GOVERNMENT OF KARNATAKA

ENVIRONMENTAL STUDIES

TEXT CUM WORK BOOK

PART-1

ENGLISH MEDIUM

5

FIFTH STANDARD

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KARNATAKA TEXTBOOK SOCIETY (R.)
6th Cross, Malleshwaram,
Bengaluru - 560 003

Foreword

The protection of our environment is our topmost priority now. The environment that we are discussing here is our natural environment. The role of natural environment in human life is similar to the social environment which plays an important and prominent role in human growth. There is a need to nurture and protect natural environment as our duty. Apart from protecting the existing trees, we need to plant new ones. We also need to develop tanks and take measures to protect all the sources of water. Judicious usage of river water is also the need of the hour. Deforestation should be stopped. A pro people developmental activity and a programme aimed at the protection of environment should not be at loggerheads. We need to have a developmental vision that can ensure our secure physical existence. We need natural environment. Opposing natural environment protection in the name of development or opposing the developmental initiatives in the name of protecting natural environment is not good.

The issue here is about the choice of our developmental model. There is a big difference between the developmental model that seeks to provide basic needs to human beings and a model that seeks to attain development by destroying the Earth and turn it into a barren planet. Hence, we need to have a balanced vision of development.

So, the need of the hour is to foster balanced and sustainable nature oriented thinking in our children. Let them think of development once they are grown-ups. First, let them understand nature and realize the importance of protection of nature. Let them imbibe the importance of nature in their minds through this process. With this good intention, Environmental Studies is introduced from class I itself.

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At present, Environmental Studies text cum work book is in usage from class I to class IV. The Government of Karnataka has extended the Environmental Studies to Class V as well in its order dated May 27, 2014. A text book committee was also formed with the mandate of preparing a suitable text book for Class V. Now, a complete Environmental Studies text is included in the Class V. The Social science chapters that were present earlier in the Class V are shifted to Class VI text. Now, the new text book for Environmental Studies for Class V is ready. It is a text cum work book. It is implemented from the academic year 2017-18.

We are indebted to Dr. Eknath Ekbote, the Chairperson of the Environmental Studies textbook committee and also to the members of the committee. The contributions of the editorial committee and the high power review committee are also acknowledged with pleasure. We also thank Smt. N.R. Shyalaja Kumari, SADPI, KTBS, for her efficient work as the subject coordinator.

While remembering all those who have supported this text book preparation work, we sincerely believe that students get benefitted from this text book.

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CONSTITUTION OF INDIA

Part III (Articles 12 – 35)
(Subject to certain conditions, some exceptions
and reasonable restrictions)

guarantees these

Fundamental Rights

Right to Equality

- before law and equal protection of laws;
- irrespective of religion, race, caste, sex or place of birth;
- of opportunity in public employment;
- by abolition of untouchability and titles.

Right to Freedom

- of expression, assembly, association, movement, residence and profession;
- of certain protections in respect of conviction for offences;
- of protection of life and personal liberty;
- of free and compulsory education for children between the age of six and fourteen years;
- of protection against arrest and detention in certain cases.

Right against Exploitation

- for prohibition of traffic in human beings and forced labour;
- for prohibition of employment of children in hazardous jobs.

Right to Freedom of Religion

- freedom of conscience and free profession, practice and propagation of religion;
- freedom to manage religious affairs;
- freedom as to payment of taxes for promotion of any particular religion;
- freedom as to attendance at religious instruction or religious worship in educational institutions wholly maintained by the State.

Cultural and Educational Rights

- for protection of interests of minorities to conserve their language, script and culture;
- for minorities to establish and administer educational institutions of their choice.

Right to Constitutional Remedies

- by issuance of directions or orders or writs by the Supreme Court and High Courts for enforcement of these Fundamental Rights.

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Constitution of India

Part IV A (Article 51 A)

Fundamental Duties

It shall be the duty of every citizen of India —

(a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;

(b) to cherish and follow the noble ideals which inspired our national struggle for freedom;

(c) to uphold and protect the sovereignty, unity and integrity of India;

(d) to defend the country and render national service when called upon to do so;

(e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;

(f) to value and preserve the rich heritage of our composite culture;

(g) to protect and improve the natural environment including forests, lakes, rivers, wildlife and to have compassion for living creatures;

(h) to develop the scientific temper, humanism and the spirit of inquiry and reform;

(i) to safeguard public property and to abjure violence;

(j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;

*(k) who is a parent or guardian, to provide opportunities for education to his child or, as the case may be, ward between the age of six and fourteen years.

Note: The Article 51A containing Fundamental Duties was inserted by the Constitution (42nd Amendment) Act, 1976 (with effect from 3 January 1977).

*(k) was inserted by the Constitution (86th Amendment) Act, 2002 (with effect from 1 April 2010).

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Chairperson's Speak

The 5th Standard Environmental Studies text book has been prepared based on the guidelines of the NCF-2005. In this text book Science and Social science topics are integrated and it is a continuation of 1 to 4th standard Environmental Studies. It paves way for learning the concepts of 6th standard science and social science. Considering the age and mental ability of the child, care has been taken to use simple language in this text book.

Based on the theory of constructivism, importance has been given to the construction of knowledge of the child. Ample opportunities are given to develop love and concern towards environment through observation/discussion/activity/experiments with daily experiences. Local examples, situational illustrations, maps, charts are given to help the child's learning. Teachers have to guide the children to use them properly. We hope that the box items like **know this, Think** promote the child's self-learning and participatory learning which leads to meaningful and permanent learning.

Experienced teachers, subject experts, artist and scrutinizer have made a sincere effort to prepare this text book. I am very grateful to them. I express my grateful thanks to the members of editorial board, members of high power committee and officers of Karnataka text book society who have given their valuable suggestions/guidance for the preparation of this text book.

Suggestions and comments from teachers, parents and those who are interested in education are always welcome to improve the quality of this text book.

Dr. Eknath Ekbote,
Chairperson
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CONTENTS

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SL. NO.	LESSON	PAGE NO.
1.	Living world	1 - 18
2.	Family	19 - 30
3.	Community	31 - 51
4.	Community - Games	52 - 59
5.	Natural Resources	60 - 75
6.	Air	76 - 82
7.	Water	83 - 93
8.	Agriculture	94 - 111

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LESSON - 1

LIVING WORLD

B1M2D7

Protection of environment is the duty of all. You must have heard this saying. The word environment is very familiar to us. The things around us is environment. We can enjoy environment by seeing only. We see hills, forest, river, falls, streams, honey bee, insects, eagle, snake, soil, light, birds and so many other things around us which make us wonder. This is our environment. Our environment is home for diversity. You have the curiosity to know the speciality of this diversity. Haven't you? If so, understand this unit.

After studying this lesson you,

- identify living beings and nonliving things.
- know the important characteristics of living beings.
- introduce yourself to the method of food production in plants, life cycle and different types of plants.
- classify animals based on their feeding habits.
- know the importance of protection of plants and animals.

Read this story - Lazy Somanna

Somanna is a lazy person. Even though he owns a piece of land, he has not worked for a single day in his land. He used to live only by receiving what others gave him. He was very fond of groundnuts, especially fried groundnuts. Once while eating fried groundnuts he got an idea. He thought that if he sowed groundnuts in his land, he would get enough groundnuts to eat and he need not beg anybody for it. Also he felt that if he sowed fried groundnuts, yield would be fried groundnuts. So there would be no need to fry the groundnuts. Not knowing the type of seeds to be sown, Somanna started sowing fried groundnuts from the next day itself. Seeing Somana working in his land, the neighbouring farmers were very happy that Somanna had shed his laziness finally. Days passed. Plants grew and greenery was everywhere. But not a single plant appeared in Somanna's land.

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Think : You have read the story. Why did plants not grow in Somanna's land?

Raw groundnuts have the characteristics needed to grow into a plant. It is called living component. In fried groundnuts the living component is destroyed. It is called the nonliving state. In the environment, there are living beings which have the living characteristics and non-living beings which do not have the living characteristics.

In the following chart some components of the environment and some living characteristics are given. Read carefully. If in each of the component the characteristics given in front of them are found, put (✓) mark. If these characteristics are not found put (×) mark.

Components of the environment	Characteristics						
	Growth	Eating food	Movement	Respiration	Excretion	Response to stimulus	Reproduction
mouse							
mango							
brick							
clock							
butterfly							
man							
frog							
paper							
mobile							

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The components which you have marked (✓) are called living beings and those which you have marked (×) are called nonliving things in environment.

Some of the components seen in environment are given below. Identify them as living beings or nonliving things. Put (✓) mark in front of the correct choice.

Components of the environment	Living beings	Non living things
birds		
balloon		
water		
mango tree		
vehicle		
pen		

Activity: *Make a list of other living beings and non living things you have seen.*

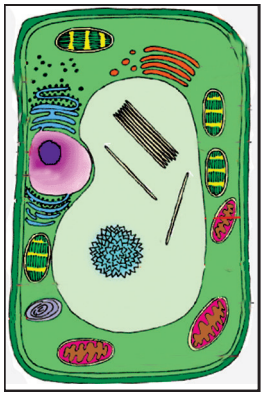
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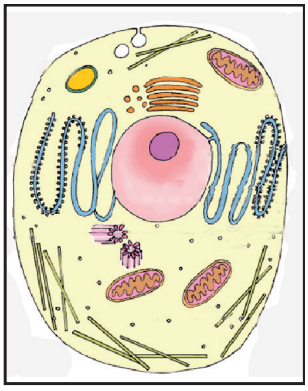
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Plants and animals are living beings. There are certain characteristics to decide them as living beings.The characteristics of living beings are given here. Know about this.

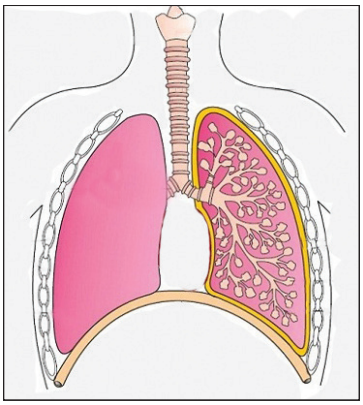
1. Living beings are made up of cells.





Observe these pictures. They are of plant and animal cells. You must have observed how a house is being constructed. When several things such as bricks, cement, water, steel, wood are arranged in an order a house gets ready. Similarly the body of living beings is made up of cells. You will learn more about cells in higher classes.

2. Living beings respire.



You have learnt in the previous classes that living beings respire.During respiration living beings take in air, use the oxygen and give out carbon dioxide.

Observe the given picture.

Identify the picture and write here.

There are special organs to respire in animals.

Plants also depend on oxygen for their respiration. Usually they respire through stomata (small openings) which are present on the lower surface of leaves.

With the help of oxygen the energy in the food is made available to the living body.



Think : What are the advantages of the energy that is obtained from the food?

3. Living beings eat food.

Living beings perform many activities daily such as wood cutting, carrying load, hunting etc,.







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The names of some living beings are given below. They help us to work.

How do they help us? write here.

Living being	Help(work)
elephant	
bullock	
dog	

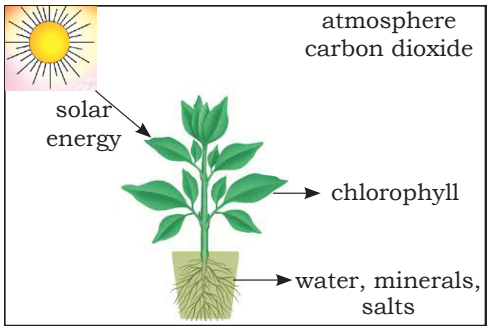
To do all these works, living beings need energy. They get this energy through food.

Food of plants

Each part of a plant does one or the other activity. Don't they also need food? How do plants obtain their food? Think! Yes, green plants produce their own food. That is why green plants are called **autotrophs.**

Preparation of food in plants

Observe the picture. Four important components needed to produce food by the plants are given. An activity, **Which? From what?** is given below. Join the statements correctly and write.



Which?	From what?	Correct and write here
solar energy	green leaf	
water, minerals, salt	atmosphere	
carbon dioxide	sun	
chlorophyll	soil	

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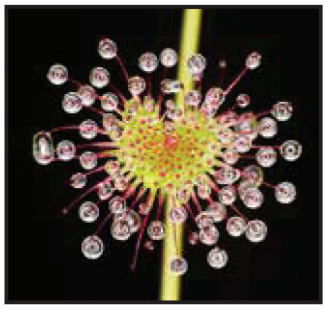
Plants use solar energy, carbon dioxide in air, absorb water, minerals and salts from soil through roots and prepare food with the help of chlorophyll in leaf. This process is called as **photosynthesis**.

In the preparation of food by the plants, glucose is produced and oxygen is released. Write here, the uses of these two for the living beings.

1. glucose _____
2. oxygen _____

Discuss in groups : What would have happened if there is no sun?

Observe the pictures given below. How do these plants obtain their food ?





Though plants like Drosera, Nepenthes, Utricularia prepare their own food, they depend on insects for nitrogen. These are called **insectivorous plants**. You will know about them in higher classes.

Food of animals

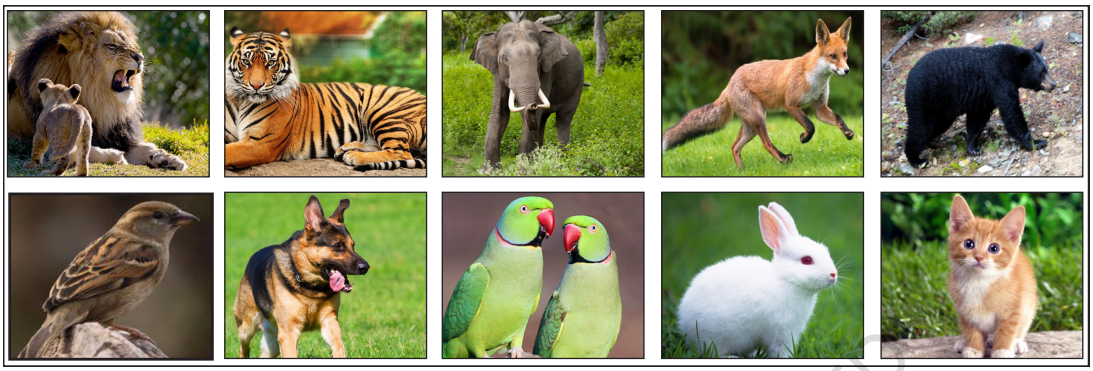
Animals do not prepare their own food. They depend on plants and other animals for food. Therefore animals are called **heterotrophs**.

All animals do not eat the same type of food. Based on the food they eat, the animals are classified as follows.

Herbivore - Animals that eat only plants and plant products.
Carnivore - Animals that eat other animals.
Omnivore - Animals that eat both plants and animals.

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With the help of these pictures list out herbivore, carnivore and omnivore in the chart below.

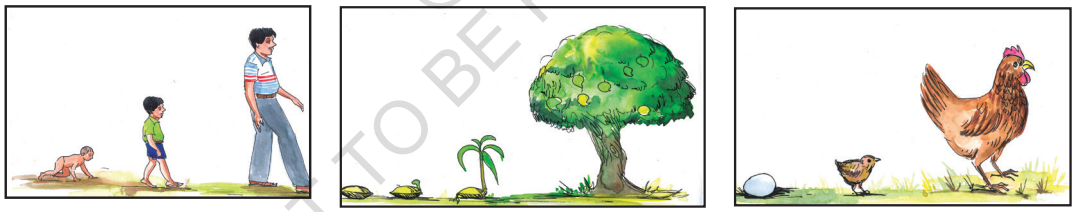


Herbivore	Carnivore	Omnivore

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4. Living beings grow.

Observe the pictures given below



These pictures show the growth of that particular organisms. In every picture there is an increase in height, and size. This is called as **growth**.

Certain statements related to growth are given below. If the statements are correct put (✓) mark, if not put (×) mark. Correct the incorrect statements and write.

* All organisms are small at the time of birth, later acquire definite height and size. ( )

_____

_____

* Growth takes place rapidly in one or two days. ( )

_____

_____

* Plant growth is observed at its stem tip or the size of the stem. ( )

_____

_____

5. Living beings move.

Observe these pictures. Which living characteristic do they indicate?



Yes, all these are related to movement. Movement is a living characteristic, specially of animals.

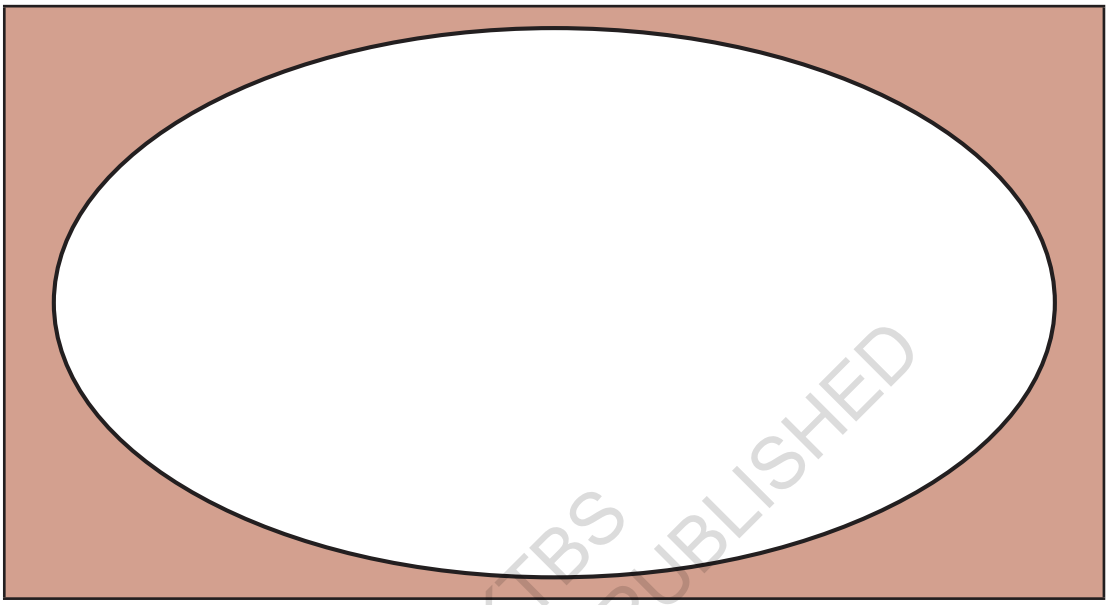
Movement of animals.

Animals move from one place to another. They have special organs for this. Some animal names are given below. Write their organs of movement here.

man _____ eagle _____

kangaroo _____ bat _____

Why do animals move? Discuss in groups and write in the space given below.





Think : Cars and buses run on road. Hands in a clock move circularly. Rivers and streams flow. Do they have life? What is the difference between the movement of living beings and non living things?

Plants do not have organs for movement as in animals. As soil holds the root of plants they cannot move from one place to another. Still we can observe the following movements in plants.

- Roots growing towards water in the soil.
- Sunflower plant turning towards the sun.

Do this : Keep a potted plant in a room. Let light pass in through a window. Observe it after some days. Observe the direction towards which the leaves have bent. Discuss with friends.



Think : If plants had legs like you what would have happened?

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6. Living beings excrete.

Many activities take place in the body of organisms. As a result, things which are unwanted for the body are also generated. These have to be thrown out of the body. If not body gets affected.

Animals throw out unwanted things of the body in the form of carbon dioxide, sweat, faeces and urine. They have special organs for this purpose.

Plants also give out carbon dioxide during respiration. Dry leaf, stem, rotting parts - all these separate from the plants. They release excess water to the atmosphere through leaves.

Do this : Take a potted plant. Cover the plant with a plastic cover and tie it tightly at the stem portion. Keep it in the sunlight for 1-2 hours. Observe the plastic cover closely. Share your observation in the class.



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7. Living beings reproduce.



Observe the organisms and their young ones in the above pictures. Young ones of each organism resemble that respective organism, which gave birth to them. The process of an organism giving birth to young ones which resemble it is called **reproduction.**

Given below are certain statements related to reproduction. If the statements are correct, put (✓) mark. If the statements are wrong, put (×) mark.

Statement	Right/ wrong	Corrected statement
Organisms continue their generation by reproduction.		
Due to reproduction, the other organisms in environment get food.		
Reproduction is seen only in animals.		
There will not be any danger in the environment by over-reproduction of a single organism.		

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Some animals carry out reproduction by laying eggs and some others by directly giving birth to young ones.

Activity : List out the animals that lay eggs and those which directly give birth to young ones.

_____ _____

_____ _____

_____ _____

_____ _____

- **Plants reproduce through seeds and stems.**

Activity : List out the plants that reproduce through seeds and stems

_____ _____

_____ _____

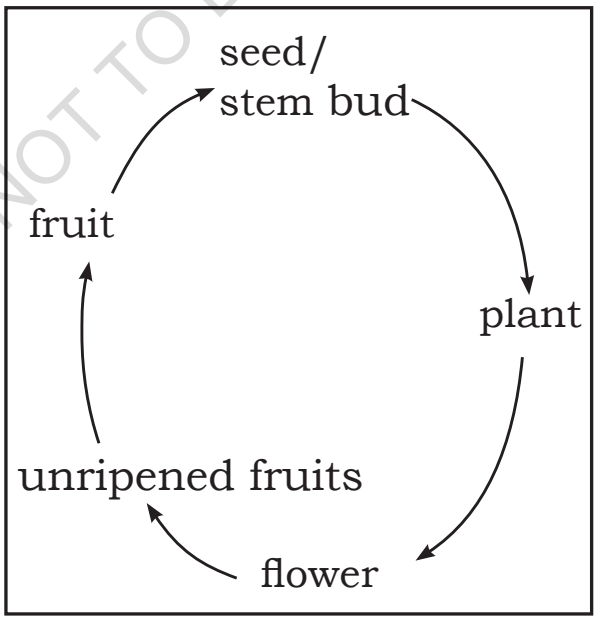
_____ _____

_____ _____

Life cycle of a plant.

Seed is an important part of reproduction in plants. Seeds developing from seeds is one of the wonders of nature. Some plants apart from seeds, produce new plants through stem buds You will learn more about them in higher classes.

A life cycle of a plant producing seeds from a seed is given here. Observe.



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Think : Usually reproduction takes place by seeds in fruits. How is the reproduction in a coconut tree? Take the help of the teacher.

Activity : Reproduction of plants is advantageous to animals including man in many ways. Discuss with your friends and list them.

_____

_____

_____

_____

Do this : Collect seeds from plants in your neighbourhood in the beginning of rainy season. Take fertile soil and make soil balls out of it. In each of the soil ball insert a seed. When rain starts, plant them in the soil. Do this every year. In this way some seeds you have put might grow very well in future.

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8. Living beings respond to stimulus

When thorns prick our feet we feel pain. We have observed our body shivering in cold, snake hissing in self defence and buffaloes getting into water to cool off during excessive heat. Some insects bite us when we touch them. Animals shout. Like this, organisms respond in their own way. All these are the responses given by organisms to the surrounding stimulus. Living beings respond to the changes in their surrounding environment. Usually they respond to touch, heat, cold, sound and smell. They have special organs for these.

Observe the pictures. Folding of leaves when touched, in **touch me not** plant, stinging of **scorpion** when some external thing touches it, flower of sunflower plant turning towards the sun- these are the ways that organisms respond to stimuli.







Think : A calf jumping when it sees mother cow, mother bird crying in distress when young ones are not found in the nest, a mother hen protecting its chicks either by covering them with wings or attacking the cat or eagle to protect the chicks-all these exhibit animal feelings. Think and list out the feelings of different organisms.

_____

_____

_____

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9. Living beings have life span.

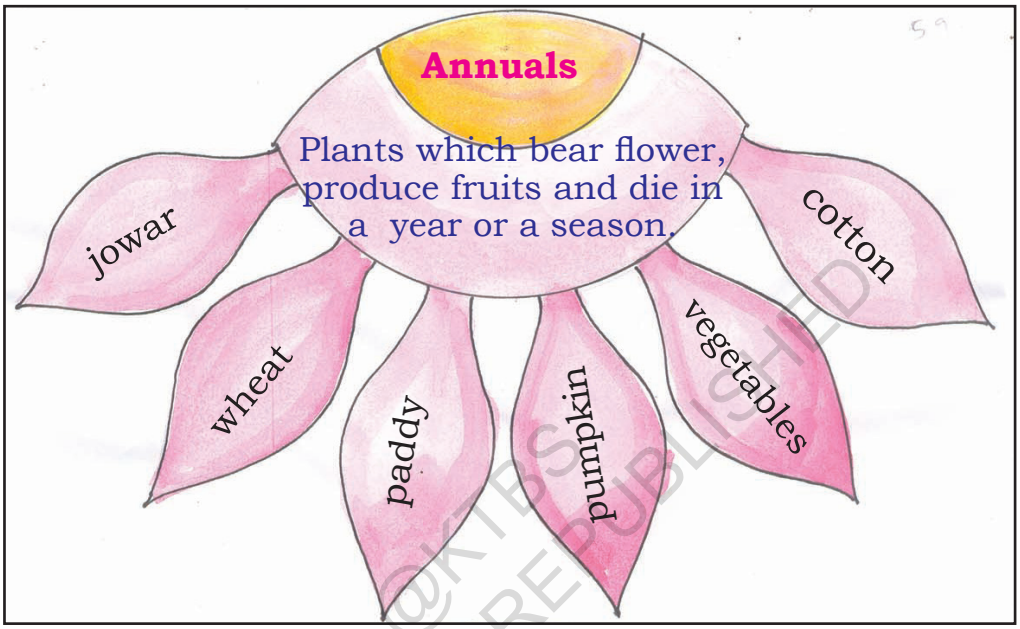
Organisms take birth, become adults, reproduce, become old and die at last. The period between birth and death of an organism is called **lifespan**.

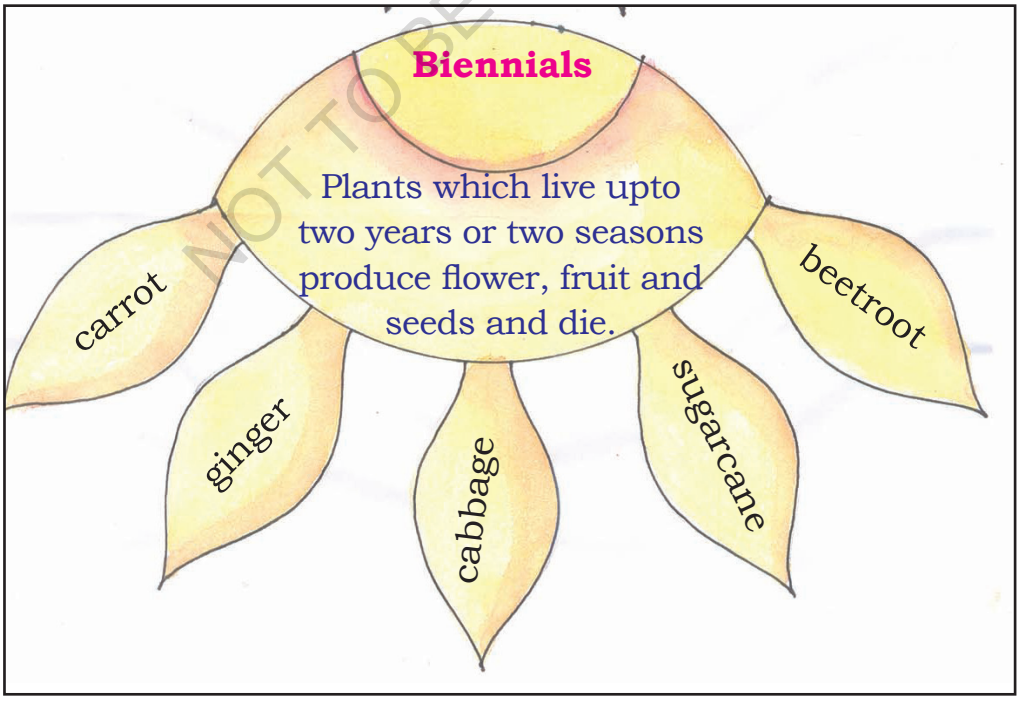
The average life span of some animals are given below. Observe.

Animals	Average life span (in years)
turtle	150
elephant	70
cow	20
eagle	20
man	70-80

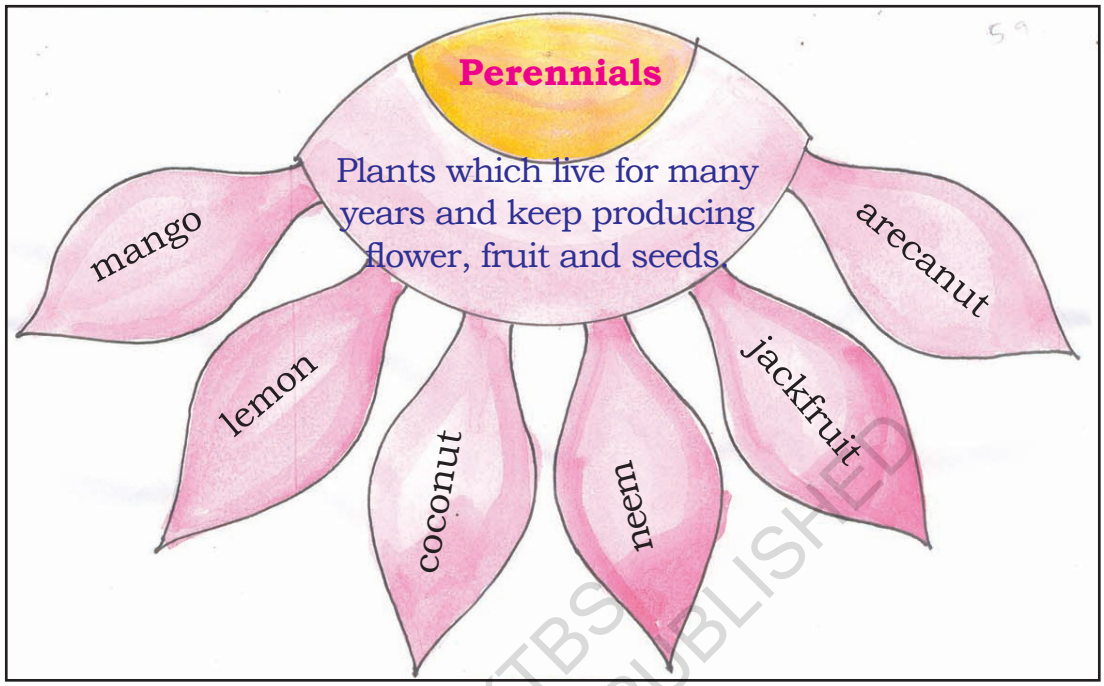
Based on the life span, plants are classified into **annuals, biennials** and **perennials.**

Understand it through the following pictures.





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Write the uses of the plants given below

Annuals

1. _____

2. _____

Biennials

1. _____

2. _____

Perennials

1. _____

2. _____

Apart from the life span, plants are classified based on the nature of seed leaf as monocotyledonous and dicotyledonous plants.

Do this : Take ragi and groundnut seeds. Put them into two separate water filled glasses before going to sleep. Next day morning drain the water. Press tightly the ragi and groundnut seeds with your hands. Share your experience.

Monocotyledonous seed has only one cotyledon (seed leaf).

Example : Jower, ragi, wheat,paddy, millets.

Dicotyledonous plant seed has two cotyledons (seed leaf).

Example : horse gram, groundnut, redgram, bengalgram, blackgram

Do this : Collect monocotyledonous and dicotyledonous plants from your locality. Observe their leaf and root. Know the difference with the help of your teacher.

You have learnt about the characteristics of living beings. Plants and animals are two important components of the environment. But now-a-days their number is decreasing as a result of man's greediness. Protection of plants and animals is the need of the day.

Why should we protect plants?

- For rain, - For food, - For future generations.

Discuss with your friends about the methods of protecting plants.

Importance of animal protection

Read the incident given below.

Once in Borneo, there were too many flies. Insecticides were used to control them. All flies died. Lizards started eating the dead flies. As a result, the insecticides, in the body of the flies, entered the lizard's body. Their movement slowed down. Now cats could easily hunt them. The insecticides which entered the body of cats through lizards turned poisonous for them and many cats died. As the number of cats decreased, the number of rats increased enormously. Because of this, plague disease erupted and caused the death of many people. Government had to import cats from other countries.

This incident, conveys the importance of animal protection and balance of living beings in nature.

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Many more points about the importance of animal protection is given below. Read them.

- Animals play an important role in maintaining the environmental balance.
- If animals are destroyed, it affects other organisms as there will be scarcity of food.
- In the recent years, the Government has taken measures to protect animals through national forests, wild life sancturies, bird sanctuaries and reserved forests. Hunting is banned.

Activity : List out the national reserve forests, wild life sancturies and bird sanctuaries in Karnataka.

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

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The living world around us is a wonder. Knowing about the plants and animals, we should protect them.Then only the existing environment we see now will be available to the future generations. Remember always that **if we protect nature, it will protect us**.

LESSON - 2

FAMILY

Y2X5A5

You already know that the members of a family are related to one another and live together. Sometimes, the members of a family, leave the main family for various reasons like marriage, job, education, etc, and make their own separate family. Over the years, there has been a number of changes in the structure of a family.

After studying this lesson you,

- understand the importance of a family.
- get introduced to your family using a family tree.
- develop the skill of identifying relationships based on signs.
- identify the changes in the structure of a family.
- understand the features of nuclear and joint families.

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You have been introduced to the family tree in class 4 itself. What is a family tree? Write the answer in the space provided.

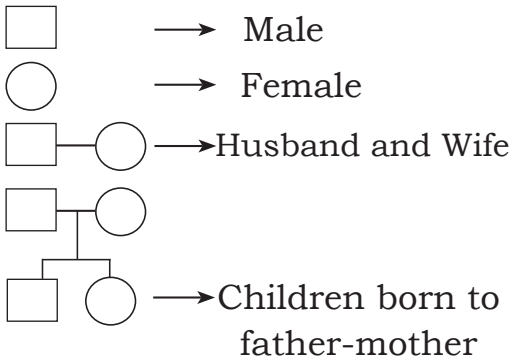
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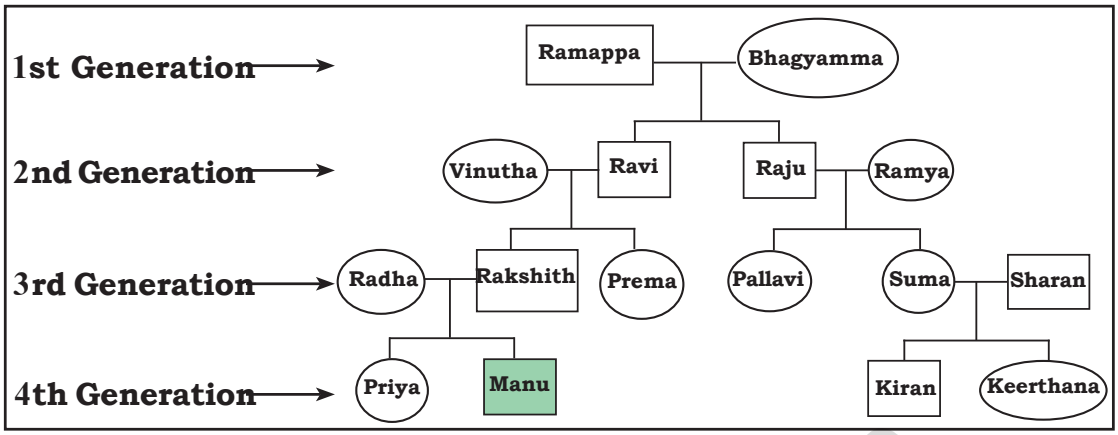
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Family tree

I am Manu. I will introduce my family through the family tree. My family tree is in the next page. In this, I am in the green square. Read the names of all my family members.

The signs used in the family tree





The names of the family tree above, are given in the list below. Imagine that you are **Manu**, write the relationship of the persons given in this family tree.

(Observe the example of Sl. No.1)

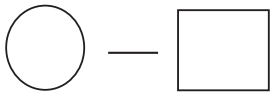
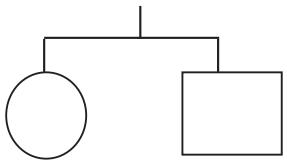
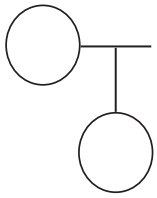
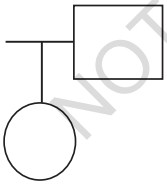
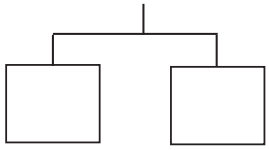
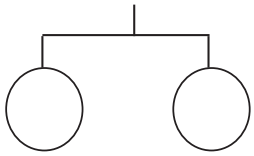
Sl.No.	Name	Relationship
1.	Priya	elder sister
2.	Rakshith-Radha	
3.	Prema	
4.	Ramappa, Bhagyamma	
5.	Ravi, Vinutha	
6.	Pallavi	
7.	Sharan, Suma	
8.	Raju, Ramya	
9.	Kiran	
10.	Keerthana	

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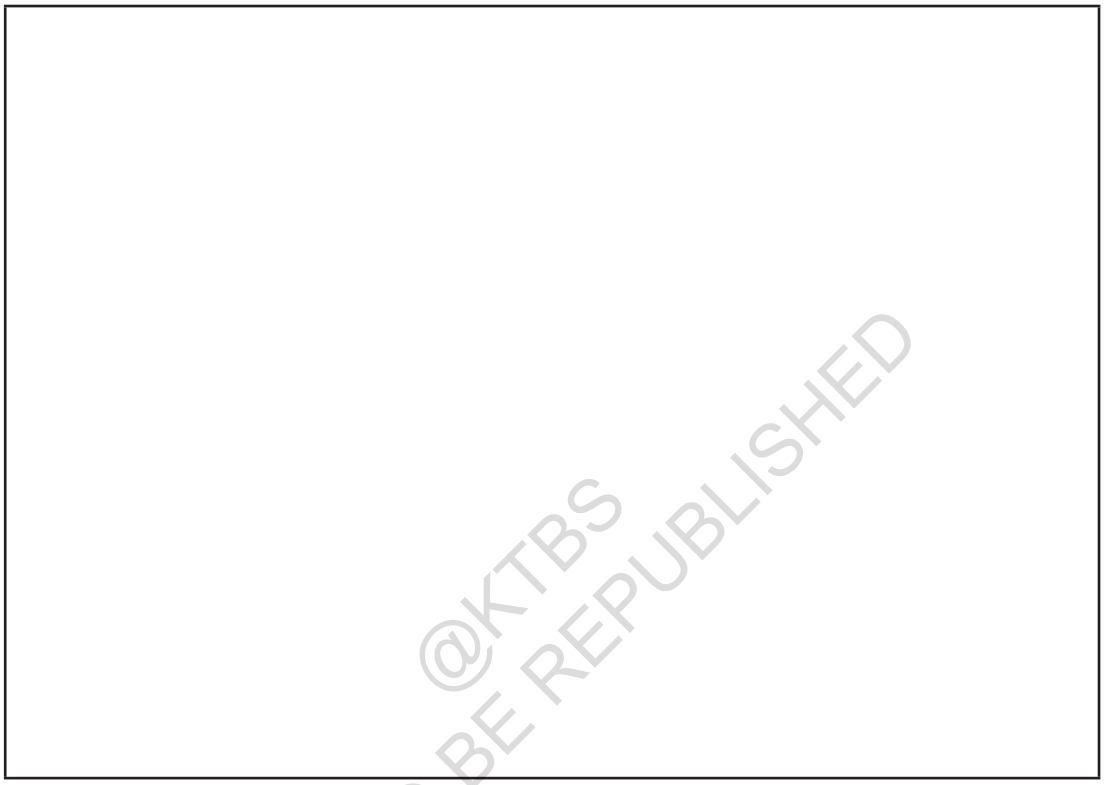
Think : Is Prema's and Manu's relationship the same with all these people.

While drawing the family tree, □ symbol for men and ○ symbol for women have been used. Look at the symbols given below and name the relationship.

Sl.No.	Sign	Relationship
1.		wife-husband
2.		
3.		
4.		father-daughter
5.		
6.		elder sister-younger sister

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You have been introduced to my family. Now, you draw your family tree.



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Compare your family tree with mine and answer the questions that are given below :

1. How many generations are there in my family?

_____

2. How many generations are there in your family?

_____

3. Which is the bigger family of our two families? How?

_____

There are four generations in my family. All of us live together in the same house. All of us have our meals together. We celebrate festivals and other functions together. We all get the love of our great grandfather and great grandmother. All of us take care of them with respect. My family members do all the work with their guidance. This type of a family with more than 2 generations, living together in the same house is called as a joint family.

In my aunt Prema's family, only four members are there. Prema aunty, Ashok uncle and their two children. Prema aunty's Mother-in-law and Father-in-law live in a different city. Hence their family is a small family. This type of a small family with only two generations living together is called as a nuclear family.

Do you want to know the type of your family?

Then put (✓) or (×) marks for the following family features. If you have more of (✓) marks, then your family is a nuclear family and if you have more of (×) mark then your family is a joint family.

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Sl.No	Features of the family	Yes (✓)	No (X)
1.	There are 2 generations in my family.		
2.	We are all related.		
3.	The elders in the house are father and mother.		
4.	The size of my family is small.		
5.	All the children of the family are unmarried.		

With the help of the above features, we come to know that my family is a _____ family.

Do you know this?

- While preparing a family tree, the names of children are written according to the seniority.
- In a family tree the names of the children of that family from the eldest to the youngest is first written and then the names of their husband/wife are written.
- The word **family tree** indicates that many generations spread out and grow just like the many branches of the tree. But while drawing a family tree it is written from the eldest to the youngest from top to bottom. It is written this way, to denote the younger generations after the older generations.

Now, I will introduce my friend's families to you.

Come, let us see my friend's family. His family is a joint family.



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You have seen my friend's family. Write your opinion about his family.

_____

_____

_____

Write the similarities and differences you have noticed so far among my, your and my friend's families.

Similarities	Differences

My friend's family is a joint family. Discuss with friends and write the advantages and disadvantages of this family.

Sl.No	Advantages	Disadvantages

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Now, let us go to the house of another friend of mine. Her mother is telling something. Let us listen to her.



I grew up in a big family. There were 25 members in my family. Everybody took the responsibility of nurturing and taking care of the children. When I was young, grandmother used to tell stories. My grandfather told me how to behave. But now, in my family we are only me, my husband and my two children. Now I have to take lunch to my husband who is hospitalized. Where do I leave my small child? This is my worry now.

Her neighbour Razia didi has come now. Let us listen to what she will say.



Don't worry. Leave your little child in my house. I will take care. We should help one another, when we are neighbours, shouldn't we?

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Did you hear? My friend's mother's worry has been solved. Then, who is there to help your family? Write the various types of help they have done for your family in the space provided.

Who?	What type of help?



Think : Have relatives/friends who live in a far away city ever helped you?

I have introduced you to different families. Read the below aspects and differentiate as **my family** and **others**. Write the differences in the boxes provided in the next page.

- Taking care and protection
- Give the required education.
- Provide provisions for food.
- Teach lessons.
- Consoling if we lose in the game.
- Provide treatment when sick.
- Show love and affection.
- Provide necessities.
- Support when mother is not there.
- Spare lots of time.

My family	Others

Along with the members of my family, others and neighbours also help us.

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Activity : Visit 10 houses in your neighbourhood. Write down the name of the head of the family in every house and mention the number of members in that family. Observe the example. Fill in the information in the format as shown.

Sl.No	Name of the head of the family	Number of members in the family	Who are they? Give the relationship with the head of the family
Example	Ramanna	6	Father,mother,wife, son, daughter
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

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Answer the following questions, based on the above information :

1. Number of families which have less than 5 members

   _____

2. Number of families which have more than 5 members

   _____

3. Number of families which have 2 generations _____

4. Number of families which have more than 2 generations _____

5. After doing this activity, I learnt

_____

_____

_____

_____

_____



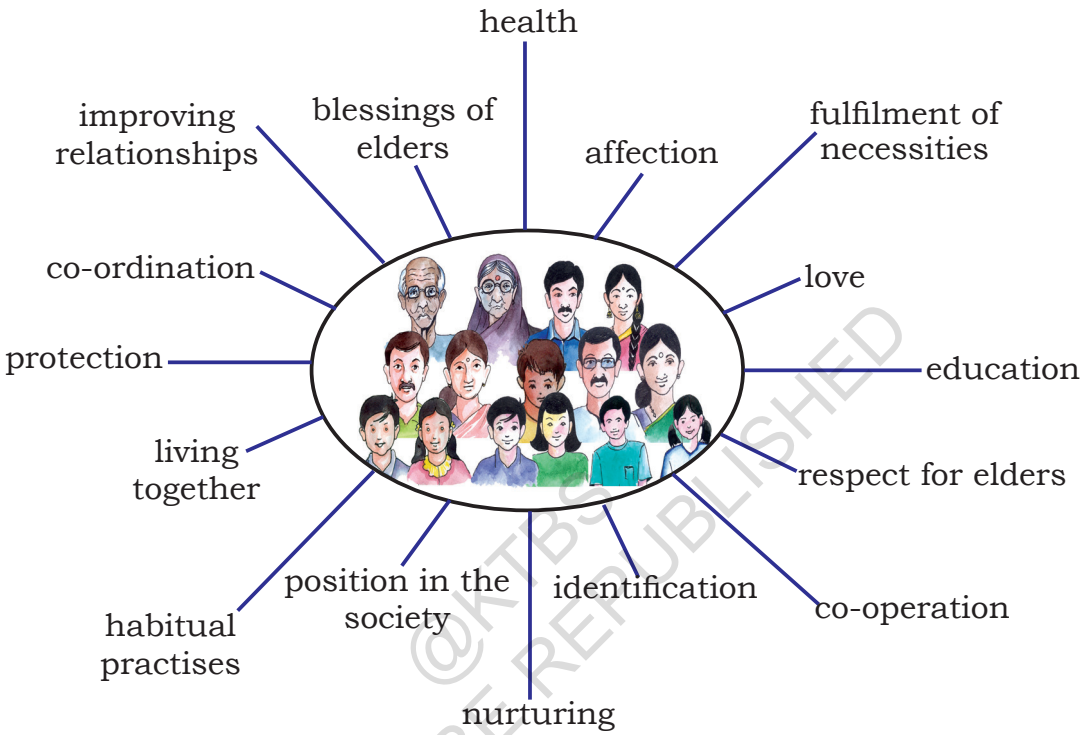
Know this : Now a days, due to reasons like job, income, education, life style, etc., a lot of changes are taking place in the structure of a family. Nuclear families are increasing.

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Sing and enjoy

Open the door and you will see,
Mother,father,sister and me,
We are a little family of four
Who live and eat together for sure.
I love my family, Oh! yes I do,
My mother, father and sister too.
They play with me and take me out
They love me too and I love them.
My life I cannot think without,
My lovely little family of four.

■ **Answer the following questions with the help of the picture given below:**



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1. What are the good qualities I learn from a family?

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

2. Why do I need a family?

_____

_____

_____

_____

_____

LESSON - 3
COMMUNITY

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Group of people living in a specific area is called a community. Members of the community are interdependent on each other for many things. Community is called with many other names.

Example - Rural community, Urban community, Tribal community.

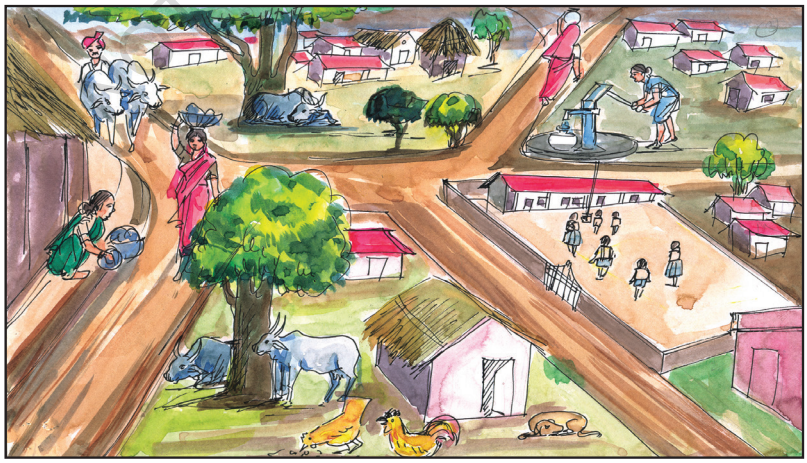
After studying this lesson you,

- recognize the features and types of communites.
- know about rural community, its occupations, problems of rural people and solutions for them.
- know about the life style of urban people, their problems and solutions for them.
- get introduced to the tribal community.
- appreciate the dignity of labour by understanding the need of different occupations and their values.
- recognize the assistance of the community during natural calamities.

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Different communities

Here is a picture of a village. Look, Don't you see many houses?



There are many families living in this village. The group of all these families is called a community.

Think : Many families from different places have come to participate in a big fair. Can we call it a community?

Read the story of Ravi and answer the questions that follow.

Ravi's house is in Anandapura. His father was born and brought up in that village. Likewise many people have been living in the village for many years. When there is a funtion in someone's house, then everybody help. Being a farmer, Ravi's father is dependent on others to get his work done..

What are the features of a community? (Any three).

_____

_____

_____

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Know this

- Group of people living in a particular place with **we feeling** for a long time is called a community. Every member of the community will have the feeling of dependency on the community. The feeling of dependency is more, if the community is small. This feeling decreases as the size of the community increases.
- It is found that most of the animals in the environment live in groups and it forms their community. The speciality of honeybee and ants is that they live in a community and distribute the work among themselves. Identify the communities of living beings found around you and discuss about it with your friends.





Write the aspects identified by you in the pictures, given.

	Identified aspect
Rural community 	_____ _____ _____ _____ _____
Urban community 	_____ _____ _____ _____ _____
Tribal community 	_____ _____ _____ _____ _____

There are different communities like rural community urban community and tribal community.

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Here is a picture of a rural community. You can see many activities in the pictures. Differentiate agricultural activities and non agricultural activities and write them separately in the space given below.



Agricultural activities	**Non-agricultural activities**

Each family in a community needs many things and equipments for their day-to-day activities. Interdependence is found more in rural communities. People respect all occupations.

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Activity : Make a list of implements required by a farmer for agricultural activities. From whom do we get them? Write it in the space given below.

Equipment	From whom?

In India, 72% of the total population live in villages. Agriculture is the major occupation of 70% of these people. Along with agriculture other occupations like dairy (rearing cow, buffalo), poultry, fishery, sericulture etc,. are also done. We also find occupations like **weaving, blacksmithing, carpentry, basket weaving** and others in villages. Agricultural activities are totally dependent on rain. Villages have problems related to hygiene, health, education and jobs. The Government has introduced many rural development programmes. They are -

1. Rozgar Yojana and Jawahara Gram Samruddi Yojana for the educated youth in villages for self employment.
2. Sarva Shiksha Abhiyana to give quality education.
3. Nirmala Grama Yojana for the cleanliness of villages.
4. Bhagyalakshmi Yojana for the better future of girls.
5. Ashraya Yojana to provide free sites and grants and loans to build houses for the poor.

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Answer the following questions each.

1. Write the various occupations found in villages.

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

2. What are the problems faced by people in villages?

_____

_____

_____

_____

_____

3. Write about any one programme, implemented by the Government for rural development.

_____

_____

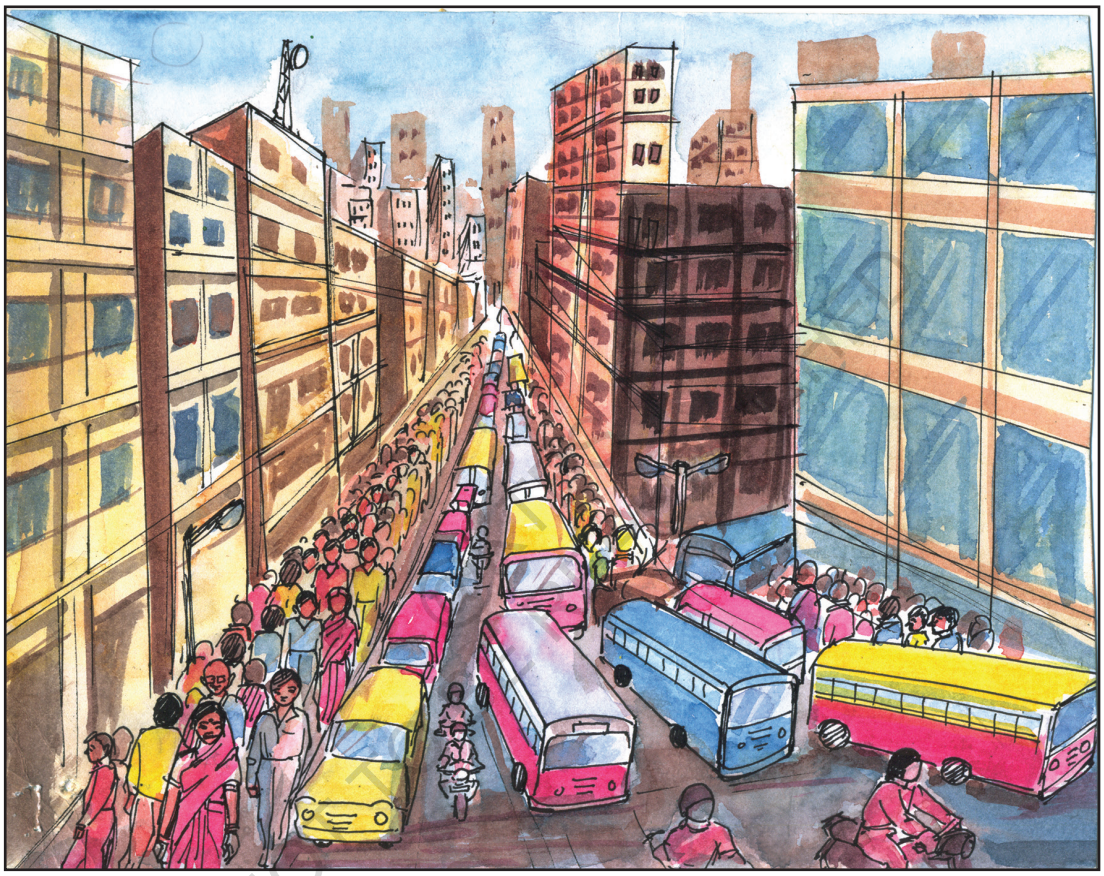
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Urban community

Here is a picture of a mega city. What do you see in the picture? Make a list of them in the space given below.



_____

_____

_____

_____

People migrate to cities in search of jobs and for better education. People in cities are engaged in different occupations.

Look at the pictures given below. Write what kind of jobs these people are engaged in? If you find the people engaged in these occupations in your locality, put (✓) mark.

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India has nearly five thousand cities. There are 27 cities with a population of one million or more. Bengaluru, our capital city is one among them.

Here are some pictures which give a complete picture of a city. Look at these pictures and answer the questions that follow.










1. What do you see when you visit a city?

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

_____ _____ _____ _____

2. Some of the pictures are related to environmental pollution. Put (✓) mark against them.

3. What are the problems you face, if you are living in a city?

_____

_____

_____

_____

_____

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4. Discuss the environmental hazards due to the development of cities?

_____

_____

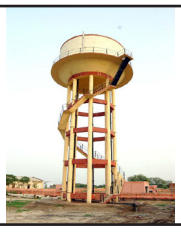
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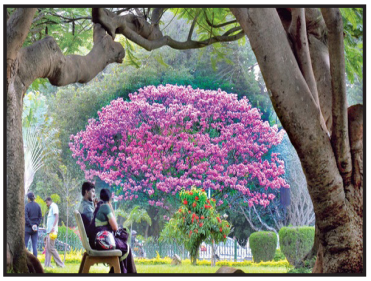
Discuss the given topics with your friends under the guidance of your teacher. Present it to the class.

- Housing problem in cities
- Traffic jam
- Pollution in industrial areas
- Disposal of garbage
- Slum areas
- Water pollution

The Government has undertaken many programmes to solve these problems.

Underground drainage system	
Supply of pure drinking water	

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Well equipped bus stations and railway stations	 
Ring roads in the outskirts of the city	
Developing gardens	

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It is the responsibility of every citizen living in the cities to keep the cities clean. They should co-operate with the Government to maintain the cleanliness of the city. People should live with co-operation, love and friendship.

Tribal community



Observe the picture and explain how it differs from your environment. Write it in the space given below.

_____

_____

_____

_____

_____

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Families living in dense forests or hilly areas are called Tribal community. The living conditions, language, dress, and marriage system of the tribals are distinct. In Karnataka, Soligas of Mysuru district, Koragas of Dakshina Kannada, Jenu kurabas and Yeravas of Kodagu district are the tribal communities.









Identify the occupation of the tribals in the given picture and write them in the space given.



_____



_____



_____



_____

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Since tribal communities live in forests and hilly areas, they are deprived of health, residence, education, transport, food, and electricity facilities. The Government is trying to provide education, food, house and health facilities to these people in the recent years.

You know that a group of people living together to fulfill their basic needs and to help each other is called a community. Different types of communities can be seen in rural, urban and tribal communities.



Know this

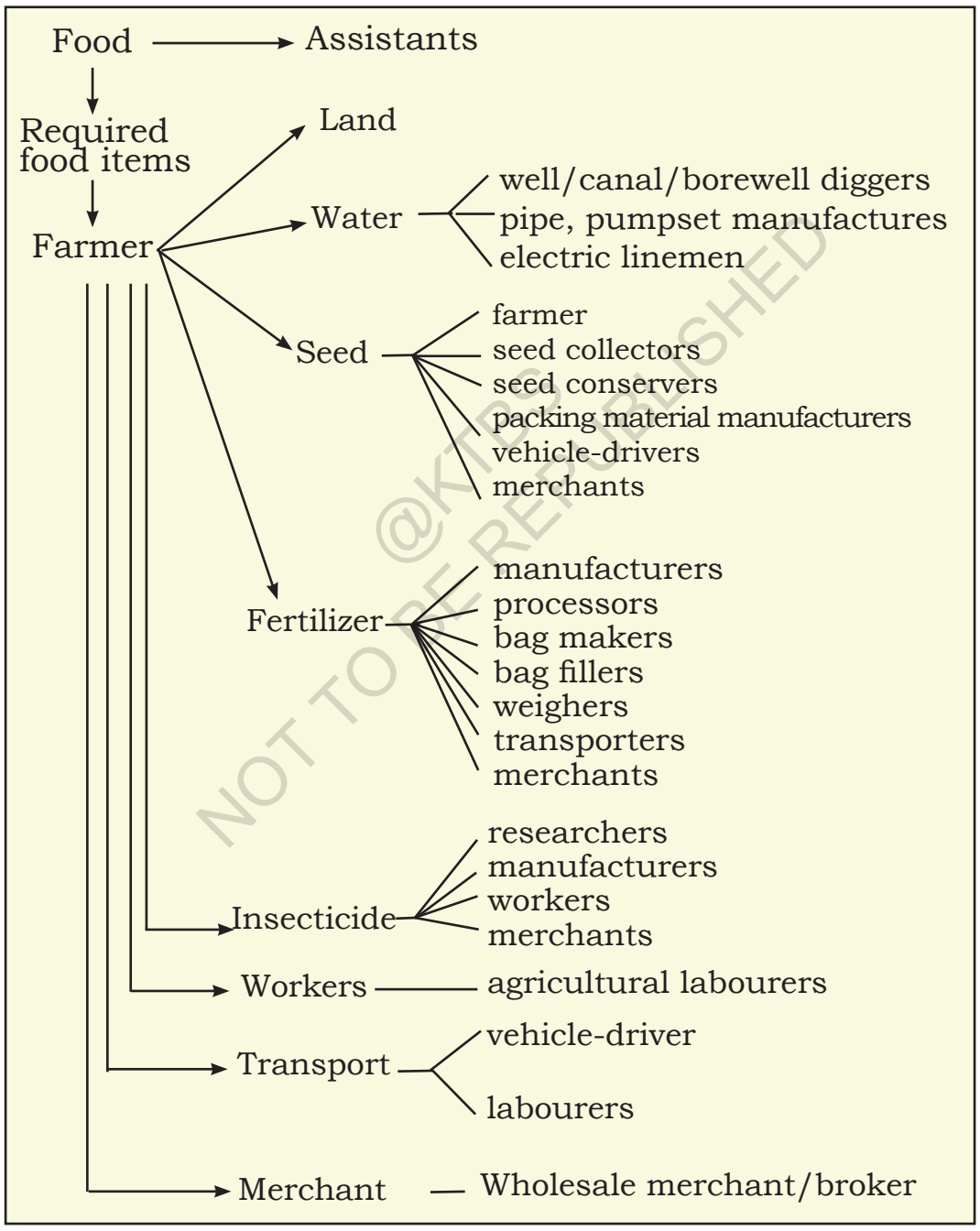
Different types of Communities

- Community of like minded people come together to exchange their ideas and opinions. **For example,** Community of people interested in folk lore and arts
- Community of people who work together to bring change or to achieve something in their endeavour. **For example,** community of nature lovers.
- People belonging to the same profession or same vocation come together to form a community. **For example,** community of teachers.

Like this, people get together because of their interest, time, leisure, practice, occupation, and hobby. They form their own communities. Communities are not only formed among families but also between persons because of their individual relationships. Apart from these, caste, religion, aim, language, culture, age and sex, etc., are also basis for formation of communities.

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You have already learnt about the jobs/occupations. Do you know how many people help to get the food you eat? Observe the chart given below and write what you have learnt from this.



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_____

_____

_____

Wow! how many people have worked to get the food we eat. Then think of those people who toiled behind the manufacturing of clothes we wear, building houses we live in etc., Work will not be completed without a single person in this chain. We should not think, that we can buy anything easily by paying money. We should not forget that many people have worked hard for the production of goods and food items we use. We should respect each and every job/occupations and also respect each and every person in the community.

How do we get salt which is prepared by sea-water. Make a chart of persons who help produce salt and distribute it to the people. (Take the help of your teacher)

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You know that, there should be different occupations for the development of a community. With the occupations which provide basic needs of the community, there are people who follow other proffessions in a community.

Look at the pictures. Who are they? How are they useful to us? Write it in the space given below the pictures.

		
_____ _____	_____ _____	_____ _____
		
_____ _____	_____ _____	_____ _____
		
_____ _____	_____ _____	_____ _____

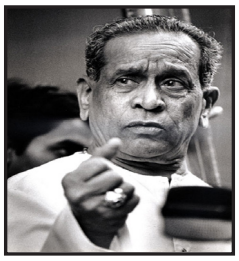
In a community, along with people who manufacture and supply things, people who clean the environment and people who provide the basic necessities of life, we also need people who entertain, give happiness, give information and relief. Eveybody in the community has to contribute for its development. Every occupation has its own value and we should respect everyone.

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Here are pictures of some achievers. Who are they? Can you identify and write the field of their achievement.







_____ _____ _____

_____ _____ _____

- Collect pictures of persons who have excelled in different fields. Exhibit them in the classroom.
- Which occupation would you like to choose when you grown up? What are the advantages of your choice to the community? Share your opinion in your class.

Look at the picture given below. Explain the situation in the picture.



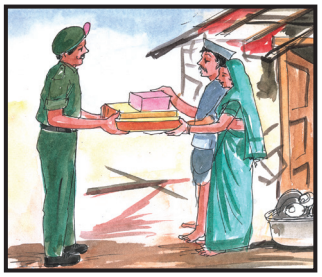
_____

_____

_____

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Look at the picture and explain how this family has been supported in different ways.


_____

_____

_____

When somebody in the community is in trouble, others will help them. Likewise if there are natural calamities such as floods, droughts, earth quakes etc., other communities help the affected community




What have you learnt from this ? Write it in the space given.

_____

_____

Every person is a part of the community. Community is formed by every member living in the community. It is not possible to live without the co-operation of the community

So, when situation demands, we should help others in the community.

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LESSON - 4

COMMUNITY - GAMES

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The community has given rise to games. To relax and spend free time, people have made games, a means. Games build the relationships among individuals in a community. It provides an opportunity for elders and youngsters of the community to play together. Games are nothing but activities that people have formed for entertainment and physical exercise. This has definitely increased the harmony in the community by being responsible for all to play and enjoy together.

After studying this lesson you,

- become aware of the importance of games and excercises.
- get introduced to adventure games.

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Sunday is a holiday to school. You are in a holiday mood. How will you spend your time on a holiday? Write all that you will do on that day.

- _____
- _____
- _____
- _____
- _____
- _____
- _____

Among these identify the activity which will give you maximum happiness. Is there a game in it?

Then, observe the list given below. Pick the uses of games from the list and write.

• happiness • writing skill • development of intelligence • co-operation	• entertainment • competitive spirit • attitude to accept both success and failure equally.	• hunger is pacified • Protection of environment • physical exercise • friendship • knowledge

_____ _____ _____

_____ _____ _____

_____ _____ _____

_____ _____ _____

Observe these pictures. These people do this everyday without fail. Write what these people are doing.

	_____ _____
	_____ _____

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	_____ _____
	_____ _____

Physical and mental health will develop, if games, yoga and physical excercises are done as per the need regularly.The body will be strong and the weight of the body can be maintained. The body will also look beautiful, if it has a good physical structure. It increases our self confidence. Free time will be utilized beneficially. We can be active and happy always, as games give entertainment and happiness.

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Think

- What kind of problems will a person who does not indulge in physical activities have?
- What steps should a heavy person follow, to lose weight according to you?

Are only we benefitted from games?

National and international games help to build friendship and co-operation with other states and countries which helps to improve the bond between different countries.

Write the names of a few international games.

- _____
- _____
- _____
- _____
- _____

Stick a picture of India playing any game with another country, in the space provided below.

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See these pictures. Choose the names from the list given below and write. (Get the help of the teacher if needed)





_____ _____





_____ _____

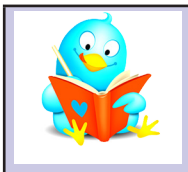


_____

(river rafting, mountaineering, sky diving, rock climbing, mount cycling)

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Don't you feel like saying, **Wow!** when you see these pictures? These are also games. They are called **adventure games**.



Know this :

Games which provide excitement and a special experience with special physical competence are called adventure games. These games offer challenge to reach the goal in not so common situations. These games need a lot of preparation, speed, skill, training and physical exercising to meet the new challenges it has to offer. Such games provide a lot of happiness, determination to face dangers, mental stability, physical fitness and entertainment. But they are definitely dangerous games. Hence the cautions given below have to be followed.

- Should not participate in such games without proper training and guidance.
- Before participating in such games, all the necessary special equipment have to be procured and required skills have to be developed.
- Have to behave with a lot of patience and responsibility. Situations will have to be handled with competence.
- Must prepare well ahead and gain sufficient experience to face the threat, harm and dangers of such adventure games by practising well to face the challenges.
- Should participate in the games with co-operation of the team.

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Here are given a few pictures of the native adventure games. Write the names of these games with the help of elders.













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Collect and write the details of any one adventure game, known to your family members.

- _____
- _____
- _____
- _____
- _____
- _____
- _____

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Do you know this?

- The highest peak in the world, Mount Everest was first climbed by Edmund Hillary and Tensing Norgay.
- Bachendri Pal was the first Indian woman to climb Mt.everest.
- Native adventure games reflect our culture but they are being overshadowed by the advent of new technology like TV and internet.
- Wrestling is a sport game which had gained prominence right from the time of the Maharaja of Mysuru. Even to this day, it has remained a part of the Dasara games.
- Cycling, swimming, brisk walking and yoga are some very good excercies. This helps to improve one's health.

LESSON - 5

NATURAL RESOURCES

W9P4J3

Our earth consists of essential resources which support life. Water, soil, air, minerals, plants, animals etc., which occur naturally on earth are called resources. These resources are necessary for all living organisms including man. These are the most valuable things in the progress of mankind.

After studying this lesson you,

- understand the need of natural resources.
- know the types of natural resources.
- understand the significance of different resources.
- classify natural resources into renewable and non-renewable resources.
- realise the moderate use of natural resources and their conservation.

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Solve the following riddles to identify natural resources.

1. You can't live without me
   Every plant, tree, animal needs me
   Nobody can see me.

   Who am I? _____

2. I occupy major portion of the earth
   I satisfy all your thirst
   I make animal, tree and plant cool

   Who am I? _____

3. I let you live on me
   I help to grow plants and trees
   I support all life on me

   Who am I? _____

4. I give fruits and nuts

I spread cooling shades

No life without me

Who am I? _____

5. Vehicles like bus, lorry and car use me to run

Took thousands of years to form me

From underneath the soil you extract me.

Who am I? _____

6. Plate, tumbler and vessels are made up of me

Beautiful jewels are made up of me

My ore will be hardened by you

Who am I? _____

7. Darkness drives away from me

Bright light comes from me

A source of energy, that is me

Who am I? ____

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Generally natural resources can be classified as renewable and non-renewable resources.

1. Renewable resources

Resources like solar energy, air, water, soil, forest etc., are available in nature inspite of their usage. Since these are continuosly available over the period of human life time, these resources are called **renewable resources.**

2. Non-renewable resources

Resources like coal, petrol, diesel, and natural gases will run out due to their continuous usage. Such resources cannot be renewed. Hence these resources are called as **non-renewable resources.**

Put the following resources into the suitable baskets, by drawing lines.

coal
iron
petrol
diesel
cooking gas
water
oxygen
forest
gold
wild animals
solar energy



Renewable Resources



Non-Renewable Resources

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You have learnt about the types of natural resources. Let us now know about renewable resources in detail.

Solar energy

Solar energy is the energy obtained from the sun. Sun is the main source of heat and light to the earth. We get light and heat from the sun. You know that plants prepare their food using solar energy.

- Make a list of the activities done using solar energy.

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

Do this : Take two pots filled with soil. Put a bean seed in each pot. Keep one pot in a place with sunlight and another pot in a dark corner. Water the pots daily. Observe the changes after fifteen days. Record what you have observed.

_____

_____

_____

_____

_____

_____

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You will learn more about solar energy in the unit **Amazing Energy.**

Air and water are also natural resources. You will know about these in the next units.

Soil :

We walk on soil. We live on soil. Soil is also a renewable resource like water. Soil is necessary for the growth of plants. You already know that plants get water and salts required to prepared their food from soil. You will know more in detail about soil in higher classes.

- **Make a list of activities for which soil is used.**

_____

_____

_____

_____

_____

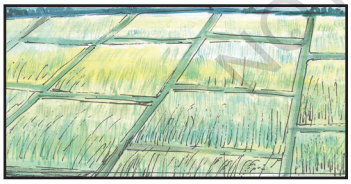


Know this : The outermost rocky layer of the earth is known as crust. Soil is the thin top layer of the crust containing minerals and organic substances. It takes nearly 500 to 1500 years for the formation of about 3 cm of soil. Soil is formed by the weathering of rocks by flowing water, blowing wind and other organisms.

What happens to the top soil in the following circumstances? Discuss with your friends.

- When the wind is stormy
- When there is water current after rain.

The following measures are taken to preserve the top soil from erosion. Observe the pictures. Note down what you have learnt.







_____ _____ _____

_____ _____ _____



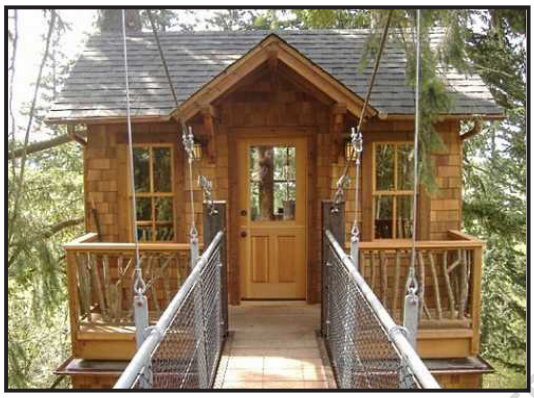
Know this : **Contour farming :** Farming according to the shape of land to prevent soil erosion is called contour farming.

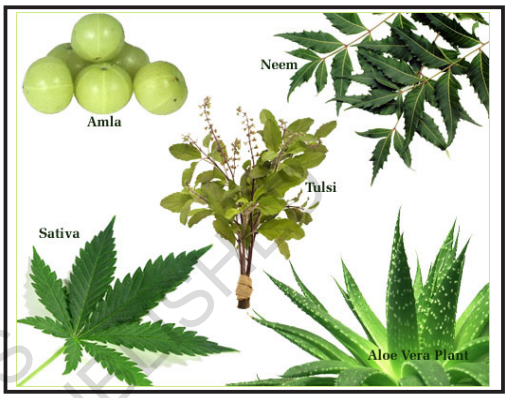
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Forests

Forests are the natural habitat of wild animals and birds. They provide the necessary food to the animals and many useful materials to man.

Observe these pictures and make a list of the uses of forests.







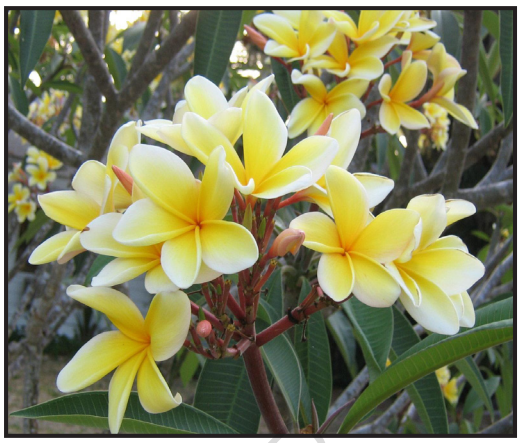






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- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

Discuss about some other uses of forests with your friends



Know this : Forests are also one of the natural resources. They provide fruits, flowers, medicinal plants, wood etc,. Forests are the shelters for tribals. Forests prevent soil erosion (washing or blowing away of top soil). The trees give out oxygen and increase its quantity in the atmosphere. Such useful and valuable forests are being destroyed for various human activities like urbanization, industrialization, construction of dams etc,. We must not forget that **destruction of forests is destruction of life.**

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Conservation of forests

Forests can be conserved by restricting unnecessary felling of trees, tree planting, proper usage of forest products, cutting down tree branches causing forest fire etc,. The Government has made amendment to National Forest Policy in 1988 and has taken many steps to nurture and conserve the forests.



Know this

- The Government is maintaining and conserving national forests through the forest department.
- Village panchayath and local community protect social forests.
- National park and wild life sanctuaries - Some forests are identified and preserved along with its wild life. **Example :** Bannerughatta and Bandipura forests are protected by making many laws. Felling of trees, smuggling of wood, hunting wild animals are punishable offenses.
- Some religious beliefs and rituals are also helpful to conserve forests.

  Example : Nagabana of Dakshina Kannada, Devarakadu located in Kodagu. Cutting down of trees is prohibited here.

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Many movements have taken place against deforestation when the implementation of several mega projects, were proposed.



Know this

- Panduranga Hegade initiated **Appiko movement** to prevent deforestation in westerns ghats rich in diversified wild life in Karnataka.
- Environmentalists of Kerala successfully stopped a hydro electric power scheme proposed by the Government in silent valley by conducting **silent valley movement**.
- **Save forests (the jungle bachao) movement** triggered in Bihar for the conservation of forests reached even Jarkhand and Odisha and saved many forests
- Sundar lal Bahuguna opposed cutting down of trees by the well known **Chipko movement** in Himalayan region and thus saved many forests.

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- Conservation of forests is everyone's responsibility. Why? Write here.

Know this



Salumarada Thimmakka, a proud daughter of Karnataka is known as **Vruksha mathe** throughout the country. Daughter of Vijayamma and Chikkarangaiah of Gubbi taluk, Tumkur district, Thimmakka was married to Bikkala Chikkaiah of Hulikal village and stayed there. Later on, she has planted and protected Banian trees beside the road from her village Hulikal to Kudur with the help of her husband.

Considering these trees as her children, Thimmakka dedicated her entire life for them. Hence centenarian Thimmakka is called **Salumarada Thimmakka.** The Government of Karnataka has declared a project called **Salumarada Thimmakkana Neralu Yojane** in its budget 2014-15.

Hundreds of awards have been conferred for her immense concern towards nature. The important awards are -

* Nadoja Award - Kannada University, Hampi.
* Karnataka Rajyotsava award.
* Indira Priyadarshini Vruksha Mitra Award - Government of India.
* Parisara Rathna Award

Salumarada Thimmakka is a role model for all of us in the conservation of environment. Her concern towards environment is remarkable and it should be followed by us.

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Know this : Animals are also renewable resources. They enhance their population by reproduction. Sometimes hunting of wild animals leads to the extinction of their race and thereby make them non renewable sources. It is our duty to conserve such resources.

You have learnt about renewable resources. Let us know about some non-renewable resources.

Fuels

Fuels are substances which release heat and energy on burning. We use fuel for many purposes.

Example : running vehicles, cooking food.

- Name three fuels used to run vehicles

_____ _____ _____

- Name three fuels used to cook food at home.

_____ _____ _____

Fossil fuels are formed by the remains of extinct plants and animals which were burried under the earth's crust over millions of years. The main fossil fuels are petroleum, natural gas and coal.

- **Petroleum :** Petrol, diesel, kerosene, wax etc., are the byproducts of petroleum. Petroleum is a **liquid mineral** formed beneath the earth. It is formed by the action of bacteria, heat and pressure on dead organisms buried under the layers of the rocks.

The byproducts of petroleum like wax and paraffin are used in making candles, wood polish, ointments, dyes, lipsticks, chemical fertilizers, vaseline jelly, etc.,

- **Natural gas :** Natural gas is found with petroleum in petroleum wells. Compressed natural gas is used as an alternative fuel to petrol and diesel to run vehicles.

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Know this : You have seen the use of cooking gas at home. This is called Liquified Petroleum Gas - LPG. It is obtained by refining petroleum or moist natural gas.



- **Coal :** Millions of years ago, the remains of plants and trees that were buried beneath the earth's crust did not decay completely. Due to the high temperature and pressure, they turned into coal under the layers of the rocks. This is used as fuel in the production of electricity. This source of energy is also used in industries.

Write examples for the following.

Solid fuel : _____

Liquid fuel : _____

Gaseous fuel : _____

What measures can be taken to conserve the following fuels? Write here.

Cooking gas	Diesel/Petrol



Know this : Excessive use of fuels is dangerous to the environment. Now-a-days efforts are being made to use alternative sources of energy like solar energy.

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Mineral resources

Minerals are formed in the earth as a result of prolonged natural process. They are available along with rocks in the surface of the earth. Minerals are extracted in the form of ore, refined in factories and metals are separated from them.

Example : Separation of iron from iron ore.

Metals like aluminium, copper, silver etc., are extracted from their ores.

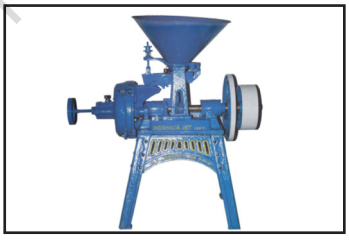
Word help

Mineral : It is a multi useful material available in nature. Its composition can be represented by the chemical formula.

■ **Look at the following pictures and write the uses of minerals.**








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Think : What would have happened if there were no minerals?

Explain in your class about the minerals used at your home.



Know this : Regaining of emptied mineral resources depends on the scientific process, that takes place inside the earth. Minerals are formed over millions of years. Hence they must be used moderately.

- Write the uses of the natural resources given in the table

Natural resources	Uses
soil	
forests	
solar energy	
animals	
fossil fuels	
minerals	

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- List out the materials used in the construction of your house. Identify by marking (✓) to the natural resources among them. What have you learnt from this activity?

_____

_____

_____

_____

_____

_____

_____

_____

- The availability of natural resources that fulfill our needs is not uniform everywhere. The quality of available resources is also not the same. As a result of excessive usage (more than our requirements) there is scarcity of such natural resources. If the same condition persists, some of the resources may not be available in the future. Hence these resources must be used moderately and they must be reused, if possible.

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Know this

- Natural resources are there to fulfill our needs but not to fulfill our greed.
- Natural resources should be used moderately and the balance in nature should be maintained.

Do you know this?

- In earlier days, natural things like mountains, forests, minerals, animals, soil, water etc., were considered as natural resources. Now a days it has got a wider meaning. The meaning of the word resource is changing with time.
- A thing once considered as a resource, may not be considered as a resource after some years.

  Example : Natural gas is a resource now, but it was not so about a thousand years ago.
- Sun light, water, soil available everywhere on the earth are called universal resources.
- If forest resource is used for fire wood and wooden logs, then it cannot be reused again. As a result, forests become non-renewable resources. Growing more trees and moderate use of wood can make the forests renewable.
- Now-a-days, sea water can be converted into pure water for drinking purpose by using some methods. But these methods are very expensive.
- Human beings with innate intelligence, creativity, expertise and aesthetic sense can also be considered as a type of resource.

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LESSON - 6

AIR

V5C8E2

Air is one of the natural resources. The earth is surrounded by layers of air called **atmosphere.** Air being a mixture of many gases is very essential for sustaining the life of animals and plants.

After studying this lesson you,

- know about the existence of air through experiments.
- know the components of air.
- understand some characteristics of air through experiments.
- understand the uses of air.
- discuss about air pollution, causes and effects and remedies.

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- Air is not visible, but its presence can be felt. How do you know that air is in your surroundings? Write 3 experiences about it.

_____

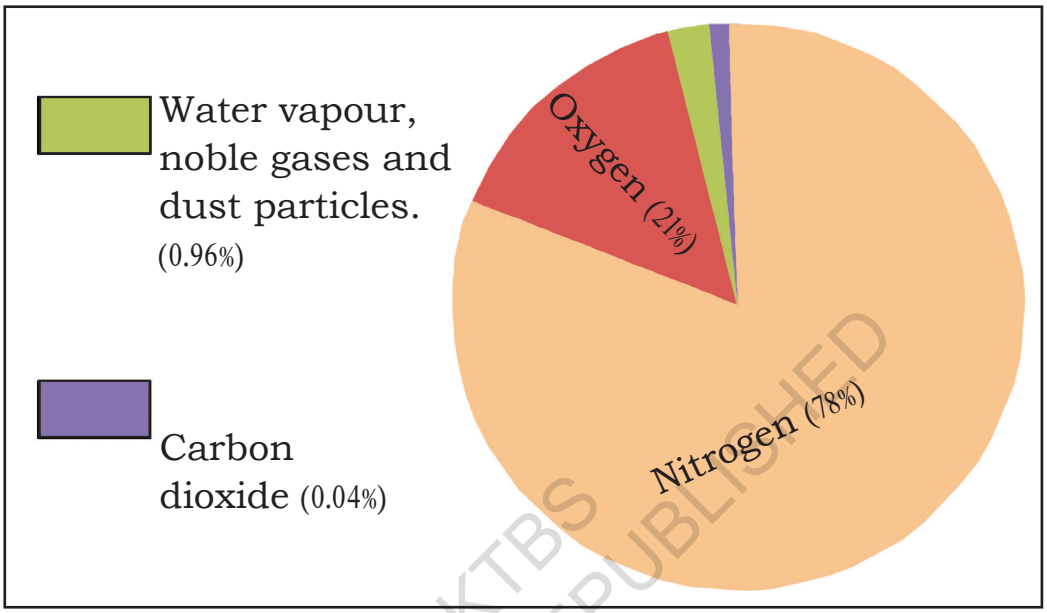
_____

_____



Know this : We use oxygen in air for respiration. We cannot live without respiration. In the same way animals and plants also need oxygen for respiration. Oxygen is necessary for fuels to burn. There are many more uses of air. You will learn about these in the next classes.

Air is a mixture of nitrogen (78%), oxygen (21%), carbon dioxide (0.04%), water vapour, noble gases and dust particles. (0.96%).



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Study the composition of air shown in the picture and answer the following questions.

1. Which gas is the major component of air?

_____

2. What percentage of gas required for our respiration is present in the air?

_____

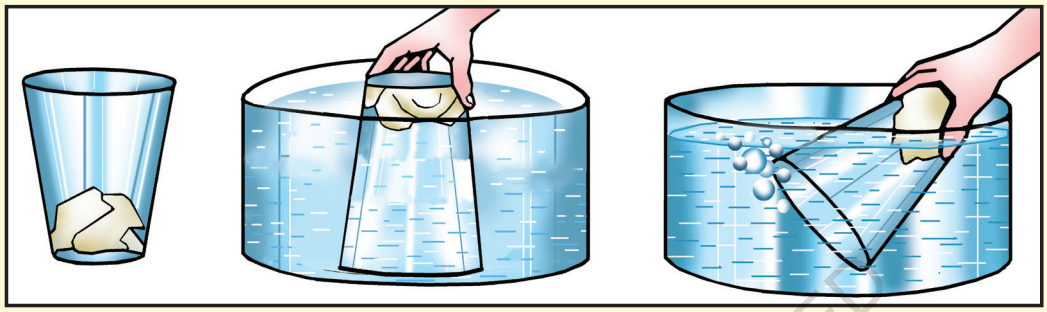
3. What is the normal percentage of carbon dioxide in air?

_____

4. Which is the least component present in air?

_____

Do this : Press a piece of dry paper to the inner bottom of a glass tumbler. Invert the glass and press it carefully in a trough filled with water as shown in the picture.



Observe what happens. Is there water inside the glass? Does the piece of paper in the tumbler get wet? No. Why is it so?

Now tilt the glass slightly. What do you observe? Air bubbles comes out of the tumbler and water goes inside. How does this happen?

An empty tumbler is not really empty. It is filled with air. When it is pressed inversely in the trough filled with water, air comes out and water goes into the tumbler. What do you understand by this activity?



Think : What happens when the tyre of a vehicle gets punctured?



What is being done here to inflame fire in the oven? What do you learn from this? Write here.

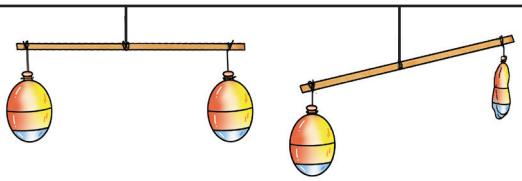


_____

_____

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■ Match by drawing lines

	Air helps things burn
	Air occupies space
	Air has weight

You will know more about the use of wind energy in the unit **amazing energy.**

Moving air is called wind. Wind has enormous energy.

What do you learn from these incidents?

- Roofs of houses are carried away by strong winds.
- While walking on a street, sometimes we feel the wind pushing us.
- Clothes hung out to dry will flutter when the wind blows.

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- A vehicle cannot move if the air inside the tyre comes out.
- Coconut trees swing in strong winds.
- Kites fly up in the sky.

Air is polluted by the smoke released by factories, automobiles, burning of substances and crackers.








Mixing chemicals, dust, micro organisms which are harmful to man and other organisms into air is called **air pollution.** Air gets polluted when chemicals and micro particles of smoke from industries and vechicles mix up with it. It causes serious

health issues like heart disease, cancer, breathing problems etc., It has a negative impact on growth of plants and their yield. Some animal races may get extinct. Since all organisms need air, it is necessary to prevent air pollution. So we must take measures to stop air pollution.

- Write any two measures to prevent air pollution.
  (Get the help of your teacher/elders)

_____

_____



Know this : Some of the measures to be followed to prevent air pollution are as follows.

- Preventing the mixing up of chemical wastes discharged by factories, with air.
- Installing tall chimneys in factories so that the smoke can be released at a higher altitude.
- Using gaseous fuel instead of coal, diesel and petrol
- Designing emission control systems.
- Using public transport.
- Using alternative energy sources like solar energy, hydro electric power and wind power.
- Avoiding burning of substances near civilian areas.

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In the following pair of pictures identify the right and wrong ones keeping in view the concept of air pollution and write the reasons.













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LESSON - 7

WATER

C7J8T4

Water is very essential for the life of plants and animals. Crops cannot be grown without water. Water is a basic need for all. There are many uses of water. So water is a very important resource. It is called **life liquid**. 71% of the earth surface is covered by water.

After studying this lesson you,

- know about the sources of water.
- understand the physical characteristics of water.
- appreciate the biological importance of water.
- know the importance of conservation methods of water.
- verify the traditional and modern ways of water conservation.

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Recall the distribution of water on the earth, that you have learnt in your previous class.

Answer the questions

1. Where can you find more water on the earth?

   _____

2. What is the consumable quantity of fresh water?

   _____

3. What are the sources of fresh water?

   _____

4. Write here the sources of water that you know.

   _____ _____

   _____ _____

   _____ _____

   _____ _____

Rain is the main source of water. Let us know about other sources.

Oceans : Oceans are the biggest source of water on the earth.





Look at this **Globe**. Blue colour indicates the portion of the earth covered by water.

Rivers : Rain is the source of river water also. Melted snow from mountains reaches the river during summer. So rivers overflow. All the rivers flow in their definite route and finally reach the ocean.



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Name some important rivers of Karnataka.

_____ _____

_____ _____

_____ _____

Springs

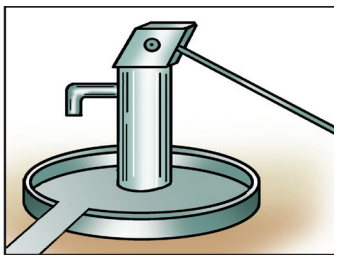
Water that is stored under the earth's crust and comes out due to the pressure through an opening is called **spring**. Rain water which enters the earth through its loose portions will be collected as underground water and this comes out in the form of a spring.



Wells

Underground water obtained by digging the earth's crust to a certain depth is called well water.



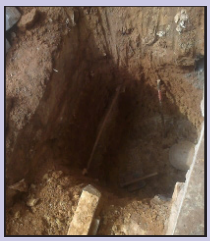


How many types of wells are there? Which are they? Write here.

_____ _____



Know this : Due to the excessive utilization of underground water, it is getting exhausted. It can be regained by the absorption of rain water into the earth. Soak pits must be constructed for this purpose. We have to minimise the utilization of underground water and we have to follow some restoration methods like rain water harvesting, and recycling of water.



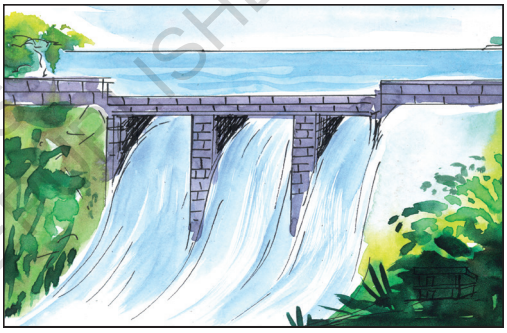
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Ponds



An artificially man-made low level portion of land, to store water is called a pond. Its capacity of water storage is less. It is constructed in such a way that rain water which drains from high level will be stored here. Rain water reaches ponds by running through rivulets (small streams) also.

Reservoires



Dams are constructed across the rivers to store water through out the year and to supply water to places where there is scarcity and also for multi purpose projects.These are capable of storing water in large scale and they are called **reservoirs.**

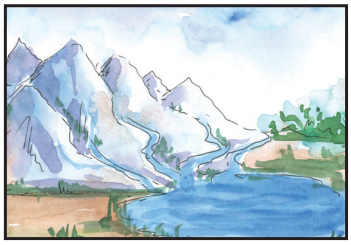
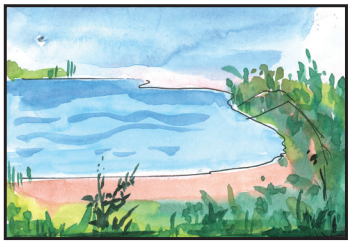
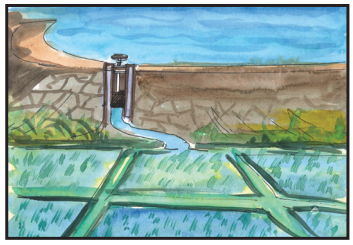
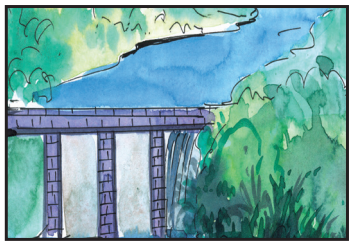
Write the names of water reservoirs in Karnataka

1. _____ 2. _____

Collect the picture of a water reservoir and paste here

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With the help of these pictures note down the differences of pond and reservoir in these boxes. Write their uses also. (Get the help of the teacher)



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Differences

Pond	Reservoir
_____	_____
_____	_____
_____	_____
_____	_____

Uses

Pond	Reservoir
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____



Think : Our elders constructed tanks, ponds and open wells to conserve water. Now-a-days reservoirs are constructed to conserve water. Which one is eco friendly among these? Why?

Collect the information about tank/pond/open well or reservoir which are near your locality by visiting with your teacher/an elder.

- In what kind of place is it constructed?
- How is water collected?
- What are its uses?
- In which season of the year will it be full? In which season will it be empty or less? Why?

From which source do you collect water in your house and at the school? Write here.

At home	At school

List out the uses of water.

At home	At school

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Know this : In the list of uses that you wrote, have you considered the use for transportation? People also travel on water. Yacht/boats are used for shorter distances and also to catch fishes. Ships are used to travel longer distances.





Do this : Collect flowing rain water in a glass bottle. Collect rain drops directly in a bottle. Look at their colour. Write the difference that you find.

_____

_____

Take two glasses of water, add a spoon of sugar to one glass and a spoon of salt to another. Stir them and taste both. Write down what you have understood.

_____

_____

_____

Pure water is colourless, odourless and tasteless. Salts and minerals dissolved in water are responsible for its taste.

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Do these activities with the help of teachers/parents. Then mark (✓) or (×) to the related statements. Correct the wrong statements and write.

Activity	Statement
• Lift an empty tumbler and a tumbler of the same size filled with water.	• Water has weight. ☐ _____
• Pour a cup of water on the stairs.	• Water does not flow from higher level towards lower level. ☐ _____ _____
• Boil water in a small vessel.	• Water evaporates when it boils. ☐ _____ _____
• Put some specific quantity of water in a glass tumbler, a glass bottle, a glass vessel.	• Water does not take the shape of the container. ☐ _____ _____

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You have learnt some physical characteristics of water. Water is a liquid substance. You will learn more about it in the lesson **Nature of matter.** Let us learn the biological importance of water.

Organisms have enormous quantity of water in their body. Plants and animals have 70% of water in their body. Origin of very early life took place in water. Water is essential for biological activities of plants and animals. Water is required for the growth of plants. Green plants need water for the production of their food.



Think : What happens if required quantity of water is not supplied to plants?

Our elders treated this precious water as an integral part of their life. They reserved a prominent place for water in their family rituals. Have you observed this at your home or in your neighbourhood?

- Which are the practices of worshipping water that you have seen in your home or in your neighbourhood? When are they celebrated? Write here.

- How do water sources get polluted?

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Water pollution

Water is physically polluted by mud, garbage, paper, food residuals etc., Water mixed with industrial chemicals, chemical fertilizers and insectisides which have dangerous components turns the water poisionous. Drinking this water may cause diseases like cholera, diarrhea, dysentery etc., Sometimes it may even lead to death. Contaminated water extinguishes the aquatic life also.









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Know this

- You know about the disease cholera, caused by contaminated water. Mosquitoes breed on stagnant water. Mosquitoes spread malaria disease.
- The parasite, Plasmodium is present in the body of the female mosquito called anaphylus. This parasite enters the human blood when a mosquito bites and leads to symptoms of fever, shivering, vomiting and head ache. This is called malaria. If proper treatment is not given, it may causes death.

We should not drink contaminated water. Health can be maintained properly by drinking potable water. Prepare and exhibit a chart in your class by discussing with your friends about what you will do to get pure/potable water?

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LESSON - 8

AGRICULTURE

R6Y6D3



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Read the famous poem (in Kannada) written by Rastrakavi Kuvempu. In this poem, words like Uluva yogi (the person who ploughs), annava dudivane thyagi (the person who sacrifices himself and produces food) have been used. Can you guess who he is? Write your answer in the box given below.

This poem is composed on farmers who provide food for us. Agriculture is the main occupation of the farmers. So farmers are also called agriculturists. Agriculturists engage themselves in agriculture and related activities to lead their life.

Come, let us know certain informations about agriculture and agriculturists.

After studying this lesson you,

- understand the various stages of agriculture and from where we get food.
- understand the nature of work and the problems of farm labourers, small scale farmers and large scale farmers and give solutions.
- understand organic farming and chemical farming and differentiate it.
- know about rain fed agricultural land and irrigated agricultural land.
- understand drip irrigation and spray irrigation and make a list of crops grown in both methods.
- collect information about intensive farming, mixed farming and horticulture.
- recognize the modern and traditional methods/systems of seed storage.

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Remember : Observe the people who are working in the farms and fields. Remember the work they do there. Make a list of them.

1. _____
2. _____
3. _____
4. _____
5. _____

Crops growing in the districts of Karnataka have been given here. Observe.

Sl. No	District	Important crops
1.	Bidar	redgram, wheat, jowar, sugarcane
2.	Kalaburagi	redgram, wheat, jowar, pearl millet, bengalgram, cotton.
3.	Vijayapura	redgram, wheat, jowar, pearl millet, bengalgram, sugarcane, grapes
4.	Yadagiri	jowar, pearl millet, redgram, wheat, paddy, sugarcane
5.	Belagavi	sugarcane, jowar, wheat, bengalgram, groundnut, cotton, tobacco
6.	Bagalakote	sugarcane, wheat, jowar, pearl millet, bengalgram
7.	Raichur	paddy, cotton, jowar, pearl millet, bengalgram, soyabean
8.	Uttara Kannada	paddy, coconut, areca, cardamom, pepper, cashewnut
9.	Dharwad	cotton, jowar, wheat, paddy, sugarcane
10.	Gadag	jowar, wheat, groundnut, cotton, sugarcane
11.	Koppal	paddy, cotton, pearl millet, redgram, sugarcane, greengram
12.	Haveri	cotton, sugarcane, millets, jowar, sunflower
13.	Ballari	jowar, cotton, paddy, redgram, sunflower
14.	Vijayanagara	jowar, cotton, paddy, redgram, sunflower
15.	Shivamogga	areca, ragi, coconut, paddy, sugarcane
16.	Davangere	cotton, paddy, maize, ragi, sugarcane

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17.	Udupi	paddy, coconut, areca, wheat, pepper, cashewnut
18.	Chikkamagaluru	ragi, coffee, paddy, cumin, tea, pepper
19.	Chithradurga	groundnut, maize, cumin, bengalgram
20.	Dakshina Kannada	paddy, coconut, areca, pepper, cashewnut, cocoa
21.	Hassan	paddy, horsegram, ragi, tobacco, coffee, sugarcane,
22.	Tumakuru	ragi, groundnut, coconut, greengram, banana, redgram
23.	Chikkballapura	horsegram, ragi, mulberry
24.	Kodagu	coffee, orange, rubber, pepper, ragi, paddy
25.	Mysuru	paddy, ragi, bengalgram, tobacco, sugarcane, groundnut
26.	Mandya	paddy, ragi, sugarcane, horsegram
27.	Bengaluru South (Ramanagara)	ragi, mulberry, horsegram, cowbeans, mango
28.	Bengaluru rural	ragi, cowbeans, coconut, grapes
29.	Bengaluru urban	ragi, horsegram
30.	Kolara	ragi, horsegram, mulberry
31.	Chamarajanagara	ragi, jowar, mulberry, cowbeans sugarcane

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Make a list of the main crops of your district.

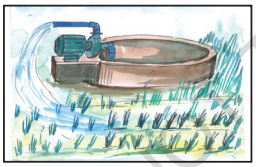
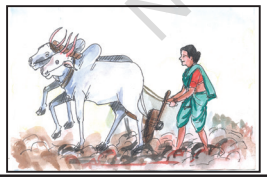
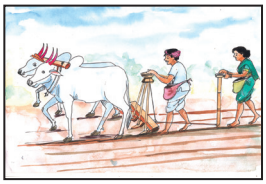
_____ _____

_____ _____

_____ _____

You have listed out the main crops of your district. Haven't you? Some common steps are followed to grow crops.

Look at the pictures given below. Read the statements given in front of the pictures. The pictures and statements do not match with each other. Match the pictures with the correct statements by drawing a line.

	Protecting the crop from animals, birds,insects and diseases.
 	Ploughing the land to grow crops.
	Sowing the seeds to grow crops.
	using chemicals or organic fertilizers for proper growth of the crop.
	Harvesting the crop either manually or with the help of machines.
	Irrigation for the proper growth of crops.

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You have matched the pictures with the correct statements haven't you?

These are the stages of growing crops. You have matched the pictures with the correct statements but they are not in the proper order. Write them in the correct order in the space given below.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____



Think : Plants grown on the agricultural field are called crops. Why?

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You know that farmers involve themselves in agriculture related works. The farmers working in the fields are of three categories.

1. Farm labourers

2. Small scale farmers

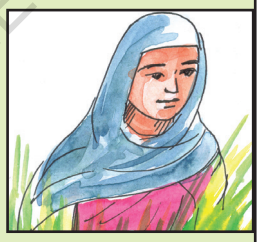
3. Large scale farmers

Read the information given below. Try to understand the three categories of the farmers. You can take the help of your teacher/elders.

It is a village. All the people of the village are living with love, faith and peaceful co-existence.



Rangamma belongs to the same village. She doesn't have agricultural land of her own. It is her responsibility to manage her family. So she does weeding, planting and separating cotton from the plant in other farms. Julakamma of the same village is a close friend of Rangamma.



Julakamma is a farmer. She owns a piece of land. She runs her family by selling crops grown on her farm. Both these women like Manjamma very much.



Manjamma is a successful lady agriculturist. She owns about 10-15 acres of land in the village. Many women of the village like Rangamma, work in her agricultural land. Manjamma not only grows crops but also she rears fowl and cattle. She purchases modern agricultural equipments for cultivation purposes. She also earns money through apiculture (rearing honey bees) and sericulture (silkworm breeding). So people of the village call her a large scale farmer. She always encourages and gives suggestions to the villagers to practice agriculture like her.

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You have read the information, haven't you? Now match characters in the information with the correct words.

Rangamma	Large scale farmer
Julakamma	Farm labourer
Manjamma	Small scale farmer

Farm Labourers

They do not have their own agricultural land. They work in some other person's field to earn their living.

Farm labourers have problems of their own. Here are some statements. Put (✓) mark to the statements that are related and (×) mark to that are not related to the problems of the farm labourers.

1. Farm labourers do not get work through out the year. ☐
2. They get very less wage. ☐
3. Farm labourers are very rich. ☐

Do this : Meet some farm labourers of your village. Write in the space given below, the problems they face.

1) _____

2) _____

Many rules have been implemented to solve the problems of the farm labourers.

Example : It is mandatary to give minimum wages to the labourers.



Think : Think about the solutions for the problems of the farm labourers.

Activity : With the help of your teacher make a list of solutions for the problems of farm labourers.

1) _____

2) _____

3) _____

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Small scale farmers

Small scale farmers own a piece of land of their own. They sell the crop, they grow in their field and earn money to lead life. They also face a number of problems.

Example :

- Shortage of money to cultivate the land.
- As the land holding is little, their earning is not self-sufficient to lead the family.
- Many times they don't get water for the land because of poor irrigation facilities.
- They lack proper guidance to grow crops that suit soil fertility of their land or the seasons.

A number of steps have been taken to solve their problems

Example :

* Monetary aid through bank loans



* Irrigation facilities through canals.



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Apart from these, many more solutions have been provided to these farmers. Make a list of them with the help of your teacher.

1) _____

2) _____

3) _____

Large scale farmers

Usually large scale farmers own more agricultural land. In addition to family members, many others help them in the agricultural practices.

Some statements related to large scale farmers are given here. Observe.

- They purchase and use modern agricultural equipments.
- They store the grains in barns (godowns) and sell it when they get a better price.
- They utilize the monetary facilities of the banks
- Their income is high as they grow different crops.

What are the facilities that large scale farmers get from the banks? Discuss and write in the space given below.

1) _____

2) _____



Think : There are many helpers in the field of large scale farmers. Why?

We know that the farmers do agriculture in their agricultural land. Agricultural land has been classified into two categories.

1) **Rain fed agricultural land** 2) **Irrigated agricultural land**





Farmers grow crops according to the category of the land they own.

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1. Rain fed agricultural land

Agricultural land which falls under less rainfall areas is called **rain-fed agricultural land**. Crops which require less water and are suitable for that soil, are grown there.

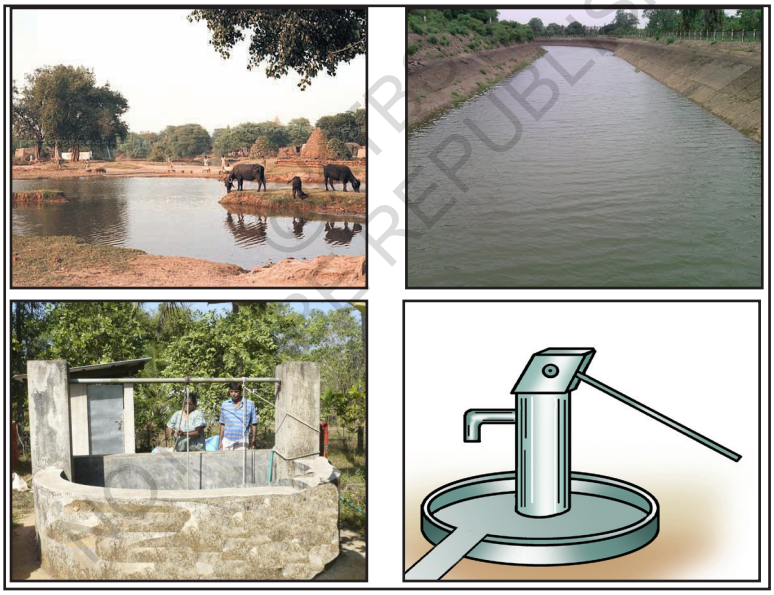
Rain-fed cultivation is called **kuski** or **dry land** cultivation

Activity : Make a list of crops that are grown in rain fed areas.

2. Irrigated agricultural land

Water is an important wealth for farmers. Cultivation of crops is impossible without water. Rain is the main source of water. We don't get rain all the time. So water is stored in different sources and utilized to cultivate the land.

Observe the pictures given below



Apart from rain, water is supplied to the crops from ponds, canals, wells and bore wells. Cultivating the land using water from any of these sources is called **irrigated agriculture.**

Sugar cane, paddy, cotton, are grown depending upon the soil quality of the irrigated land. These crops are called **irrigated crops**.

Activity : Make a list of irrigated crops discussing with your friends.

Water is available for agricultural land from ponds, canals, wells and bore wells. They are called **sources of Irrigation.**

Farmers who have sources of water follow some typical/ distinct irrigation methods to avoid wastage of water.
They are -

1) **Drip irrigation** 2) **Spray (sprinkles) irrigation**





Look at the pictures, try to understand **drip irrigation** and **spray irrigation**.





In drip irrigation, water is supplied to the roots of the crops drop by drop. In spray irrigation, water is sprayed over the crops uniformly as in rainfall.

Activity : Make a list of drip irrigated crops and spray irrigated crops (take the help of teachers/elders).

_____ _____ _____ _____ _____

_____ _____ _____ _____ _____

What are the uses of drip irrigation and spray irrigation? List out here.

1) _____

2) _____

3) _____

4) _____

5) _____

6) _____



Think : Farmers are advised to adopt drip irrigation in recent years. Why?



Know this : In certain agricultural lands, soil has deficient nutrients. So it is less fertile. It is called barren land. It is not easy to grow crops here. But recently plants such as Jathropa and pangamia (honge) which yield biofuel are being grown in barren land.





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You have learnt about the types of agricultural land, haven't you? In recent years farmers follow two types of cultivation / farming to grow crops, whether it is rain-fed agricultural land or irrigated agricultural land.

They are

1) Organic farming

2) Chemical farming

To understand these methods, read the statements given below. With the help of your teacher identify the statements related to organic farming and chemical farming. Write them in the respective charts.

Statements

- Chemical fertilizers are used.
- Manure/organic-compost is used for agricultural land.
- Vermi-compost is used to increase the fertility of the soil.
- Pesticides are used to grow crops.
- Green leaves/dry leaves are also used in this method of cultivation.

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Organic farming

Chemical farming

In chemical farming, chemical fertilizers and pesticides are used to grow crops. In organic farming manure, green leaves compost, vermi-compost and organic pesticides are used to grow crops.



Think : Organic farming is better than chemical farming. How?

In agriculture, many methods are being followed to grow crops. **For Example,** Some of the methods of cultivation are given here. Read and understand.

1. **Intensive farming :** Growing 2 to 3 crops on the same land in a year. **For Example**, jowar, paddy, ragi, sunflower, cotton, horsegram, bengalgram, redgram.

2. **Mixed farming :** In addition to cultivation of crops cattle rearing, poultry, sericulture and apiculture are also done.

Activity : Many agricultural activities and secondary occupations are also practised in mixed farming. With the help of your teacher make a list of secondary occupations.

_____ _____

_____ _____

3. **Plantation farming :** Fruits, vegetables, coffee, tea or flowers are grown instead of food crops on the agricultural lands.

Activity : Make a list of fruits, vegetables, flowers which can be grown in Plantation farming. Get the help of the elders.

_____ _____

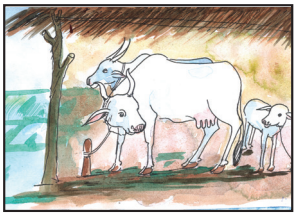
_____ _____

Thus, farmers adopt different agricultural methods and earn their income.

Do this : Go to an agricultural land with your friend. Observe the methods being followed there and name them.

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Observe the pictures given below. Write the corresponding agricultural methods in the space given.

Figures	Agricultural methods
	_____
	_____
	_____
	_____
	_____
	_____

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Storing and preserving the grains after the harvest of the crop is also very important. Observe these pictures. Some of the methods of storing and preserving the grains have been shown. Identify them with the help of your teacher.



In the first two pictures we can see the storage system used in olden days. They are called underground granary (Hagevu) and bamboo granary. These are traditional methods of storing grains.

Food grains/products are being grown on large scale. Granaries have been constructed to store and preserve food grains/products. Farmers can preserve their food grain in government granaries in little expense.



Think : Preserving grains is essential. Why? How is it useful for both the farmer and buyers. Write here.

1) _____

2) _____

Agriculture and farmers are like two wheels of a cart. Agriculture is the main occupation of our country. People who lead life following the profession of agriculture are the real food providers (Annadatas). **If the cultivator harvests, the whole world rejoices. If the cultivator fails to harvest, the whole world sobs.** These lines highlights the importance of the farmers

Let us salute the farmers, the food providers.

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