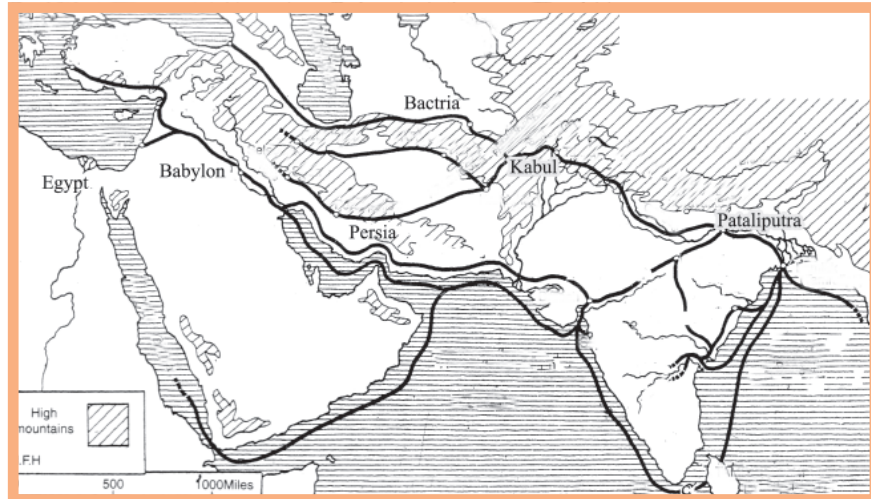
Evaluate the influence of Ashoka's policies on various fields of the Maurya empire.

Social and Economic Life

The economic activities of the Maurya empire were controlled by the state. Let's see what they are:

- ❶ The conquered regions were brought under cultivation.
- ❷ Irrigation facilities were arranged for the development of agriculture.
- ❸ The development of agriculture and villages led to the development in trade.
- ❹ Roads were established for the development of trade. Trees were planted on both sides of the road. Porters' rests were also erected at various places near the roads.

- Roads were built connecting the cities of Vaishali, Kapilavastu and Pataliputra to distant places. This helped in having trade relations with other places.



Paths showing trade relations of India with other places.



Observe the map and identify the places with which trade relations existed during the reign of the Maurya Dynasty.



Punch-marks on coins

Punch-marked coins were used for trade and for payment of wages. Mines and metallurgy were controlled by the government. Therefore, the authority for minting coins was vested with the government. The government officials collected taxes from the traders. The accuracy of weights and measures was ensured. Immense funds were necessary for the rulers to maintain the huge army and officials in the country. They collected different kinds of taxes for raising funds. Different kinds of taxes of period are mentioned in the Arthashastra. A few of them are given below.

Taxes	Sectors in which the tax was imposed
Bhaga	Tax on land
Bali	Tax on fruits and flowers
Udagabhaga	Tax on Water
Shulka	Tax on export and import of goods



How did the centralised administrative system of the Mauryas influence the economic activities of the country?

During the Maurya rule, agriculture was expanded to a large area and handicrafts based on agriculture developed. This led to the strengthening of a social order based on varnas which was centred on occupation. According to Megasthenes, there existed seven social divisions at that time. Arthashastra describes about slaves who were known as 'Dasas'. Joint family system prevailed in the society.



How did the spread of agriculture result in social inequality?

India After the Mauryas

After the decline of the Maurya dynasty different groups of people arrived India through its northwest part. The Kushanas were the most important group among them. Kanishka was the notable ruler among the Kushanas. He started the Shaka era in 78 C E (This later became the official calendar of India). He contributed much to the propagation of Buddhism.



Coins during the Kushana period

Buddhist scholars like Asvaghosha and Vasumitra, adorned his court. The Kushanas were the first to introduce gold coins in India. Charaka and Sushruta, the prominent figures in the field of medicine lived during this period.

Look at the picture of a sculpture. Find out the features of it.

❶ Sculpture of Buddha

❷

❸

During the reign of Kushanas, the sculptores who came to India made many sculptures of Buddha. A new style of sculpture emerged as a result of the amalgamation of the style of Greece and Rome with Indian style of sculpture. This is known as the Gandhara sculpture. A sculpture in this style is given in the picture. These sculptures were mainly made in Kandahar (Gandharam) regions in Afghanistan. A group of Buddhists known as Mahayana Buddhists worshipped the statues of Buddha. Kanishka encouraged Mahayana Buddhism and declared it as the official religion of the empire. .



Gandhara Sculpture



How did Mahayana Buddhism help in the growth of Gandhara sculpture?

The Satavahanas

The Satavahanas emerged as the rulers in central and south India after the Maurya rule. They ruled during first century B C E. Pratishthana (presently Paithan located in Maharashtra) was the capital of the Satavahanas. Kings like Gautamiputra Satakarni,

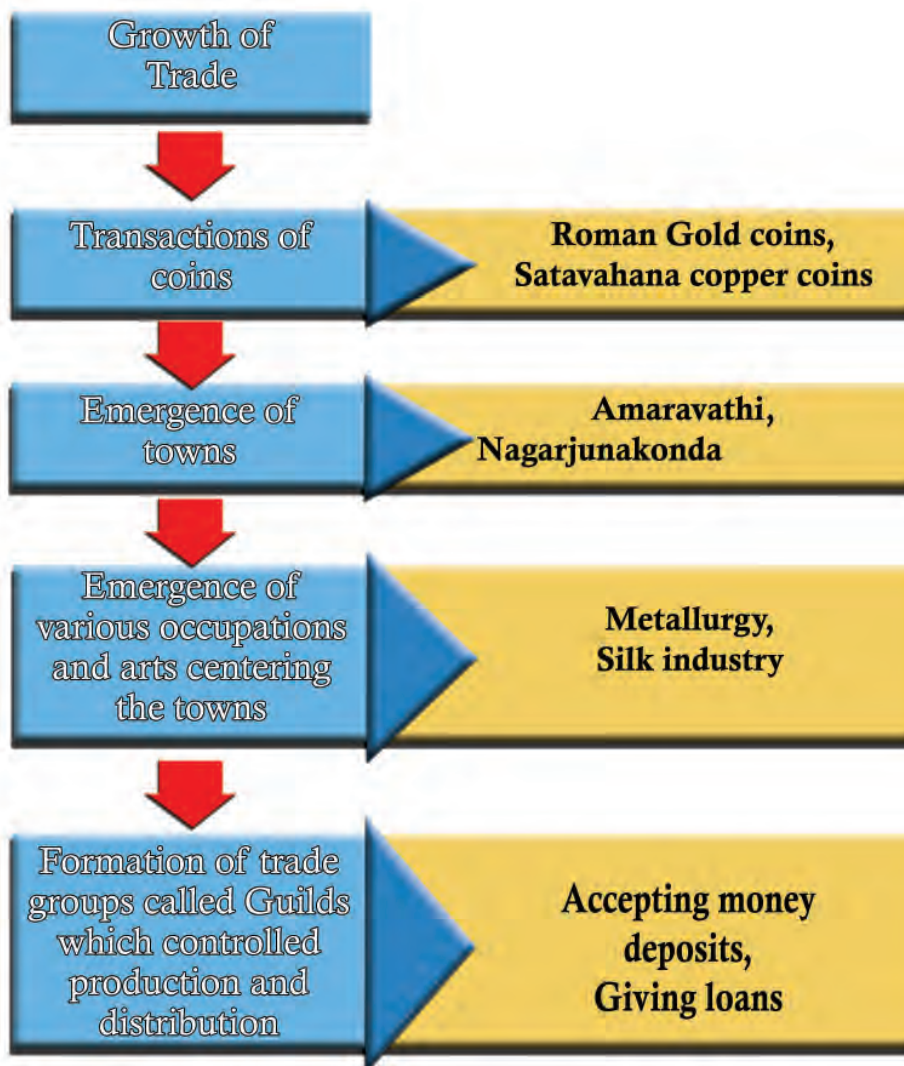
Vasishthiputra extended the power of the kingdom. During his period traders from north India and propagators of Jainism, Buddhism and Brahmanism came to south India. This resulted in the cultural exchange between north and south.

The Satavahana rulers donated land to Buddhist monks and Brahmanas. The aim of such donations was to enlarge the area of agricultural land. Gradually the administrative power of these places was given to them. This weakened the power of the kings.

During that period, India had trade relations with the Roman Empire. Roman gold coins were found from many places in India. Let's see the changes that happened due to the growth of trade.



Copper coins during the Satavahana period





Discuss how the growth of trade led to the formation of Guilds?



What are the changes that took place during the Satavahana period from the Maurya period?

The Age of the Guptas

“ഗുപ്തകീർത്തിതൻ മണ്ണുണിഞ്ഞ മന്ദിരമല്ല
ഉജ്ജയിനിതൻ നടക്കാവിൽ ഞാൻ തിരയുന്നു.
ആടിമേഘത്തെ പ്രേമദൂതിനായി നിയോഗിക്കും
ഏതോയക്ഷനായ്തീർന്ന കവിതൻ കാല്പാടവത്രെ”

വെറുമൊരു ആത്മഗതം - ഒ.എൻ.വി. കുറുപ്പ്

“Not the remains of the renowned gupta *mandir*
I am looking for in the corridors of Ujjain
But the footprints of the bard who assumed
The guise of *Yaksha* to assign the rain
clouds to be the messenger of lone.”

Verumoru Admagatham - O.N.V. Kurup

Read the poem carefully. Which dynasty is referred to in it? What details can you infer about the dynasty from these lines?

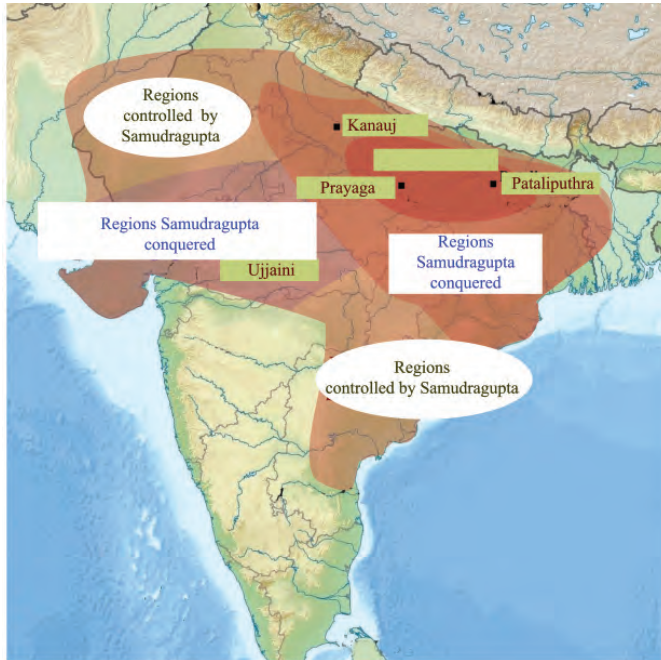


Allahabad Prashasti

- ❶ The Gupta dynasty.
- ❷ Ujjain was an important centre of the Gupta dynasty.
- ❸ Famous poets lived during the Gupta empire

Kalidasa, who lived during the Gupta period, is referred to in this poem. After the decline of the Maurya empire, the empire that developed in the Gangetic plain was the Gupta empire. Chandragupta I was the first powerful Gupta ruler. He introduced the Gupta era in 320 C E. Samudragupta, who succeeded him, extended the empire. We come to know about Samudragupta's attacks from the 'Prashasti' written by his court poet Harisena. The 'Prashasti' is inscribed on the pillar in Allahabad.

From the details we get from this, Samudragupta defeated the northern states of India and brought under his control the southern states. The map given below gives you this idea. Observe the map and complete the table given.



Gupta empire

Prashasti

Prashastis are the literature texts prepared by the poets of the palace to glorify the administrative reforms and successes in wars of the rulers. These were engraved on rocks or pillars.



Coin of Samudragupta's period

Region	Regions Samudragupta conquered/ regions controlled
Northwest	Regions controlled
West	
Northeast	
East	

After Samudragupta, the Gupta empire was enlarged by Chandragupta II. He transferred the capital from Pataliputra to Ujjain. The Navaratnas, who were famous in various fields, lived in his court. Among them the most prominent was Kalidasa. During this period, the

Navaratnas (Nine Gems)

*Kalidasa, Khadakarpara,
Kshapanaka, Vararuchi, Vetala
Bhatta, Varahamihira, Amarasima,
Shanku, Dhanvantari.*



Coins during the period of Chandragupta II

Chinese traveller Fa-Hsien visited India. A large number of gold coins were in circulation during the time of Samudragupta and Chandragupta II. These coins are specimens of the artistic skills of that time. Kumaragupta and Skandagupta were the successors of Chandragupta II.

Life of People



Chandragupta Vikramaditya

Chandragupta II is considered as Vikramaditya who is referred to in the stories of Vikramaditya. After defeating the Shakas he assumed the title 'Shakari.' He was called by the name 'Devaraj' in the Sanchi inscription and as 'Devagupta' in the edict of his daughter Prabhavati Gupta.

A large extent of land was donated to Jain saints, Buddhist monks, Brahmanas and to the officials in the palace. Those who got the land were given the right to exchange it. They made the farmers work in their land. But the farmers had no right on the land. There was an increase in agricultural production whereas the life of the farmers was pathetic.



How is the land donation during the Gupta period different from that of the Satavahana period?

The fall of the Roman empire caused for the decline of trade during the Gupta period. The decline of trade attracted more people to the field of agriculture. Towns lost their significance. Power was concentrated on the landlords. The royal power weakened.

Various kinds of discriminations existed in the society during that time. Varna system became rigid. The kings encouraged Vaishnava and Shaiva sects and built many temples.

During the Gupta period, significant developments occurred in the fields of literature and science. A number of books were written in Sanskrit language. The table showing the names of writers and the books are given.

Writers	Books	Areas
Kalidasa	Abhijnana Shakuntalam Vikramorvashiyam Malavikagnimitram Kumarasambhava	Literature
Shudraka	Mrichchhakatika	Literature
Vishakhadatta	Mudrarakshasa Devichandraguptam	Literature
Varahamihira	Panchasiddhantika Laghujataka Brihajjataka	Science
Aryabhata	Aryabhatiyam	Science
Amarasimha	Amarakosha	Lexicon.



Conduct a discussion on the changes that occurred in different fields during the Gupta period.

After the collapse of the Gupta empire, one of the powerful kingdoms that existed in India was that of the Vardhana Kings of Thaneswar (present Kurukshetra district of Haryana). Harshavardhana was the most prominent ruler among them. He worked for the uplift of Buddhism. He took steps for the development of Nalanda University. *Ratnavali*, *Priyadarshika* and *Nagananda* are the plays written by him. The *Harshacharita* written by Banabhatta and the descriptions of the Chinese traveller Hsuan Tsang are the main sources for getting information on this period.



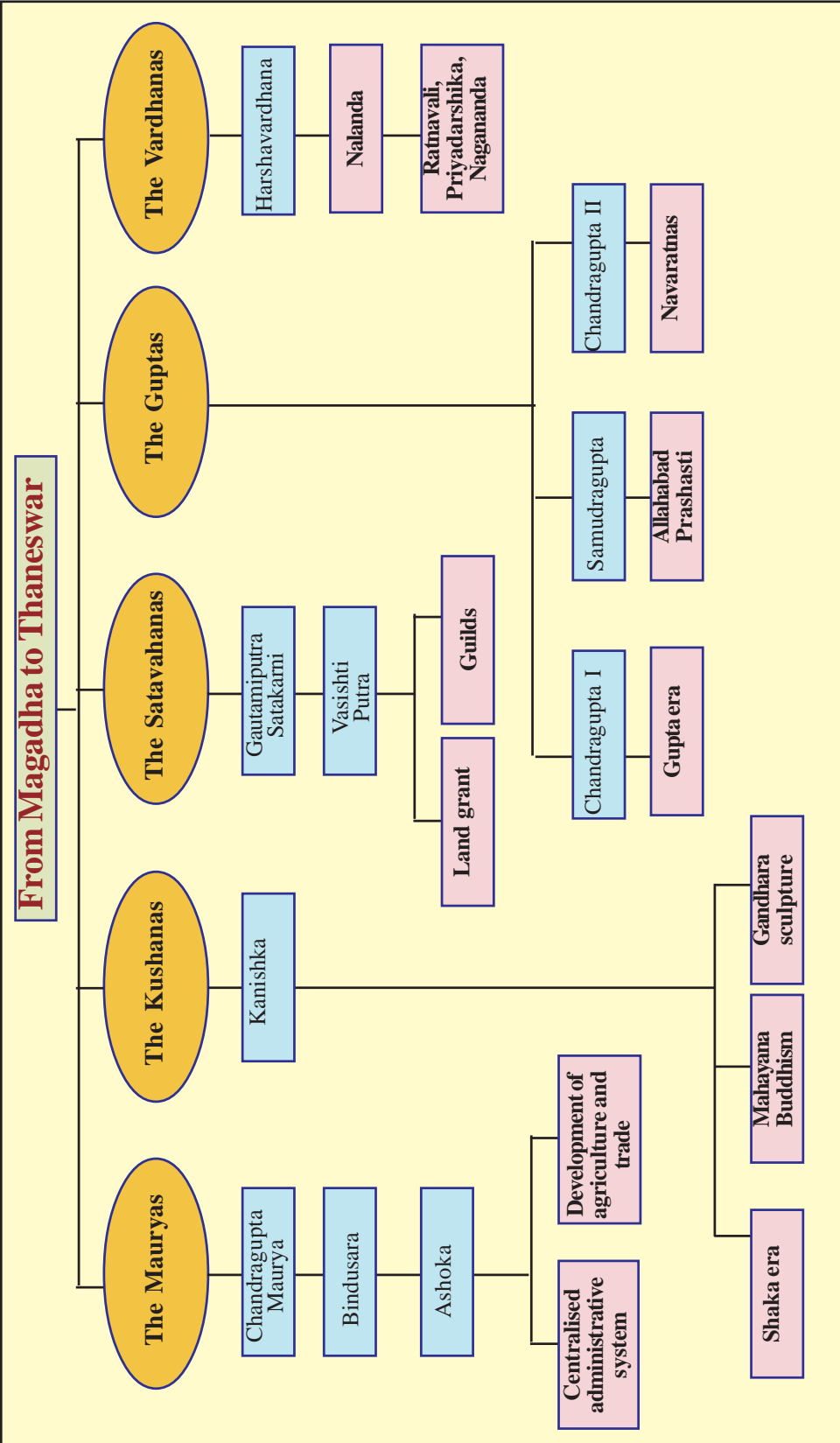
Prepare a seminar paper on the 'changes that happened to the various areas in the life of the people after the Maurya period'.

The growth from Janapadas to empire caused great changes in the life of the people in ancient India. The most significant of the changes was that all the activities were controlled by the rulers. The changes in the economic sector led to divisions in the society. Relations with distant places triggered the cultural transactions. The edicts and literary works of that period acknowledge these changes.



Summary

- i The first empire in India is the Maurya empire formed with Magadha as its centre.
- i Maurya empire established a centralised administrative system for the first time in India.
- i The Saptanga concept was the basis of the Maurya administration.
- i Ashoka's Dhamma helped in the existence of Maurya empire.
- i The centralised monarchy influenced the economic and social life that existed in the Maurya empire.
- i The growth of Gandhara sculptures strengthened during the reign of Kushanas who were the successors of the Mauryas.
- i The Satavahana rulers who ruled south India started the land grant system.
- i After the Maurya empire, the empire that got strengthened with Magadha as its centre was the Guptas.
- i During the reign of the Guptas, land grant became more extensive.
- i Significant changes in the economic social and cultural fields occurred during the Gupta period.





The learner

- i analyses the centralised administrative system of the Mauryas
- i evaluates the role of Ashoka's Dhamma in maintaining unity of the empire.
- i lists the various edicts erected by Ashoka.
- i analyses the economic, political and social changes in India after the decline of the Mauryas.
- i identifies the relation between Mahayana Buddhism and Gandhara sculpture.
- i explains the land grant system during the Satavahana period.
- i analyses the changes that occurred in the social, political, economical and cultural fields during the Gupta period.
- i compares the land grant during the Gupta period with that of the Satavahana period.



- i How far did the Saptanga theory help in the centralised administration system of the Mauryas?
- i Prepare a note on the economic and social life during the Maurya period.
- i We can see a far-sighted ruler in the Dhamma policy of Ashoka.' Substantiate this statement.
- i How is the of land grant during Gupta period different from Satavahana period?
- i Explain the features of the Gandhara sculpture?

- Find out the relationship between the items in column 'A' with that of column 'B' and complete the table.

A	B
Kalidasa	Kumarasambhava
	Mrichchhakatika
Aryabhata	
	Amarakosha



Extended activities

- Prepare an album by collecting pictures on the various edicts of Ashoka and write captions based on them.
- Prepare a note on the steps to be taken by the rulers to sustain unity and harmony among the various sections of people in the country.



Self assessment

	Completely	Partially	Need improvement
I can analyse the centralised administrative system of the Mauryas.			
I can explain the importance of maintaining unity among people for the existence of a nation.			
I can identify the importance of the policy of Dhamma by Ashoka.			
I can list the various edicts of Ashoka.			
I can identify the relation between Mahayana Buddhism and Gandhara sculpture.			
I can compare the of land grant during the Gupta period with that of the Satavahana period.			
I can analyse the changes in various fields in the life of the people in the Gupta period.			

10

BLANKET OF THE EARTH



The given lines is the translated version of the pledge you have taken as part of the world environment day. Have you ever thought of the logic in planting trees as part of conservation of environment?

As you know, atmosphere is the blanket of air surrounding the earth. It is the atmospheric gases such as oxygen and carbon dioxide which play a major role in maintaining the earth as a life supporting planet.

Plants are significant in regulating the amount of these gases in the atmosphere.

It is through the process of photosynthesis that the plants gather energy for their growth. In this process plants intake carbon dioxide and give out oxygen. Now you might have understood the role played by the plants in maintaining the balance of life supporting gases in required proportion.

Let us see the constituents of the atmosphere other than the gases such as oxygen and carbon dioxide and also their significance.

Atmospheric Composition

Gases, moisture and dust particles are the major constituents of our atmosphere that blanket our earth. It is the gravitational attraction of the earth that holds the atmosphere close to the earth.

Atmospheric gases

Familiarise the major gases in the atmosphere and their proportionate volume by observing the given table [Table 10.1] and diagram [fig10.1].

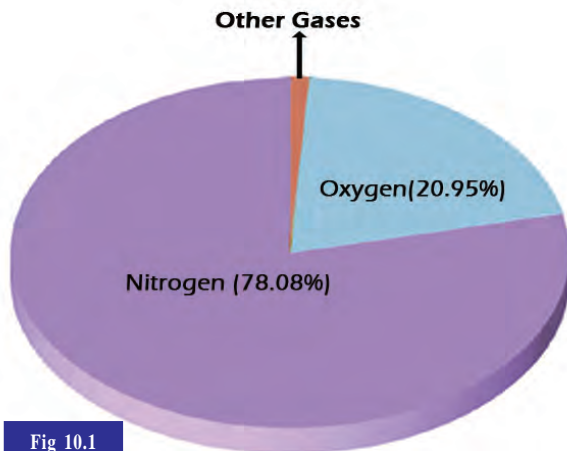


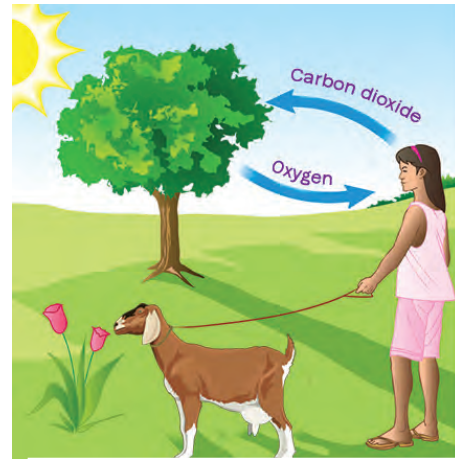
Fig 10.1

Gases	Volume (%)
Nitrogen	78.08
Oxygen	20.95
Argon	0.93
Carbon dioxide	0.037
Ozone	0.01
Neon	0.002
Helium	0.0005
Krypton	0.0001
Hydrogen	0.00005
Xenon	0.00009

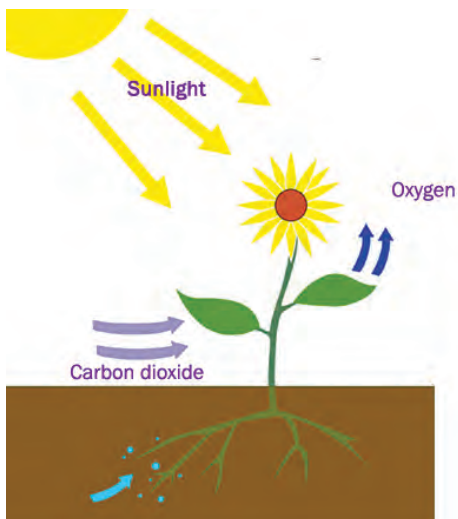
Table 10.1

Almost all the gases in our atmosphere support the sustenance of life directly or indirectly. Observe the pictures given (Fig 10.2). You can notice the importance of gases such as oxygen, carbon dioxide and nitrogen in the existence of life forms.

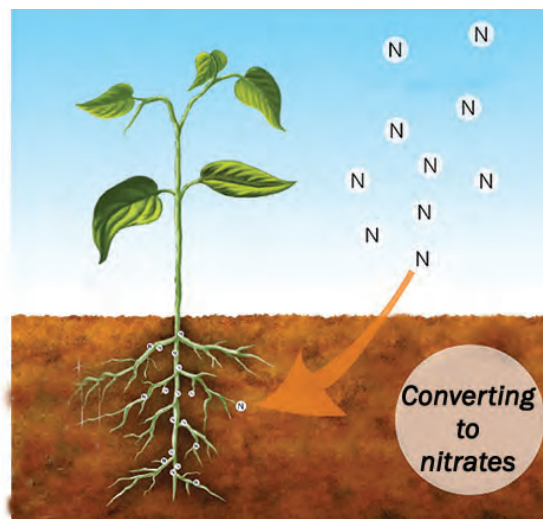
- ❶ Plants make use of Carbon dioxide for photosynthesis.
- ❷ Man and other organisms make use of oxygen for respiration.
- ❸ Plants make use of nitrogen for their growth through nitrogen fixation.



Respiration



Photosynthesis



Nitrogen fixation

Fig 10.2

Water in the atmosphere

Water molecules are a major constituent in the lower parts of the atmosphere. As you know, water reaches the atmosphere through evaporation and causes cloud formation and rain. There is spatial and temporal variation in the amount of water present in the atmosphere. Look at the factors influencing the amount of water in the atmosphere.

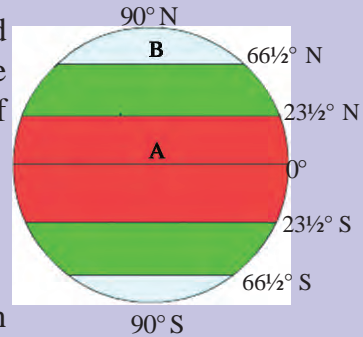
- ❶ Rate of evaporation will be high at places experiencing higher temperature. So the water content in such places will be high.
- ❷ The amount of water will be high in the atmosphere close to the surface water sources such as oceans, rivers and other water bodies.



Complete the given work sheet based on the facts discussed above.

Work Sheet

- ❶ Observe the places marked as A and B in the figure. Which among these places have higher amount of atmospheric water? Why?



- ❷ Two places in India are marked in the figure. Which among these places have higher amount of atmospheric water? Why?



Dust Particles

Other than gases and water content dust particles also form part of the atmosphere. Look at the main sources of dust particles to the atmosphere.

- ❶ Dust particles brought to the atmosphere by wind.

- ❖ Dust particles erupted through volcanoes.
- ❖ Ash formed by burning of meteors
- ❖

You have learnt that there is frequent condensation concentrating around the fine dust particles in the atmosphere. As the fine dust particles in the atmosphere help in cloud formation they are called as Condensation nuclei.



What is the significance of dust particles in the atmosphere?

The presence of atmosphere extends to about 10000 kilometres from the earth's surface. But it is estimated that about 97 percentage of the atmospheric air remains within 29 kilometres from the earth's surface. The gases get rarefied with increasing altitude.



Why the mountaineers climbing Mount Everest take oxygen cylinders with them?

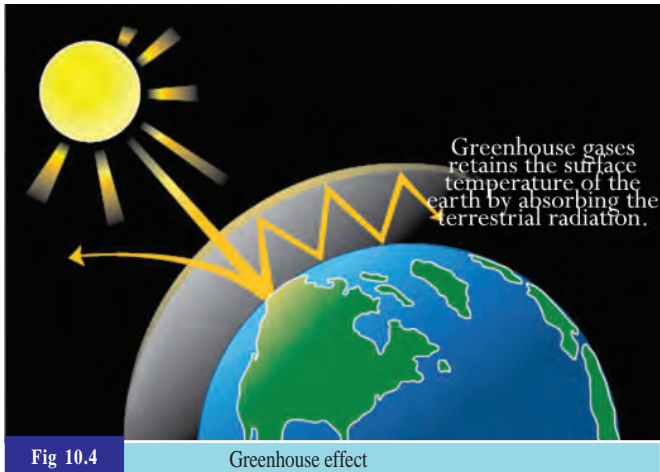
Atmosphere as a Green house

Do you know why glass is largely used in the construction of buildings in cold countries? Glass panes have the capacity to allow insolation to pass through them and check the terrestrial radiation. Thus temperature is maintained within the buildings without fall. You can perceive from the given figure (Fig. 10.3) how this property of glass is made use of in the agricultural sector in cold countries. By preventing the terrestrial radiations the temperature required for the growth of plants is retained



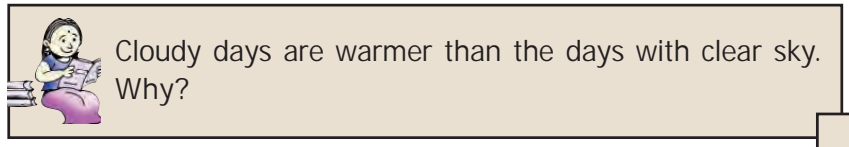
Fig 10.3

Green house



inside such constructions. Such buildings are called Green houses. Some of the gases present in the atmosphere can also permit insolation and prevents terrestrial radiation. Gases such as Carbon dioxide, methane, ozone etc. and water vapour present in the atmosphere absorb the terrestrial radiation and retain the temperature of the atmosphere. This phenomenon is called Greenhouse

effect and the gases causing the phenomena are called Greenhouse gases.



Even if Greenhouse effect is essential for the existence of life, the uncontrolled increase in the greenhouse gases causes rise in temperature in the atmosphere.

Greenhouse gases are reaching the atmosphere mostly through some human interventions. Do you know the sources of greenhouse gases?

Greenhouse gases enter the atmosphere through natural means such as volcanic eruptions, decay of biological matter as well as through human activities such as deforestation, burning of fossil fuels etc.

Some activities leading to the large scale emission of greenhouse gases are shown in the pictures (Fig. 10.5). Carbon dioxide is dominant among the gases released in this manner.



Fig. 10.5



How deforestation leads to the increase in amount of carbon dioxide in the atmosphere?

Changing atmospheric condition

Industrialisation, urbanisation etc. lead to rapid changes in the atmosphere. It is estimated that 6000 metric ton carbon dioxide is getting added to the atmosphere every year in this manner.

Metric ton
1 Metric ton = 1000 Kg

Studies reveal that there is a rise of 0.4°C in the average atmospheric temperature due to uncontrolled increase of greenhouse gases in the 20th century. The increase in temperature in the atmosphere due to greenhouse gases is referred as Global warming.

Let us see how Global warming becomes a threat to the life forms of the earth.

- i Sea level may rise as a result of melting of polar ice.
- i Destruction in the coastal ecosystem may lead to the problems such as food crisis, large scale migration etc.
- i Global warming leads to the depletion of many species of plants and animals in the ecosystem.
- i

Kyoto Protocol

Among the global efforts to control greenhouse gases Kyoto protocol is the most important. The protocol proclaimed as part of the Kyoto summit in Japan in 1997 came in to effect with the concurrence of 141 countries in 2005. As per this 35 industrial countries were warned to reduce 5% of their greenhouse gas emission by 2012 than the same in 1990.



You might have understood that it is the increase in amount of greenhouse gases which lead to global warming. Do you think we can completely avoid such activities as shown in figure 10.5?



Suggest a few alternatives as indicated by the given pictures (Fig 10.6) to resist global warming.



Fig 10.6



Conduct a poster exhibition in the subject 'Global warming and remedial measures' as part of World Environment Day on behalf of the Social science club.

Ozone as an umbrella for the earth



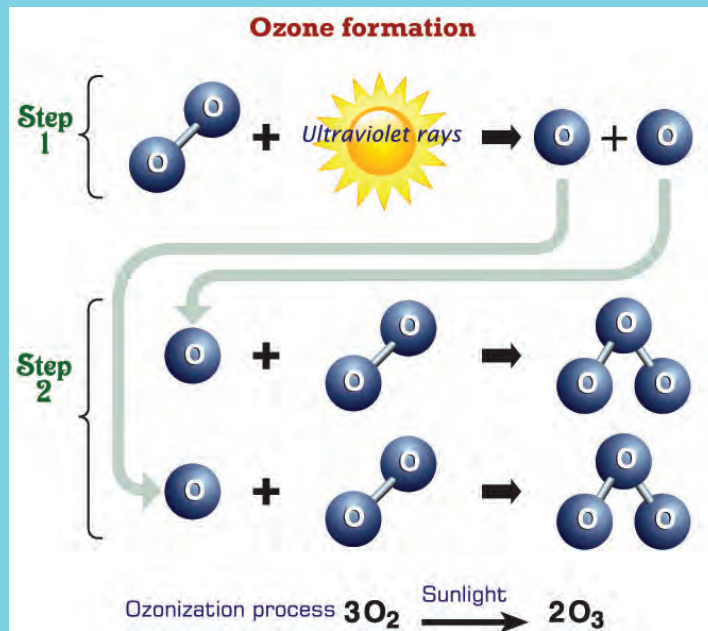
As the ozone gas is concentrated in the upper atmosphere as a layer, it is called Ozone layer. It protects the life forms of the earth by absorbing the harmful ultraviolet rays from the sun.



Ozone formation

At an altitude of about 20 to 50 km in the atmosphere, the ultra violet rays from the sun splits up ordinary oxygen molecules to single atom oxygen molecules. This single atom oxygen molecules react with ordinary oxygen molecules to form tri atomic ozone gas. This process is called as Ozonisation.

This chemical reaction is shown below.



Look at the negative impacts of ultraviolet rays (Fig 10.7).

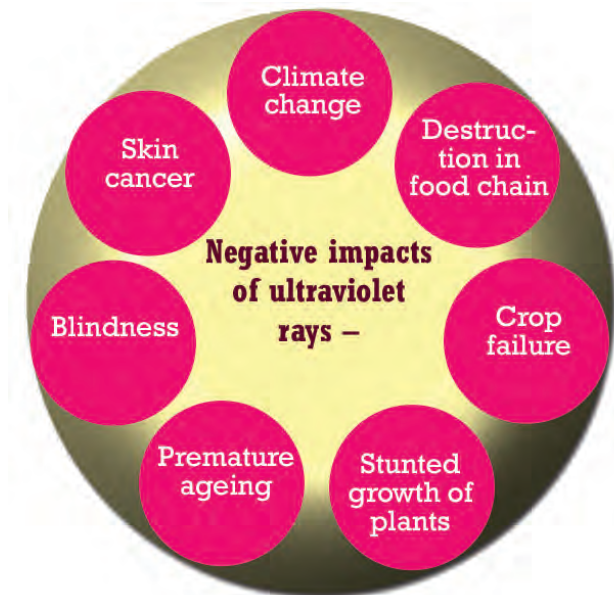


Fig 10.7



Refrigerators, air conditioners, different types of sprays, fire extinguishers, paints, etc. are sources of gases such as chlorofluorocarbons, halon etc. Such gases could remain unaltered in the atmosphere for a long time. These gases rising to the upper atmosphere react with ultraviolet rays from the sun to form chlorine and bromine. It is estimated that each chlorine atom is capable to decay about one lakh of ozone molecules. Bromine is 40 times more reactive than chlorine. This depletion in the atmospheric ozone layer is called as Ozone hole.



Montreal Protocol

“The Montreal Protocol is an international treaty aimed at banning the products that causes ozone depletion at various levels. It was signed as a landmark for the conservation of ozone in 1987, Vienna summit. It has been proved that by the implementation of the treaty the ozone depletion over the Antarctic region has considerably lowered.”

To protect the ozone layer...

To create awareness on the need of conservation of ozone and to control the use of products leading to ozone depletion 16th September of every year is observed as World Ozone Day.



Conduct an ozone protection rally as part of Ozone Day Celebration on behalf of the School Social Science Club. Prepare pictures, posters, dialogues etc. for the same through group discussion in the class.

You might have understood the characteristics and significance of each of the constituents in the atmosphere. Just like the composition, the structure of the atmosphere also is critically influencing the life forms on the earth.

Structure of the Atmosphere

The composition of the atmosphere is somewhat uniform up to about 90 Kilometres from the surface of the earth. This part of the atmosphere is called homosphere. Beyond this there is

no uniformity in the gaseous composition. So the part of the atmosphere beyond 90 Km from the earth is called as heterosphere. Based on the temperature at different levels, atmosphere can be divided into different layers. From the given diagram (Fig 10.8) you can read the change in temperature with altitude and can identify the layers of the atmosphere. Each layer in the atmosphere has its own indigenous characteristics. Let us see the characteristics of the atmospheric layers as well as their significance on us.

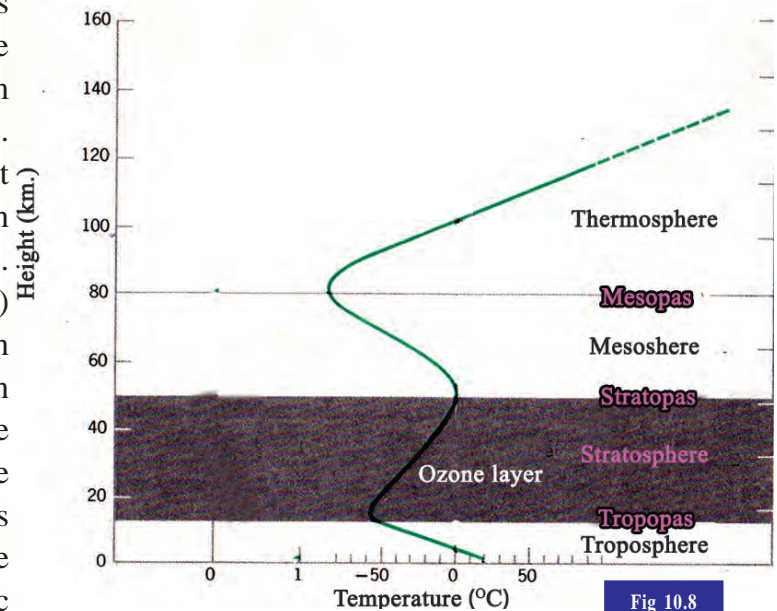


Fig 10.8

Troposphere

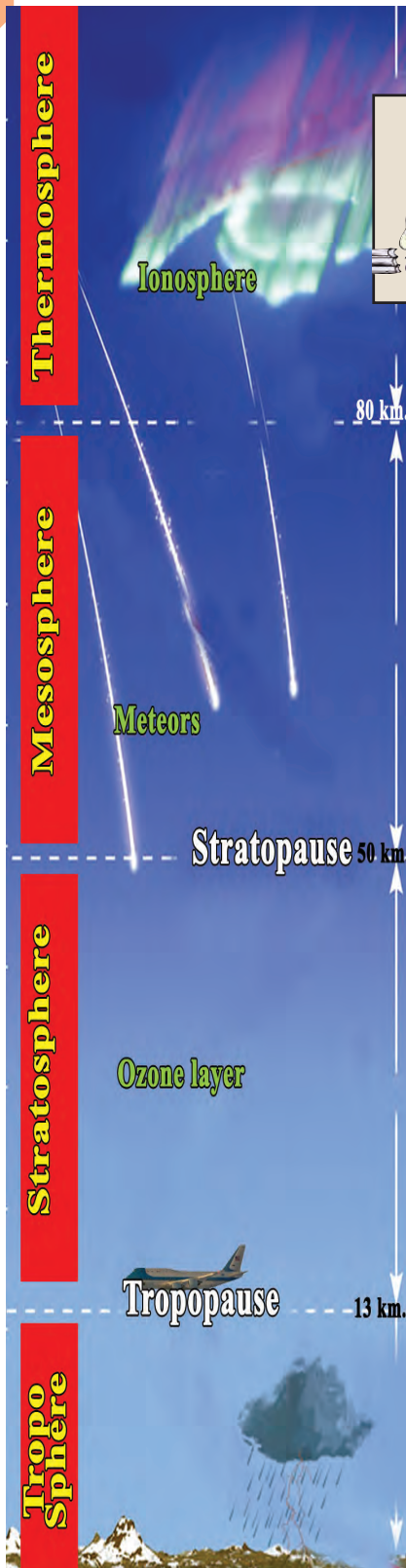
- ❶ This layer extends up to about 90 Km from the surface of the earth and lies close to the earth.
- ❷ The height of the troposphere is more in the equatorial regions because of strong convection here. (about 18 Km)
- ❸ Almost all the weather and climatic phenomena such as cloud formation, rain, snow, wind, thunder and lightning etc. take place in this layer.
- ❹ In the troposphere the temperature decreases at a uniform rate of 1°Celsius for every 165 metres of altitude. This is called Normal Lapse Rate.

Transition zones

Transition zones are the parts of the atmosphere separating the major atmospheric layers.

Tropopause, stratopause and mesopause are the respective transition zones between troposphere, stratosphere, mesosphere and thermosphere.





- The zone of transition above the troposphere is called tropopause.

Give reason for the comparatively low temperature experienced at places such as Ooty, kodaikanal, Munnar etc.



Estimate the temperature at Anamudi (2695 m) if the sea level temperature is given as 32°C.

Stratosphere

- Extends up to a height of about 50 Km from the earth and lies above the tropopause.
- In the lower parts of the stratosphere there is no change in temperature with altitude. This zone is called isothermal zone. Beyond this there is increase in temperature with altitude.
- Ozone layer which forms part of this layer absorbs the harmful ultra violet rays from the sun and prevents it from reaching the earth.
- Allows the free movement of jet aircrafts through clear atmospheric conditions and absence of air gutters.
- The zone of transition above the stratosphere is called stratopause.

Mesosphere

- Extends from about 50 to 80 Km altitude from the earth.
- Temperature decreases with altitude and the lowest temperature of the atmosphere is felt at the mesopause. (-80°C to -100°C)
- The meteors on reaching the mesosphere gets burnt out due to friction.
- The zone of transition above the mesosphere is called mesopause.



Thermosphere

- ❶ Extends from about 80 to 600 Km altitude.
- ❷ There is considerable increase in temperature with altitude.
- ❸ The lower part of the thermosphere is known as ionosphere.
- ❹ Ionosphere helps in the transmission of radio waves.

Ionosphere

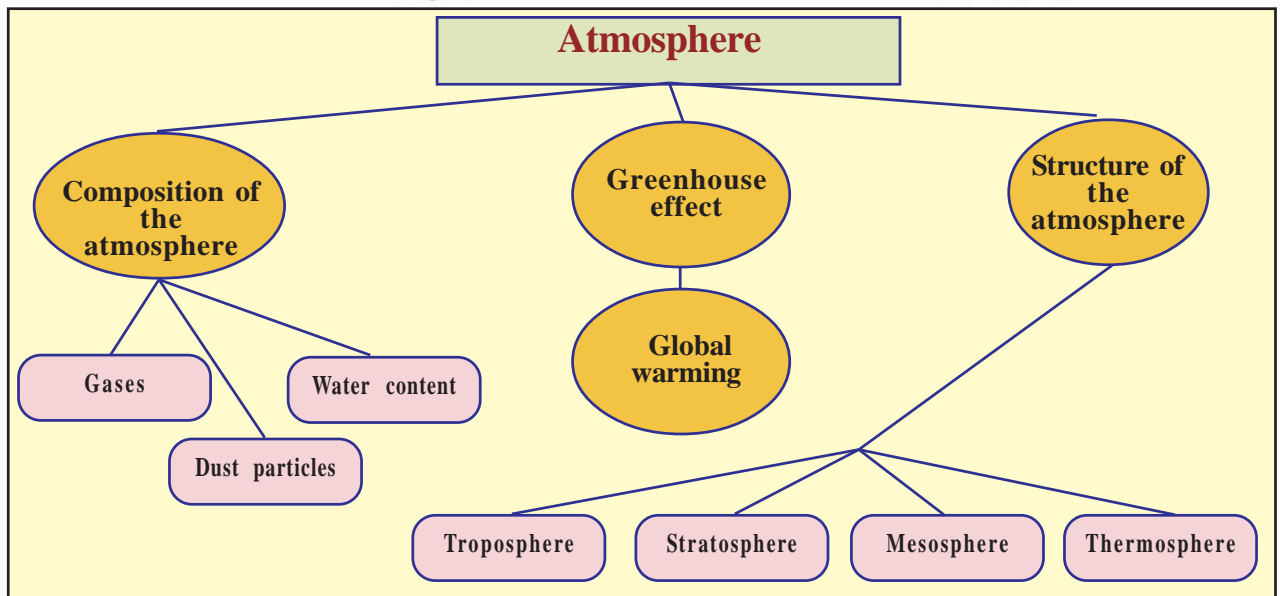
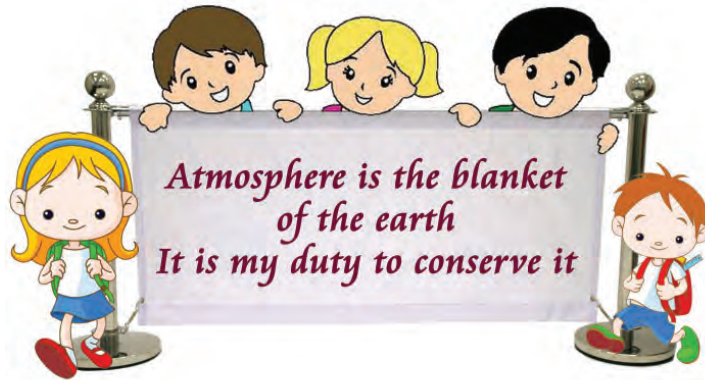
At an altitude of about 80 to 400 Km in the atmosphere the intense solar rays such as Ultra violet, X-rays etc. react with gaseous molecules to form ions. This process is called ionization and this part of the atmosphere is called ionosphere. Ions conduct electricity. As the radio waves are electromagnetic waves this layer is made use for long distance radio transmission.

Worksheet

Put a tick mark (✓) in the appropriate columns by identifying the atmospheric layer to which the given statements are related.

	Tropo sphere	Strato sphere	Meso sphere	Thermo sphere
● Temperature increases with altitude				
● Temperature decreases with altitude				
● Climatic phenomena are taking place				
● Jet air crafts can fly freely				
● Protects the earth from meteorites				
● Records the lowest temperature				
● Ionisation occurs				
● Reflects radio waves				

The unique composition and structure of the earth's atmosphere has critical influence upon the sustenance of life on earth. So for retaining a life supporting world for the future generations we must maintain this fragile balance of the atmosphere. Let us follow a lifestyle in support of this.



- ❶ Gases, dust particles and water content are the major constituents of the atmosphere.
- ❷ The existence of life is influenced by each of the atmospheric constituents.
- ❸ The surface temperature of the earth is retained when certain gases in the atmosphere prevent of terrestrial radiation.

- ❶ Greenhouse gases are formed mainly through some human activities.
- ❷ Global warming is caused by Greenhouse effect.
- ❸ It is the ozone layer in the atmosphere which protects the biosphere from ultra violet radiations.
- ❹ The peculiar structure of the atmosphere is based on the temperature conditions.
- ❺ Each of the atmospheric layers are very significant for us.



The learner:

- ❶ Explains the significance of gases, dust particles and water content in the atmosphere.
- ❷ Describes the significance of gases such as nitrogen, oxygen, carbon dioxide etc. in sustaining life.
- ❸ Establishes the importance of fine dust particles in the atmosphere.
- ❹ Analyses the advantages and disadvantages of greenhouse effect.
- ❺ Suggests remedial measures to control global warming.
- ❻ Engages in activities leading to the conservation of ozone.
- ❼ Illustrates the altitudinal variation of temperature in the atmosphere in a graphical form.
- ❽ Explains the importance of atmospheric layers.



- ❶ Identify the false statement among the following.
 - (a) Most part of the atmospheric particles lies close to the earth.
 - (b) High temperature and nearness of water bodies cause increase in water content in the atmosphere.
 - (c) The most dominant gas in the atmosphere is oxygen.
 - (d) The fine dust particles in the atmosphere help in cloud formation.

- ❖ State the role of carbon dioxide in global warming.
- ❖ Increase in greenhouse gases may negatively influence the existence of life. Substantiate the statement.
- ❖ Establish how the different layers in the atmosphere are beneficial for us.
- ❖ State the importance in observing Ozone day.



Extended activities

- ❖ Plant saplings in school and home premises.
- ❖ Frame the maximum number of objective type questions based on atmosphere and conduct a quiz programme in the class.
- ❖ Illustrate the structure of the atmosphere in a chart paper and display it in the social science lab.



Self assessment

	Completely	Partially	Need improvement
I understand the importance of plants in keeping the atmospheric balance.			
I can explain the significance of gases, dust particles and water content in the atmosphere.			
An attitude has been developed in me to check the human activities generating greenhouse gases and ozone depleting substances to the atmosphere.			
I understood that each layer in the atmosphere is beneficial for the existence of life.			
The pictures, tables and activities given the unit have been made use of, for internalising the concepts.			



INDIA AND ECONOMIC PLANNING

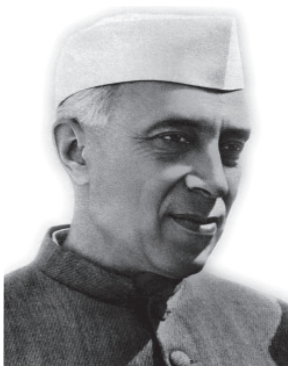


What are the arrangements you would make to conduct a sub district level Social Science fair in your school?

- ❖ Facility for registration.
- ❖ Arrangements for food and drinking water.
- ❖ Location of stalls
- ❖ Inviting guests
- ❖ Inviting judges.
- ❖ Arrangements for parking vehicles.
- ❖
- ❖
- ❖

We need to decide many things beforehand for the successful conduct of the fair. We need planning for the success of any programme. Planning is essential for all organizations and institutions including government. Economic activities when undertaken through proper planning, help the nation's economic progress. Economic planning is the preparation to achieve the economic objectives of the society, using the available resources within specific period of time. Economic planning plays a significant role in accelerating economic growth.

Milestones in Economic Planning



Jawaharlal Nehru

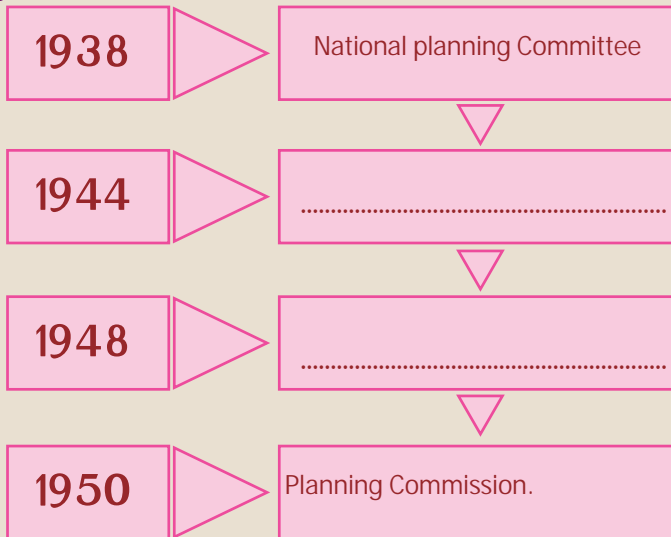
Economic planning was initiated in India even before the country got independence. You have studied the 'Drain theory' of Dadabhai Naoroji, in earlier classes. The main agenda for discussion in the Karachi Conference (1931) of the Indian National Congress was how to overcome the British exploitation and stunted development. In 1938, National Planning Committee was formed under the leadership of Jawaharlal Nehru. It was followed by 'Bombay Plan' (1944) prepared by a group of industrialists who assembled in Bombay for the economic development of India. The 'Peoples Plan' prepared by the renowned social activist, M.N Roy also helped in shaping India's planning. The first industrial policy (1948) formulated in independent India strengthened economic development through planning. The 'Father of Indian planning, M. Visvesvaraya, who authored the famous 'Planned Economy for India' in 1934 gave clear direction to economic planning. The Indian Cabinet which met in 15th March 1950 passed a resolution to establish the Planning Commission of India.



M. Visvesvaraya

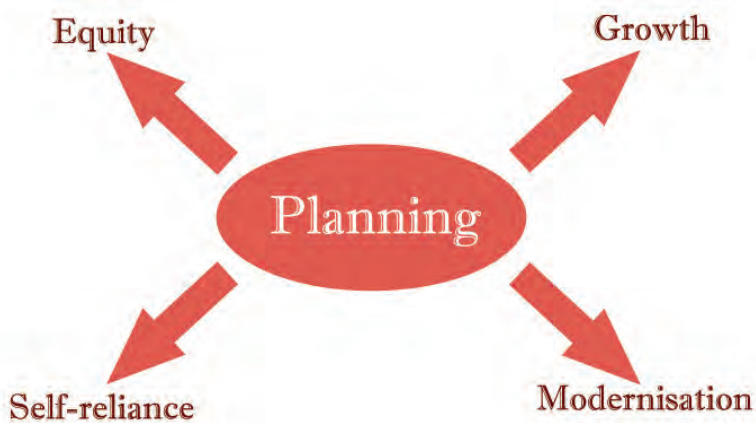


Complete the flow chart of the evolution of planning.



Objectives of Economic planning in India.

The objectives of economic planning are decided on the basis of the needs of the society. See the figure below.



Let us examine these objectives of planning.

Growth

Economic growth indicates the increase in output of goods and services produced in the country. You are familiar with the primary, secondary and tertiary sectors of the economy. Economic growth is measured on the basis of the growth in output in these sectors. Increase in output in agriculture and industry, improvement in transport and communication facilities, increase in hospitals, educational institutions, commercial establishments, energy production, export etc contribute to economic growth. Economic growth is an important objective of economic planning as it contributes to national progress.

Modernisation

What difference do you notice in the methods of cultivation depicted in the pictures given below?



Fig. 1



Fig. 2

Compare the method of cultivation in both the pictures on the basis of the following indicators.

- ❖ Time saving
- ❖ Use of machine

❖ Simplification of manual labour.

❖

Developments in machinery and technology have led to increase in productivity and simplification of manual labour. Modernisation is making use of the latest technology.

Modernisation has improved the pace of travel and movement of goods. It has brought economic progress and saving of time. Modern means of communication improve the living conditions and security and bring government services close to the people without delay.

Modernisation is not only using latest technology but also making a change in the perception of the society. Modernisation involves protection of women's rights, social security, and openness to social changes.

Self-reliance

Do you have a kitchen garden at home? If you can grow vegetables your dependence on market can be minimized. It enables the use of human resource and brings economic gain. You have learned about the condition of food production in India at the time of independence. Our dependence on other countries for food grains has worsened the situation. . The aim of self reliance is to attain self - sufficiency in agricultural, industrial and service sectors using the available resources and to avoid foreign dependence. Self reliance in the development of basic industries and energy will help the economic growth of the nation.

Equity

List out our basic requirements.

- ❶ Food
- ❷ Clothing
- ❸ Shelter
- ❹ Literacy
- ❺
- ❻

The objective of equity will be attained when all citizens receive basic necessities of life such as food, clothing, shelter, education, drinking water, health protection and righteous distribution of wealth. Ensuring equity is essential for the people to benefit the fruits of growth, modernisation, and self reliance .

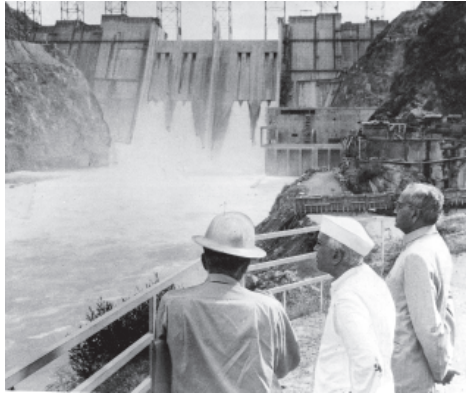


Discuss and prepare a note on how the objectives of planning have contributed to economic progress of a country.

The Planning Commission and five year plans

The central cabinet gave its assent on 15th March 1950 to form a planning commission to prepare projects for fulfilling the objectives of planning in india. The Planning Commission is chaired by the prime minister who will be assisted by a full time vice chairman and members appointed by the cabinet. We adopted the National Planning Model of the erstwhile Soviet Union as a model. The Planning Commission made suitable changes to the Soviet model according to democracy and mixed economy. The

Planning Commission visualized projects with a five year plan perspective. The aim of the Five Year Plans was to identify and prioritise certain sectors to attain the given targets.



'Dams are the temples of India's economic development'

Jawaharlal Nehru

The picture you see was taken at the time of inauguration of the Bhakranagal dam. India established massive hydel irrigation projects in connection with the development of infrastructure during the First five Year plan. The words of Nehru at the time of inauguration of the Bhakranagal dam show the significance we attach to huge irrigation projects. The First Five Year Plan (1951-56) gave importance to the agricultural sector. The Second Five Year Plan (1956-61) gave primacy to industry. The main concern of the Third Five Year Plan(1961-66) was self- sufficiency in food.



Collect the pictures of the massive projects which began in India during the Five Year Plan periods and prepare an album.

The completion of the first and second Five Year Plans could not solve India's food deficiency. It led to an all out effort to achieve self sufficiency in food and progress in agriculture. There occurred a quantum jump in food output and a transformation in agriculture in two stages (1960-70 and 1970-80) known as 'Green Revolution' . Green Revolution was made possible through the use of high yielding seeds, improved irrigation, fertilizers, insecticides and agriculture finance at low interest rate. The increased food output, especially in wheat and rice ended our dependence on foreigners and achieved self sufficiency.

Along with Green Revolution, India succeeded in increasing milk and milk products through ' White Revolution' and progress in fisheries sector through ' Blue Revolution'.

Read the table showing the Five Year Plans, their main objectives and period undertaken by the Planning Commission of India.

Five Year Plan	Period	Objective
First Five Year Plan	1951-56	Overall development of agriculture
Second Five Year Plan	1956-61	Industrial development
Third Five Year Plan	1961-66	Self sufficiency in food , self sufficiency in economy
Fourth Five Year Plan	1969-74	Self-reliance and sustained growth
Fifth Five Year Plan	1974-79	Removal of poverty
Sixth Five Year Plan	1980-85	Improvement in infrastructure in agriculture and industry.
Seventh Five Year Plan	1985-90	Modernisation and increase in employment opportunities.

Eighth Five Year Plan	1992-97	Human resource development
Ninth Five Year Plan	1997-02	Rural development and decentralized planning.
Tenth Five Year Plan	2002-07	Increase in investment.
Eleventh Five Year Plan	2007-12	Overall development of the people.
Twelfth Five Year Plan	2012-17	Sustainable development



Prepare a note on the objectives of the Planning Commission at the time of the commencement of its functioning in 1950 and its achievements.

Decentralised planning embraced changes in the implementation of planning in India.

Decentralised Planning



Have a glance at the collage. What are mentioned in it?

- ❶ 73rd and 74th constitutional amendment.
- ❷ Panchayatiraj
- ❸ Three-tier panchayat
- ❹ Gramsabha

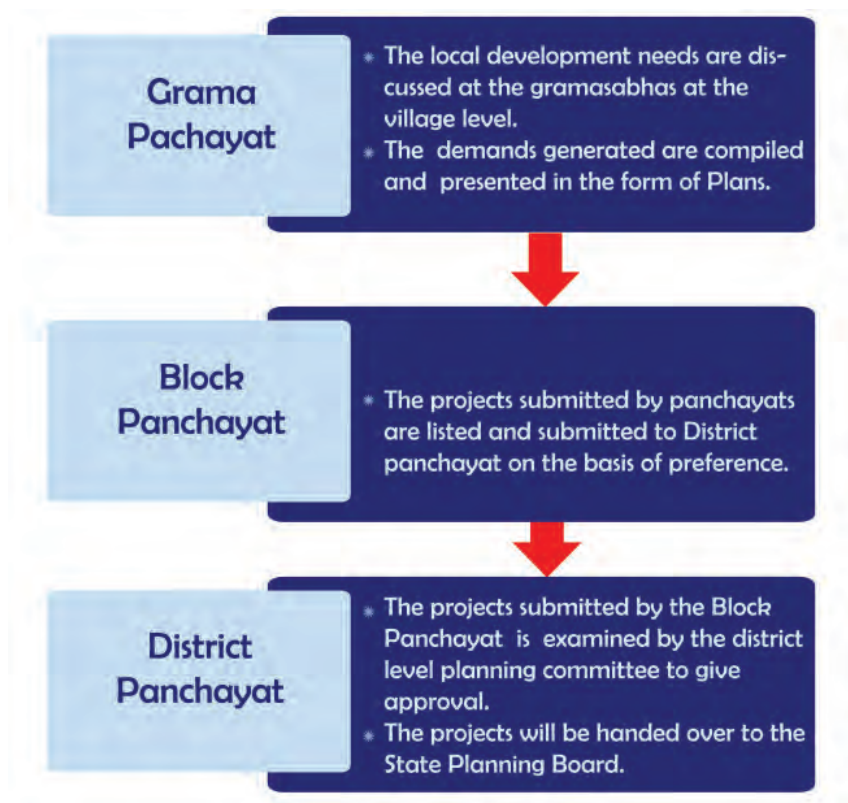
All these are related to local self government institutions.

The 73rd and 74th Constitutional Amendments were passed by the Parliament in 1992 and it led to the establishment of Panchayati Raj and Nagarpalika institutions in India. A new three-tier system of Grama Panchayat, Block Panchayat and District Panchayat started functioning in India. This was the beginning of decentralized planning in India during the Ninth Five Year Plan. The system of centralized planning which prevailed till then gave way to decentralized planning. The new system enabled the three tier panchayats to make use their authority and economic resources for local development.

You may recall the working of the Grama Panchayats. They have a significant role to play in decentralized planning.

The three levels of panchayats the Grama panchayat, Block panchayat and District panchayat have their role in achieving local development.

See the flow chart given below.





Analyse the flow chart and prepare a note on decentralized planning.

New Footsteps

Central government have called off the working of the Planning Commission and replaced it with. National Institution for Transforming India('NITI Aayog'). The NITI- Ayog came into being on 1st January, 2015. The Chairman of the NITI Aayog is the Prime Minister. The governing council consists of all state Chief Ministers, Lieutenant Governors of union territories, and a Vice chairman nominated by the Prime Minister. In addition to full members, there are two part-time members and four ex-officio members and a chief executive officer . The temporary members are selected from the leading universities and research institutions. The Prime Minister deposes four cabinet ministers as ex-officio members. The chief executive officer is appointed by the Prime Minister.



Aims of NITI Aayog

- ❶ To bring down government participation in industrial and service sectors.
- ❷ To improve agriculture production by practicing mixed farming.
- ❸ To utilize the services of the dominant middle class for sustainable economic growth.
- ❹ To make use of the services of non-resident Indians for economic and lenchnological growth.
- ❺ To convert the cities into secure living centres using modern technology.
- ❻ To equip the nation to face global transformation and market forces.



Summary

- ❶ Planning is essential for economic progress.
- ❷ Judicious use of resources is possible through planning.
- ❸ The aim of planning is development.
- ❹ The Planning Commission was responsible for planning in India.
- ❺ The Five Year Plans have influenced Indian economic growth.
- ❻ Decentralised planning ensures participation of people in local development.
- ❼ The responsibility for planning in India now rests with NITI Aayog .



Significant learning outcomes

The learner

- ❶ clarifies evolution of planning.
- ❷ explains and identifies the need for planning.
- ❸ classifies the distinction between centralized planning and decentralized planning.
- ❹ analyses the significance of planning in the process of development.
- ❺ analyses the achievements of India after independence.
- ❻ explains the objectives of planning.
- ❼ analyses the influence of Five Year Plans in the development of India.
- ❽ explains the structure of 'NITI Aayog'.



- ❶ Explain the difference between centralized and decentralized planning.
- ❷ What are the objectives of planning?
- ❸ Write a note on India's economic achievements.



- ❶ Collect information on activities undertaken by the local - self government institutions in your locality and prepare a report.



Self assessment

	Completely	Partially	Need improvement
I can explain the background of planning.			
I can describe the functions of Planning Commission and NITI Ayog.			
I can explain different programmes of planning.			
I can differentiate centralised planning and decentralised planning and draw inferences.			
I can develop perspectives on development.			
I can present development models.			

12

WATER ON EARTH

22 March World Water Day



Will all these
be here
tomorrow?

Tomorrow?

Don't you remember what you have learned about the origin of life on earth? Water is also essential for the sustenance of life as air. Look at the poster given above in connection with the



World Water Day. Discuss in the class the anxiety posed by the poster with regard to water, the precious natural resource. Let us try to understand more about water that is so vital for the existence of all life forms.

Water is life

Earth is the only living planet in the solar system. It is believed that life originated in water.



Ice floats on water due to the decrease in density on freezing. This is why water is seen below the frozen surface of water bodies. Otherwise, the whole water body would have been frozen and all the organisms there would have been dead.

You have learned the different states of water on earth in the previous classes. Earth is also known as the watery planet. Do you know why?

Look at the following figure (fig.12.1). You might have convinced that the earth is called so because three-fourth of the earth's surface is covered with water. As

71 percent of the earth's surface is covered with water, it appears to be blue; a pale blue sphere when viewed from space.



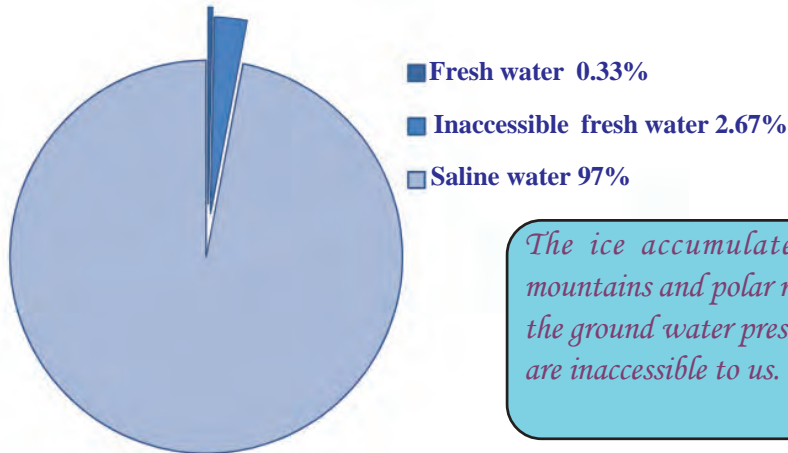
Fig. 12.1

List out the sources of water other than oceans.

❶ Springs

❷

Observe the following diagram



- i Which is more on earth- fresh water or saline water?
- ii What is the percentage of saline water to the total water on earth?
- iii How much percentage of fresh water is available for humans?

Now you might have convinced that the quantity of fresh water is meagre on earth.



Won't this fresh water be exhausted with our use? How are our rivers and wells recharged?

Water cycle



(Fig 12. 2)

Observe the diagram (fig12.2) and analyse the different states through which water passes and find answers to the following.

- i What happens when solar radiation falls on the water bodies?
- i How does water reach the rivers and lakes?
- i What happens to this water?

Sources of water can be classified as surface water and ground water.

Oceans, rivers, lakes and backwaters are the sources of fresh water. The water level in these are very shallow. Wells, ponds, tube wells etc. are the sources of ground water.

Water below the ground

Rain drops percolate into the tiny pore spaces of the soil and get collected there. There are numerous pore spaces in the soil.

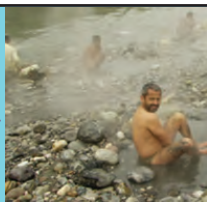
Porosity is the term for the porous state. Clay is an example for porous material. Under normal conditions these pores will be filled with air. These pores will be filled with water when rain occurs. Some rocks are also porous. Such rocks can absorb more water.

But water will be available only at places where the pores in the rocks are inter-connected. This is due to the fact that water can move through these pores. This quality of rocks is known as permeability.

All porous materials need not have permeability. For example, clay has high porosity but low permeability. This means that it will not permit water to pass through. Now



At some places hot water flows out from the interior of the earth to form springs. They are called hot springs. Such springs are common to Himalayan Valleys. Places where fresh water is available in the desert are called oases. Settlements in the desert are centered around the oases.



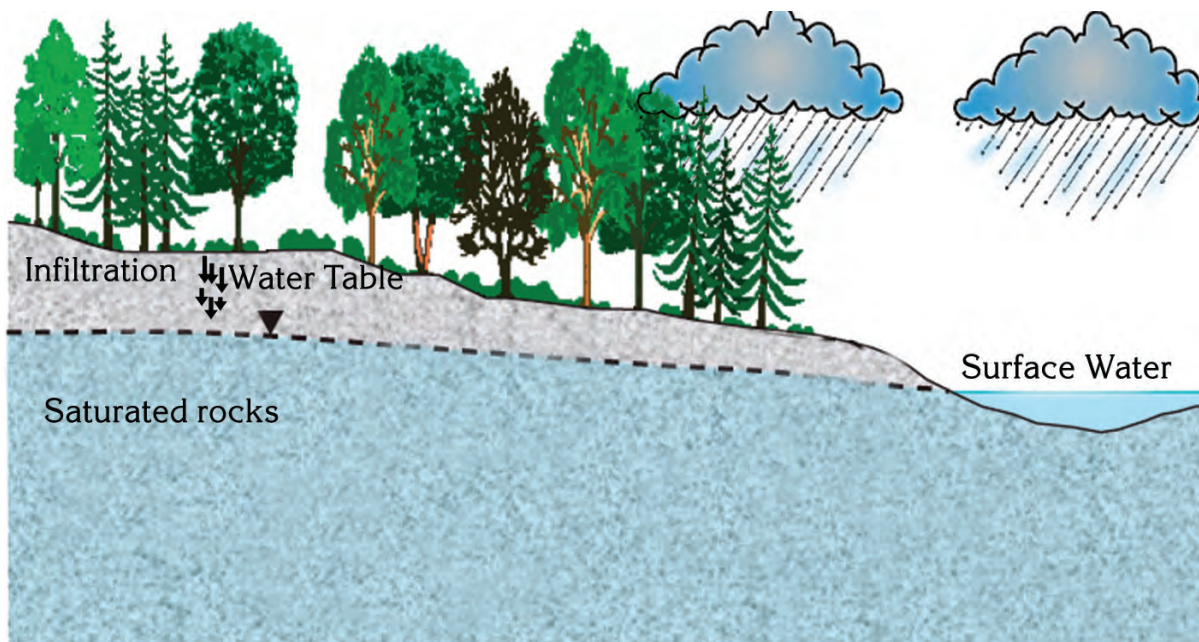
you might have understood the reason for the accumulation of water in paddy fields.

Nature has arrangements to store rain water for rainless periods. Water scarcity will be the result if we disrupt the chances of water to percolate into the ground.

You might have noticed that when pits are made for wells and other purposes, the soil moisture increases with depth. What if we increase the depth further? Water filled in the pores of the rock fills up the pit through percolation. The abundance of water is because of the fact that all the pores in this zone is filled with water. The surface of the water-rich part beneath the ground is known as 'water table'. The water stored beneath the ground is the 'underground water'.

Aquifers

Water that percolates through the top soil will be collected in the pore spaces of the soil and gaps in the rocks. Such storage spaces are called aquifers. The water which we draw from wells is from such sources.





The water table rises during rainy season and lowers during summer. Why is it so?

Multitude of wells



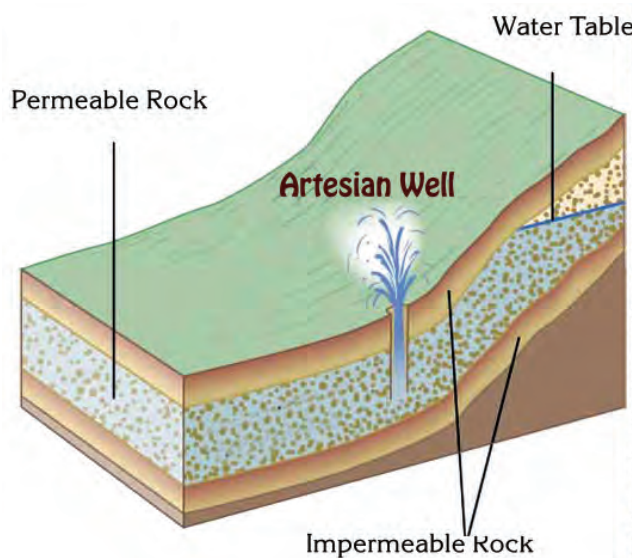
Look at the following picture. Wells are common in our locality. The upper level of the water table forms the water level in the well. It is difficult to dig wells where the water table is deep. Tube wells are ideal in such situations. Tube wells are dug on rocks with the help of machines.

Filter point wells

The term filter point wells are used for the shallow tube wells dug in sandy regions.

Artesian wells

Let there be a permeable rock layer in between two impermeable rock layers. Water will rise to the surface automatically due to



pressure if we dig to this permeable rock layer. Such wells are known as artesian wells. The availability of water is due to the entry of water at some point to the permeable rock layer.

The type of wells in which water rises automatically due to pressure to the surface was first noticed in the Artois province of France. Since then such wells dug in different parts of the world came to be known as artesian wells.



Spring

You might have noticed small streams found in the hill slopes and courtyards during rainy seasons. At some places these will have regular flow while it dries up at many instances soon after the end of rainy season. Water will be flowing out along the surface wherever water table touches the ground. This is known as "spring".

At some places such water flows are characterised with hot water. These are known as hot springs.

Horizontal wells of the Kasaragod region



The method adopted by the people of Kasaragod and south Canara districts to collect drinking water is the construction of horizontal wells. These wells are dug horizontally along the foot of the hills. Water flowing out from the narrow 'Surangams' (gaps cut on hill sides) through which one can barely enter is the merit of these wells. It is believed that this technique reached here through the erstwhile trade relations with the Arab world.



Geysers

The phenomenon of severe ejection of water from within the earth at regular intervals is known as "geysers". Example - The Old Faithful geyser of the Yellow Stone National Park in U.S.A.



Hot springs - Manikaran, Himachal Pradesh



Geyser -Yellow Stone National Park, USA

The water that seeps through the fissures on the earth comes in contact with the magma and leads to the formation of hot springs and geysers.

Wetlands



Wetlands are natural sinks of surface water. Paddy fields, ponds, swampy region and all low lying regions come under the category of low lands. The water stored here form part of the ground water. Reclamation of the wet lands which are the natural sinks of water will lead to several environmental problems like the following.

- ❶ Lowering of water level in wells.
- ❷ Floods become common in rivers even in slight rains.

Collect information about the water sheds in your locality. Take part in the efforts to conserve these.



Learn more about the importance of wet lands and conduct a photo exhibition in your school on the World Watershed Day.



Uses of water



Look at the following pictures. Fresh water is essential for all life forms including man. List out the uses of water.

Threats to water resource

Not a drop to drink

You have already learnt from the previous classes that fresh water is very scarce on earth. Even the available fresh water sources are on the verge of depletion. The total quantity of water on earth is constant. Hence the percapita availability of water decreases with increase in population. Increase in the consumption of water has also influenced the availability of water.



ATM for water

Kanakapura in Karnataka has an ATM for water. Such a facility was arranged at 33 centres due to the scarcity of water owing to drought. The facility has been established in Rajasthan, Delhi and Mumbai City.

Water pollution

Look at the following pictures (Fig 12.3).



As per the records of United Nations Organisation, 20 million tonnes of garbage world wide is being dumped to water every day.



Fig.12.3

Identify the situations that lead to water pollution.

- ❶ Pollutants /effluents from industries.
- ❷

The undesirable change in the physical, chemical and biological properties of water is termed as water pollution. This is a serious issue the modern world is facing today. This has become a subject of national importance in many countries. We have a law enforcing the control of water pollution in our country. It is known as the law on prevention and control of water pollution.

Collect more pictures and news on water pollution and prepare a magazine.


Ill effects of water pollution

Preventing water pollution is the biggest challenge of the present world.

Water pollution not only affects the availability of fresh water, but leads to the pollution of land and air as well. The survival of plants and animals are put to danger.



It is essential that the purity of water in our schools is to be inspected. The tanks not kept closed and not cleaned at regular intervals are unsuitable for storage of drinking water. The cleanliness of the source of water should also be ensured.

 What can be done by the individuals and society to check water pollution?

Fresh water has to be the fundamental right of the people.

Water Conservation



Didn't you read the news in dailies ? These give us the valuable message- Water is to be conserved.

Nature provides enough water for us. We can solve the issues of water scarcity and drought if we make use of the rain water effectively. Flood can also be controlled to some extent through this. Soil is the largest store house of water. Allowing each drop of rain water to percolate at the place where it falls is the basic principle in water conservation.

Let us collect rain water

Though Kerala receives 300 cm of rainfall annually scarcity of fresh water is severe. Why is it so?



Kerala receives abundant rainfall. Rainwater is the purest form of water provided there is no atmospheric pollution. 120 cubic kilometers of water is received annually through rain in Kerala alone.

You have learnt about the physiography of Kerala in lower classes. Kerala is sloping towards west. As a result about 70% of the rainwater received flows swiftly towards the sea. Forests, ponds, wetlands, sacred groves etc are the natural means to sink water to the soil. But these natural systems are vanishing due to the unscientific interventions of man.

Hence purposeful interventions are to be made to harvest rainwater.

Harvesting rain water is the best way to solve the problem of water scarcity. It can be done by different ways.



- ❶ Roof top rainwater harvesting.
- ❷ Surface runoff harvesting.

Roof top rainwater harvesting

The level of the underground water can be raised either by draining the rain water to the ground or by collecting it in storage tanks.



Visit places where rainwater harvesting systems are established and prepare notes on it.

Storage of surface runoff

The following activities would be helpful in collecting and storing the rainwater in the soil.

- ❶ Conservation of wet lands
- ❷ Protection of forests

- ❶ Terrace farming
- ❷ Mulching
- ❸ Construction of check dams
- ❹ Construction of mud walls
- ❺ Digging rainwater percolation pits



Each of our actions to percolate water to the soil helps both in water conservation and soil conservation. Discuss how?



Prepare a magazine on conservation of water.

Recycling of water

Water drained from kitchen can be used for watering vegetables raised in the courtyard. List out its merits.

- ❶ Can avoid using drinking water for other purposes.
- ❷

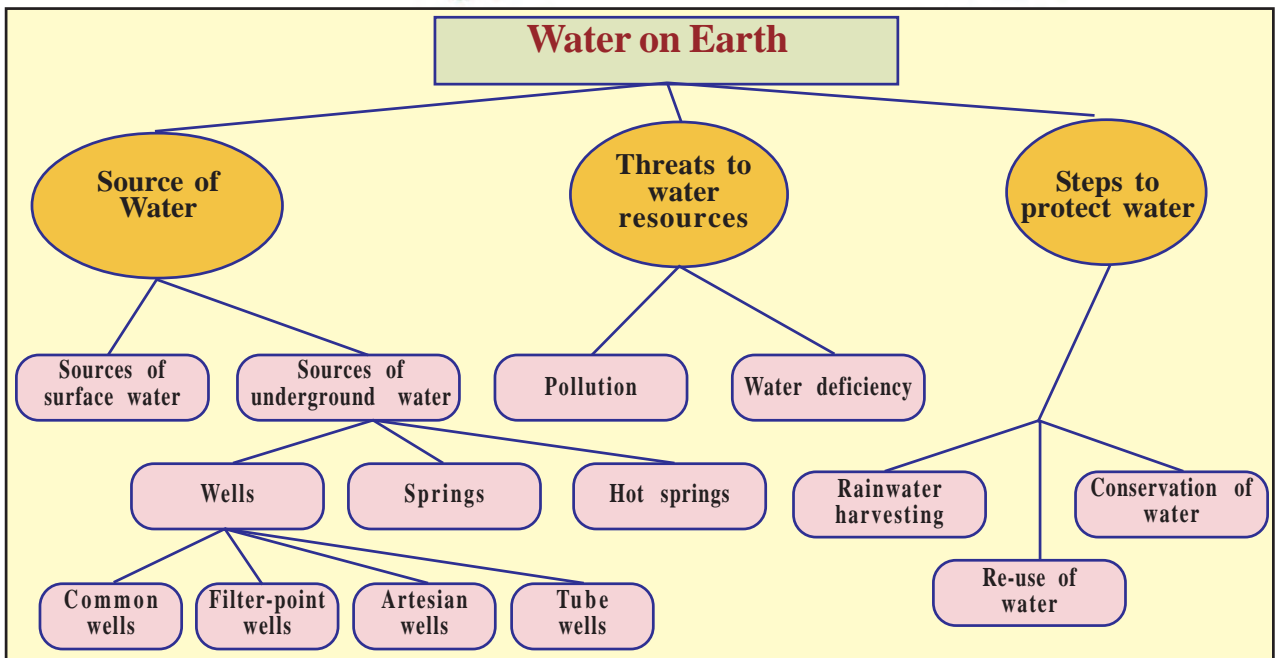
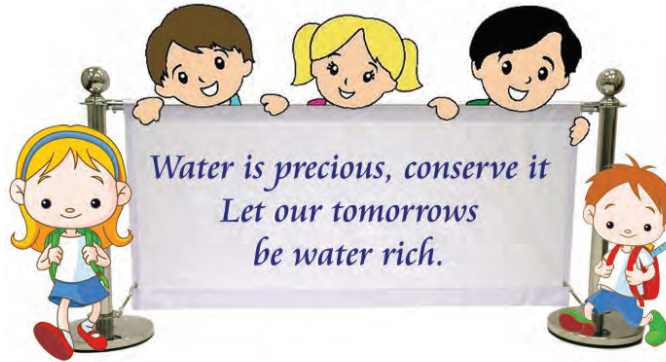


The society should be equipped for the conservation of water. Discuss in the class the various ways by which we can achieve this goal.

The following indicators would be helpful in the discussion.

- ❶ Water conservation measures that can be adopted individually.
- ❷ Water conservation measures at home.
- ❸ Water conservation measures at school and awareness programmes.
- ❹ Water conservation measures adopted in the villages/ cities and awareness programmes.

Let us go back to the poster at the beginning. What are the measures you can take up to ensure the availability of the sources of water in future also?



Summary

- ❶ Water is the base for life on earth
- ❷ 71 percent of the surface area of the earth is water.
- ❸ There are different sources of water.
- ❹ The quantity of fresh water is very less.
- ❺ Water cycle regulates the availability of water on earth.

- ❶ Human interventions pollute the water sources.
- ❷ Rainwater harvesting is the best way to prevent water scarcity.
- ❸ Conservation of water is our duty.



The learner:

- ❶ establishes that freshwater is scarce even if earth is a watery planet.
- ❷ prepares a brief note on the availability of water resource.
- ❸ classifies and explains the different sources of fresh water.
- ❹ recognises and explains that the water holding capacity of the rocks underground are based on the rock structure.
- ❺ classifies wells on the basis of their features.
- ❻ explains the importance of wetlands.
- ❼ lists the uses of water.
- ❽ writes the inferences on the threats of water pollution.
- ❾ explains the various methods of rain water harvesting.
- ❿ involves in the measures of water conservation personally and in groups.



- ❶ Why water exists in three states on the earth?
- ❷ Water has several features. List them.
- ❸ Why the earth is called watery planet?
- ❹ Explain the role of water cycle in maintaining the availability of water on earth.
- ❺ How the following activities affect the conservation of water?
 - a) Construction of check dams

- b) Concreting of courtyards
- c) Digging of rainwater percolation pits
- d) Reclamation of paddy fields
- ❖ Prepare notes on any two activities you can take up for the conservation of water.
- ❖ Explain how the sources of water in your locality are polluted.



Extended activities

- ❖ Prepare and execute a plan to clean and conserve a polluted fresh water source in your locality with the help of the local self government institutions.



Self assessment

	Completely	Partially	Need improvement
Could understand that though the earth is a watery planet freshwater is very scarce.			
Could familiarise the various sources of water.			
Understood that the wetlands are to be conserved.			
Could understand the reasons and the ill effects of water pollution.			
Could understand the various measures of water conservation.			
Could develop the attitude that conservation of water is my duty			



SOCIAL GROUPS AND SOCIAL CONTROL

As usual, on that day also the teacher began with the narration of an experience.

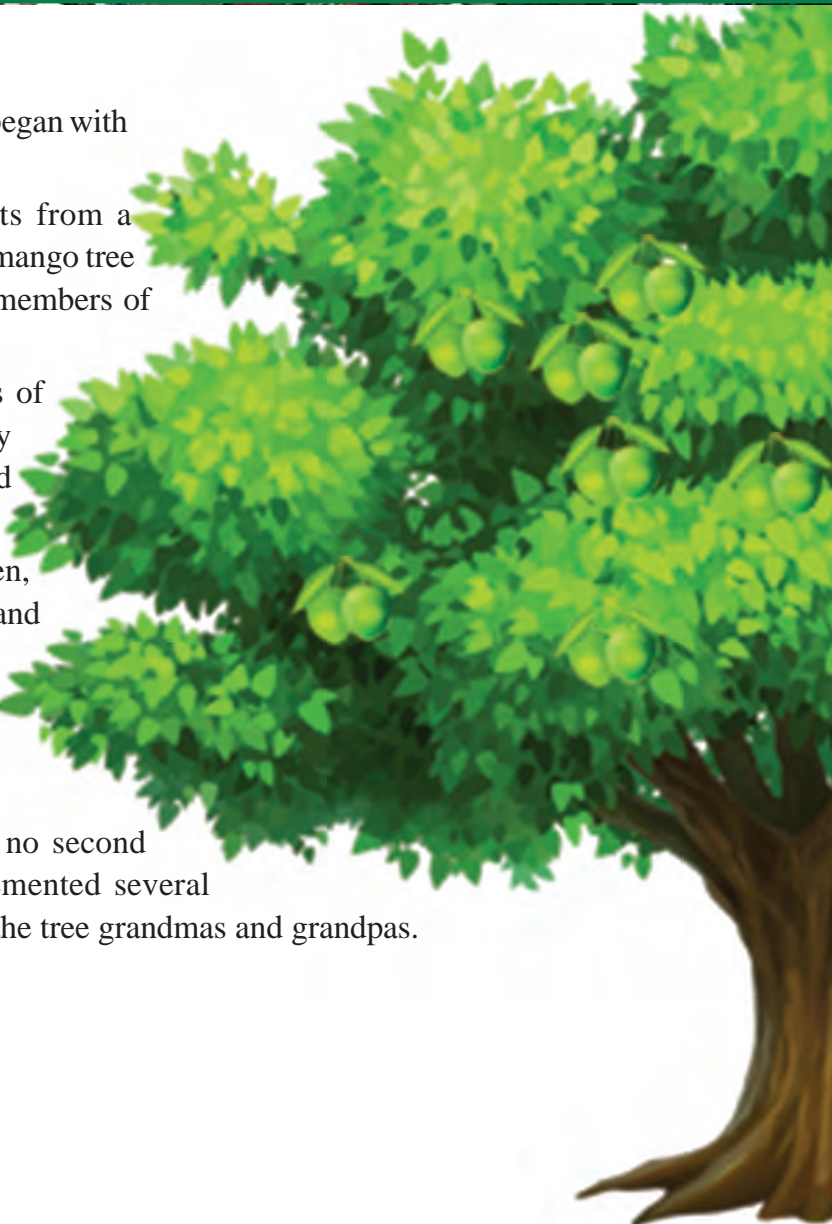
On a holiday, twenty eight students from a government school gathered under a mango tree in the school courtyard. They were members of the school nature club.

"We three have collected the details of the oldest trees in our locality. They have been giving in shade, nuts and fruits for a long time". Athul said.

Deepu added "They give us oxygen, conserve water and protect the birds and animals."

"Why can't we organize a programme to honour these great trees?", Athul asked.

The nature club members required no second thought. They organized and implemented several programmes including ornamenting the tree grandmas and grandpas.



The Nature club could gain the appreciation of all for their combined effort for a month. The natives arranged a grand welcome to the club members.

Teacher stopped for a while and asked the children; "Which is the group that paved the way for the activities of the children?"

"School Nature Club" - students answered in a loud voice.

"Were all the students of the school members of the club?"

"No, only twenty eight."

"What was the aim of the club members?"

"To organize environment protection programmes."

"Weren't their activities based on what they had planned together?"

"Yes."

"When do such groups cease to exist?"

"Once the aims are accomplished", said one.

"At the end of the school studies", another opined.

"When the club members become demotivated", said a third one.

Teacher asked "Apart from this, are there social groups that may function throughout the lifetime?"

"Yes, family"; the answer was instant.

After stopping for a while teacher continued; "In addition to family, many social groups like friends, clubs and organizations exist for satisfying different human needs."

Haven't you understood why students worked as part of the nature club and we need many such social groups? Discuss in groups and find the disadvantages and dangers that may occur if we live away from fellow beings or social groups. You can list out the points that would tell us to what extent social groups are essential.

Social Group

Social groups are essential in our life.

Don't you want to know what social groups are? A social group is formed when two or more people who communicate to each other directly or indirectly and work together for some goals come together.

Look at the pictures.



Fig. 1



Fig. 2

These are the pictures of two different groups. Observe the pictures and find out the differences between these social groups.

Picture 1	Picture 2
<ul style="list-style-type: none"> ● People may not know each other 	<ul style="list-style-type: none"> ● Know each other
<ul style="list-style-type: none"> ● There is no mutual interaction 	<ul style="list-style-type: none"> ● There is mutual interaction
<ul style="list-style-type: none"> ● 	<ul style="list-style-type: none"> ●
<ul style="list-style-type: none"> ● 	<ul style="list-style-type: none"> ●
<ul style="list-style-type: none"> ● 	<ul style="list-style-type: none"> ●

What have you understood from the pictures?

They are waiting for bus, staying at the same place without knowing and communicating to each other. There may not be

any specific kind of relationship between these people. People gathered at an accident site and the audience in a theatre or stadium are such kind of groups. These groups of people are called social aggregates. They are also referred to as quasi groups.

On the other hand family is a social group. Let us examine the features of family.

- ❖ Small group
- ❖ Familiar people
- ❖ Elevated group consciousness
- ❖ Common ways of acting
- ❖ Satisfies the needs of the members
- ❖ Influences personality
- ❖
- ❖

From these features, don't you understand the significance of family in social life? Many such social groups exist for satisfying the primary and other needs of individuals.

Here are the pictures of two social groups. Try to find out the characteristic features of these social groups.



Fig. 1



Fig. 2

Picture 1	Picture 2
<ul style="list-style-type: none"> • Same age of group (Peer group) 	<ul style="list-style-type: none"> • Group to satisfy some special needs
<ul style="list-style-type: none"> • Informal relationship 	<ul style="list-style-type: none"> • Formal relationship
<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •
<ul style="list-style-type: none"> • 	<ul style="list-style-type: none"> •

Haven't you understood the difference between the social groups represented in the pictures? The first one is the group of people belonging to the same age (Peer group). This is a group of people who know each other. Members of a peer group have intimate relationship. These groups do not have written rules or regulations.

Clubs and voluntary service organisations are groups that work for some specific needs. They work under a code of conduct. There is formal relationship among the members of these groups.

Which are the social groups in and around your neighborhood? Discuss and prepare a list. Write down their objectives against each one of them.

Family	Bringing up children, satisfaction of primary needs.
Sports club	Promoting interest in sports, conducting sports competitions.



Social groups are classified on the basis of the strength of membership, mutual relationship among the members, ways of working and attempts to accomplish tasks.

1. Primary group
2. Secondary group

Primary Group

Primary group is composed of a small group of people with intimate relationship, face-to-face interaction and mutual cooperation.

What are the characteristics of primary groups?

- ❖ Members know each other.
- ❖ Intimacy among the members.
- ❖ Continuous communication among the members.
- ❖ Welfare of members is the major aim.
- ❖ Mutual cooperation among the members.

Identify and list out the primary groups that are close to your life.

- ❖ Family
- ❖
- ❖
- ❖

Secondary Group

On the other hands secondary groups have more members than the primary of groups. There is formal relationship among the members. Secondary groups are formed to satisfy the common needs of the members. At the same time, personal usefulness is the basis of membership in these groups. Some secondary groups cease to exist once the objectives are satisfied. Which are the different social groups in social life? Identify the secondary groups associated with your life.

- ❖ Clubs
- ❖ Football team
- ❖
- ❖



Interact with the people in your locality and find out the secondary groups in which they work as members. Prepare a list of the services these secondary groups provide.

The influence and use of social groups in our life is significant. Some of the uses are:

- ❶ Promote companionship
- ❷ Train behaviour patterns
- ❸ Promote coexistence
- ❹ Promote social values
- ❺ Ensure cooperation



Do social groups adversely influence certain people? Do some groups lead to the ruin of some people? Write your findings based on discussion in the class.

Have you ever observed social groups imposing certain restrictions on the behaviour and thoughts of individuals? Social pressure is exercised on individuals in everyday life through different ways.

Try to write down the behaviour patterns and habits you exhibit as a result of social pressure and control.

- ❶ Dress in a particular way
- ❷ Respect elders
- ❸ Obey traffic rules
- ❹
- ❺
- ❻

One cannot live according to one's own personal and selfish interests.

What will happen if each student in your class behaves as he likes?

What will be the situation of the family if each member of the family lives according to his/her own personal interests alone? What will be the result, if the members of a football team play without obeying the rules of the game?

If peace and happiness is to be sustained in society, all the members should obey the norms and laws formed by the society. It is not possible to ensure social security without obeying the laws of the society. The pressure and interventions exerted by each social group over its members in order to ensure and sustain a safe environment is called social control.

Let us examine the features of social control.

- ❖ In every society there are certain commonly accepted standards of behaviour.
- ❖ Society establishes suitable social institutions for the regulation of behaviour and socialisation of its members.
- ❖ Social control is formally implemented through the systems such as police, court, prison and military.
- ❖ Society has institutions and systems to control, prevent or punish those who do not adhere to social control.

What will be the condition of society, if behaviours and habits of individuals are not regulated? Members of the society may not be able to live in mutual agreement. Social security will be endangered. That is why society isolates, blames or punishes those who violate the norms and laws.

How is social control carried out?

Society adopts different methods and systems to systematise and control the behavioural patterns of its members.



Social control creates a situation that all can benefit. Look at the picture. If some people violate the rules to be followed on the road, it creates difficulty for all. Traffic police try to prevent traffic violations on the road to ensure the safety and welfare of all commuters.

How does society deal with those who violate the laws? Observe the picture. Police make the law breakers pay fine or produce them before the court. The convicted are sentenced after the trial in the court. Prison is the formal system established for implementing the sentence. Prison authorities implement the judgement of the court. Children's homes and rehabilitation centers are the government systems established to bring back juveniles who commit crimes to the right path.



Social control is ensured not through conviction and punishment alone. Society recognizes and respects those who achieve success through legally accepted ways. You can see in the picture how the nation felicitates the individual who brought glory to the society? Can you identify what praiseworthy achievement this individual made?



Such recognitions are given in all realms of life. See how the student who obtained great success in studies is being recognised. Such recognitions are given in order to promote socially expected behaviour in every individual. Achievements are recognized in order to popularise the attempts considered as models.



All those mentioned above are the ways of formal social control.





Fig. 1



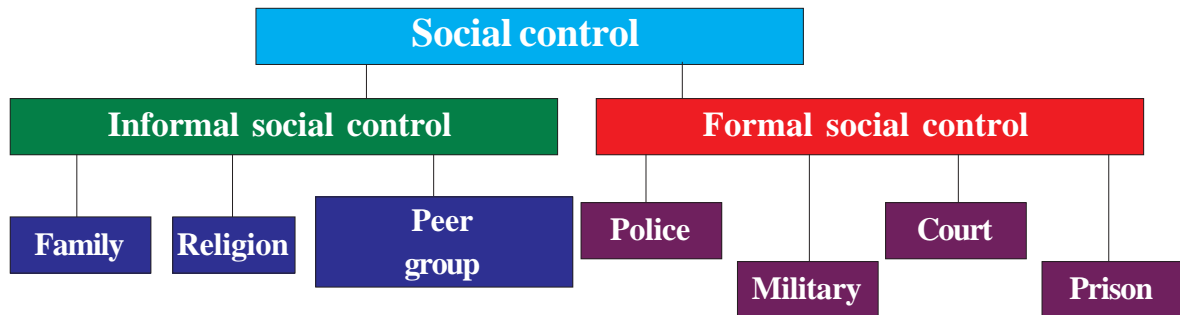
Fig. 2



Fig. 3

Observe these situations. Individuals are also appreciated informally when they make accomplishments in the matters that are socially recognized. Violation of norms may lead to verbal insults or blaming. These responses are effective informal ways of social control.

According to their common nature, means of social control can be classified into two categories.



Informal Social Control

These are not legally recorded ways of social control. Customs, folkways, beliefs and traditions are the informal means of social control. Violation of these will not lead to formal punishment. Such people are disgraced, isolated or excommunicated from the society. Informal social control is implemented through the primary social groups like family, religion and peer group.



You may have the experience of others trying to control your behaviour and actions through informal ways. Write them down.

Formal Social Control

What will happen if an individual violates a socially accepted law? This individual will be punished through the systems like police, court and prison. Civilised societies use these methods for social control. These systems and institutions are established and implemented by the governments in each country. These systems may vary according to time and societies.

Even though there are laws and punishment systems, some people violate them. They do not follow socially accepted behavioural patterns. Violation of the values, folkways, mores and laws that are accepted by the majority members of the society is called social deviance. When social deviance takes place in large scales, it may lead to social disorganisation in such a way as to question the very existence of the society.

Perceptions of societies about social deviance may vary according to time and social circumstances. Tribal communities considered hunting animals as a symbol of bravery. But now hunting animals is a crime. You might have read about how such acts are condemned and those who commit such crimes are punished.



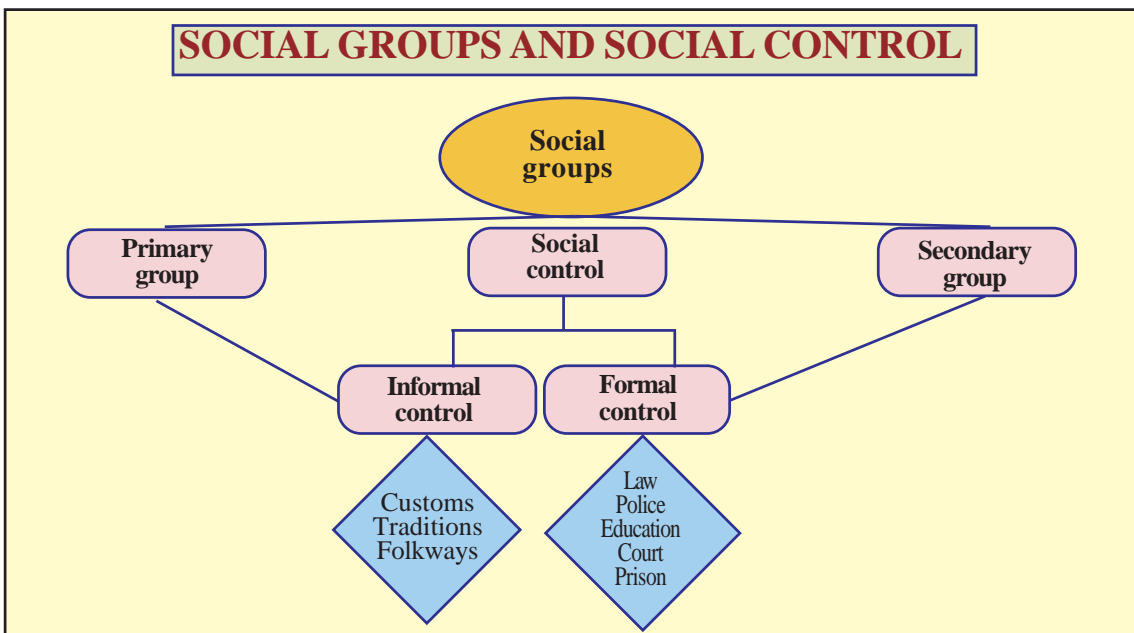
Find out through group discussion the actions and activities that are now prohibited but were accepted earlier and prepare a poster.

Social control was done effectively through informal means among tribals and traditional societies. As societies developed in an unprecedented way and became complex by absorbing pluralities, methods of social control also underwent changes. Formal systems came into existence. Today, constitution, laws, education and official institutions have become unavoidable constituents of social control.



Collect the newspapers of a week. Find out the instances of how the society deals with those who violate laws and prepare a collage.

Is it not clear that informal and formal ways and systems of social control are used to ensure law and order, safety and security in our society also? By now you might have recognised the need of adhering to social control. Hope you will also live in accordance with the systems of social control formulated by the society.



Summary

- ❶ Man is a social being. He likes to live in the company of others. Man establishes different social groups to make social life easier.
- ❷ A social group is formed when two or more individuals establish relationship or communicate each other directly or indirectly.
- ❸ Based on the nature of social relationship and size, social groups can be classified into primary and secondary.

- ❖ Social groups exert significant influence on the life of individuals.
- ❖ Social control is the control exercised by social groups and social institutions on individuals.
- ❖ Social institutions are the recognized and established norms that regulate the relationship between individuals and groups.
- ❖ The major aims of social control are; to maintain social order, ensure social collaboration, regulate the activities of individuals and prevent cultural mal-adjustments.
- ❖ There are informal and formal ways of social control.
- ❖ Social deviance occurs when individuals do not undergo social control. This may lead to social disintegration.



The learner

- ❖ identifies different social groups and explains their importance.
- ❖ identifies and explains the need of social control in the existence of society.
- ❖ discusses different ways of social control.
- ❖ explains the role of social institutions as agencies of social control.



- ❖ Explain the common features of social groups.
- ❖ Explain the difference between primary and secondary groups with the help of examples.
- ❖ Do you think that social control is contrary to individual freedom? Explain.
- ❖ Analyse the role of family and law as means of social control.

- Make a note of the instances in which those who violated social control were considered as revolutionaries and later became great personalities.



Extended activities

- Collect information on the role of different social institutions in social control and conduct a seminar.
- Visit institutions of formal social control and prepare a report.



Self assessment

	Completely	Partially	Need improvement
I can identify and classify different social institutions in my society.			
I can explain the importance of social groups in social life.			
I can explain the need of social control for the existence and welfare of the society			
I can identify and explain different ways of social control existing in my society.			
I can explain that social control is accomplished through different social institutions.			
I can explain the role performed by each social institution in maintaining social control.			