

ENVIRONMENTAL STUDIES

Class - V

Text Book Development Committee

Ms. Vetriselvi. K IAS

Special Officer, English Medium Project,
CSE-AP, Amaravati.

Dr. B. Pratap Reddy MA., B.Ed., Ph.D.
Director - SCERT, AP, Amaravati.

Sri. D. Madhusudhana Rao MA., B.Ed.

Director - Government Textbook Press, AP, Amaravati.

Editors

Dr. K. N. Shoba M.A., M.Phil., Ph.D (English), M.A. (Edu.)

Asst. Professor Anna University, Chennai.

Dr. E. Uday Bhaskar Reddy Prof. (Retd.)

Dept of Environmental Science,

Andhra University, Visakhapatnam.

Dr. K. Sreeramulu Prof. (Retd.)

Head of the Dept. of Zoology,

VSR & NVR College, Nagarjuna University.

Dr. D. Gopala Krishna Principal (Retd.)

IASE, Rajamahendravaram.

Dr. N. Upendar Reddy Prof. (Retd.)

SCERT, Hyderabad.

Dr. Suman Bandi Prof.

Regional Institute of Education, Bangalore.

Dr. R. Pardhasaradhi

Associate Professor and Head,
Sri Y.N. College, Narsapur.

Dr. G. Chenna Reddy Associate Professor

Department of English,

Acharya Nagarjuna University, Guntur.

Dr. P. Vinay Kumar Principal, DIET

Angaluru, Krishna (Dt.).

Dr. V. Raghava Rao Lecturer (Retd.)

APRJC, Hyderabad.

Published by Samagra Shiksha, Government of Andhra Pradesh, Amaravati.

© Government of Andhra Pradesh, Amaravati

First Published 2020

All rights reserved

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means without the prior permission in writing of the publisher, nor be otherwise circulated in any form of binding or cover other than that in which it is published and without a similar condition including this condition being imposed on the subsequent purchaser.

The copy right holder of this book is the Commissioner of School Education, Amaravati, Andhra Pradesh.

This book has been printed on 70 G.S.M. SS Maplitho
Title Page 200 G.S.M. White Art Card

Free distribution by Samagra Shiksha, Government of Andhra Pradesh

Printed in India
at the A.P. Govt. Text Book Press
Amaravati
Andhra Pradesh

Co-ordinators

Dr. T. V. S. Ramesh M.Sc., M.Ed., Ph.D.
Dept. of C&T, SCERT, AP

Sri D. David M.Sc., M.Ed.
Assessment Cell, SCERT, AP

Smt S. Umamaheswari M.Sc., B.Ed.
Digital Education, SCERT, AP

Authors

Sri. M. Hari Prasad SA (BS),
ZPHS, Giddaluru, Kurnool District

Sri. K. Vijay Kumar SA (BS),
MPUPS, PC Pyapili, Vajrakarur, Ananthapuram District

Sri. V. Srinivasulu SA (BS),
MPUPS, Chintalapalli, Kurnool District

Sri. C. Nagendra Prasad SGT,
MPPS GC Palem, Bandiatmakur, Kurnool District

Smt. V. Madhavi SGT,
MPUPS, Venkatagiri, Rajamahendravaram, E.G District

Sri. T. Vajra Narasimha Reddy SA (BS),
MPUPS, 1st Ward - Girls, Kadiri, Ananthapuram District

Smt. M. Bharathamma HM,
ZPHS, Satiwada, Srikakulam District

Smt. J. Anitha SGT,
MPPS, Pavuluru, Inkollu, Prakasam District

Dr. S. Rajeswari SA (PS),
Assessment Cell, Nellore, SPSR Nellore District

Smt. K. Sabitha Lakshmi SA
ZPHS, Kannurupalem, Visakhapatnam District

Smt. V.M. Kiranmayi, SGT
MPUPS, Mattamgudem, Lingapalem(M), West Godavari District

Illustrators

Uttam

Sri. P. Ramachandra Rao, MPPS, Jakeru, Vizianagaram District

Sri. T. Kalidasu, ZPHS, Vepagunta, Visakhapatnam

DTP & Designing

Star Media Services, Hyderabad.
Sri. A. Ramaraju, Lasya Graphics, Vijayawada.

Foreword

The Government of Andhra Pradesh has unleashed a new era in school education by introducing extensive curricular reforms from the academic year 2020-21. The Government has taken up curricular reforms intending to enhance the learning outcomes of the children with focus on building solid foundational learning and to build up an environment conducive for an effective teaching-learning process. To achieve this objective, special care has been taken in designing the textbooks to achieve global standards.

As a part of the curricular reform, in order to ensure quality transaction of textbooks, handbooks are given to teachers with elaborate lesson plans for better pedagogical techniques. For the practice of the students, workbooks are given which will reinforce the learning in the classroom. Parental handbooks are prepared to impart awareness regarding the teaching-learning process to the parent community. QR codes are incorporated in the beginning of each lesson to enable learning outside the classroom.

In this textbook, eleven lessons have been incorporated on various themes like Family, Plants and Animals around us, Our body, Food, Water, Shelter, Travel, Relations, Games and Recreations etc. In order to reinforce the concepts, several projects and activities are given to inculcate scientific temperament. Questions are framed for each lesson to recapitulate the conceptual understanding and to achieve competencies required for project work, drawings and model makings. Each lesson is provided with eye catching illustrations to engage the children. The key concepts of the lessons are included under key words and the salient features of the lessons are given under the title "What we have learnt" for the review of the important concepts. An effort has been made to relate the scientific concepts with the real-life events thereby developing and promoting scientific temperament.

We are grateful to Honourable Chief Minister Sri. Y.S. Jagan Mohan Reddy for being our source of inspiration to carry out this extensive reform in the education department. We extend our gratitude to Dr. Adimulapu Suresh, Honourable Minister of Education for striving towards qualitative education. Our special thanks to Sri. Budithi Rajsekhar, IAS, Principal Secretary, School Education, Sri. Vadrevu Chinaveerabhadrudu, IAS, Commissioner, School Education, Ms. Vetriselvi.K, IAS, Special Officer for their constant motivation and guidance.

We convey our thanks to the textbook writers who studied curriculum from Chicago to Singapore and recommended best practices across the globe to reach global standards. Our heartfelt thanks to NCERT, SCERT of Kerala, Tamilnadu and Karnataka in designing the textbooks. We also thank our textbook writers, editors, artists and layout designers for their contribution in the development of this textbook. We invite constructive feedback from the teachers and parents in further refinement of the textbook.

Dr. B. Pratap Reddy
Director
SCERT, Andhra Pradesh

Instructions to the Teachers

- Children should understand and adjust with their environment. For this, they have to observe and explore their environment. Hence, the text book on Environmental studies at primary level is given the title 'Our World'
- The syllabus and lessons are written according to the context of our Andhra Pradesh State and the themes based on the learning outcomes of the National Council For Educational Research And Training (NCERT)
- The contents of the lessons are prepared on the themes family, plants and animals, food and water, where do we live, communication and transport, our traditions and cultures and our universe.
- There are eleven lessons under seven themes. Each lesson is enriched with colourful pictures to make children understand the concepts better.
- Every lesson starts with either a real life situation or child experiences. It give opportunity to hands on experience.
- Children are encouraged to talk about the concepts and their experiences in the classroom.
- Activities are designed in such a way that the children observe and explore their surroundings, discuss with their friends, family members, elders and collect the information, tabulate the data, do experiments, participate in activities and projects.
- This textbook focuses mainly on the processing skills. Hence whole classroom, groups or individual activities, logos and Q.R codes are also given to specify the different activities. The cat - logo poses a question for children to observe their surroundings and the practices to be followed. The bird logo comes up with certain suggestions and practices children can do. The bee logo proposes extended learning/Teaching learning process should be carried out with the help of proper teaching learning material.
- Exercises are given not only to know what children have learnt, but also to exhibit and express their creativity, experiences and thoughts. So all children should be given a chance to participate in the activities.
- In each lesson there is an activity 'Let us do', to give scope for children to explore . Children should do these activities either individually or in a group.
- There is another activity by the title 'Think and Discuss.' A scope is provided for the children to think and discuss them with teachers or elders. Children should identify them independently. If 80% of the children can do this, then only the next lesson should be taken up .
- 'Key words' are given at the end of each lesson. These are the important concepts of the lesson. Children's conceptual understanding should be evaluated with the key words. Salient features of the lesson are given by the title 'What we have learnt'. Children should be made to read these features. These are given to review the concept.
- In each and every lesson, the activities are incorporated keeping in view the Continuous and Comprehensive Evaluation (C.C.E).
- Teacher should note down the progress of children based on the competencies achieved.

Our National Anthem

- Rabindranath Tagore

Jana-gana-mana-adhinayaka jaya he

Bharata-bhagya-vidhata

Panjaba-Sindhu-Gujarata-Maratha

Dravida-Utkala-Banga

Vindhya-Himachala-Yamuna-Ganga

uchchala-jaladhi-taranga

Tava Subha name jage, tave subha 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

- Pydimarri Venkata Subba Rao

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. I shall be kind to animals.

To my country and my people, I pledge my devotion.

In their well-being and prosperity alone lies my happiness.

ENVIRONMENTAL STUDIES

Class - V

Lesson No.	Lesson Name	No. of Periods	Month	Pages
1.	Migration of People	10	June	1-10
2.	Climate change	11	July	11-18
3.	Clothes we wear	9	July	19-25
4.	Know our Organ System	9	August	26-35
5.	Agriculture	10	September	36-50
6.	Every drop is Precious	10	October	51-57
7.	Who Serves us?	9	November	58-66
8.	Let us see an Amazing World	9	December	67-72
9.	Alert Today Alive Tomorrow	9	January	73-83
10.	The Journey of India for freedom	9	February	84-89
11.	Earth to Space	9	February	90-95
	Revision		March	
	Revision		April	



Teacher corner



Student corner

Learning Outcomes - Academic Standards

The Learning outcomes - Academic Standards to be achieved through the Class - V Text book 'Our World' have been given below. These should be achieved by the end of the academic year. The Teaching-Learning process should be carried out with the inclusion of these standards. The following processing skills should be developed among the children.

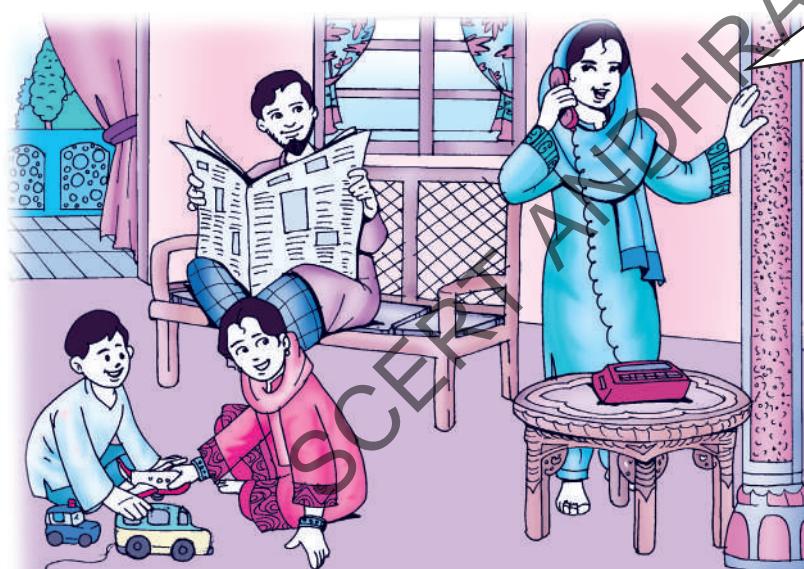
- 1) **Conceptual Understanding :** Children should understand the different concepts of the 11 lessons of this text book. They should compare these with their real life experiences. They should be able to give examples, say similarities and differences, classify, explain and tell the reasons.
- 2) **Questioning:** Children should be able to question about the surroundings, situations and incidents they have seen and observed.
- 3) **Doing and Explaining:** Children should be able to do smaller and simpler experiments and explain the concepts. They should be able to tell the sequence of the steps of the experiment and the things that are used.
- 4) **Information Skills - Projects :** Children should grasp, note, tabulate and analyze the things by observation, reading and discussing with others. They should be able to infer the analysis and do the generalization. They should participate actively in the projects. Projects should be exhibited and explained by them in the class.
- 5) **Drawing and Colouring:** Children should be able to explain the concepts by drawing and colouring the pictures.
- 6) **Appreciation:** Good attitudes should be developed among the children. They should recognize and appreciate the greatness of animals, birds, plants and people of their society. The values like kindness, co-operation, working together etc; should be inculcated. They should be able to identify and appreciate the diversities of the surroundings and society. They should be able to appreciate different food habits, life styles, cultures and traditions. Personal hygiene, good food habits, doing the personal work by self, helping the elders and special needed people should be practised.
- 7) **Mapping Skills :** Pupils should be able to draw the maps of their class-room, school, street, village etc; they should be able to grasp the information by understanding the symbols given in the map.

Migration of People

LEARNING OUTCOMES:

Pupils will be able to

- understand the concept of migration and its effect.
- analyze family needs and economic fulfilments.
- understand economic conditions of the family on studies.
- know about the Government schemes available.



Hello! Aunty, How are you? We are all fine. Recently we have got transfer from Madanapalle to Tirupati. We have taken a nice house. It is very nice and convenient, please visit once.

Have you seen any family in your neighbourhood who moved to a new place?



Migration is a seasonal movement of people from one place to another place in search of better livelihood. Sometimes it changes the structure of the families.

Migration affects children in different ways. Sometimes children are taken along with them to the new place, which may have an impact on their education, sometimes they are left with their grandparents or guardians.

Reasons for migration

There are two reasons for people to migrate. They are:

1. Natural reasons
2. Economical reasons

Calamities like flood, cyclone, earthquake etc. are the natural reasons for migration. Reasons like job transfers, poverty are economical reasons for migration.

Hi, I'm Kumari, we have no property. My father works as a daily wage labour. So, we moved to Chennai. He is paid well here. But the cost of living is more than our village.



Hi, I'm Kondaiah. We moved to Vijayawada because we lost our home and crop in the Cyclone. It affected many families in our area. My father is working as a Security guard at the ATM centre. My mother is working as a maid. I will join in a school for this year.



Hi, I'm Praveen, my father is working in a bank. He is transferred to Tirupati. We are moving next week.



Hi, I'm Pallavi. We moved to Guntur, because my brother joined a college and my father started a new business. But I love my beautiful village.



I'm Somaiah, I'm unable to go to school regularly because we don't live in a permanent place. We move in search of livelihood. But I want to continue my studies.



Are there any newcomers to your class who migrated from another place? Discuss the reasons for migration.

Think and Discuss



What are the effects of Migration ?

Effects of Migration

Rajaiah moved from Giddalur to Chennai due to famine and started working there. But his earnings could not fulfill the needs of the family. So his wife and his son Srinu also left for Chennai. All the members of his family started to work there. Thus Srinu turned as a child labour to support his parents.



Kumar's son Madhu went abroad in search of a job, to support his family. He educated his children, built a comfortable house and bought a farm. Few years later, he returned to his village and now leading a peaceful life.

You can find some group of people migrating seasonally. One such group of people are tobacco pluckers (Pachhaku Labourers). In Prakasam district, tobacco is the main crop. So, they employ labourers who come from neighbouring districts in search of work. People move with their families and their children are sent to the nearest Government schools.



Slums

There is a rapid migration from rural to urban areas. Due to this, temporary shelters, scarcity of facilities, population density are increasing. People are getting attracted to urban culture. Thus, poverty, informal economy, poor planning are leading to the formation of slum areas in the urban regions. The government has been implementing rural development programmes in villages to stop migration by strengthening economic activity in rural areas.



Where is my place ?

On a rainy day Babulu did not attend his duty in the market yard. He sat with his daughter, Swapna and his son, Manoj. They were waiting for their mother Subbulu. Two years back Babulu's family moved from Chalama village to Visakhapatnam City. They started working as daily labourers. The money they got was not enough.



Sometimes he thinks of his village. In those days Babulu lived together with their relatives and friends in their village. All the people helped each other at good and bad times. They enjoyed working on the agricultural farms or catching fish from the nearby ponds. But here everything seems so different. The day passes running around for work.



Did Babulu's life change due to shifting from his village to a town?

Let us Do



Collect information about families that have migrated to your surroundings / village?

Sl.No.	No. of families	Reason



Think and Discuss

- Krishna says that migration improves the economic status. Do you agree?
- Does it have any effect on the basic needs of a family?



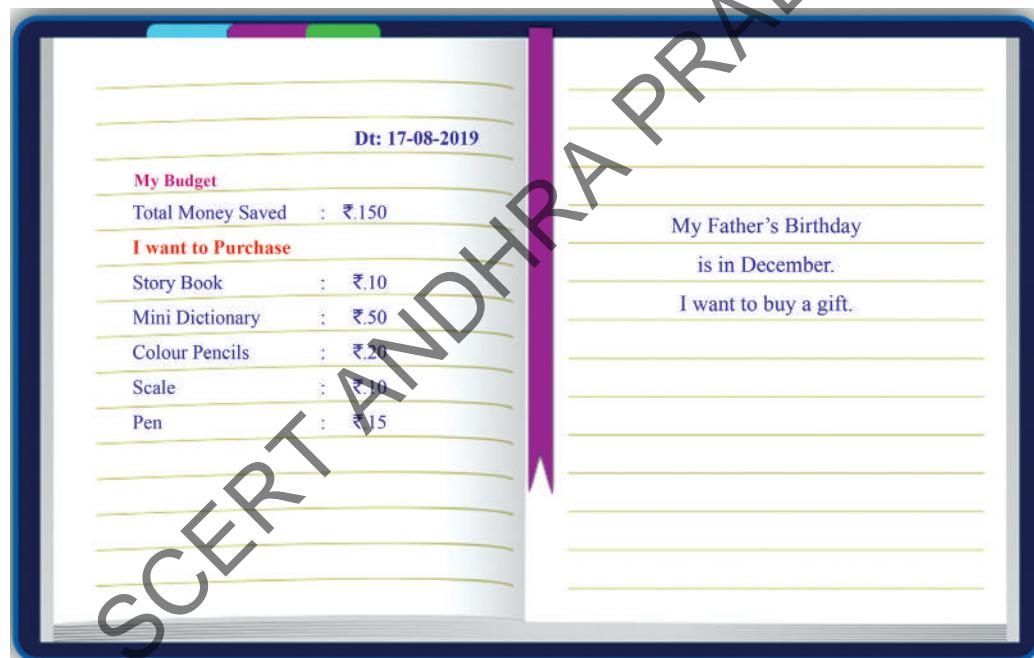
Now-a-days money is required to fulfil basic needs of the family. In olden days a family is led by the eldermost person and they lived as a joint family.



Does your mother or father make a list of their expenses?

Family Budget

Veeraiah is the owner of an acre of land. He rears five buffaloes. He is living by selling milk. He earns about ₹ 10,000 per month. He has two children, Satish and Nirmala. Both of them are studying. Both the children have a habit of saving money. They put the money in their piggy bank. He plans the family budget every month and saves in a bank for future needs. Bank gives some money as interest on savings.



Think and Discuss

How do you save your pocket money?
Do your parents have bank account?

- Which is preferable, saving money or spending money?
- What will you do with the money you save?
- What is interest?

Rakesh is a plumber. He earns around ₹ 10,000 per month. His son, Ravi spends a lot of money. He does not save his pocket money which is given by his parents or relatives. Ravi keeps asking his father money, for his expenditure.

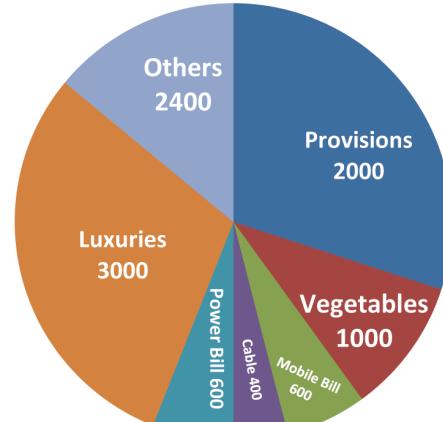


Pie chart (or a circle chart) is a circular graph, which is divided into parts to show proportions in numbers.

A pie-chart showing the budget of two families are given below. Let us observe

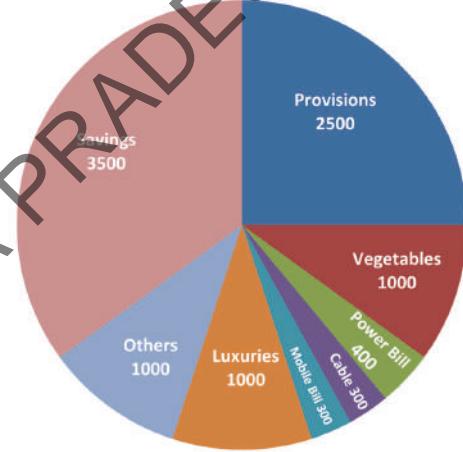
Rakesh's Family Expenditure

■ Provisions ■ Vegetables ■ Power Bill ■ Cable
 ■ Mobile Bill ■ Luxuries ■ Others



Veeraiah's Family Expenditure

■ Provisions ■ Vegetables ■ Power Bill ■ Cable
 ■ Mobile Bill ■ Luxuries ■ Others ■ Savings



Whose expenditure is high?

- Which family saves money?
- Can you identify the family that has a proper economic planning?
- Economic planning of which family will you follow in your future?



A family budget is a statement which shows how a family's income is spent on various items for comforts, luxuries and other needs.

It shows the distribution of the family income to various items of expenditure. It teaches the value of money to the members of family.

A household budget helps you to identify the areas of maximum expenditure, and unnecessary expenditure and helps to save money by cutting the unnecessary expenditure.



What are the benefits of savings?

Let us Do

- Helps in emergency
- Makes financial independence
- Limits debt

Find out from your parents the monthly expenditure of the family. Fill in the table:

Month	Provisions	Vegetables	Power Bill	Cable Bill	Mobile Bill	Others

Activity

Put a tick mark (✓) on the expenditure you feel is essential in a family.

S.No	Expenditure	Necessity	Comfort	Luxuries
1.	Provisions			
2.	Clothes			
3.	Vegetables			
4.	House			
5.	Food			
6.	Car			
7.	Cot			
8.	Gold Ornaments			
9.	School Bag			
10.	Shoes			

Note:

Necessity : The basic needs of human beings require to survive.

Comfort : Comfort are needs, which are lighter necessities, allows us to lead a comfortable living.

Luxury : Luxury is a state of greatest comfort at high expenses.



Think and Discuss

- Did you notice any unnecessary expenses in your family budget? If so, list them out.

Our School - Our Right

Ramya and Preethi are cousins. Ramya's father is a cobbler. They live in different villages. When Preethi's father visited Ramya's house, he found that Ramya dropped out of school. Preethi wanted to encourage Ramya to join school again. So, she wrote a letter.



Ongole,
19th July 2020.

Dear Ramya,

Are you doing well? We are all fine. Last week when my father visited you, he said that you are not going to school anymore. I understand your economic conditions. Our Government is providing support to the children through various schemes in the schools, which benefit us very much.

You know the new scheme "**Jagananna Ammavodi.**" Under this scheme Government provides. ₹ 15000/- per annum to each mother or recognized guardian who is below poverty line. Children studying from class 1 to class 12 from the academic year 2019-2020 will be benfitted.

The Government also provides **Mid-Day Meal, Uniforms and Text books.** We are given **Iron and Folic Acid Tablets** and there is a monthly **Eye check- up** also. Scholarships are provided for further studies. **Education loan facility** also helps us for our higher studies.

So, please avail yourself of the services and join school again.

With Love,
Preethi



Can you mention any other schemes provided by our government for education?

Write 'YES' if you have used them or write 'NO' if you have not, in the brackets provided.

1. I have taken 'uniforms'. ()
2. I have taken 'text books'. ()
3. I have benefited from 'scholarships'. ()
4. I take 'Mid-Day Meals'. ()



Do You Know

Poverty is not a barrier to get success in life



He was born as **Avul Pakir Jainulabdeen Abdul Kalam** on 15th October 1931 into a Muslim family in Rameswaram, of Tamilnadu. His father Jainulabdeen was a boat owner while his mother Ashiamma was a house wife. As a young boy he had to sell newspapers in order to add to the family's meagre income. He was a good student and always curious to learn more about how things happened. A. P. J. Abdul Kalam was a prominent Indian scientist who served as the 11th President of India from 2002 to 2007. For his pivotal role in the Nation's Civilian Space Programme and Military Missile Development, he is popularly known as **Missile Man of India**. He died on 27th July 2015, in Shillong while addressing the students.



Key words

migration, natural calamities, poverty nomads, transfer budget, expenses, provisions, savings



What we have learnt

- Natural calamities, poverty, unemployment are the basic reasons for migration.
- Slums are formed due to migration.
- A family budget is a statement which shows how the income is spent in families.
- Saving is a good habit.
- Education is the right of a child.



Improve your Learning



H2P4X7

I. Conceptual Understanding

1. What is migration? Give some examples.
2. What are the advantages and disadvantages of migration?
3. Raju says that sometimes migration happen in our lives. Do you agree with this statement? Why?

II. Questioning and Hypothesis

4. If you meet a migrated family in your village, what type of questions would you ask them to find out the reasons for migration?

III. Experiments and field observations

5. Observe migrated families in your village and write about one incident that changed in their life.

IV. Information skills and Project work

6. Find out the reasons for the drop-outs in your surroundings:

S. No.	Name of the Student	Reasons

V. Drawing pictures and mapping skills

7. Draw a mind map showing the reasons for migration.

VI. Appreciation

8. Suresh is going to work with his father. He stopped going to school. How do you motivate him to rejoin school?

Climate Change

LEARNING OUTCOMES:

Pupils will be able to

- understand the concept of climate change.
- identify the causes for climate change.
- adopt eco-friendly activities in their daily life.
- understand harmful effects of plastic.



Karthik was returning home with his father from the market.

Suddenly it started raining. Both of them got drenched.

Karthik was surprised why it started raining, all of a sudden?

Karthik: How come father, it started to rain all of a sudden? It is not rainy season now.

Father : Yes dear, but now we are getting unseasonal rains.

Karthik: Why is it happening so?

Father : Changes have occurred in the environment. Our actions are the reasons for these changes.

Karthik: How are we to be blamed for these untimely rains, Father?

Father : Our indiscriminatory actions are the main reasons. Out of all living things only human beings damage the environment for their personal needs.



What happens if we do not get rains timely?

What happens if it rains during the harvest time?



To understand the changes in the climate we must know about climate and its impact.

What is a climate?

The weather conditions such as temperature, rain-fall etc., prevailing in an area is called climate.

Usually it's hot in summer. It rains in the rainy season and is cold in the winter. This is a pattern in the nature. But we find a change in these patterns affecting the environment. The untimely rain patterns, long and hot summers have a huge impact on the crops and affects food production.

What is climatic change?

The earth, we live, is a beautiful blue planet in the universe with deep oceans and dense forests. Our livelihood totally depends on the resources available in the nature. We get food and shelter from the nature.

While walking along the green fields we feel a cool breeze, but after harvesting the crop, the fields become dry. We may not feel the same and it is hot. In the same manner we notice a rise in temperature and change in the climatic conditions. This is because we are cutting trees, burning wastes and fuels.

Let us know how the earth is becoming warmer

We are changing grass lands into farmlands for cultivation. We are cutting down forests indiscriminately to widen the roads, construct buildings, factories, dams etc. Because of these open areas are reduced. Factories release harmful gases into the atmosphere and industrial wastes into the water bodies. Eventually soil, water and air are getting polluted. Let us observe the following activities.

Forest helps us by giving oxygen and protect from sunlight.



Have you ever seen cutting of a big tree. How do you feel?

Effects of climate change

- Because of climatic changes we do not get timely rainfall, which leads to drought.
- Heavy cyclones, tsunamis may occur.
- The melting of ice in the polar region leads to rise in ocean level and places near the seashore may be sub-merged.
- The waters in the sea is getting warmer which leads to the death of aquatic plants and animals.



Floods



Melting of ice



Forest fires



Drought

All these adverse effects are because of our greedy activities. We cut trees for our buildings, use vehicles that causes air pollution, release harmful chemicals, sewage in water. Use plastic in large quantity which do not degrade, thereby causing damage to the earth.



- Let us stop a while and think of activities to save our world.
- Say no to plastic and use eco friendly material.

Let us Do



Are the use of plastic pens eco-friendly?

Along with your friends, search for use and throw pens in your school ground. Collect them and count. How many are there?



Now a days we are carrying curries and other food material in plastic covers. In some areas people bring even hot tea in covers which is most dangerous to our health. Hence we should carry containers that are harmless.

Drinking anything hot in a substandard plastic cup and eating food in plastic plates is injurious to health. Some chemicals may dissolve in the hot liquid or food. News papers are widely used as food packing material in hotels and by street vendors, the usage of newspapers is also not good for health. The printing inks used for printing news papers are not safe. Avoid such usage.



What happens to the soil if it is fully covered with plastic ?

Usually we use material such as pens, plates, covers which are thrown away after use. They are made of plastics. These discarded material cannot be decomposed. These materials are dumped in and around the canals, tanks thereby polluting the water. The thrown away food remains in plastic covers and are eaten by animals which make them sick. So, let us avoid using such things.

Read and respond

Read the following news item and respond to questions given below.

- What does the news item refer to?
- What is the cause for this incident?

The earth we live is warming up day by day, which is called **global warming**. Now-a-days we frequently witness forest fire due to excess of heat in the atmosphere. Forest fires cause large scale damage to plants and animals. The green cover is destroyed leading to increase in temperatures. It is also caused by irresponsible man made activities like burning garbage or wood etc.

06 January 2020

- BREAKING NEWS -

Australian bushfires

- 500 million animals killed and millions of acres scorched
- Global figures warned bushfires are environmental emergency

Global leaders and activists warned that the bushfires ravaging Australia are an environmental emergency that must be tackled urgently, as people fleeing the blazes called the situation hell on Earth.



Do You Know

Though rich people uses air conditioners, refrigerators etc., which contribute to climate change, poor people become the biggest victim. Rainfall during unexpected time may leads to loss of income of the poor roadside workers. Developed countries contributes maximum to the climate change, but developing countries are the ones which are affected drastically.



Do You Know

Indiscriminate use of the natural resources such as water, coal, petrol are the main reasons for climatic change. Refrigerators, Air conditioners, Motor vehicles are also causes for global warming as they emit harmful chemicals.

Green world

It is said that forests are the lungs of the earth. Plants are a primary resource of food for all living organisms. They provide food, clothing, fuel, shelter and many other necessities of life. Trees give us rain and provide habitation for many birds and animals. Trees maintain ecological balance and prevent soil erosion.

Deforestation

Deforestation is when the forests are destroyed by cutting trees.

- What is our role in saving the plants ?

We should not cut trees indiscriminately. We should grow plants in the place available in our house, street, school compound etc. We must use tree guards to save the trees.

- Discuss in your class the ways to save trees.



Think and Discuss

- To be cool in summer which of the following is right? Buy an air conditioner (AC) or plant a tree in the back yard ?

Activity

Read the given situations and say whether it's a right action or not? Why?

- Ravi's family is constructing a house. His father ordered to cut a big neem tree which is near the construction area.
- Electricity department people are cutting down the branches of the trees to erect the new electric poles.
- More trees are being cut down due to widening of roads.
- Burning of leaves and agriculture wastes.



In addition to planting a tree, we should save existing trees.

Observe the given picture and express your feelings

Voice of people

Several people across the globe have expressed their concern towards global warming.

Greta Thunberg is a Swedish environmental activist on climate change whose campaigning has gained international recognition. Thunberg addressed the 2018 United Nations Climate Change Conference, which created awareness on climate change.



The Chipko movement



In the 1970s an organized resistance to the destruction of forests spread throughout India and came to be known as the Chipko movement. The name of the movement comes from the word 'embrace', as the villagers hugged the trees, and prevented the contractors from cutting them.

My home became Eco - Friendly

We have to...

- use stainless steel glasses or bottles instead of plastic bottles.
- carry bags made up of paper, jute or cloth while going to market instead of plastic bags.
- do not waste white papers as paper is made up of tree pulp.
- switch off lights and fans when leaving the room to save electricity.
- grow a kitchen garden to eat fresh vegetables and greens.
- avoid using chemical fertilizers in the kitchen garden. Use kitchen wastes as manure.
- separate garbage into dry waste and wet waste.



- Are we celebrating our festivals eco-friendly?

During Vinayaka chavithi festival idols made of POP (plaster of paris) are immersed in the water. The water gets polluted and it gives harmful effects on aquatic life. Burning of crackers during Deepavali and New year, cutting trees for Christmas and using chemical colours in rangoli powder during Holi are harmful to us and the environment. People use plastic plates and glasses at gatherings to eat food and drink. It has to be stopped.



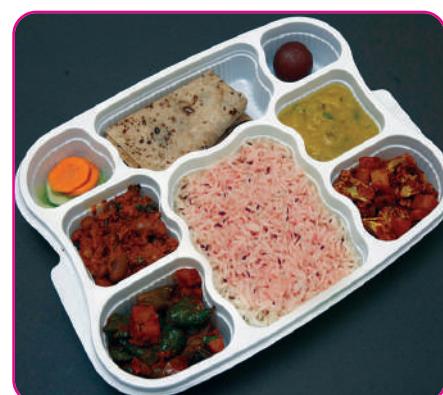
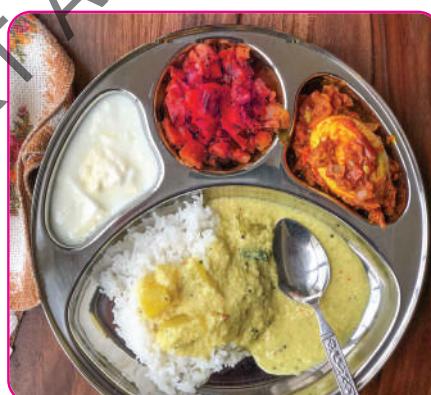
How can we celebrate the festivals eco friendly?

We can celebrate eco-friendly festivals. Can't we? Give your opinion.

- Avoid burning crackers by using traditional lights during deepavali and new year celebrations.
- Use recycled material to decorate the houses and temples.
- Use banana leaves during festivals and marriages and avoid plastic plates.
- Use natural colours and clay idols.

Which is eco-friendly?

Ravi, Raju and Ramesh are friends. They went on a field trip. They packed their food from home. Ravi ate in a steel plate, Raju ate in a plastic plate and Ramesh ate in a banana leaf. Which is not an eco-friendly plate? Why?



Eating in banana leaf is a healthy practice because of minerals in the banana leaf.



Save the nature - save the future
Save the trees - save the lives



Key words

drenching, season, environment, climate, climate change, forest fire, atmosphere, Bio diversity, floods, drought, cyclones, aquatic animals, global warming, bio-degradable, eco-friendly, chipko movement



What we have learnt

- The weather conditions prevailing in an area is called climate.
- The weather of a place depends on the temperature, humidity in the air, rainfall, air pressure etc.,
- The abnormal variation in the climate is called Climate change.
- Floods, melting of ice, forest fires and drought are the effects and evidences of climate change.
- The temperature of the earth is increasing year by year.



Improve your Learning

I. Conceptual understanding

1. What is climate?
2. What are the effects we face due to climate change?
3. What are the reasons for climate change?

II. Questioning and hypothesis

4. In your village, people are suffering from drought. Can you guess the reasons?

III. Experiments and field observations

5. Observe the process used for disposing of garbage at your home and make a report?

IV. Information skills and projects

6. Collect information about families who are using steel glass instead of plastic water bottles.

V. Drawing and model making

7. Make a pen stand, florervase etc. by using a plastic water bottle.

VI. Appreciation, values, application to daily life, biodiversity

8. Prepare some slogans on 'Save Environment.'

Clothes We Wear

LEARNING OUTCOMES:

Pupils will be able to

- understand the process of making fabrics
- identify various types of clothes
- explain the need of clothes
- understand the properties of air



Harsha's Aunt was getting married. The whole family was busy with the wedding event. Harsha went to visit his friend, Rahim. Rahim's father, Siraj was stitching the wedding clothes.

Siraj : "Hello Harsha! How are the wedding preparations going on"?

Harsha: Well uncle, yesterday they could finished buying sarees and dhotis.

Rahim : What about you?

Harsha: I have to buy today. I do not understand what clothes suits me.

Rahim : Why don't you buy jeans and a T-shirt that suit you well, I also bought the same.

Harsha: Why? Siraj uncle always stitched my clothes?

Siraj : True Harsha ! But I will have to finish stitching the bride's dress, silk blouses and the cotton shirts of your father. I have to stitch them with care and so it will take time.

Harsha: What is it? All clothes are the same. What is the difference?

Siraj : Of course! But depending on the way they are made, fabrics are of different types.



Let us know the different types of fabrics.

The main raw material to make clothes is obtained from plants and animals which are called natural fibres. Material made artificially by man are called artificial fibres.

Natural fibres

Cotton and Jute are plant fibres. Silk and wool are animal fibres. Cotton clothes are made from cotton fibre. Cotton is a soft and white fibre which is collected from cotton plants.



Cotton Fruit



Spinning



Weaving



Cotton Fabric

The cotton fibre is taken from the fruits of the cotton plants and is spun on the wheel to make fine threads. Then the yarn is woven into fabric on the weaving machine. It is called cotton fabric. Cotton clothes absorb sweat and keep the body cool. Cotton clothes are suitable for our climate.



Do You Know

Gunny bags, ropes, designer clothes are made from jute. Flax plant is used to make linen.



Silk is soft and beautiful. It is obtained from silk worms. The caterpillar of the silk worm feeds on the mulberry leaves and it forms a cocoon. The silk thread is taken from the cocoon silk clothes are woven.



Silk Worm



Cocoon



Spinning



Silk Saree



Do You Know

Silk clothes are smooth and beautiful. During the process of making silk yarn cocoons are boiled. Caterpillars inside the cocoons will die. The silk thread is collected from them. If the cocoon is alive the caterpillar grows into a silk moth and comes out from the cocoon and the silk threads will be broken. Hence, to kill the caterpillars, cocoons are boiled. Think how many caterpillars die to give us a beautiful silk saree.



The fur (hair) of the sheep is sheared (cutting) and spun into reels of wool. The wool yarn is woven into woollen clothes, sweaters and blankets. We use woollen clothes in winter. They keep us warm.



Sheep



Shearing



Reeling



Sweater

Artificial fibres

Along with these, polyester, terelene, rayon and nylon fabrics are made in factories by using chemical process these are called synthetic fibres are artificial fibres. They are affordable and last longer.

Look at this picture, When do we wear a coat of this kind?



What difference do you notice in the fabrics used for a shirt and an umbrella ?

Usually we use umbrellas and rain coats during rainy season. They are made of water proof material.

Our dress our culture

Clothes we wear not only protect our body but also represent our culture. The way we dress in Andhra Pradesh is different from other states. In Kerala, men wear lungis, men of Rajasthan wear dhotis. In West Bengal, men wear kurta-dhoti. The women of Andhra Pradesh and most of the other states wear a saree-blouse, punjabi dress, lehanga etc. The way a saree is draped is also different.



- Discuss and tell the clothes that are worn of kids, parents and grand parents.

People wear different dress depending on their age. We wear special clothes for special occasions like birthdays, weddings and festivals. The type of clothes people use are different based on material, comfort, climate etc. People in cold countries use warm clothes made of wool. In hot countries use clothes made of cotton. Similarly small kids use soft textured clothes.

List out the different model dresses of boys and girls.



We need clothes because they protect us from heat, cold and rain. They absorb sweat and keep us cool. They protect us from germs, insect bites, dust and pollution. They help us to look smart.

Some people wear uniform that suits their profession. Let us see the following pictures. Identity their profession.



One day, Harsha asked his mom his favourite shirt. She said it was not washed. Then he washed his shirt using a detergent soap. Do you know how to wash your dress? Clothes must be washed with detergents and dried well.



Think and Discuss

- Why should we wash clothes?
- Are all clothes washed in the same way?
- Why should we not dry dark coloured clothes under the Sun?



We should wash our clothes regularly. While playing, clothes may get dirty and wet with sweat. If we wear clothes without washing properly, we may suffer from skin diseases. Clothes should be washed with the detergent soap and dry under the sun. Coloured clothes should be dried in shady places. Otherwise they lose their colour.



Look at the given pictures. Discuss in your class about the process of manual washing and washing in the machines. Ask your teacher about washing machine



Does air help clothes to dry up ?

Generally, clothes dry under the sun. Even though it is cloudy, clothes sometimes dry up due to wind.

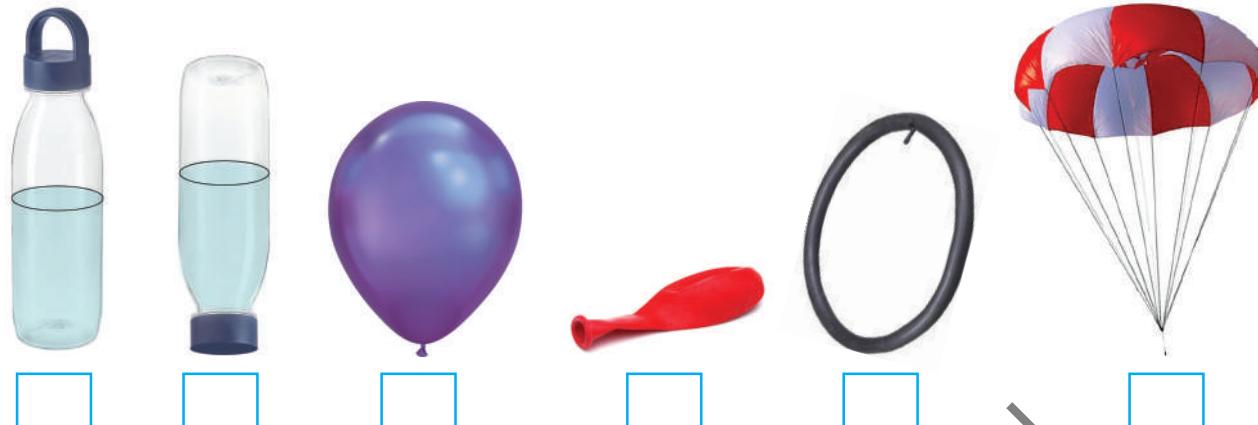


Air around us

All living things need air to survive. Air is around us. But we cannot see, we can just feel it. Moving air is called wind.

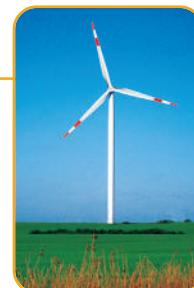
Wind has different names based on its function. Breeze is a light wind and gale is a strong wind. During cyclone wind blows with high speed felling down, big trees and roofs of houses too.

Observe these figures. Put a (✓) mark where air occupies space

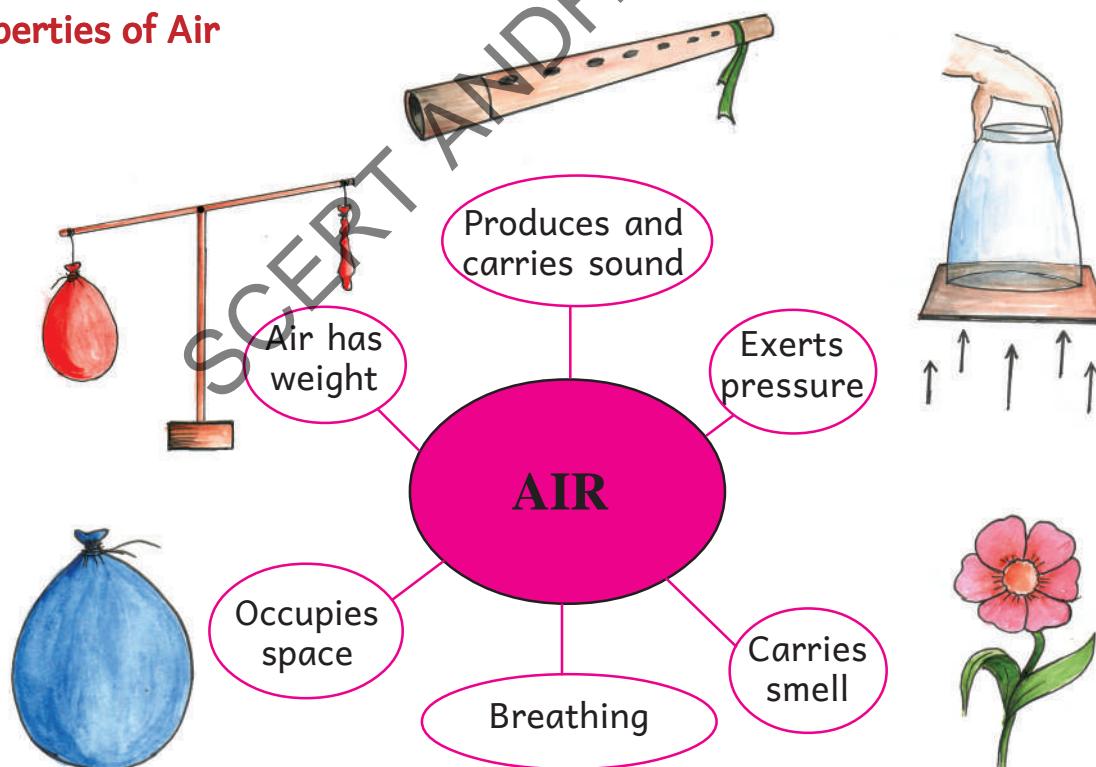


Do You Know

Electric power is generated by wind mill. It is called wind power. In some places wind mills are used to lift water from wells for cultivation.



Properties of Air



Because of air pressure we can enjoy the smell of flowers, we can drink juice with a straw, we can fly a kite, we can ride a bicycle, we can play a flute, we can get

water from an overhead tank etc. Air helps us in many ways, but we pollute air with our indiscriminate actions. So, we need to find solutions to stop air pollution. Some of the measure to protect air is to grow green plants around us.



Key words

silk, cotton, wool, cocoon, natural fabrics, artificial fabrics, air, pressure, wind



What we have learnt

- There are different kinds of clothes. People wear different clothes related to their tradition and culture.
- Clothes made of different fabrics like cotton, wool, silk are natural fibres.
- Polyester, Terylene, Rayon and Nylon are artificial fibres. They are made from chemicals.
- Air is useful in different ways in our daily life and we should not pollute air.



Improve your Learning

I. Conceptual understanding

1. Write a brief note on the uses of air?
2. Name the kind of clothes we wear in different seasons?
3. Write differences between natural and synthetic fibres?



II. Questioning and hypothesis

4. Name the reasons why people use woollen clothes in the winter season.

III. Experiments and field based observations

5. Wash your dress with a detergent soap and write your experiences.

IV. Information skills and projects

6. Collect pieces of cloth and classify them into natural fabrics and artificial fabrics and paste them on the chart. Display the chart.

V. Drawing pictures and mapping skills

7. Draw pictures of different types of dresses.

VI. Appreciation

8. Say what you like at tailor's shop?

Chapter 4

Know Our Organ System

LEARNING OUTCOMES:

Pupils will be able to

- understand the major organ systems of the human body.
- identify the parts of the body associated with each organ system.
- understand the importance of each organ system.
- draw and label diagrams of organ systems.



On Sunday Joseph and his team were practising dance for the Annual day celebrations. Suddenly he felt weak and tired. His teacher gave him two bananas. He ate the fruits and gained some strength. He began dancing again. Why do we get energy after eating something?



What happens to the food we eat?



Our body works like a machine. Machines have different parts which work together. Similarly, our body is also made up of different parts. Our hands, legs and eyes are our external organs. Have you heard the names of organs like the brain, heart, lungs, liver, kidney etc? These organs are located inside our body and we can not see them directly. They are called internal organs.



Think and Discuss

- What happens to the food we take in?
- We dance, jump and run. What supports these movements?
- We work all day long. Where does the energy come from?





The human body is composed of different organ systems to perform all these functions.

Let us discuss some organ systems



What protects our internal organs?

The Skeletal System

Gently press on the legs, hands, and chest with your fingers. You feel something hard. These hard structures are called bones. There are 206 bones in an adult human body. The bones form a framework called the skeleton or the skeletal system. As the bones grow longer, our height increases. Muscles are attached to the bones. The skeletal system and muscles give us shape and support and helps in movement.

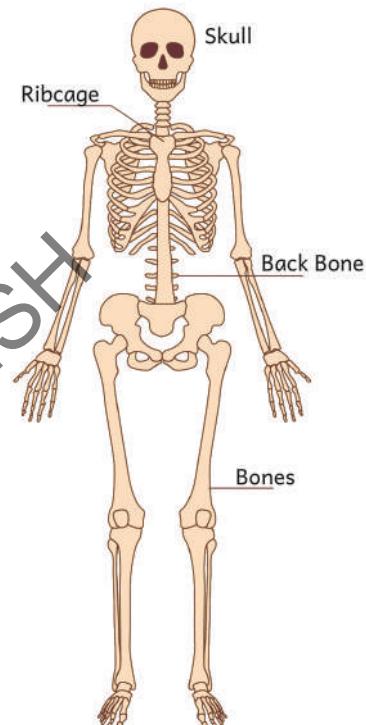
Parts of the Skeletal System

Some bones are long, some are short and some are joined together. Can you imagine the length of the bone in our legs and in our fingers?

Skull : Skull protects the brain

Rib Cage : Rib cage protect our lungs and heart.

Back bone : Back bone helps the body to stand erect.



Think and Discuss

- Why organs like brain, heart are enclosed by strong bones?
- Are all bones hard and strong?



You have seen how your mother twist your ears, when you are wrong? Touch your friend's ear. How is it?

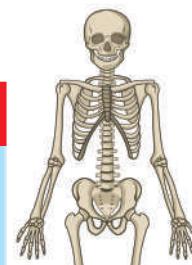


The external ear, and the flexible part of the nose, are made up of soft structures called **cartilages**.



Think and Discuss

- If there are no bones in the body, how we look?
- What are the functions of the skeletal system?



Activity

- Collect an X - Ray and observe the images of bones.

In order to keep our bones healthy we need to take food, such as milk, cheese and eggs. Work, play, regular exercise, yoga and exposing ourselves to the early morning sunlight keep our bones strong and healthy.



Exercise keeps us fit, strong and healthy. Do exercise daily.

Let us observe the journey of food



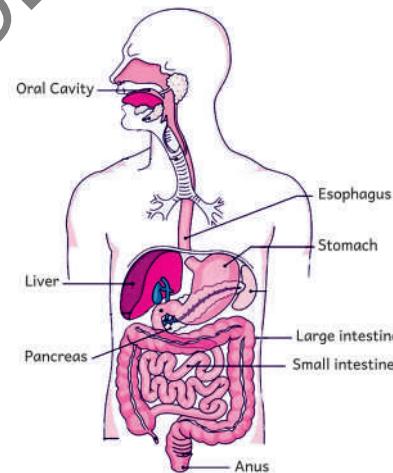
Every day we eat a variety of food. What happens to the food we eat?

Digestive System

The food that we eat is cut into smaller pieces with the help of our teeth. They grind the food and the saliva in the mouth helps to softens the food. When swallowed it passes through the food pipe (oesophagus) into the stomach.

In the stomach it is mixed with the digestive juices. The food then passes to the small intestine. Here the food is digested and the digested food is absorbed into the blood. The undigested matter passes from the small intestine into the large intestine. Here the water is absorbed and the undigested matter is sent out of the body through the anus.

This process of conversion of complex food material into simple and absorbable materials by the action of enzymes is called **Digestion**.



Do You Know

Our small intestine is 6 meters long. It is coiled. This coiling helps to retain the food until the digested food is absorbed into the blood. If the small intestine was long like our food pipe, imagine how tall we would have been!



What is meant by digestion?

- What are the main parts of the digestive system?

Do not eat food in a hurry. Half of the digestion is carried out in the mouth, so chew the food slowly and properly. It is advised to drink water before eating food. It helps for smooth travel of food in the food pipe. Do not drink water while eating.

Activity

Fill in the table.

S.No.	Parts	Function
1.	Mouth	
2.	Oesophagus	
3.	Stomach	
4.	Small Intestine	
5.	Large Intestine	
6.	Rectum	
7.	Anus	



- We must eat homemade food. It does not disturb our digestive system.
- Do not eat junk foods and outside foods as it is unhealthy.



Think and Discuss

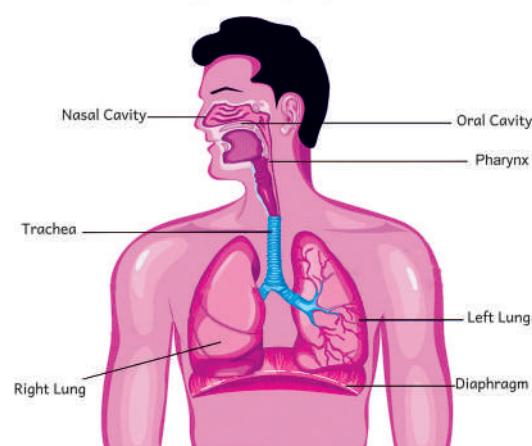
We can live for a day without food. But we cannot live even for a few minutes without air. Why ?

Respiratory System

We need energy to work. Where does it come from?

We need air to live. While working, playing, sleeping, we are involuntarily breathing air. This is called respiration. We breathe in (inhale) and breathe out (exhale) with the help of our respiratory organs. The respiratory system consists of the nose, the wind pipe and the lungs. We breathe in air through the nose, it passes through the wind pipe and reach the lungs. The lungs are a pair of sponge like structures which get filled with the air we breathe in. The air we breathe in, contains oxygen. The oxygen breaks the food material present in the cells and releases the energy.

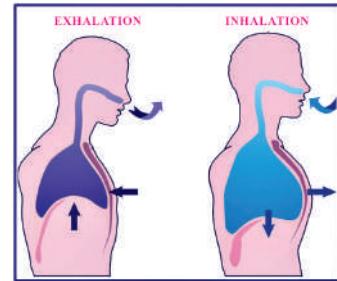
Respiratory System



Respiratory System - Lungs

During inspiration (inhalation) the lungs enlarge. During expiration (exhalation) the lungs constrict.

The inhaled air has oxygen. It goes into the lungs where it mixes with blood. It reaches the cells and releases the energy. The air we breathe out has more carbon dioxide and water vapour. The process of breathing out is called expiration.



What is Inspiration?
What is Expiration?

Let us Do

Prepare a working model of the lungs as shown in the picture, with three balloons, three straws a plastic bottle and a bottle cap. (Ask your teacher for the detailed procedure)



Look at the given picture.

What do you observe in the picture?
What is the doctor doing?
What do you call the apparatus with which the doctor is testing the patient?



The doctor checks the heart beat with a stethoscope.

Make a stethoscope

A stethoscope is used by a doctor for listening to our heart sounds.

You will need a kitchen paper roll, a funnel and a tape. First tape the funnel to one end of the kitchen paper roll. Then ask a friend to place the prepared stethoscope on the side of the funnel against your heart. Does he hear your heart beat? Now run for a while and ask your friend to listen to your heart beat again. Has it increased?



How is the sound? Where does the sound come from? Why?



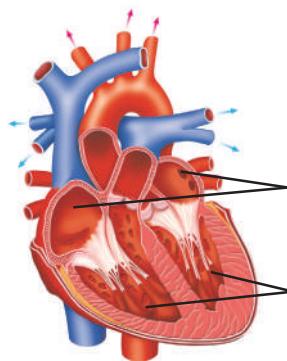
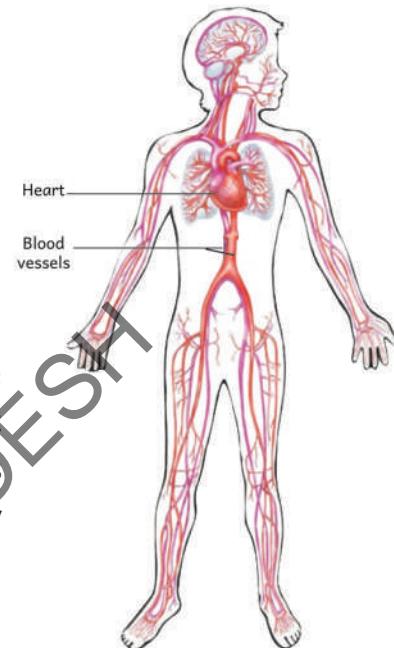
Put your ear on the chest of your friend and listen. You will hear some sound. Which system makes the sound lub-dub?

Circulatory System

The heart, the blood and the blood vessels make up the circulatory system. The heart pumps the blood through the blood vessels to all parts of the body and keeps it in circulation.

Blood Vessels

Blood vessels are arteries and veins. Arteries transport the blood from heart to all parts of the body. They transport oxygenated (pure) blood except pulmonary arteries. Veins transport the blood from body parts to heart. They carry deoxygenated (impure) blood except pulmonary veins.



Heart

The heart is located in the middle of the chest. Heart consists of four chambers. The upper two small chambers are atria and the lower two big chambers are ventricles. It works like a water motor pump. During pumping of the blood, the heart makes the sound lub-dub.



Think and Discuss

- Why is the blood called oxygenated and deoxygenated?

Blood

Blood transports the oxygen and nutrients to all parts of the body. The nutrients are obtained from the food we eat. It helps us to regulate the body temperature and fight against the disease causing germs. It also helps in removing waste materials like carbon-di-oxide from the body.

We should eat healthy food to have sufficient blood in our body. Ground nuts, jaggery bar, egg, milk, leafy vegetables etc., must be taken.



Do You Know

Blood is red in colour because of the presence of haemoglobin. Most of the children are anemic because of low haemoglobin in their blood. Peanut bar (Palli Chikki) is the good food to get sufficient blood. AP Government is supplying chikki in the mid-day meal to improve haemoglobin. Blood contains three types of blood cells. They are Red Blood Corpuscles (RBC), White Blood Corpuscles (WBC) and Blood platelets.



What is circulatory system?

- Which blood vessels transport the blood from the heart to all parts of the body?
- Which blood vessels transport the blood from the body parts to the heart?
- What is the instrument used by the doctor to check heartbeat?

Activity

Complete the following table

S.No	Parts	Function
1.	Heart	
2.	Blood Vessels	
3.	Blood	

Model Making

Make a model of heart with clay.



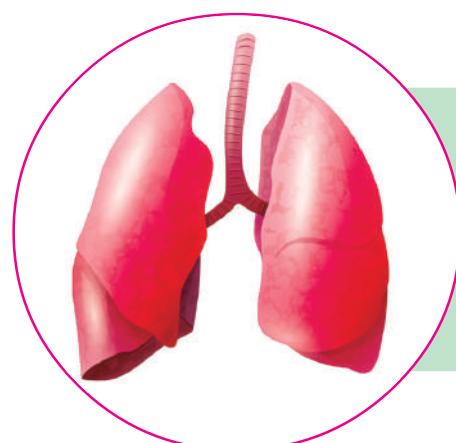
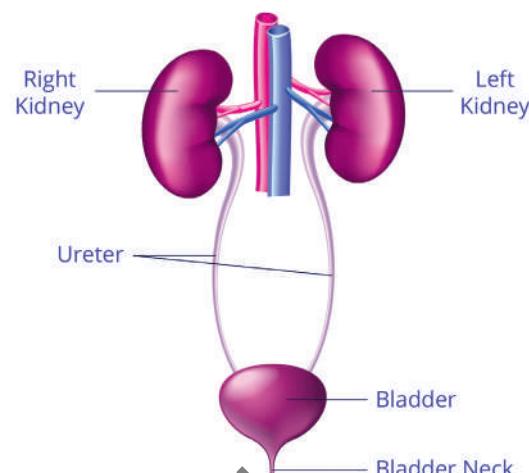
There are many filters in our body. They purify our blood by removing harmful substances.

Excretory System

After waking up in the morning, you feel like going to toilet. After playing, body becomes wet with sweat. Where does it come from? There is a purification mechanism in our body to filter impurities. The system which removes excess, unnecessary materials from the body fluids of an organism is called **Excretory system**. Our body has three major excretory organs like Kidneys, Lungs and Skin.

Kidneys

We have two kidneys located in the abdominal cavity, one on either side of the spine. Kidneys are bean shaped organs. They filter the blood and remove impurities from it. These impurities are sent out in the form of urine. Let us observe the picture and its parts.

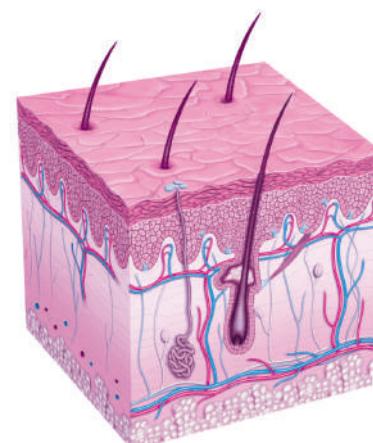


Lungs

Lungs are the spongy organs in our body. Lungs help in absorbing oxygen and releasing carbon dioxide from the blood. Carbon dioxide comes out during expiration process of breathing.

Skin

Skin is the biggest and visible excretory organ in our body. It contains sweat glands. It eliminates excess of water and salts from the body in the form of sweat. The sweat comes out through the smallest pores (sweat pores) in the skin.



Drink more water and eat fibrous food. They help to eliminate wastes from the body.

While walking along the road, we hear the sound of a bus horn. We immediately move aside. How are we able to move?

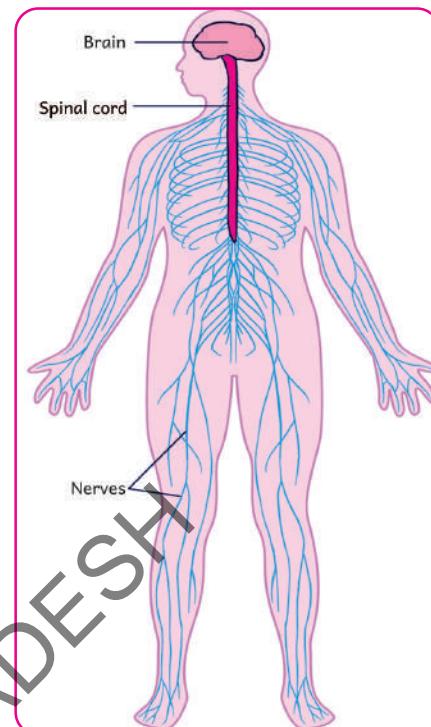


Our body has an amazing system that outperform a computer. What is it?

Nervous system

There is a perfect network connection from head to toe in our body. The brain has control over the body through nerves. The Brain, Spinal cord and the nerves are collectively called the **Nervous system**.

The nerves transmit messages from all parts of the body to the brain and from the brain to all the body parts. The eyes, ears, nose, tongue and the skin are our sensory organs and are connected to the brain through nerves. When our sense organs feel any sensation, the nerves attached to these organs transmit messages to the brain. The brain identifies different types of messages and helps us understand what we see, hear, smell, taste and touch.



We can enjoy the colours of a butterfly, song of a cuckoo, fragrance of a rose and softness of green grass only because of the effective functioning of the nervous system.

Our body is an amazing machine. All the systems in our body have to work together to keep us healthy. The digestive system digests the food. The respiratory system provides oxygen. The circulatory system transports oxygen and nutrients to all the parts of the body and the excretory system collects waste products from all the parts and send them out. The nervous system makes sure all the systems work and respond properly.

We will learn about other systems present in our body in the higher classes.



Key words

organ, organ system, skull, ribs, bones, digestion, muscle, heart, blood, brain, nerves, lungs, kidney



What we have learnt

- Our body is like a machine.
- Our body consists of external organs and internal organs
- A group of organs working together to perform a common work is called an organ system.
- Food we eat is digested in the stomach and small intestine.
- Energy is released in respiration.
- The inhalation and exhalation of air is called breathing.
- The heart has four chambers and circulates blood to all parts of the body.
- The skin, lungs, kidneys, and liver are the human excretory organs.
- The brain, spinal cord and nerves control the functions of body parts.



Improve your Learning

I. Conceptual understanding

1. Name the parts of the circulatory system.
2. Which system is responsible for our body's movement?
3. What is inhalation and what is exhalation?

II. Questioning and hypothesis

4. If you have a chance to meet a doctor (cardiologist), what type of questions would you ask about the heart?

III. Experiments and field observations

5. Place your hand on the heart and feel the heartbeat carefully. Run for some time and feel it again. Do you find any difference? Write the difference with reasons.

IV. Information skills and projects

6. Visit a doctor or health volunteer near by and ask the functions of vital organs. Make a brief note.

V. Drawing and model making

7. Draw the following on a chart. Label them and display them in the classroom.
i) Digestive System ii) Excretory system

VI. Appreciation, values, application to daily life, biodiversity

8. What amazes you in these body parts? Write down.

Chapter 5

Agriculture

LEARNING OUTCOMES:

Pupils will be able to

- know the life cycle of a plant.
- understand the various agricultural practices.
- identify the traditional and modern tools of agriculture.
- explain the life cycles of a seed, caterpillar and a frog.
- understand the importance of eating healthy food.



Do you eat Mid-day meal given in your schools daily?
Have you seen your classmates wasting food during lunch?

Food is important and there are many people starving without food. It takes lot of effort to cultivate and supply food.

The rice we eat is obtained from paddy. Do you know how paddy is grown? There are different phases in the cultivation of paddy. They plough, weed, water, transplant, fertilize, protect the crop and store the grains.

Let us Know - Field to Plate

How hard a farmer works to bring food to our plate! Look at the different stages in cultivation of paddy.



Ploughing the field

1. Farmers first prepare the field for cultivation. They plough the fields with bullocks and tractors.



Leveling

2. The field is filled with water and has to be leveled for plantation.



Transplantation

3. Farmers bring seedlings from paddy blocks and transplant them in the field.



Watering

4. Paddy requires water in a large scale. Hence watering the field is done more frequently.



Fertilizing

5. Plants get nutrients from soil. Farmers use compost and fertilizers for better yield.



Crop protection

6. Usually, plants get affected by diseases. They destroy the crops. To avoid this, farmers use pesticides.



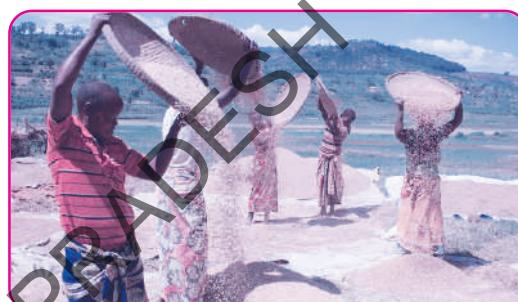
Harvesting

7. After ripening the crop paddy is harvested.



Threshing

8. After harvesting the paddy is dried for few days. Grains are separated from the straw by threshing.



Winnowing

9. Grains and husk are separated by winnowing.



Storing

10. The paddy is packed in gunny bags and stored in a godown.



Milling

11. The paddy grain is milled and rice is obtained. That is how we get rice.

Activity

Arrange the stages of cultivation in a sequential order.











Farmers cultivate various types of crops. Ex: Maize, Jowar, Cotton, Turmeric chilli etc., each crop has its own process of cultivation.



Think and Discuss

- Are there any differences in the process of cultivation of paddy and cotton?

Irrigation

Supply of water to the field for cultivation is called irrigation. Water is the essential resource for paddy. Paddy is also known as water logged crop. Water is supplied in different ways. The supply of water to the fields for cultivation are four types. They are field irrigation, furrow irrigation, sprinkler irrigation and drip irrigation.

Field irrigation

Field irrigation is the supply of water to the field when the rainfall is not enough.



Furrow irrigation

Furrows and trenches are dug in the field and the water is supplied through channels in this irrigation.



Sprinkler irrigation

This is the method of supplying water in a controlled manner in a way similar to rain fall.



Drip irrigation

Water pipes have holes through which water drips in the soil. The water goes directly to the roots.



Think and Discuss

- Have you ever seen drip irrigation? Why was that method adopted?
- What are the uses of furrows? What happens if there are no furrows in fields?
- When you have little water resources in your area, which irrigation method you adopt ?
- What are the water saving methods of irrigation?

Tools used in Agriculture

Look at the following pictures.

Traditional tools of agriculture



Plough



Grape hoe



Rake



Sickle

Modern tools of agriculture



Paddy transplanter



Paddy cutting machine



Think and Discuss

- Is it good to use machines for cultivation? Give reasons.
- List the tools which farmers used in the olden days and at present?
- Name the hand tools used by farmers in cultivation?

Manures and Fertilizers

The growth and the productivity of plant depends on the fertility of the soil. The use of fertilizers enhances the growth and production of the crops. Farmers are suggested to use natural fertilizers such as compost, remains of plants, cow dung, excreta of animals etc., because chemical fertilizers remain in the soil and degrade the soil fertility.



How are agriculture and animal rearing related to each other ?

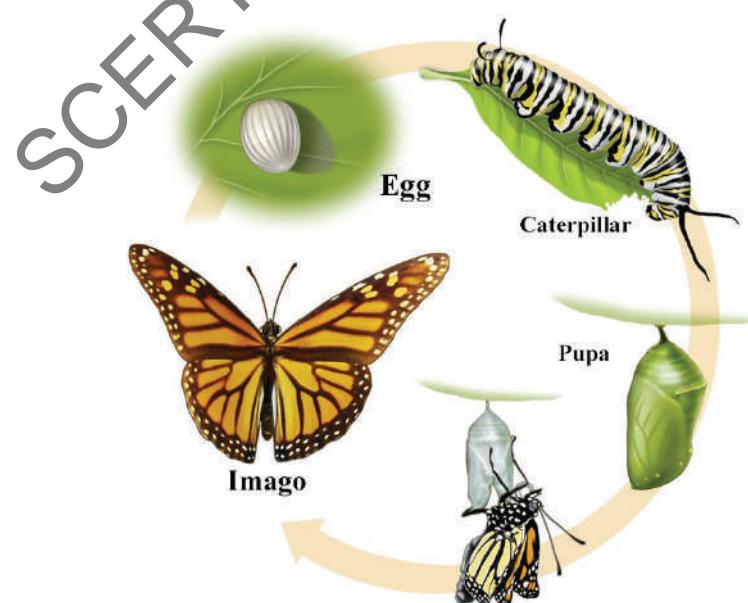
Crop protection

Crops should be protected from harmful insects, pests and diseases. Crops also need to be protected from animals.



You may see some caterpillars crawl on leaves.

The caterpillar grows up, becomes a moth and damages the crop. The caterpillar passes through different stages and it damages the crop. But the insects like butterflies, bees etc., play an important role as they help in pollination. Let us see the life cycle of a butterfly.



Life cycle of a Butterfly



Think and Discuss

- If there are no butterflies and bees, what will happen?

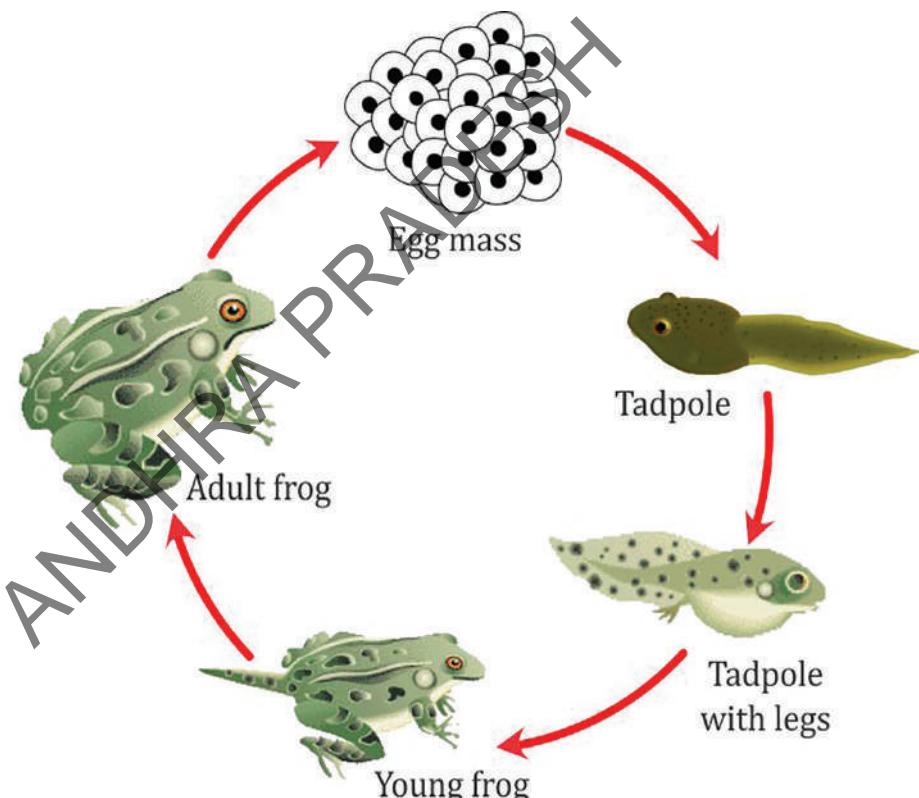


In the paddy field, you may observe little fish like organisms. Are they real fish?

No, they are not fish. They are the tadpoles. They grow and become frogs.

Let us see the life cycle of the frog.

Frogs when they are young as tadpoles, they feed on algae and helps in keeping the water clean. When they grow into frog they feed on insects which helps to keep the area free from bugs.



Life cycle of a Frog



Do You Know

Frogs and butterflies are good indicators of environmental damage. They are extremely sensitive to chemical pollution. The usage of pesticides is damaging their existence. If they are not preserved, we will damage the plant eco-systems and ultimately lead to disconnection of food chain. Every creature in nature is a role model to man.



Scare crow



Spraying pesticides

Pesticides are used to protect the crops from the pests. Indiscriminate use of pesticides is harmful to the environment.



Scare crow is one type of method for crop protection.

Think and Discuss

- How does a farmer protect his crops in your village?
- Visit a nearby field. List the insects and animals that damage the crop.

Organic Farming

To get high yield, farmers use chemical fertilizers and pesticides indiscriminately. These products cause diseases like cancer. So, farmers are advised to follow organic farming methods. Organic farming is a method of crop and livestock production that involves natural and conventional ways of farming. Farmers use organic manure such as cattle waste, vermicompost, oil cakes and biological wastes. This is also called Zero Budget Natural Farming (ZBNF).

Organic farming is better for environment. Organic farming practice reduce pollution, conserve water, reduce soil erosion, increase soil fertility and use less energy.

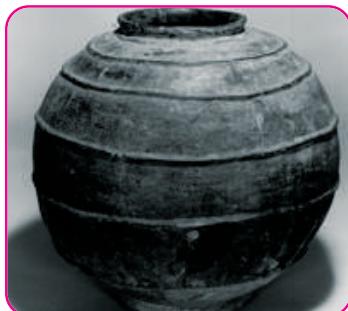




Do you know the traditional storing methods of grains?

The grains are dried under sunlight and then stored in well-ventilated rooms. Pesticides are sprayed in and around the place before storing. They should be placed on an elevated structure to prevent the insects and rats from entering.

Traditional storage methods



Modern storage methods



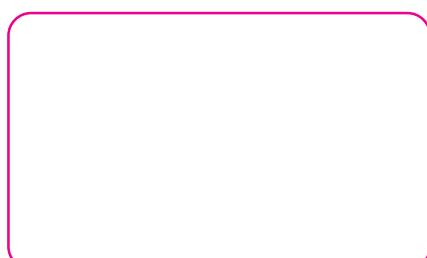
Godown / Ware house



Cold storage

Activity

Draw the pictures of spade, sickle and plough and write their uses



Let us Do



What are the traditional methods of storing? Ask your parents, collect the information and present it in the class room.

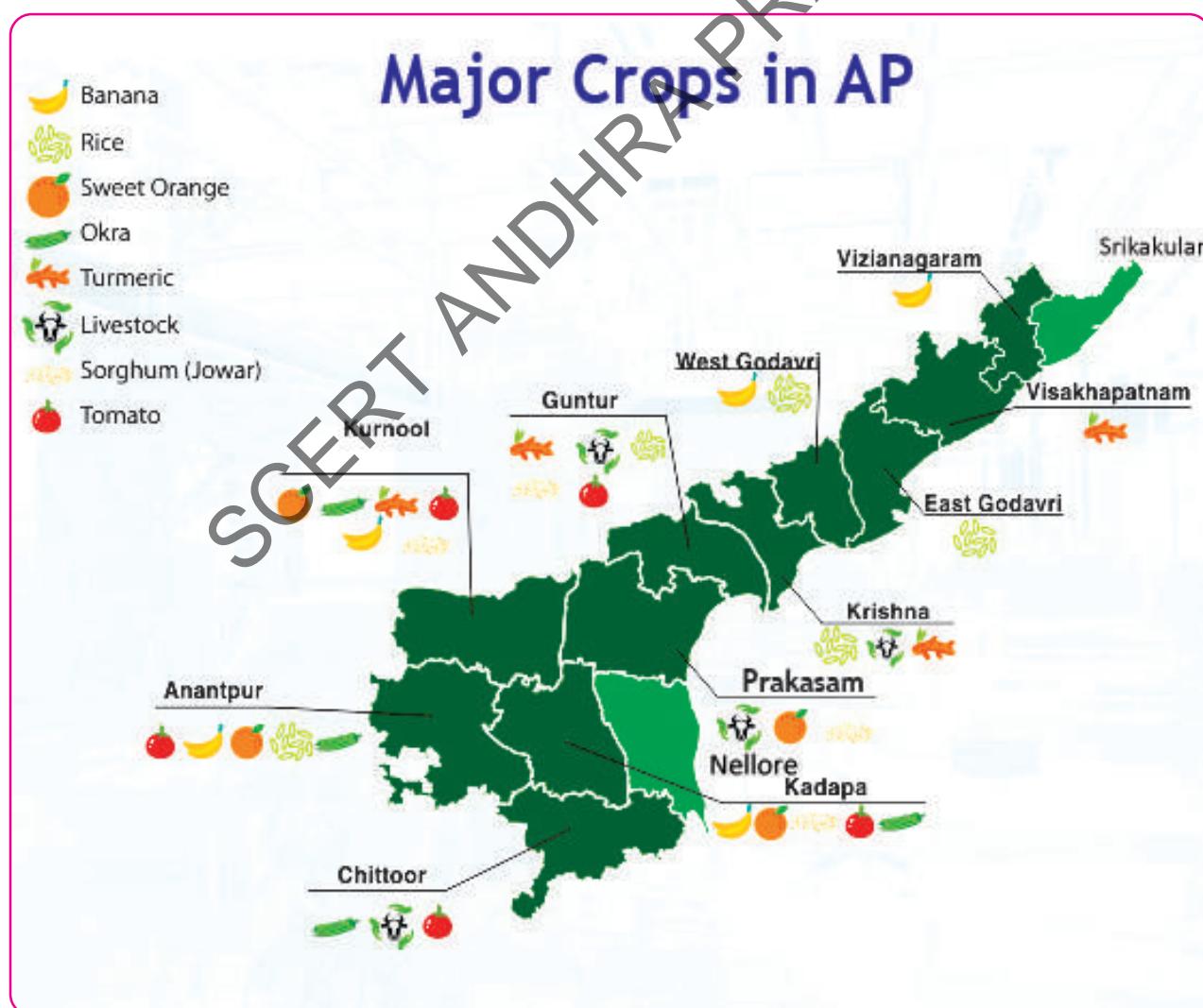


Name the crop which is cultivated in majority of the districts in Andhra Pradesh.

Crops in our state

Rice is the major food crop in our state. Agriculture is the main occupation of about 62% of the people. Jowar, bajra, maize, ragi, small millets, pulses, tobacco, cotton and sugarcane are the important crops of our state.

Observe the map of Andhra Pradesh and list the crops in each district.



S.No	Name of the district	Crops
1	Anantapur	
2	Chittoor	
3	East Godavari	
4	Guntur	
5	YSR Kadapa district	
6	Krishna	
7	Kurnool	
8	Nellore	
9	Prakasam	
10	Srikakulam	
11	Visakhapatnam	
12	Vizianagaram	
13	West Godavari	



Think and Discuss

- What are the crops cultivated in your village?
- What are the crops mentioned in the map?
- List out the crops which grow in your district?
- What are the major crops cultivated in our state?

Cultivation of cereals

Foxtail millets (Korralu), Browntop millets (Andu Korralu), Little millets (Saamalu), Kodo millets (Aarikelu), Barnyard millets (Oodhalu) etc., are the millets grown in our state. We should eat all types of millets along with rice. India is the second largest producer of rice, wheat and other cereals.



Do you know which one is a healthy food?

In class-3, we learnt that we get food from plants and animals. Now let us learn how does the food keep us healthy. The food we eat is the source of our energy.



Let us Do



Let us see what Sreenu, Kusuma and Chandu eat everyday and how it helps them to keep themselves fit and strong.

Sreenu eats rice with chutney or powders made with pulses like groundnuts or Bengal gram (Palli podi or Kandi podi) with oil or ghee. Sometimes he eats roadside food.

Kusuma eats vegetables, eggs, fruits and millets. She takes sprouts of dry peas, chick-peas(senagalu) or lentils. She also drink gruel (bataneelu), ragi, seeds of sesame and groundnuts.



Chandu loves to eat biscuits, ice-creams, noodles, food cooked in hotels and streets. He does not like to eat rice, vegetables or fruits.



Who among the above eats good food?



Think and Discuss

- You have read the eating habits of Sreenu, Kusuma and Chandu. What do you eat daily share it with your friends?

Our health depends on the food we eat. It should contain carbohydrates, proteins, fats, minerals and vitamins.

Energy giving food

Carbohydrates give us energy. So, we should take the food that gives us energy. Some of the energy giving food are rice, wheat, sorghum (jonnalu), maize, millets, potatoes, jaggery, sweet potatoes etc. These are the sources of carbohydrates.



Name the energy giving food items you eat at home.



Think and Discuss

- What do you eat at home (Rice, Wheat or Jowar)?
- Name the food item you can prepare using the above food grains.

The food that helps growth

Green gram, chick-peas, black gram, bengal gram, peas, lentils, pulses, eggs and meat are rich source of proteins and they help us to grow stronger by giving lot of energy.



Think and Discuss

Name the pulses you use at home.

- What happens if you don't take protein rich food like pulses and cereals?
- How does the food help us to grow healthy?
- Ragi sangati, Jonna Roti, Palli chikki are also nutritious food.

Healthy food

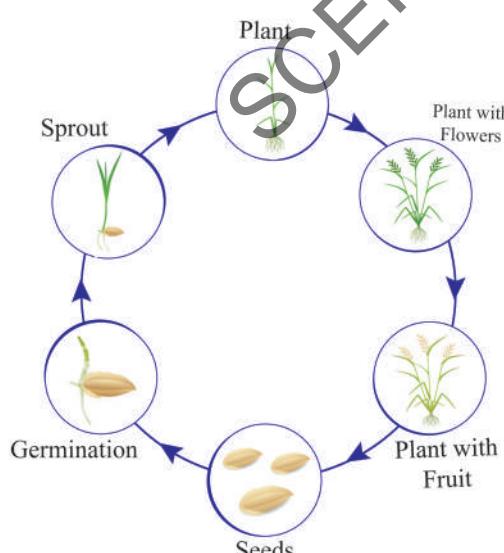
We maintain health by eating fruits, vegetables, greens, sprouts and fermented food like idly, dosa etc. They protect us from diseases.

Do you know food which has all nutrients in correct proportion is called balanced food or balanced diet.

Good food

1. We should eat the food that contains rice, pulses, leafy vegetables, fruits and eggs.
2. If you do not take good food, you are likely to become weak and sick. It affects your day to day activities like learning and playing.
3. We should eat seasonally available vegetables and fruits.

Plants have to undergo certain stages of life. Let us discuss this life cycle.



Life cycle of Rice plant

To produce one kilo rice 3000 to 5000 litres of water is needed.



Do You Know

Once in a while in life you need a doctor, a lawyer, a police man or may be a preacher. But every day, three times a day, you need a farmer. **Farmers are the world's ecosystem managers and food producers.**



Key words

stages of cultivation, irrigation methods, traditional and modern agricultural tools fertilizers, manure, crop protection, storing grains, life cycle of a plant



What we have learnt

- Preparation of field, transplantation, watering, fertilizing, crop protection, harvesting, threshing, winnowing, storing and milling are the different stages of cultivation.
- Field irrigation, furrow irrigation, sprinkler irrigation and drip irrigation are the irrigation methods.
- Farmers use modern and traditional tools in the cultivation of crops.
- Farmers use bio and chemical fertilizers to increase the production of the crop.
- Farmers use pesticides, fencing, scare crow etc., for protecting their crop.
- Farmers use traditional and modern methods to store agricultural products.
- We should eat healthy food.
- Food gives energy and good health.



Improve your Learning

I. Conceptual understanding

- What is cultivation?
- Is it good to use chemical fertilizers and pesticides? Why?
- What are the advantages of preserving food grains?

II. Questioning and hypothesis

- What questions would you ask a farmer in your village to know about paddy cultivation?

III. Experiments and field based observations

- Sow the seeds of coriander or fenugreek nut in your garden at home. Observe the growth of the plants for two weeks. Measure and record the height of the plant in your note book.

IV. Information skills and projects

6. Meet some farmers in your locality and collect the following information and fill the table.



S.No.	Name of the farmer	Growing crops

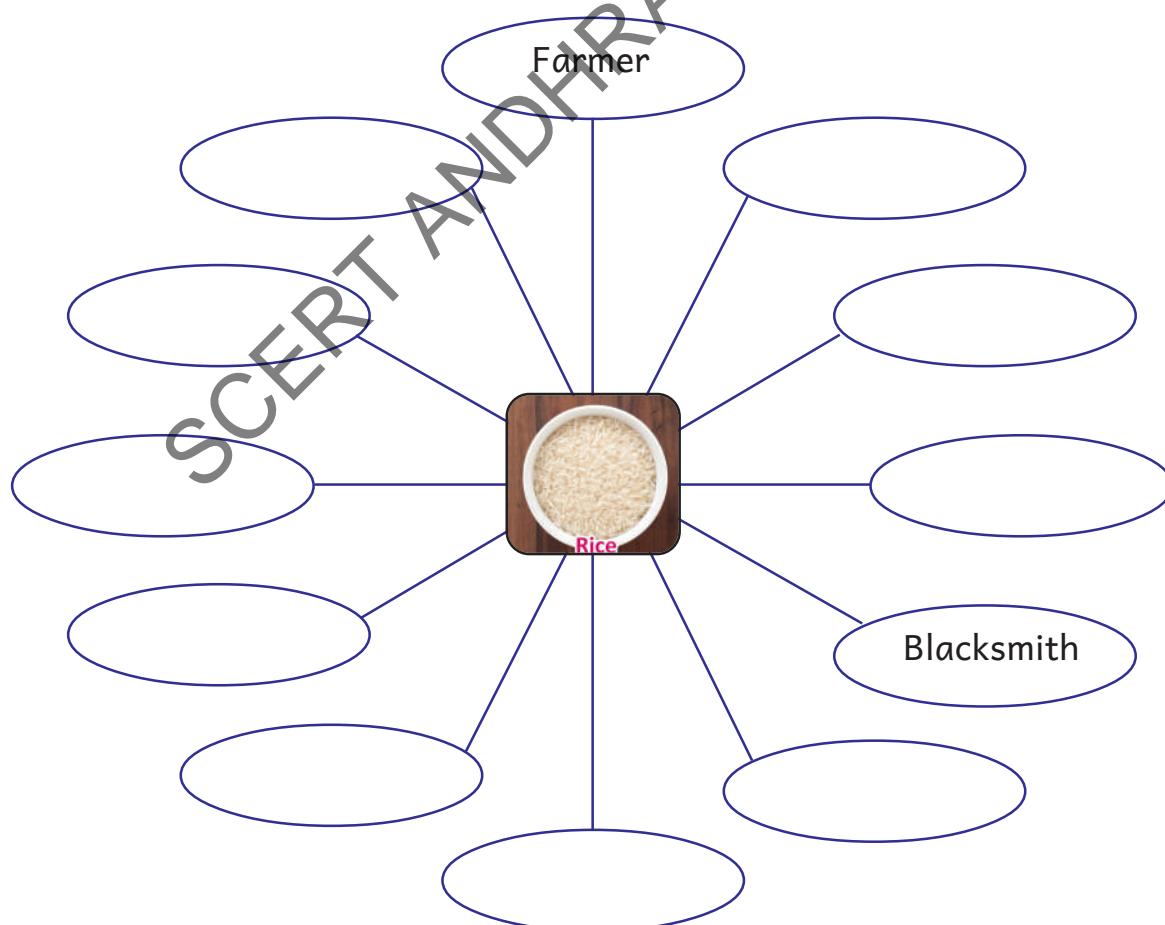
V. Drawing pictures and mapping skills

7. Draw and label life cycle of butterfly and frog.

VI. Appreciation

8. Grow micro greens of green gram, mustard, black gram, millets, sesame etc., in paper cups and prepare delicious food items with the help of your mother.

Persons and institutions behind the rice we eat



Chapter 6

Every drop is Precious



LEARNING OUTCOMES:

Pupils will be able to

- explain the use of water storage units / reservoirs in our surroundings.
- explain the story of river Krishna.
- identify the reasons behind river pollution and its adverse effects.

Water Resources

Tanks, wells, borewells are the main water resources in our villages. We know that rain water is the source of water bodies. We build tanks to store rain water. In the same way river water is stored in reservoirs by constructing dams.

Dams

A dam is a barrier constructed to hold the backwaters and to raise its level by forming a reservoir. It is used to generate electricity and as water resource. Dams are usually constructed to store water across the rivers, which is used for a variety of purposes such as drinking, irrigation and power generation etc.

Dams provide a range of economic, environmental and social benefits. They include flood control, water supply, hydro electrical power, waste management, river navigation animal habitat. Dams also provide prime recreational facilities like boating, swimming etc. Krishna and Godavari are the major rivers in our state. Some major, medium and minor projects are built across the rivers.

Godavari, Krishna, Vamsadhara, Nagavali and Pennar are rivers, Pulichintala, Teluguganga, Thotapalli barrage, Kandaleru reservoir and Veligonda are balancing reservoirs. They are mainly meant for agriculture and drinking purposes. Nagarjunasagar and Srisailam dams are multipurpose dams built across the river Krishna. Sir Arthur Thomas Cotton barrage is built across the river Godavari at Dowleswaram.



Do You Know

Dowleswaram barrage

Sir Arthur Thomas Cotton a British irrigation engineer, built a barrage across the river Godavari between Dowleswaram of East Godavari district and Vijjeswaram of West Godavari district in Andhra Pradesh.



Let us know about the river Krishna

The river Krishna is one of the longest rivers in India. It is the fourth largest river in India. The river Krishna starts its journey from Mahabaleswar in the Western Ghats of Maharashtra. The river is almost 1400 kilometers long. The river is also called Krishnaveni. It is one of the major sources of irrigation in Maharashtra, Karnataka, Telangana and Andhra Pradesh. In our state, it flows through the districts of Kurnool, Guntur and Krishna.

Bhima, Gayatri, Ghataprabha, Koyna, Malaprabha, Munneru, Nira, Palem, Panchaganga, Tungabhadra, Vemna, Wyra rivers are the tributaries of Krishna river. Its flow partially separates the state of Telangana and Andhra Pradesh districts and finally merges in the Bay of Bengal at Hamsaladeevi, Krishna district.



Nagarjuna Sagar Dam

This dam is the largest multipurpose dam. It was built in 1967 across river Krishna at Nagarjuna konda between Guntur district of Andhra Pradesh and Nalgonda district of Telangana. The dam has canals. The right canal is named as the Jawahar canal and the left canal is named as Lalbahadur canal.



Prakasam Barrage

The Prakasam barrage is built across the river Krishna at Vijayawada. The barrage structure stretches about 1.2 km across Krishna and Guntur districts. It was opened in the year 1957 by Sri. Tanguturi Prakasam Pantulu, the first Chief Minister of combined state of Andhra Pradesh and was thus named after him as Prakasam barrage.

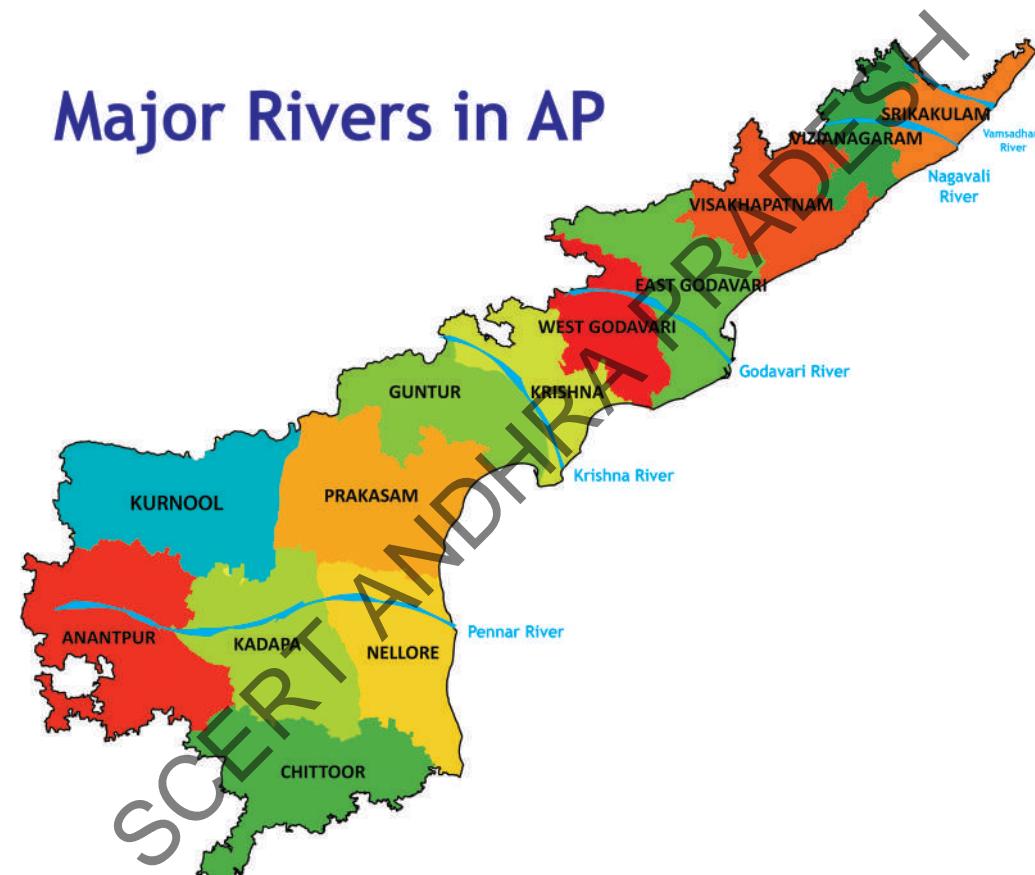


Where does the river Krishna start ?

- What are the districts through which river Krishna flows?
- Mahabaleswar, Alampur, Jogulaamba, Vijayawada, Kanaka Durga, Amaravati, Amaralingeswara are the holy places present on the banks of river Krishna.
- Sangli and Karad cities of Maharashtra and Vijayawada city of Andhra Pradesh are present on the banks of river Krishna.

Let us Do

Look at the AP map and fill in the table given below.



Name of the river	Districts in which the river flows	Location the river merges with sea



The river is the source of livelihood for the fishermen. Many people make their livelihood by catching fish in the river Krishna. They go on boats across the river and catch a variety of fishes, crabs or lobsters, using nets. They sell them in local markets.



Water transport

The river Krishna not only provides livelihood to the fishermen but also is a tourist spot. Many people take pleasure riding on ferries from Nagarjunasagar dam to Nagarjuna konda. A.P. tourism provides boat riding facility in the back-waters of Krishna at Srisailam. Bhavani island is one of the tourist spots near Vijayawada.



Think and Discuss

- How do boats float on water?
- What material is a boat made up of? Discuss with your teacher.

Experiment

Sink and Float

Do this and find out.

- Fill some water in a pot or a bucket.
- Collect the items given in the list ready.
- Drop each one in the water and examine.
- Before dropping an item, guess whether it will sink into the water or float on the water and write it in the given table.



Name of the items	I guessed before I did it	I saw when I did it
Iron nail		
Pencil		
Shuttle cock		
Soap cake		
Piece of chalk		
Metal spoon		
Leaf		

Can you make an object which sinks in water and an object which floats on water ? Discuss in the class.



Think and Discuss

Do you think there is a relation between rainfall and water transport?

Tragedy of Rivers

In addition to agriculture, many industries depend on the waters of river Krishna. There are many villages and towns located on the banks of it. Effluents from industries, dairy farms, agricultural wastes and wastes of the thermal power stations drain into the river polluting it. Long ago, people used to drink water from the river directly. Now the water is polluted and it is not useful for drinking purpose. The chemical wastes from the industries and power stations cause large scale damage to the living organisms in the river.



Think and Discuss

Discuss the causes of water pollution. What are its consequences? How do we prevent it?

Drought and floods

In 2009, the city of Kurnool was flooded by Tungabhadra. Several areas were submerged to more than 30 feet and it took more than three days for the water to recede completely from the city. Apart from loss of property, people faced severe health problems. In 2019 river Krishna was also flooded. Several areas in Krishna and Guntur districts were affected.



Why do rivers get flooded?

Heavy rains are the main cause for floods. Encroaching the catchment area of the rivers and canals with constructions is another cause of floods.

Floods occur when there is a heavy rainfall in the catchment area of the river. It is also likely that due to the rise of water level in the dams and reservoirs the gates are raised and the water flows into the sea. Hence, all the villages located in the islands (lanka) will be affected.

Drought occurs when there is very little or no rain. When the rain fall is delayed or scarce, it leads to drought. Let us read the experience of Nirmala Mary and Navaneetha.

I am Nirmala Mary from Pamullanka of Thotlavalluru mandal of Krishna district. Floods caused huge damage to our lives and property. Our huts were washed away. We lost all our cattle. The Government officials shifted us to flood rehabilitation centres. We stayed there for five days. We suffered from water borne diseases because of the contamination of water. It took us months to recover from the effects of flood.



I am Navaneetha from Ananthapuram district. I never saw heavy rain. Most of the agriculture lands have become non-cultivable because of drought. Hence people migrate to different places for livelihood.





Key words

livelihood, industry, thermal power stations, pollution, tourist sugar industry, drought, floods, bunk, tributaries, dams, aquatic life



What we have learnt

- Dams and reservoirs are constructed to store water in the reservoirs.
- River Krishna originates at Mahabaleswar of Maharashtra state.
- Water of the rivers are getting polluted due to human activities.
- Droughts, famine and floods have adverse effects on human life.



Improve your Learning

I. Conceptual Understanding

1. What are the uses of rivers?
2. What are the tributaries of river Krishna?
3. Write a brief note on water pollution.

II. Questioning and Hypothesis

4. What are the reasons for drying up of rivers?

III. Experiments and field observations

5. Collect samples of water from different water resources and discuss which water is suitable for drinking.

IV. Information skills and Project work

6. Collect information from people on how droughts or floods have affected their life.

V. Drawing pictures and mapping skills

7. Make a poster on how to "Save water" and display in your class.

VI. Appreciation

8. Write slogans on controlling the pollution of rivers.

Who Serves Us?

LEARNING OUTCOMES:

Pupils will be able to

- understand the duties of the local self Government.
- identify the levels of Government in our state.
- summarize the procedure involved in obtaining Government services.
- classify the central and state Government services.



Alluru of Kurnool district is the recipient of the Swachatthehi seva Puraskarams. It is inspiring to know the reasons why the village received the award. Let us see the different amenities in the village.

Alluru is a clean and green village. It has...

- Clean roads along with drainage system.
- Waste management system.
- Street lights working on solar power.
- Supply of safe drinking water
- A milk dairy established by the people
- Lots of plants.

People volunteered for the development of the village and donated money to meet the needs. People of Alluru village paid their taxes promptly. Hence the Government too extended its complete support to the people of Alluru.



Are any amenities provided in your village ?

To look into the welfare of the rural people local self-Governments were established.



There are many villages, towns and cities in the country. People need food, water, shelter, schools, hospitals, transport, electricity etc., to live comfortably. These services are provided to all the people in the country by the Government.

Government is the system to serve the people by providing the required facilities. In our country people elect our leaders to form the Government.

Let us observe the system of Government

We have three levels of Government in our country.

1. Local self Government
2. State Government
3. Central Government.

1. Local self Government

It refers to the Government at the local level which is in the village and cities.

a) Gram Panchayat

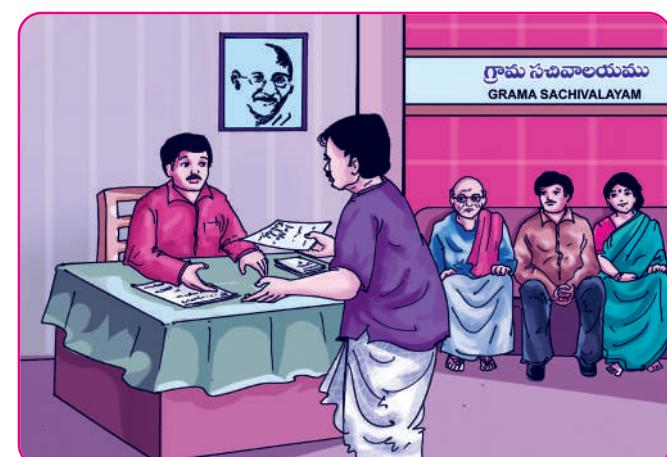
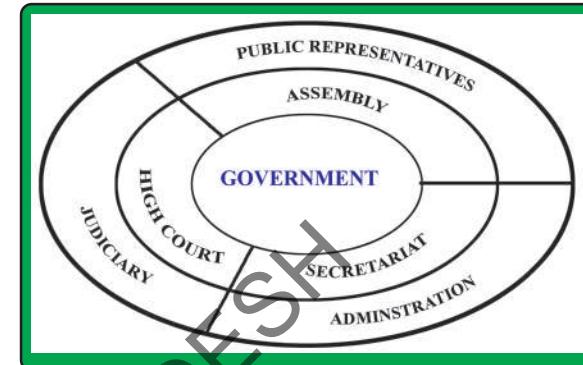
Gram Panchayat takes care of the needs of the people living in the village. Members of Gram Panchayat are elected by all the villagers who are above the age of 18 years. They are elected once in five years. The head of the Gram Panchayat is the Sarpanch. There is a school, hospital, bank and public institutions in the village, to serve the people. The voters of the village elect ward members and the sarpanch for a Grama Panchayat. The tenure of the sarpanch is five years.



Think and Discuss

- Have you ever visited Grama Panchayat at office?
- Discuss the functions of Grama Panchayat at your village.

Rajaiah lives in Lingapuram village. His occupation is farming and rearing animals. He supplies milk and makes a living. He wants to build a new house. He took a loan from the bank. He approached the Grama Sachivalayam to get electricity, water supply and drainage facilities. The village Secretariat employees provided all the facilities he needed.



What is Village Secretariat?

A team of people employed to look after the needs of the rural people with transparent services by the Government is a Village Secretariat. These are 11 Village Secretariat employees in every Grama Sachivalayam to provide services. You will learn more details in your higher classes.

Activity

Collect the following information about your Village Panchayat

- Name of the Panchayat _____
- Name of the Panchayat Sarpanch _____
- Name of the ward member _____
- Name of the Village Revenue Officer _____
- Name of the Village Secretary _____

b) Mandal Parishad

A group of villages form a Mandal. There are 676 mandals in our state. All the welfare and development activities will be carried out by the officers at mandal level. Mandal Parishad President is elected by the MPTC members. MPTC members are elected by the voters in the Mandal Parishad. The MPTC's tenure is 5 years. There are many public institutions to serve the people at mandal level.

What is your Mandal name?

Let us know about Mandal level officers and their duties.

Mandal Level Institutions	Activities
<p>Mandal Parishad office</p> 	<ul style="list-style-type: none">• It is headed by the Mandal Development Officer.• Providing Primary education.• Agriculture, cattle rearing, fish farming, poultry breeding and development.• Construction and repairs of roads and irrigation.• Providing safe drinking water, health, women and child welfare, sanitation etc.

Mandal Level Institutions	Activities
<h3>Police Station</h3> 	<ul style="list-style-type: none"> Headed by Station house officer (S.H.O) of police. Maintains the law and order. Receive complaints from the people, record them and respond immediately.
<h3>Mandal Thahsildar office</h3> 	<ul style="list-style-type: none"> Headed by Tahsildar, supervises the activities of the Village Revenue Officer. Receiving complaints from public and enquire about them. Ensures that all the welfare programmes reach the needy people along with MPDO. Issue caste and income certificates. Relieve people from bonded labour. Issuing of land pass books to farmers. Solve land related disputes. Conduct elections.
<h3>Primary Health Centre</h3> 	<ul style="list-style-type: none"> Headed by health officer, treating patients with common diseases everyday. Maintaining the sub-health centres and supervising its activities. Implements national health programmes in the mandal. Ensures safe delivery under mother-child welfare scheme.
<h3>Bank</h3> 	<ul style="list-style-type: none"> Headed by the Manager. Collecting deposits from people. Distribution of loans to needy people. Promote saving and digital transactions.

Mandal Level Institutions

Activities

Mandal Resource Centre



- Headed by Mandal Education Officer (MEO).
- Enrolment of all children in schools.
- Monitoring schools to provide quality education to all the enrolled children.
- Effective implementation of Mid-Day Meal programme in all schools and other children programme.

Veterinary Hospital



- Headed by Veterinary Doctor.
- Look after the health of all animals.
- Provides treatment to wounded animals.
- Identifies the diseases which are transmitted from animals to human beings and takes preventive measures.
- Educates the farmers on how to take care and give nutritious food to animals.

Activity

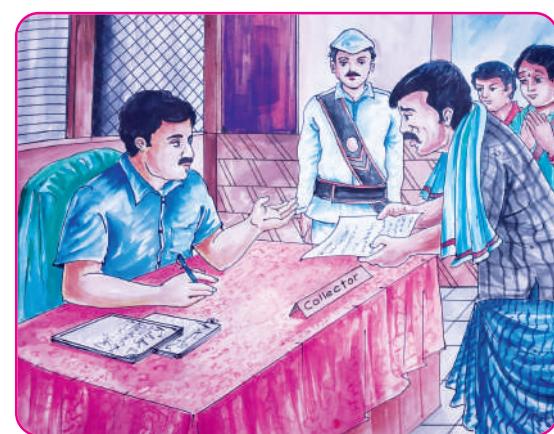
Write the names of your mandal,

1. Tahsildar _____
2. Mandal Parishad Development Officer_____
3. Mandal Parishad President_____
4. Mandal Educational Officer_____

Zilla Parishad

A group of mandals form a district. There are 13 districts in our state.

Zilla Parishad takes up various activities for the welfare of the people at district level. The voters of a mandal elect their respective ZPTC members. The ZPTC members elect the Zilla Parishad Chair Person. The District Collector looks after the functions of all public institutions in the district.



Activity

Visit the Collectorate office, meet your Collector and know the duties and responsibilities of Collector.

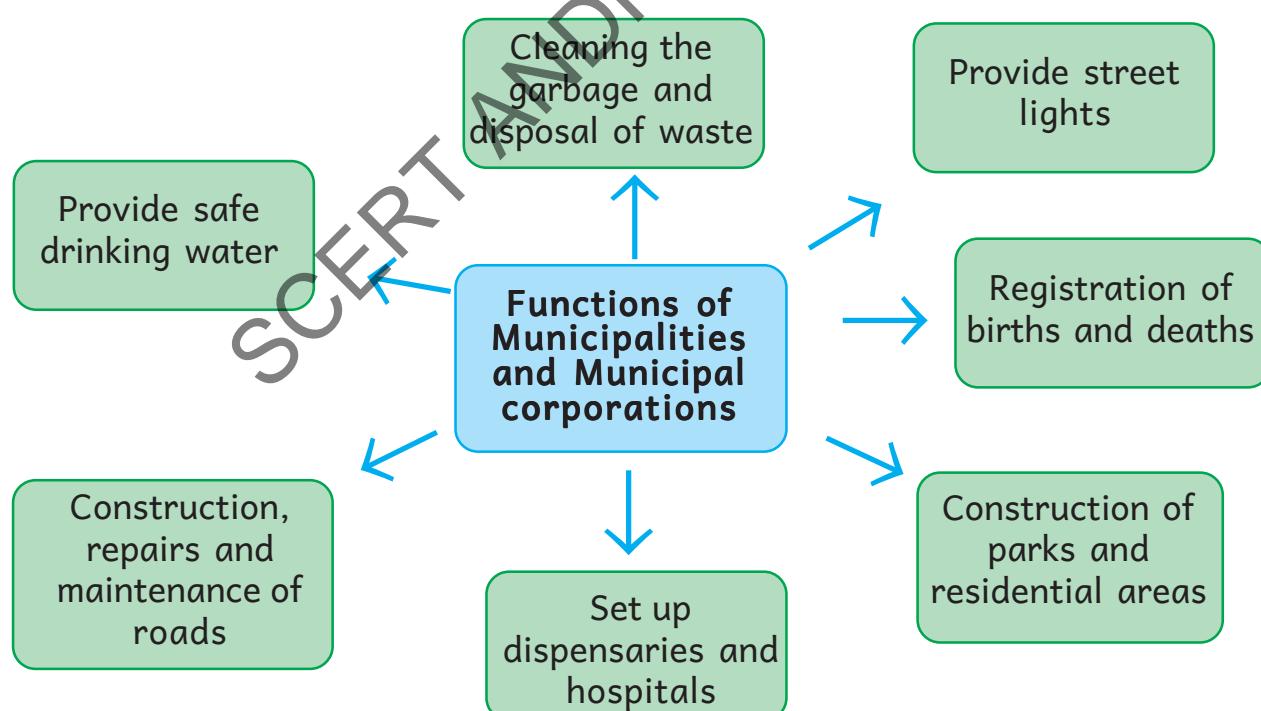
Activity

Write the names of your

1. Zilla Parishad chairperson _____
2. District Collector _____
3. ZPTC member _____

Municipalities and Municipal Corporation

In towns and cities, the local government bodies are called Municipalities and Municipal Corporations, respectively. Towns have Municipalities. Cities have Municipal Corporations. There are 74 Municipalities and 16 Municipal Corporations in our state. The municipality is headed by the Chairperson. Municipal Corporation is headed by Mayor. The municipality and municipal corporations perform similar functions.



I am Lakshmi. I clean and sweep the roads and streets. We wake up in the early hours and begin our work given to us. We clean the gutters and spray bleaching powder. We divide garbage into dry and wet waste and bio-degradable waste.



Let us know about the state and the central Governments.

State Government

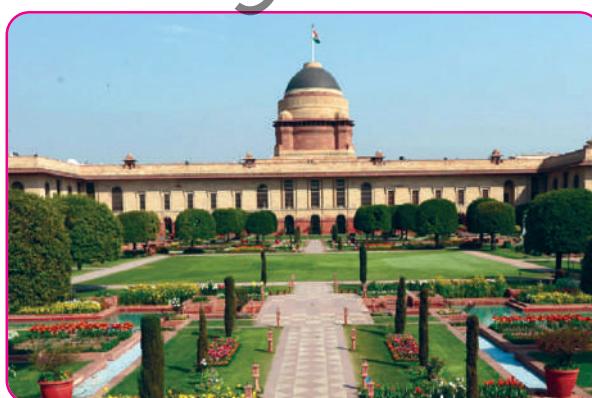
All the states have their own Government. Each State Government consists of Chief Minister and council of Ministers responsible for making laws. The Chief Minister appoints the Council of Ministers. The state Government takes the responsibilities of all the people in the state.



1. Name of the Governor _____
2. Name of the Chief Minister _____
3. Name of the Education Minister _____

Central Government

The President (Rashtrapathi) is the head of the Central Government. The President appoints the Prime Minister. The President also appoints Council of Ministers on the advice of the Prime minister. The Central Government offers various services such as defence, postal, railways, telecom, airport etc.



Rashtrapati Bhavan



Parliament Bhavan

The Judiciary

Judiciary is the one of the pillar of Democracy. High court is the highest judicial body in the state. Supreme Court is the highest judicial body in the country.

Public institutions – Public property

All the Government institutions are fulfilling the primary needs of the people.

In order to run all these institutions a lot of money is required for the payment of salaries to the employees and to meet other expenses. Public institutions are being run with our money. We pay money to the government in the form of different taxes. The same money is being used to meet the primary needs of the people. It is our property and we are responsible to protect these public properties for our future citizens. If we do not protect them, there will be no progress.



Key words

government, sarpanch, mandal parishad, public institution
collector, public property, assembly, village secretariat.



What we have learnt

- We have three levels of Government.
 1. Local self Government.
 2. State Government.
 3. Central Government.
- Local self Government provides all facilities to the people in the village and mandal level.
- Zilla parishad takes up various activities for the welfare of the people at district level.
- Municipalities and Municipal Corporations provide all facilities to the people in towns and cities respectively.
- State Government is responsible for welfare of the state.
- Central Government is responsible for various services such as defence, postal, railways, telecom, airport etc. and also to protect the internet of the country.



Improve your Learning



I. Conceptual understanding

1. What are the three levels of Government in India?
2. Mention 5 important functions of Gram Panchayat?
3. Which Mandal do you belong to? Mention the names of different Mandal level Officers?

II. Questioning and hypothesis

4. What questions would you ask the Village Secretary to get the information about the functions of Gram Panchayat?

III. Experiments and field observations

S.No.	Name of the Institution	Whether it is available in your village or not Yes / No
1.	Anganwadi centre	
2.	Primary school	
3.	Gramasachivalayam	
4.	Veterinary hospital	
5.	Primary Health Center (PHC)	
6.	Post office	
7.	Police station	
8.	Bank	

5. Collect the following information and fill in the table with correct answers.

IV. Information skills and projects

6. Talk to a sweeper working in panchayat office and write your observations.

V. Drawing and model making

7. Draw the map of your village and mark the institutions.

VI. Appreciation, values, application to daily life, biodiversity.

8. Your school is a public institution and it is a public property. What measures should you take to protect the school?

Let us see an Amazing World

Chapter 8

LEARNING OUTCOMES:

Pupils will be able to

- understand the need for an international transport.
- understand the import and export of the goods.
- recognize different means of transport of goods.
- understand the importance of tourism and seven wonders of the world.
- understand how communication and transport brings the entire world together to make it a global village



I am Saleem. I live at Rayachoti of YSR Kadapa District. My father is a mechanic. He is going to Saudi Arabia on work. He has taken a passport and Visa to go abroad. He has to board his flight at Visakhapatnam airport. So we are going to Visakhapatnam to see him off.

- Where is Saleem's father going to ?
- What is the mode of transport he is travelling by?
- How do we travel abroad?

Look at the following pictures.



Visakhapatnam International Airport



Krishnapatnam Port

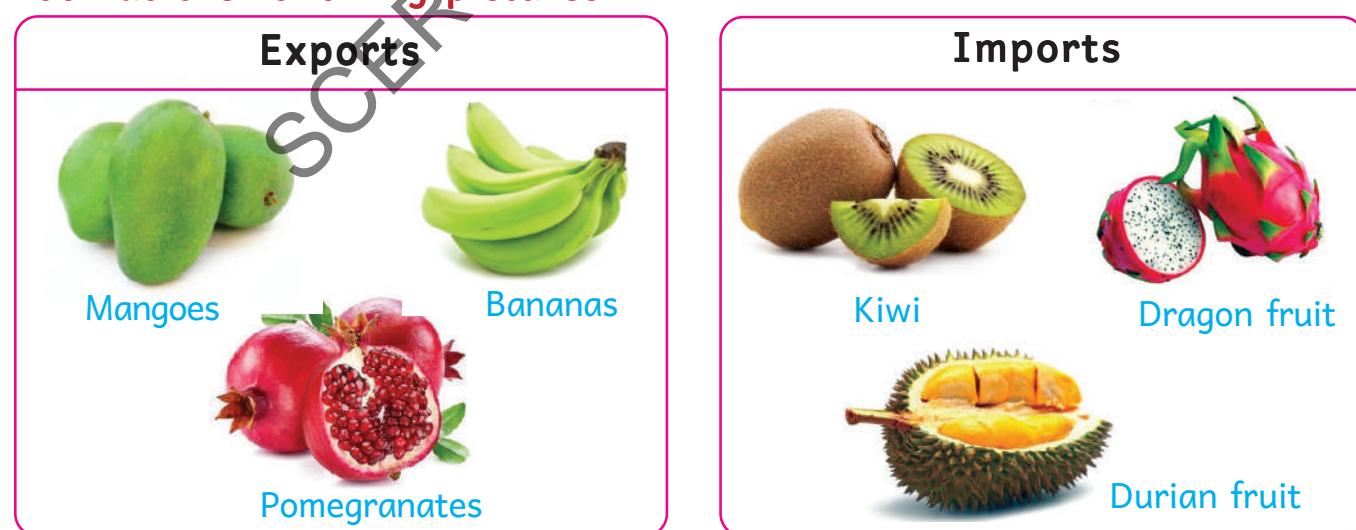
We use international transport to travel from one country to another. Air ways and water ways are the main ways to go abroad. Most of the people prefer to travel by aeroplane. Some people travel by ship as it is less expensive, but takes much time.

Why do we need international transport?



Different types of people travel abroad on different purposes like trade (business), employment, games, tourism and higher studies.

Look at the following pictures



Have you ever seen these fruits?

I am Ganapathi from Kinthali, Srikakulam Dist. Farmers in our village grow fruits and leafy vegetables. They carry the vegetables to the near-by town market by an auto. Some people sell them on a hand cart.



Activity

- Name the crops that are grown in your village.

- Do you consume the entire produce that is grown in your place? If not where is it sent to?

The products or goods which are in excess are sent to other places. This process is called Export. We get foreign currency through export which is helpful for one country's economic growth. We import the products we need from other places.

Activity

List the things which are imported to your village and also what is exported from your village to other places.

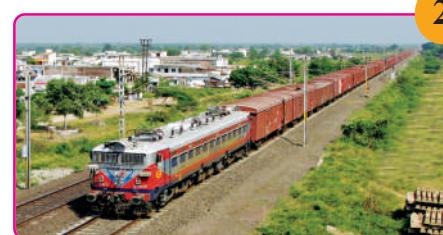
S.No	Name of the things	Export to	Import From	Way of Import

How are the goods supplied to different parts of our country?

Observe the following pictures and name them.



1



2



3



4



Think and Discuss

- What is the purpose of these modes of transport?
- Where do you see these modes of transport?
- Give one or two examples of products that are exported from your village or town.
- What are the vehicles used for transporting the goods to nearby places from your village?

There are certain vehicles for carrying goods. They carry goods from one place to another and also from one country to another by roadways, waterways, railways and airways. This kind of transport is safe.

Activity

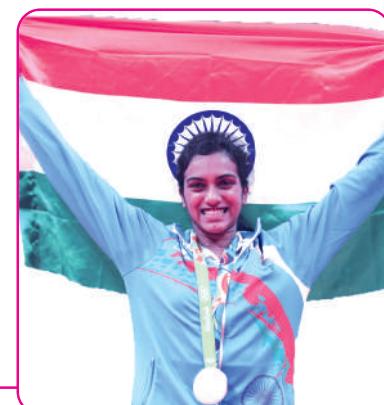
- Circle the vehicles used for the transport of goods.

cycle	bike	truck	train	camel	bullock cart
ships	cargo plane	wagons	trams	car	helicopter

Here we go round the world!

Can you identify the player in the picture?

She is Pusarla Venkata Sindhu, a famous Indian professional badminton player, a pride to our country. She is the first Indian woman to win silver medal in Olympics 2016 and a gold medal at the world championship in 2019. She has visited different places in the world such as Switzerland, Malaysia, Rio etc. The Government of India honoured her with the prestigious Padma Bhushan, Padmashri and Rajiv Khel Ratna awards. She has been honoured with the post of a Deputy Collector.



Dream Big - Work Hard- Achieve



Have you ever visited a tourist place? Which place did you visit?

I am Saloni. We visited Lambasingi in the month of December. It is also known as Andhra Kashmir. We enjoyed the journey in a train.

Activity

Collect and paste pictures of any monuments or architectural buildings in India or surroundings of your village. Prepare a scrap book with the following information. Include picture of a monument, name of the structure, location and other information

Global Village

Now-a-days we talk about a global village. You know there are so many countries in the world. Transport and communication unites the entire world into a village. So, we call the entire world a Global village. The internet has greatly influenced communication, reducing the world to a village. The distance has been reduced among the people. It has become quite reachable, connecting people from any place across the world.



Key words

international travel, business, import, export, tourism, cargo, global village



What we have learnt

- Air ways, water ways are the main ways to go abroad.
- Different vehicles are used for import and export of goods.
- People travel to different countries on the purpose of business, tourism and to participate in games.
- Transport and communication bring the entire world into a global village.
- World is called a global village because of easy transportation and communication.



Improve your Learning

I. Conceptual Understanding

1. Name the means of transport used to travel abroad.
2. Why do people travel abroad?
3. Explain the terms import and export?

II. Questioning and Hypothesis

4. What type of questions would you like to ask your mother about the availability of apples in your village?

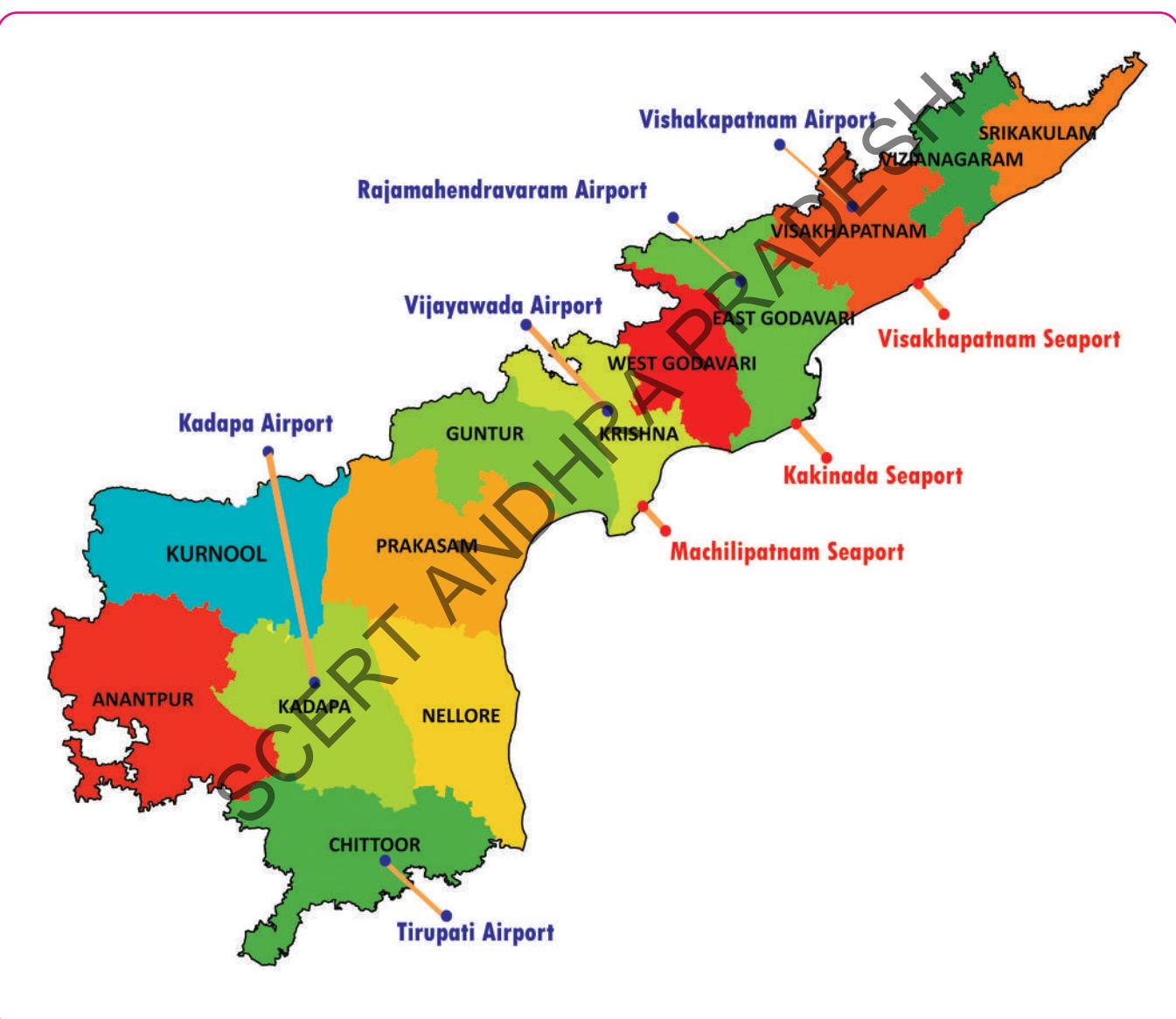
III. Experiments and field observations

5. Visit a nearby rice field and observe the process of exporting rice and prepare a report.
6. Collect the information about important tourism places around your village or town and prepare an album.



V. Drawing pictures and mapping skills

7. Identify and label different Sea Ports and Airports on the map of Andhra Pradesh.



VI. Appreciation

8. What is the advantage of Airport?

Alert Today Alive Tomorrow



LEARNING OUTCOMES:

Pupils will be able to

- understand different safety measures to be followed at home, at school and on the road.
- identify the causes for accidents on roads and in water, know about boat accidents.
- understand the importance and uses of the first aid box in the school.
- understand the importance of emergency services like 108, 104 and 100.
- recognize the services of disaster management to the people in need.

Every day we perform different activities. Some in a hurry, some carelessly and some without taking any precautions. In such cases we are likely to be injured. So, we must follow certain safety measures.

Let us observe the following pictures



What do you observe in these pictures? Are these safe?

Safety measures

Travelling in an overloaded auto, sitting on the top of a bus, speeding on bikes and travelling on the foot board of a bus are dangerous. It may result in road accidents. The measures taken to avoid the accidents are known as safety measures. We have to follow the safety measures to avoid accidents. Let us know the safety measures we have to follow at different places. Unexpected incidents that occur causing injuries to someone are called accidents.



Think and Discuss

Look at the picture given below and discuss with your friends.



Sharpening the pencil with a knife



playing with match sticks



switching on the damaged switch board



lightening the gas stove

Safety measures at home

- Handle sharp objects like blades, needles, scissors and knives carefully.
- Do not play with matchsticks. It may cause a fire accident.
- Do not try to use the switches where there are no proper insulations.
- Use rubber gloves when you are working with electric appliances to save yourself from electric shocks.
- Do not put play materials in the walking area of your home. You may trip over them.

Activity

Divide the class into 4-5 groups. Ask them to write some precautions to be taken while using the particular things like knife, blade, screw driver etc.

E.g.:

Group - 1

Group - 2

Group - 3

Precautions while using the knife	Precautions while using the blade	Precautions while using the screwdriver



Think and Discuss

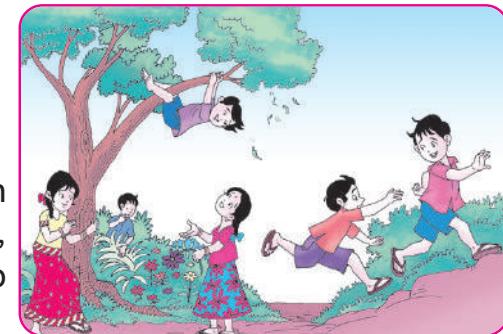
- Why should electricians wear hand gloves made of rubber?

School safety

Look at the picture

- What do you see in this picture?
- What happens when we do like this?

Generally some children always quarrel with each other, and they jump over the desks, jump from the trees, slide on a railing etc., which proves to be dangerous. To avoid this we have to follow some rules in the school.



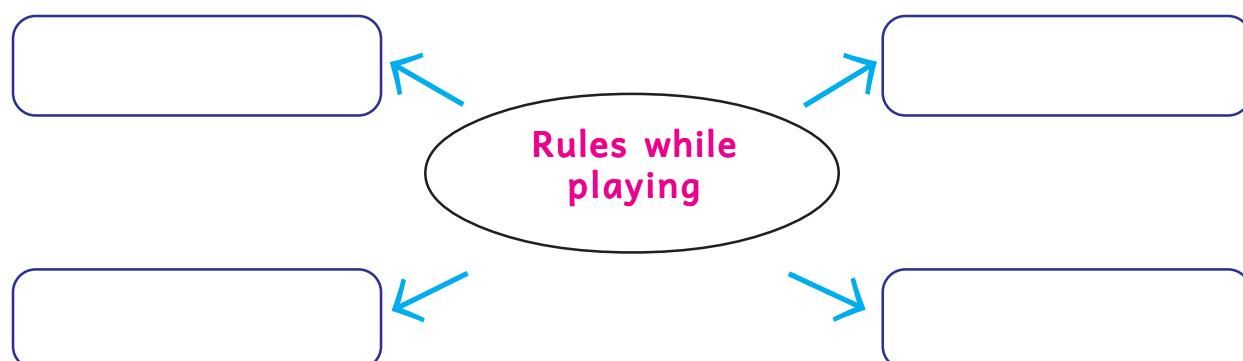
Do's	Don'ts
Talk with well known persons.	Do not talk with strangers or eat anything given by them.
Throw the waste in the bin.	Do not push each other while playing.
If you lose your way, stay where you are and inform your elders.	Do not climb over the fence or windows or ventilators etc in the class room.
Use sharpeners to sharpen the pencils instead of a blade.	Do not go out side to play at bushes, roads, railwaytracks and ponds.
Follow queue while going to the prayer or to meals and while dispersing from assembly or class.	Do not touch the acid bottles kept in the laboratory.

Rules to be followed while playing

- Follow the rules of the game sincerely.
- Do not push each other while walking or playing.
- Cross the roads with the help of elders or check on both sides of the road for vehicle and then cross if its free.

Activity

Add some more to these...



Safety plan for Public holidays

Every school in holidays must have a proper plan for the safety of the pupil. They must follow these measures to avoid accidents.



Should possess fire extinguishers to avoid fire accidents.



Clean the water tank regularly, repair leakages immediately.



Replace damaged switch boards. Fix switch boards at a height of more than 6 feet on the wall.



Construct a compound wall for the security of the children.



Construct a ramp for people with disability.



Think and Discuss

- Do you have safety posters displayed on the walls in your schools ?
- Discuss with your friends.

Road safety

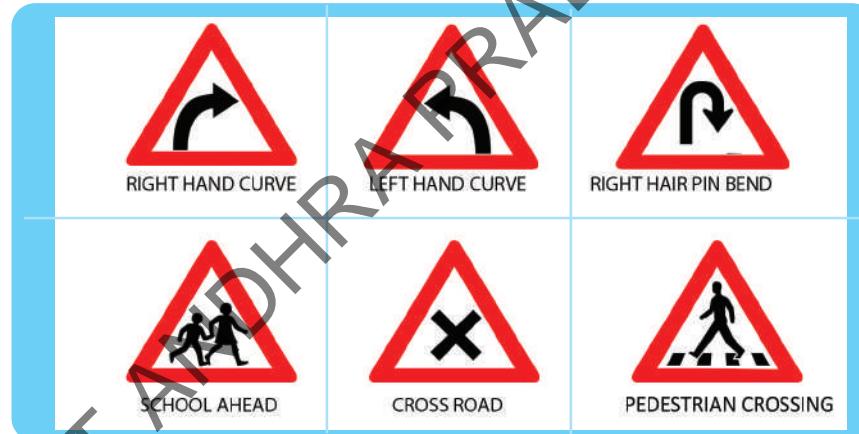
Have you ever seen the following cautions in the bus?

Do not put your hands out of the windows.

Journey on a foot board is dangerous

What do the cautions indicate?

Traffic Signals



Look at these signals. Do you know about them?

Discuss the instructions given under each signal. We should be aware of the traffic rules to avoid accidents.

We have discussed different causes for road accidents. To avoid these accidents one has to follow these rules.

- Follow road rules and traffic signals.
- Do use foot path for walking.
- Do use zebra crossing for crossing the road.
- Do not play on roads and junctions.
- Do not jump from the running vehicles.
- Do not travel on the foot board of a bus.
- Do not keep your head and hands out of the window of the vehicles while travelling.
- Do wear seat belt while driving a car.
- Wear a helmet while driving.

Activity

Think and Say

What Safety measures we should follow in different places.

E.g: Factories, Market, Festivals, Shopping malls, Cinema halls



How does an accident occur?

Accidents

Usually accidents occur due to human negligence and carelessness. Let's know about this.

Accidents - Measures

1. Road accidents.

Look at the given pictures



- Do you accept riding as shown in the picture? Why?
 - Usually accidents happen due to the following reasons.
1. Over speed
 2. Careless driving
 3. Talking over the mobile while driving
 4. Passenger vehicles being overloaded.
 5. Triple riding or more than that on two wheelers.
 6. Drunk and driving.
 7. Not stopping at signal.



What should we do to prevent road accidents?



Think and Discuss

Hello!

Don't forget me



I protect you in
your journey

Activity

Add some more to these with the help of your teacher. Fill in the boxes given



Water Hazards

Look at the following picture

Usually during summer season, children particularly in rural areas, go to river banks, ponds and wells to swim. Some of them who do not know swimming too try to swim. In such cases they drown in water. Such accidents happen quite often.



Safety Measures while swimming

- Should go to water sources along with elders who know swimming.
- Should learn swimming.
- Should swim with proper guidance.
- Should not go into the deep waters.

You may add some more



Do You Know

Boat Accidents

We are reading about boat accidents in newspapers regularly.

- Why do boat accidents happen?

The most frequent causes of boat accidents are because of inexperienced drivers, equipment failure, rip currents, over loading the boats etc.



Safety Measures while Boat travel

- Do not travel across the river when it is flooded.
- Use safety jackets.
- Do not play while travelling by boat.

First Aid

What did your mother do in the following situations?

- When the hand got burnt while cooking?
- When you got injured while playing?
- When dust or something fell into the eyes?



Generally your mother pour water on the burning part of the body and turmeric powder on the wound. She blows into the eye to clear the dust. This type of action is called first aid. It reduces the pain and avoids further problems.

- What should we do to the victims in the accident?
- We may get hurt sometimes when we fall from a bicycle or while playing or we may get knocked down by a car or a bus. We need to give immediate treatment to the victim before he/she is moved to a hospital. It is called **First aid**.

What does a first aid box comprise?

- Have you ever observed this symbol () any where while travelling in a bus?

The first aid box consists of cotton, tincture iodine, ointment, medicated plasters, scissors, bandage cloth, anti septic cream, petroleum jelly, soap and a thermometer.

a) First aid to wounds:

1. First clean the wound with soap water or antiseptic lotion using wet cotton.
2. Apply tincture iodine or anti septic cream to the wound with cotton and cover it with a gauge cloth and put a plaster on the cloth.



b) First aid to burns:

1. Keep the burnt part under cold, running water for a while.
2. If the burns are too severe, ointment must be applied.
3. Never pinch the blisters, never tie a bandage, never rub, and never apply ice.

c) Dog bite:

1. Wash the bitten area with soap or antiseptic lotion.
2. Do not cover the wound with a cloth or bandage.



d) Snake bite:

1. First observe the bitten part and identify whether the snake is poisonous or not.
2. Normally a person bitten by a snake can collapse out of fear. We should take steps to reduce his fear.
3. Should hold or fasten with a cloth or rope above the bitten part to avoid the poison spreading to the other parts of the body.
4. Take care that the person does not become unconscious.
5. Immediately take the victim to the doctor.



e) Scorpion bite:

1. Clean the wound with mild soap water.
2. Apply a cool compress on to the affected area to reduce the pain.
3. Immediately take the victim to the doctor.



f) Drowning in water:

Normally the person who drowns in the water swallows much water into the stomach and he will become unconscious. The breathing passage gets closed with water.



1. Squeeze the water out of the person's stomach by applying pressure on the stomach with both the hands.
2. Do mouth to mouth breathing, only if trained. Strongly breathe four times into the mouth of the victim. It clears the air passage and makes the lungs active again.

Do This

My First Aid box

- Take a plastic box with lid. Wash and dry it.
- Take a white paper and draw + Mark with red colour.
- Write **FIRST AID BOX** under the symbol.
- Paste the paper on the box.
- Keep all the things in the box like band-aid, cotton etc.
- Keep the box in a convenient place for immediate use.



Emergency services

The Government of Andhra Pradesh has provided emergency helpline toll free service numbers for different services. A person who needs help can call these numbers at free of cost. Let us know about these services.

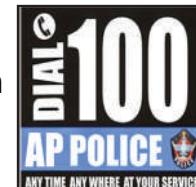




It is 24 hours emergency response service for medical, police and fire emergency. Who ever calls this number in emergency, is provided help and they come to our rescue at once. It is a health advice service. One can get free medical advice from doctors by a phone call.

It is useful for the people who live in remote villages.

It is an emergency help line service from police. If any person in trouble calls this number, the police will help immediately.



Disaster management

Disaster management helps at the time of natural disasters like earth quake, cyclone and floods. It provides services to the people in times of need.



Alert!

Going outside during cyclone is dangerous. Heavy rain, strong wind and thunders will harm you.



Key words

**safety measures, traffic signals, road safety, zebra crossing, accidents
water hazards, first aid, emergency services, disaster management**



What we have learnt

- The measures taken to avoid the occurrence of accidents are called safety measures.
- We have to follow safety measures to avoid accidents.
- We have to take care while using sharp objects like blade, knife and scissors etc.
- Use rubber gloves to avoid electric shock while working with electric appliances.
- Following safety measures at home, school and on the road is essential.
- We have to follow traffic rules to avoid accidents while riding.
- Accidents occur due to over speed, over load of the passengers, careless driving or drunk and driving.
- Wearing safety jackets while travelling by boat is always safe.
- First aid is necessary to the victim to reduce the pain to keep him/her alive.
- Use 108,104 and 100, which are the toll free numbers to help us in emergency.



Improve your Learning



J3E5E4

I. Conceptual understanding

1. Why should we take safety measures?
2. What is first aid and when is it needed?
3. Aparna's grandfather was bitten by a snake. What kind of first aid is suggested to him?

II. Questioning and hypothesis

4. What questions would you ask to know more about 108 Services?

III. Experiments and field based observations

5. Visit an accident spot which is nearby. Find the causes of accident and record your observations.

IV. Information skills and projects

6. Discuss the precautions to be taken while using fire works on Diwali.

V. Drawing pictures and mapping skills

7. Draw a mind map showing precautions we take while travelling on a bus.

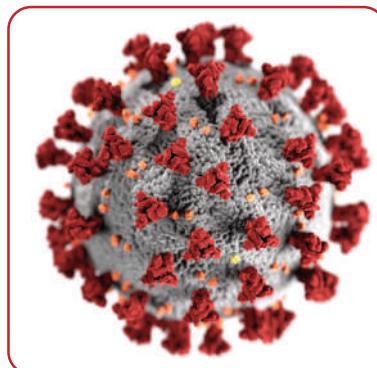
VI. Appreciation

8. How do you appreciate the services of 108 and 104?

Covid - 19 Precautions

Covid - 19 is disease caused by a new strain of Corona virus, referred as 2019 Novel Corona Virus. Symptoms can include fever, cough and shortness of breath. The virus is transmitted through direct contact with the respiratory droplets of an infected person, generated through coughing and sneezing. Individuals can also be infected from touching surfaces contaminated with the virus and touching their faces (eyes, nose, mouth).

- Protect yourself and others by washing hands frequently with soap and water for at least 20 seconds for every half an hour or sanitize with alcohol based hand sanitizer.
- Wash hands often especially before and after eating, after blowing nose, coughing, sneezing, going to toilet.
- Do not touch your face particularly eyes, nose, mouth.
- Must wear clean and washed face coverings (masks) while going outside.
- Do not share cups, water bottles, eating utensils, food or drinks with others.
- Share what you learnt about preventing disease with your family and friends.
- Follow good practices such as sneezing or coughing into your elbow.
- Follow physical distancing practices. Keep 6 feet distance at all times.



- UNICEF, WHO, CIFRC guidelines.

The Journey of India for Freedom

LEARNING OUTCOMES:

Pupils will be able to

- understand the history of India.
- explain the time line of Indian freedom movement.
- appreciate the sacrifice of freedom fighters.



Raju was returning home happily after the flag hoisting ceremony celebrated at the school on 15th August. Then the small flag in his hand spoke to him.

‘Do you know, who I am?’

Raju was surprised and said

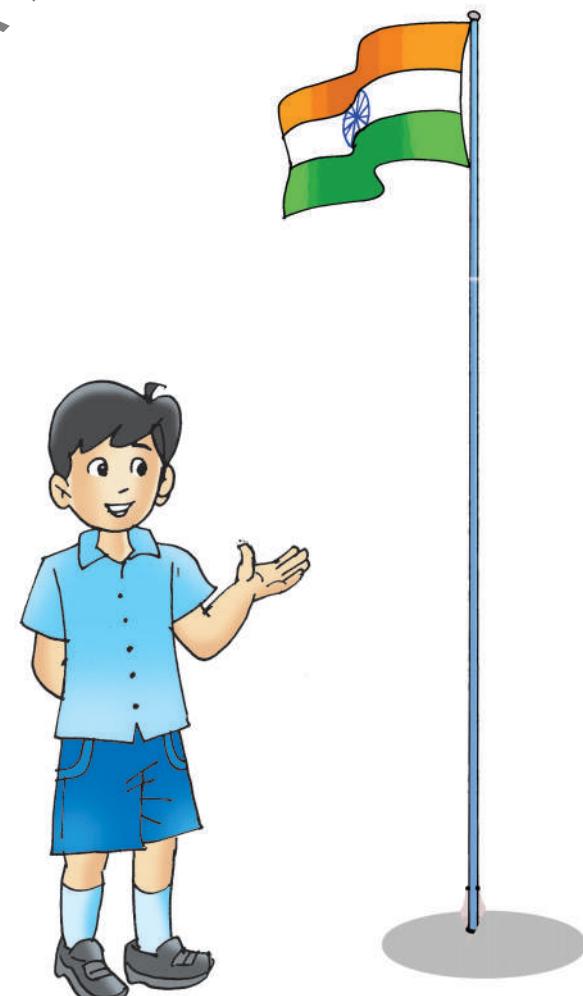
‘Yes, you are the National Flag’.

‘Do you know why we are celebrating today?’

‘Today is our Independence day’.

‘Yes, you are correct. Our country became independent from the British rule on 15th August 1947’.

I will tell you the journey of India for freedom.



Indian Freedom Struggle www.apteachers.in

India has a glorious past. Great Indian kings and emperors like Chandra Gupta, Ashoka, Samudra Gupta, Akbar, Shahjahan etc made this country great. They built beautiful forts, monuments and temples and established great educational institutions like Nalanda and Takshashila. Our country excelled in many areas during different periods of history in the fields of mathematics, medicine, science, surgery, metallurgy, art, literature etc. All these made India a remarkable country in the world. Foreign traders visited India to extend their business. In the later periods the invasions of Europeans made India weak and turned India into a colonial rule.

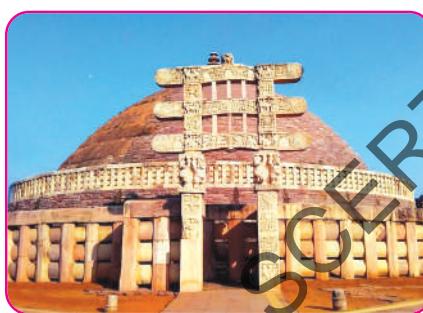


Nalanda University

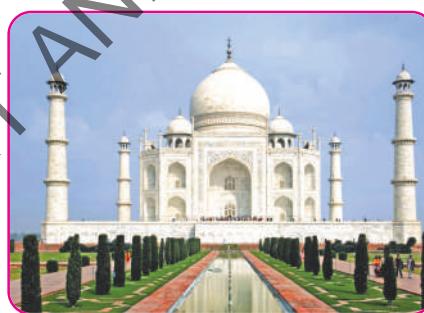


Do You Know

Historical Monuments: A monument is a statue or building that is built to honour a special person or event. The Taj Mahal, Red fort, the Hawamahal, the Sanchi stupa are some examples of historical monuments.



Sanchi Stupa



Taj Mahal

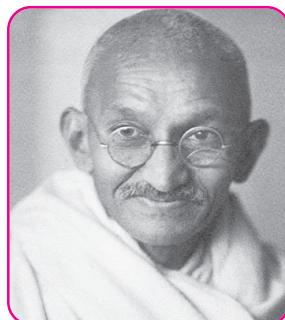


Red Fort

Vasco-da-gama, a Portuguese explorer, discovered a sea route from Europe to India in 1498. The Portuguese, the Dutch, the French and the British landed in India one after the other for trade. The British established the East India Company. They conquered the Indian Kingdom and began their rule in our country from 1757. People in many parts rebelled against the rule of the British in 1857. This was known as the **first war of independence**. In the year 1885 the **Indian National Congress** was formed. It fought against the British rule.



Mahatma Gandhi joined the freedom movement in 1919. He became the leader of the Indian National Congress. He started the **non co-operation movement** and the **Salt Satyagraha movement**. The Indian National Congress demanded the British to quit the land immediately in 1942.



The British Government killed and imprisoned our freedom fighters mercilessly. Some were hanged, some were shot but people of India fought against British under the leadership of Mahatma Gandhi. He gave the slogan 'Do or Die' to fight against the British. This was called **The Quit India Movement**.

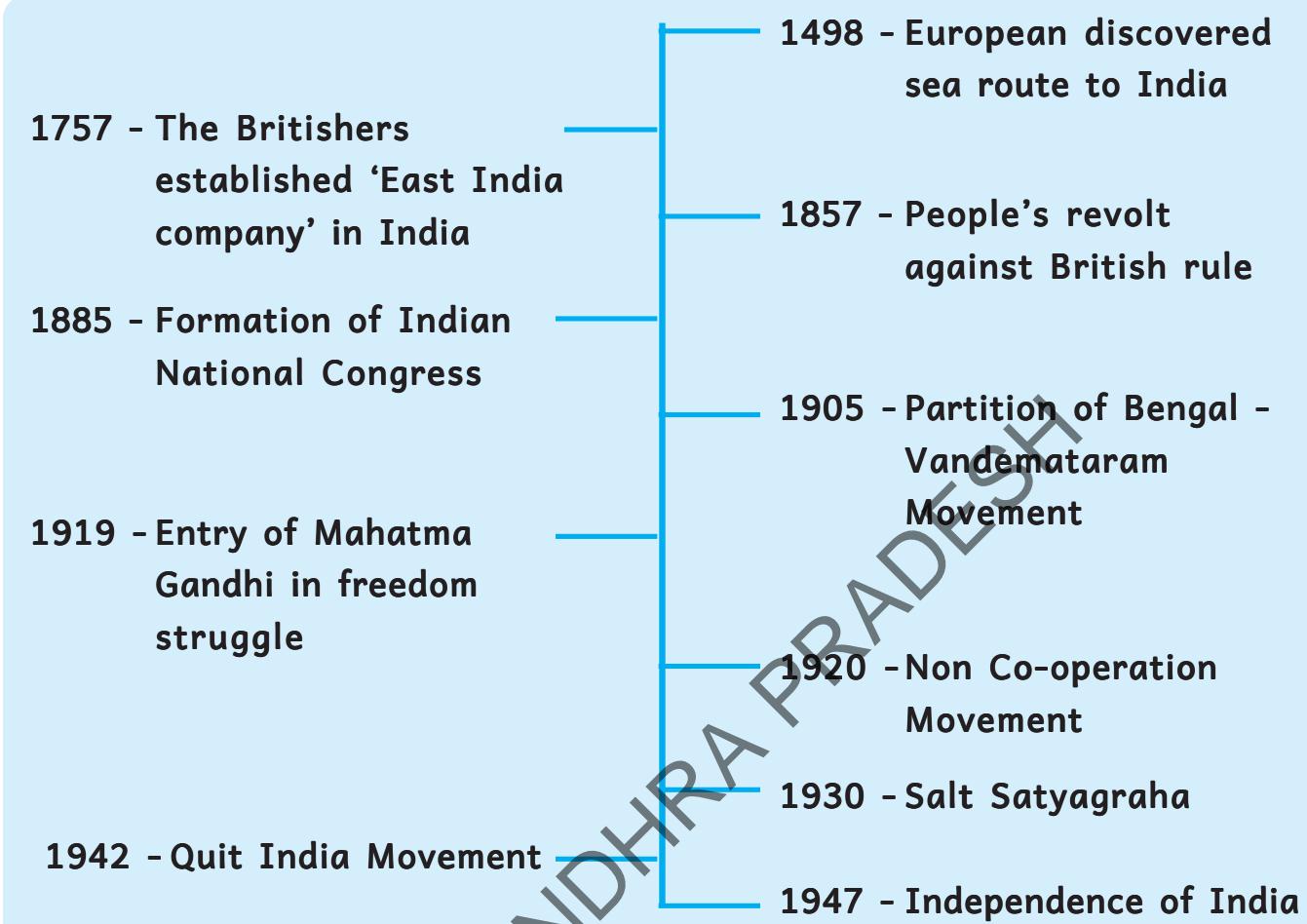
Finally the British left India on midnight of 14th August 1947. So, every year we celebrate **Independence Day** on 15th August.



After independence, the Constitution assembly took the responsibility of creating the **Indian Constitution** headed by Dr. B R Ambedkar. On 26th of January 1950 the constitution of India came into effect. We celebrate that day as **Republic day**.

Today we are living peacefully due to the sacrifice of many freedom fighters. So we as Indians owe to those freedom fighters that lost their lives to achieve independence.

Freedom Movement Timeline



Famous Freedom Fighters from Andhra Pradesh



Alluri Seetharama Raju



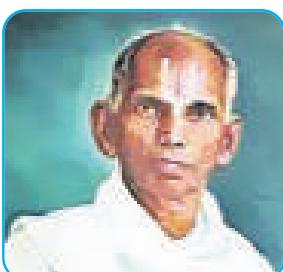
Duggirala Gopala Krishnaiah



Duvvuri Subbamma



Gadicherla Hari Sarvottama Rao



Konda Venkatappayya



Ponaka Kanakamma



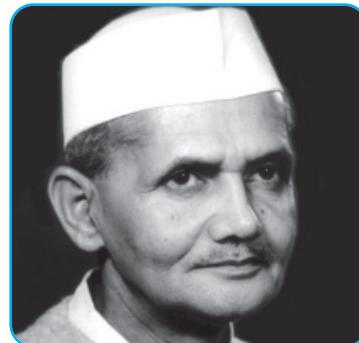
Sri Potti Sree Ramulu



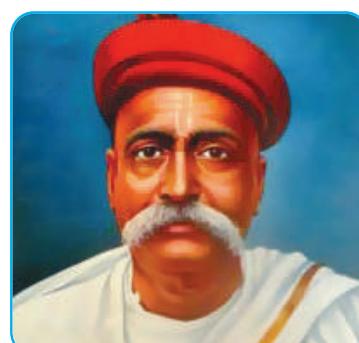
Tanguturi Prakasam Panthulu



Bhagat Singh



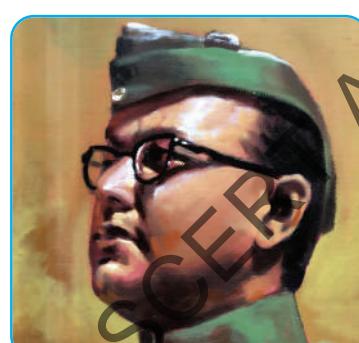
Lal Bahadur Shastri



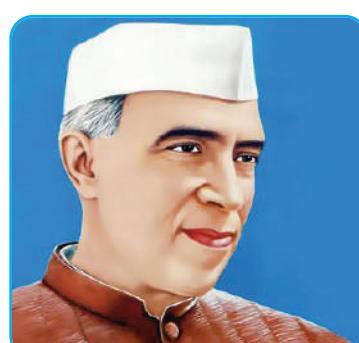
Bal Gangadhar Tilak



Rani Lakshmibai



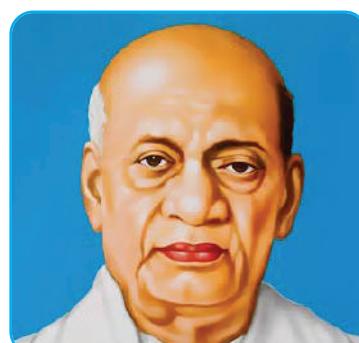
Subhas Chandra Bose



Jawaharlal Nehru



Dr. B. R. Ambedkar



Sardar Vallabhbhai Patel



Key words

freedom, foreigners, Europeans, trade, revolt, rebel
non-violence, satyagraha, quit India, timeline



What we have learnt

- Vasco-da-gama discovered the sea route to India in 1498.
- The British began their rule in our country from 1757.
- The revolt of 1857 was also known as the first war of independence.
- In the year 1885 The Indian National Congress was formed.
- Gandhi started the Non Co-operation movement in 1922, Salt Satyagraha in 1930 and Quit India movement in 1942.
- India got freedom in 1947 and became a Republic in 1950.
- It is our prime duty to show our respect by being a responsible citizen.



Improve your Learning

I. Conceptual understanding

1. Explain what would have happened if freedom fighters had not sacrifice their lives for us?
2. Write a brief note on Indian freedom movement ?
3. Name some of the freedom fighters you know ?

II. Questioning and hypothesis

4. What would have happened if Mahatma Gandhi had not arrived to India from South Africa?

III. Experiments and field observations

5. Why do people install statues?

IV. Information skills and projects

6. Collect the pictures of our freedom fighters and prepare an album (Project)

V. Drawing and model making

7. Draw the National flag and colour it.

VI. Appreciation, values, application to daily life, biodiversity.

8. How do you appreciate the sacrifices of the Indian freedom fighters and write a brief note.

Earth to Space



LEARNING OUTCOMES:

Pupils will be able to

- understand the shape of the earth.
- understand and explain about latitudes and longitudes.
- differentiate the movements of the earth, rotation and revolution.
- explain about the solar system.

Chandu and his grandfather were walking to their agriculture field.

Chandu : Thatha, if we walk further which place will we reach?

Grandfather : We will reach Vajrakarur.

Chandu : Then, what is the next place after Vajrakarur ?

Grandfather : It's Guntakal.

Chandu : After Guntakal?

Grandfather : There are many more places dear. But if you keep moving, you will come back to the place where you started from.

Chandu : Is it Thatha? How come? We are supposed to reach the end of the Earth. Aren't we, grandfather ?

Grandfather : No dear! Look at your school playground. How is it? Is it flat or round?

Chandu : It's flat Thatha!

Grandfather : Of course! But it is supposed to have an end. When we reach the end, we don't fall off. Do we ?

Chandu : No

Grandfather : Long ago, a Portuguese sailor called Ferdinand Magellan began a journey with his team. He sailed

for years on the sea. But surprisingly his team reached back to the place where they started from. This was possible only if the earth was round. So they concluded that the earth is round.

Chandu : That's so unbelievable, Thatha!

Grandfather : Al right! I will show you right now.

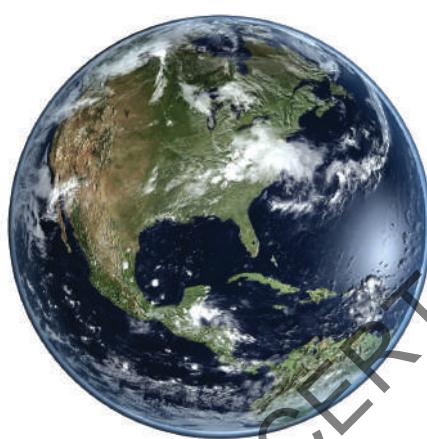
Chandu : Ok Thatha! Please do!

Take a pot and observe it. It is round in shape. Now break one piece of the pot in the centre and observe it. We notice that the piece is flat in shape.

Thus we can conclude that the pieces of the pot are flat, though the whole pot is round in shape. In the same way a part of the Earth looks flat, even though it is round.



Pot Piece of a Pot



Chandu : So true Thatha!

Grandfather : One more thing Chandu. The pictures taken by the satellite from space also prove that the Earth is round.

Chandu's friend, Harish come and asked, "Chandu, What is this big ball. Can we play? Chandu laughed aloud and replied, That's not a ball Harish! It is a globe.

Harish : What do you mean?

Chandu : That's a model of our Earth.

Harish : How is it useful to us ?

Chandu : It shows the locations of the various places on the earth. Now tell me, where is India on the globe?

Harish : Here it is Chandu!

Chandu : Good! Now tell me where America is?

Harish : Hey, I can't find it? How can I locate it?

Chandu : Alright! Come with me to the playground. I will explain to you.

Harish : Fine! let's go.



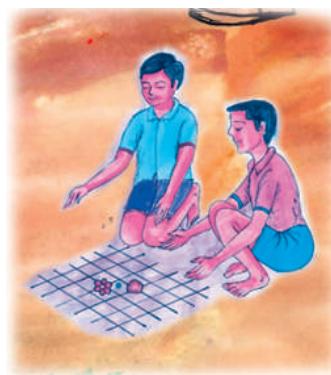
Hai friends,
I am the model
of the Earth.

Chandu : Harish, now you may draw five straight lines and five parallel lines.

Harish : I've drawn.

Chandu : Now tell me where this stone is placed.

Harish : It's on the place where the second straight line and second parallel line met.

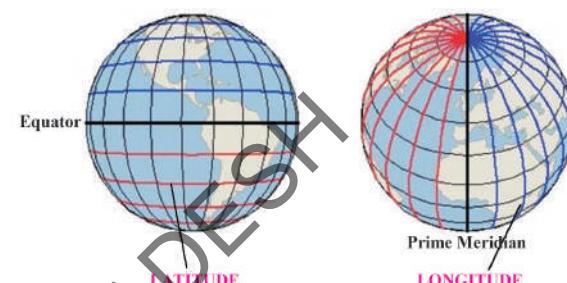


Chandu : In the same manner we can draw imaginary lines on the globe. The straight lines are called **Latitudes** and the parallel lines are called **Longitudes**. The latitude that divides the globe into two equal parts is the **Equator**. The longitude that divides the globe into two equal parts is the **Prime Meridian**.

It's 10.30 by our Indian clock. All the students may be in the class.

What do you think the students in other countries might be doing?

Observe the table given below and imagine what they are doing?



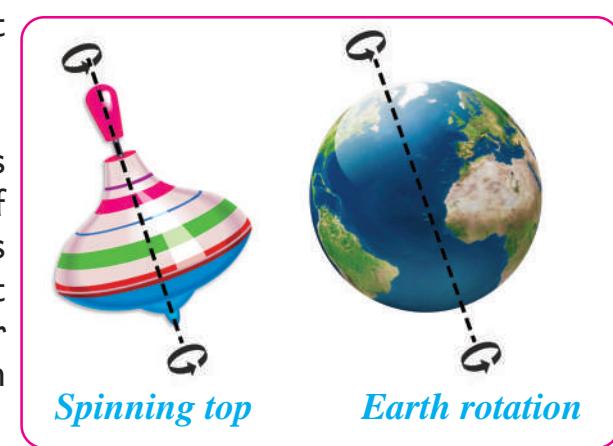
S. No.	Country	City	Time	Expected activities of students
1	America	New York	12.43 am	
2	Japan	Tokyo	01.43 pm	
3	England	London	05.43 am	
4	Australia	Sydney	02.43 pm	

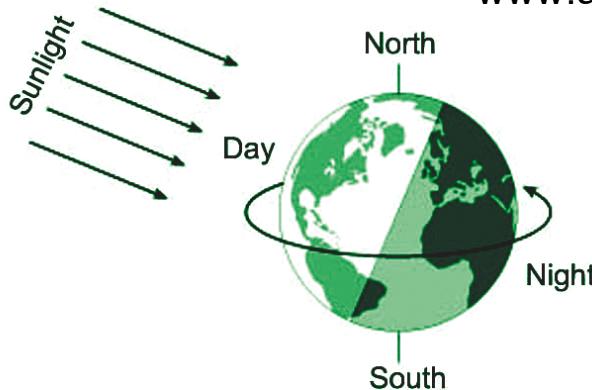
What might be the reasons for the clocks in different countries to show different timings?

Do you know why? It is because of the movement of the Earth.

Have you ever observed a spinning top?

The Earth spins around its own imaginary axis in a tilted manner. The spinning movement of the Earth is called Rotation. The earth completes one rotation in 24 hours. We know that the part of the earth facing the Sun has day and the other part has night. Thus, the rotation of the Earth causes day and night.

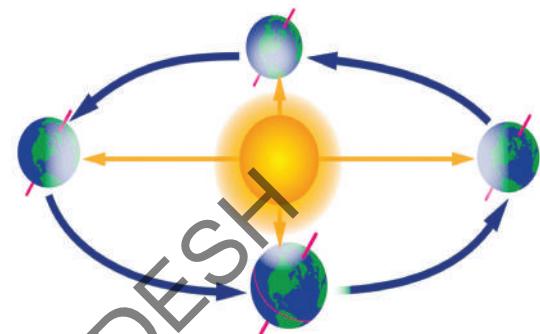




The earth spins on its axis and at the same time it revolves around the sun. This movement of the earth around the sun is called **Revolution**. It takes about 365 days. Thus revolution of the earth causes change in the season.

Role play-Rotation and Revolution:

Let two students act as Sun and Earth. The first student who acts as the sun moves around himself. And the second student who acts as the earth moves around himself and around the student who acts as the sun.



Observe the sky during the day and at night. What did you observe?



You can observe stars, planets, and satellites with an astronomical telescope.

The Solar system is the Sun and all the objects that orbit around it. The Sun is orbited by planets, asteroids, comets and other things.

- What is the position of the earth in the solar system?
- Which is the nearest planet to the sun?
- Which is the farthest planet from the sun?
- Which object in the solar system gives us heat and light?

Think and Discuss



- Can we live on other planets? Discuss

The moon is the only natural satellite to the planet, earth. It moves around the earth. It takes 27 days to revolve around the earth.

In our solar system we have eight planets mercury, venus, earth, mars, jupiter, saturn, uranus and neptune. Some minor planets also in our solar system. You will learn about them in next classes.

Artificial Satellites

An artificial satellite is an object that people have made and launched into orbit using rockets. Aryabhata was the India's first satellite launched in 1975.

Chandrayaan



Chandrayaan-2 is an artificial satellite launched by GSLV-MkIII-M1 from the **Satish Dhawan Space Center** in Sriharikota, Andhra Pradesh, India on 22nd July 2019.

Chandrayaan-2 was India's second mission to the moon and was a follow up mission from the Chandrayaan-1. It comprises of an orbiter, lander (Vikram) and rover (Pragyan).

Artificial satellites provide services in the areas of communications, broadcasting, meteorology, oceanography and resources survey. Now-a-days we are using internet, mobile phone and online services because of these artificial satellites.



Key words

globe, axis, latitudes, longitudes, equator, prime meridian, rotation, revolution solar system, satellite, artificial satellite, asteroids, comets.



What we have learnt

- The earth rotates on its own imaginary axis.
- The imaginary lines are drawn horizontal on the globe are latitudes.
- The latitude that divides the earth into two equal parts is called equator.
- The imaginary lines that are drawn vertical on the globe are longitudes.
- The longitude that divides the globe into two equal parts is called Prime Meridian.
- The spinning movement of the earth is called rotation. It takes 24 hours. Rotation causes day and night.
- This movement of the earth around the sun is called revolution. It takes about 365 days. Revolution causes changes in season.
- The sun and the objects rotating around the sun are called the solar system.
- The planets in the solar system are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.
- The object that revolves around the sun is called planet.
- The object that revolves around the planet is called satellite.
- The moon is the only natural satellite to the planet earth



Improve your Learning

I. Conceptual understanding

1. Write the differences between Latitudes and Longitudes.
2. Write about the globe.
3. What is the shape of the Earth?

II. Questioning and hypothesis

4. If the earth stops its rotation what will be happen?

III. Experiments and field observations

5. Make a model of the solar system using balls of different sizes to represent the planets.

IV. Information skills and projects

6. Collect the information about Artificial satellites sent by India and their purposes. Write a brief note.

V. Drawing and model making

7. Draw latitudes and longitudes on the surface of a ball.

VI. Appreciation, values, application to daily life, biodiversity.

8. Why is the earth, the only planet which is only habitat by human beings?



Natural calamities	=	A disaster caused by the nature. (ప్రకృతి వైపరీత్యాలు)
Drought	=	Weather having less amount of rain for many months or years. (కరువు)
Slum	=	A density populated urban area inhabited by very poor people. (మురికివాడలు)
Nomads	=	People who do not stay long in the same place but move. (సంచార జీవనం గడిపేవారు)
Budget	=	A statement of income and expenditure. (ప్రణాళిక)
Global warming	=	Increase in the earth's temperature. (భూమి వెడక్కడం)
Biodiversity	=	Variability of life on earth. (జీవవైవిధ్యం)
Non-bio degradable	=	Cannot be broken and dissolved in nature. (మర్మిలో కరగని పదార్థాలు)
Synthetic fibre	=	Various man made textile fibres. (కృతిమ దారాలు)
Canvas	=	durable cloth. (గుడారాలు, చిత్రలేఖనముకు ఉపయోగించే వస్తుం)
Skeleton	=	Supporting frame work of bones (అస్టిపంజరం)
Pulse	=	Rhythmic beating of the heart (నాడి)
Traditional	=	Methods followed from ages (సాంప్రదాయం)
Irrigation	=	Water supply to agriculture (నీటి పారుదల)
Barrage	=	Barrier across the river (ఆవకట్ట)
Multipurpose	=	Using several purposes (బహుభార్యాసాధక)
Public property	=	Property belonging to government. (ప్రజా పొత్తు)
Village Secretariat	=	The administrative office of the village. (గ్రామ సచివాలయం)
Civilization	=	The most advanced stage of social and cultural development of humanbeing. (నాగరికత)
Architecture	=	Architecture is both the process and the product of planning, designing and constructing the structures. (నిర్మాణం)
Safety measure	=	The measures taken to avoid the occurrence of the accidents. (ఫుర్తాచర్యలు)
Emergency	=	Unexpected situation (అత్యవసరము)
Railing	=	A fence made with iron (ఇనుపకంచే)
Emergency service	=	The service which can help in emergencies. (అత్యవసర సేవలు)
Disaster management	=	working to rescue the people and property during natural calamnities (విపత్తుల విర్యపణ)
Trade	=	The action of buying and selling goods (వాణిజ్యం)
Revolt	=	To turn against (తిరుగుబాటు)
Non-Violence	=	A situation in which someone avoids fighting. (అపాంచ)
Constitution	=	Is a set of rules that guides the people in a country (రాజ్యంగం)
Sacrifice	=	Give up for a better cause (త్యాగం)
Axis	=	real or imaginary straight line going through the center of the object (అక్షం)
Prime meridian	=	The longitude that divides earth into equal parts (మధ్య రేఖాంశం)
Solar system	=	The sun together with all the planets and other bodies that revolve around it (సార వ్యవస్థ)
Satellite	=	an object in space that orbits or circles around a bigger object. (ఉపగ్రహం)
Artificial Satellite	=	an object that people have made and launched into orbit using rockets. (కృతిమ ఉపగ్రహం)
Astronaut	=	A person who travels in a space craft. (వ్యోమగామి)