My World

(Environmental Studies)

For class V

C1Y6Y8

ਸਮੱਗਰ ਸਿੱਖਿਆ ਅਭਿਆਨ

ਪੜ੍ਹੋ ਸਾਰੇ ਵਧੋ ਸਾਰੇ

ਸਿੱਖਿਆ ਅਤੇ ਭਲਾਈ ਵਿਭਾਗ, ਪੰਜਾਬ ਦਾ ਸਾਂਝਾ ਉਪਰਾਲਾ

Punjab School Education Board

Sahibzada Ajit Singh Nagar

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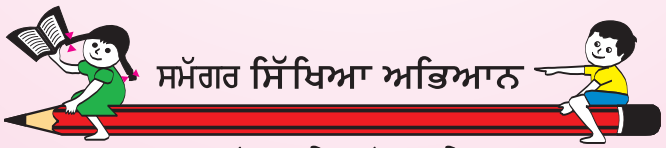

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Foreword

The Punjab School Education Board has been continuously engaged in developing syllabi, producing and renewing text books according to the changing educational needs at the state and national level.

This book has been developed in accordance with the guidelines of National Curriculum Framework-2005 (NCF) and PCF-2013, after careful deliberations in workshops involving experienced teachers and experts from the board and field as well. All efforts have been made to make this book interesting with the help of activities and coloured figures. This book has been prepared with the joint efforts of subject experts of Board, SCERT and experienced teachers/experts of environmental studies. Board is thankful to all of them.

The authors have tried their best to ensure that the treatment, presentation and style of the book in hand are in accordance with the mental level of the students of class V. The topics, contents and examples in the book have been framed in accordance with the situations existing in the young learner's environment. A number of activities have been suggested in every lesson. These may be modified, keeping in view the availability of local resources and real life situations of the learners.

I hope the students will find this book very useful and interesting. The Board will be grateful for suggestions from the field for further improvement of the book.ovement are welcome from the teachers and readers of the book.

Chairman

Punjab School Education Board

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Learning Outcomes

The Learner:

- Explain the super senses and unusual features (sight, smell, hear, sleep, sound, etc.) of animals and their responses to light, sound, food etc.
- Explains the use of technology and the process of accessing basic needs (food, water etc). in our daily life. (e.g. farm produce to kitchen i.e. grains to Roti, preservation techniques, storage, tracking of water source)
- Describes the interdependence among animals, plants and humans. (e.g. communities earning livelihood from animals, dispersal of seeds etc.)
- Explains the role and functions of different institutions in daily life. (Bank, Panchayat, co-operative, police station, etc.)
- Establishes linkages among terrain, climate, resources (food, water, shelter, livelihood) and cultural life. (e.g. life in distant / difficult areas like hot / cold deserts.)
- Groups objects, material, activities for features / properties such as shape, taste, colour, texture, sound, traits etc.
- Traces the changes in practice, customs, techniques of past and present through coins, paintings, monuments, museum etc. and interacting with elders. (e.g. cultivation, conservation, festivals, clothes, transport, materials /tools, occupations, buildings/ houses, practices like cooking, eating, working)
- Guesses (Properties, conditions of phenomena), estimates spatial quantities (distance, area, volume, weight etc.) and time in simple standard units and verifies using simple tools/ set ups. (e.g. floating/ sinking / mixing / evaporation / germination / spoilage / breathing / taste)
- records observations / experiences / information in an organized manner (e.g. in tables / sketches / bar graphs / pie charts) and predicts patterns in activities / phenomena (e.g. floating, sinking, mixing, evaporation, germination, spoilage) to establish relation between cause and effect.
- Identifies signs, directions, location of different objects/ landmarks of a locality / place visited in maps and predicts directions w.r.t. positions at different places for a location.
- Creates posters, designs, models, set ups, local dishes, sketches, maps (of neighborhood / different places visited) using variety of local / waste material and writes poems / slogans / travelogue etc.
- Voices opinion on issues observed / experienced and relates practices / happenings to larger issues of society. (e.g. discrimination for access / ownership of resources, migration . displacement / exclusion, child rights).
- Suggests ways for hygiene, health, managing waste, disaster/ emergency situations and protecting / saving resources (land, fuels, forests, etc.) and shows sensitivity for the disadvantaged / deprived.

Chapter – 1

Changing Family Trends

Raju's father worked in the city. He started living there as the village was too far from the city. He often came to the village along with his family. Raju had summer vacation. So this year the whole family had come to the village for some days.

Today Raju had gone to play with the village boys since morning. His mother called him and made him sit along with his grandfather. Handing over the satchel to Raju she said, "A lot of homework of your holidays is pending. Finish your homework and then you can play."

Raju sat with his grandfather and started studying, meanwhile a man of his grandfather's age came to meet his grandfather. He greeted him and said, "Hello, Partap Singh! come and sit here, seen you after a long time."

Partap Singh : I had been to Canada to meet my daughter. Your house seems to be full of activity. What is the reason?

Grandfather : My elder son, Gurwinder's family is here on vacation now-a-days, otherwise only we two live here.

Partap Singh : Now-a-days, it is the same everywhere. As you know our family was also very big, the courtyard remained full. Even after the marriage of all three brothers, we lived jointly with our uncle, but now everyone prefers to live separately.

Grandfather : Needs were limited in those times. Even the big families lived in two rooms. Now-a-days, every child demands for a separate room. New clothes were bought occasionally. Children ate the same food that was cooked for the whole family. The days were spent by working in the fields, and no time was left to think about anything else.

Partap Singh : Children have become very choosy about food. The clothes bought by parents are not liked by them. These things did not prevail in joint families.

Grandfather : In our childhood we used to be happy with the clay toys purchased from the fair. Now–a–days, children remain unhappy and dissatisfied even after buying costly toys.

Partap Singh : Time has changed, markets are flooded with so many new items, even the names of some are not known to us. Children demand every new thing.

Raju's grandfather and Partap Singh belonged to the old generation. There had been a big change in the society after independence. People became literate and left their old ancestral work and found new jobs for them. With an increase in production, the financial condition of our people has improved. With scietific development new means of transportation, electrical and electronic gadgets have become part and parcel of their daily life. With increased income, people want good houses, better education and latest means of transportation. Now all youngsters are keen to have a computer, mobile phone, motorcycle, etc. On the other hand older generations lived life without these gadgets and had limited desires.

Get following information from your parents or grandparents.

1. What kind of toys they used to play with ?
2. How many clothes did they have to wear ?
3. Compare yourself with your ancestors and tell who had more facilities.

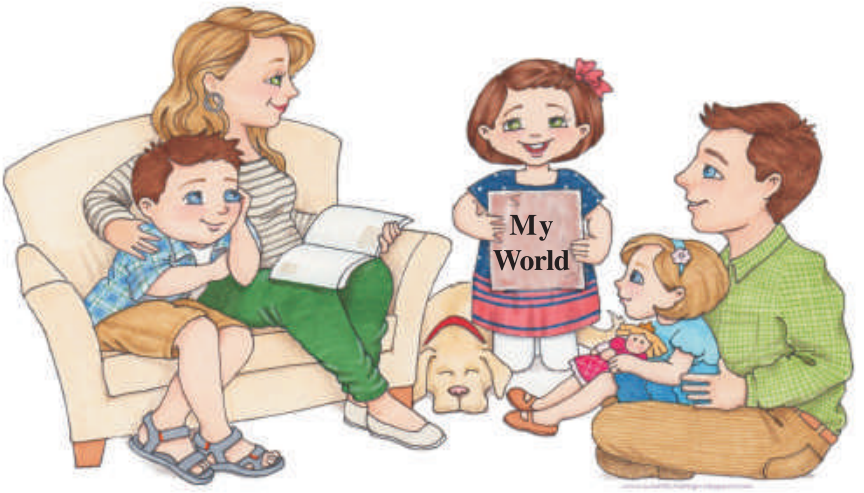
Grandfather : Tell me something about Canada.

Partap Singh : The country is indeed beautiful & clean. Everything is done lawfully, but I do not like their family culture.

Grandfather : Why don't you like it ?

Partap Singh : My daughter works in a store and my son-in-law drives taxi for the whole day. Children are getting spoiled for lack of due attention. I advised my daughter and son-in-law about it.

Grandfather : The parents should spare some time for their children otherwise their relation with the elders will not last longer.



Partap Singh : In joint families children would learn to respect their elders. They used to have a feeling of sacrifice. They also would learn to live jointly with others, but now it is not so. Now the children prefer to sit before the television or play games on the mobile phones. Their affection for the grand parents do not grow.

A child watching T.V.

Children playing video games

Grandfather : You are right, Partap Singh, the parents can teach all this to their children by giving them time. Look, my grandson, Raju loves me so much. He talks to me on casual things during day time and also before going to bed at night.

(The grandfather took Raju to his lap. In the meantime Raju's mother brought tea.)

Q.1. For how many hours do you watch television in a day ?

Q.2. How do you help in houshold works ?

Q.3. How much time do you spend with your grandparents?

Partap singh : I did not like their decision to shift to Canada while their old parents live alone in such a big house. Parents feel lonely without their children. Their children, on the other hand, work overtime there, to buy their own house. They were enjoying good status in the brotherhood here but now they are cut off from all. They had a good earning here also. One's own country is always the best.

Grandfather : Oh! don't be sad, this is how they like it. New generation needs luxurious life at any cost. They think that they will earn more by working abroad. Moreover, now one can communicate through phones.

Partap Singh : It's ok. We old people like to live in a joint family. Children remain safe and grow up better in joint families. Grand parents' free time spends usefully, attending to their grand children.

Grandfather : The world is changing. Earlier we work hard to earn our bread. There was a lot of work and all family members had to work together. Now, with the development of science and technology all works are done by machines, only one or two men are required to operate them. People have started doing different jobs. Some have set up work-shops in cities. Now-a-days even women are working as officers or they are running big enterprises. All children go to school. How can the family structure remain the same ?

Partap Singh : (Laughing) alright, you have become a modern man of the new generation. The old fashioned man must leave now.

Things to Remember

- A lot of changes took place after independence.
- People have started other jobs giving up the ancestral professions.
- Now-a-days even ladies are doing jobs like men and running big enterprises.
- With the change in time, the family has become single and tiny in size.
- The parents should give time to their children.

Q.4. Fill in the blanks :

machines, big, facilities, science, country, needs

(*i*) Earlier the families were very ..... .

(*ii*) In older times the ..... of the people were limited.

(*iii*) Now ..... has developed so much.

(*iv*) One's own ..... is always the best.

(*v*) These days much work is done with the ..... .

(*vi*) New generation demands ..... .

Q.5. Tick (✓) the right and cross (✗) the wrong sentences :

(*i*) During the time of the grandfather there were clay toys.

(*ii*) Education has spreaded widely after independence.

(*iii*) The children do not need the care of their parents.

(*iv*) We should not watch television for a long time.

(*v*) We should spend time with our grandparents.

Q.6. In old times what kind of toys did the children havd ?

Q.7. Which facilities do the youth and children of the day want ?

Q.8. Why do some young people want to go abroad ?

Q.9. What are the advantages of living in the joint families?

Q.10. What changes are taking place in families, with the changing time ?

Chapter – 2

Migration

Thermal power plant

Sonu's father was an engineer in thermal power plant. He was transferred to a distant, newly constructed thermal power plant. The whole family had to shift there because the new thermal plant was situated far away from the city. New colony was being constructed for the workers of thermal plant. Sonu was admitted in a new school near the thermal plant but he was not enjoying there. He missed his city friends. After coming back from school he complained his parents that he had no friends. His mother comforted him saying that after some days all the boys will be his friends and he will enjoy their company. His mother's words were true. After some days he had many friends. He came to know about many new things of that area which were earlier not known to him.

power

Think

1. If you have to left your old school and get admission in a new school, how will you feel for the first few days ?
2. If a new child from any other area is admitted to your school, ask him how does he feel ?

After a few days, Sonu got familiar with many people around and realized that people working at the thermal plant were from different states. They were migrants. They lived in small rooms and faced many problems during rainy season.

Their children did not go to school. Because of difference of their language, they could not study and roamed around idly.

Sonu asked his father how those children would study then he told that they are now being admitted in the nearby schools by the govt.

Sonu : Did they always live in similar conditions ?

Father : No, they have homes and agricultural land in their native state but due to less production they have to work at far off places.

Sonu : But they may have been feeling uncomfortable here at new place. They are living far away from their native state so they might be facing a lot of problems.

Father : Yes of course, they have to come away from their house. Some of their family members are left back, to whom they send money to survive. Their children cannot study. Here they earn more than their native place.

Natural Calamities and Migration

As you have read that people migrate from one place to another in search of employment or job. Sometimes, natural calamities also become the cause of migration of the people. Flood or earthquake damage the houses of people. People have to migrate due to shortage of food in drought like situations.

Roadside huts

Sonu : Papa, why people living in slums were uprooted in our city ? They were working in the nearby localities.

Father : Due to increase in traffic, the roads were to be widened. Due to the widening of roads, the government had to uproot them as their huts were on the sides of the road. They lost their source of income and had to search for new work.

Activity 1 :

1. Make a list of those families in your locality or village, which have shifted here from other places for the last few years. Try to find why they have to come to this place and which problems they are facing here.
2. Make a list of people familiar to you who are living in other countries. Try to know about the problems they have to face while living there. You can do it by meeting them or by talking to them on telephone.

Things to Remember

- People coming from other states in search of work are called migrants.
- The children of the migrants have to face problems in study, due to difference of language.
- On being migrated people experience many new things.

Q.1. Fill in the blanks :

migrants, employment, thermal power plant, problems

(*i*) A ..... was being constructed far away from the city.

(*ii*) People coming from the other states for work are called ..... .

(*iii*) Many people have to go far away for ..... .

(*iv*) People living in huts have to face many ..... in thunderstorms.

Q.2. Tick (✓) the correct answer :

(*i*) Sonu's father was a ..... .

teacher ☐ doctor ☐ engineer ☐

(*ii*) What was to be damaged for widening the roads ?

House ☐ Huts ☐ Bungalow ☐

(*iii*) How do we feel living in small rooms ?

Difficult ☐ Easy ☐ Don't know ☐

(*iv*) What was built for people working in thermal power plants ?

Flat ☐ Colony ☐ Multistorey building ☐

Q.3. Why had Sonu's father to come to the new place ?

Q.4. Who are called migrants ?

Q.5. Why the people have to migrate ?

Q.6. Why do the children of the migrants face problems in studying ?

Chapter – 3

Likes and Dislikes

Weight and height of all the students were being measured in Arsh's school. There was a scale painted on the wall bearing inches, feet, metres and centimetres. Students were coming by turns and standing near the measured wall. The teacher was measuring the height of each student and recording this data in a register. Height of Arsh was 4 feet and 7 inches, whereas his friend Bholla was measured 4 feet and 5 inches. Arsh was the tallest among the boys where as Simran was the tallest among the girls. Her mother was also very tall.

Measuring height

Thereafter, weight of all children was recorded. Arsh was thin as compared to healthy Bhola. Arsh was 30 kg in weight where as Bhola weighed 32 kg. Though Arsh was taller, Bhola was heavier than Arsh. Arsh asked his teacher why Bhola is heavier ? Teacher said, "Bhola belongs to the family of wrestlers. His elder brother is in the wrestling team of the school. His father is also heavy. He has good health like his father, but your weight is less as compared to your age & height. You must drink milk and take good diet to maintain weight proportionally to your height and age.

Bholla : He seldom drinks milk. His mother always insists him to drink it.

Teacher : Why don't you drink milk ?

Arsh : I do not like it.

Teacher : Milk contains all the necessary nutrients needed for the body. It is called a complete food. So, we must drink milk.

Activity 1 :

Measure the height of your friends and yourself and write this data in inches and centimetres in the table given below.

Name	*Height in inches*	*Height in centimeter*

After coming back from school Arsh told his parents that he was the tallest among all boys. His father said, "Increase your knowledge as per your height. Greater height should be accompanied by good qualities too. Despite her short height, your sister is admired for her beautiful handwriting. All her teachers love her. Your mother sings very sweetly and your uncle is a good painter. Different people have different qualities or expertise. Some of your friends may excel in studies and others in sports. We should appreciate the qualities of all. We should take inspiration from them and inculcate good qualities in ourselves."

Think and Answer

1. Which member of your family has the loudest voice ?

2. Who laughs the loudest in your family ?

3. Who speaks in a low voice in your family ?

4. Who speaks the loudest in your class ?

5. Whose handwriting is the most beautiful in your class ?

_____

_____

A new girl Reshma joined Arsh's class. She had long hair. Girls appreciated her hair and inquired about the reason for her long hair.

Reshma : My mother also has long hair.

Gurpreet : I have brownish hair and my plait is also small.

Neetu : Guddi has curly hair. Her brother also has curly hair.

Guddi : Yes, my hair remain curly even after combing again and again.

Activity 2 : Note these facts in your class.

1. Which child has curly hair ?
2. Which child has dimples in his/her cheeks ?
3. Who can touch his/her nose with his/her tongue ?
4. Who can fold his/her tongue to make a pipe like structure ?

Ask the students which of their qualities resemble their family and relatives.

Many physical qualities are inherited from the parents like complexion, height, features, etc. But some are acquired by our own efforts. Our diet and exercise affect our physical characteristics. We learn some habits from our family and our surroundings, *e.g.* rising early in the morning, and cleanliness.

Activity 3 : Tick (✓) for yes and (✗) for no, Which of these habits are possessed by you or your family members ?

Qualities/habits	*Self*	*Your family member*	*Your classmate*
Rising early in the morning			
Taking bath daily			
Brushig teeth everyday			
Washing hands before meals			
Going School on time			
Short temper			
Abusing others			
Telling lies			

It was the marriage of Arsh's Aunt. So, new clothes were to be bought. Arsh went to the market along with his family. Shopkeeper showed different coloured clothes to them. Arsh liked blue coloured cloth while his sister did not like that colour. She suggested him green coloured printed cloth. Arsh showed his dislike for the print by his facial expressions. Arsh's mother said that both colours were attractive, everyone has his own choice for colours.

Actually, no two persons have a similar choice. In school, some students like to eat rice while others dislike it. Some children like to have sweets while others like spicy. This all depends on the different areas and family culture to which they belong. People from Bengal eat fish while some can't even tolerate the smell of fish. As Punjab is a wheat producing state, people of Punjab like to eat chapattis whereas people from many other states prefer rice.

Q.1. Tick (✓) the right and cross (✗) the wrong sentences :

(*i*) All people like same kind of things.

(*ii*) Every person possesses certain qualities.

(*iii*) Beautiful handwriting is liked by all.

(*iv*) We should not take exercise.

(*v*) Milk contains all nutrients.

Q.2. Tick (✓) the correct answer :

(*i*) Which quality can we gain by labour ?

Colour ☐ Features ☐ Good health ☐

(*ii*) People of which state eat much fish ?

Punjab ☐ Bengal ☐ Haryana ☐

(*iii*) What do the people of Bihar like to eat.

Chapatti ☐ Rice ☐ Fish ☐

Q.3. Why should we drink milk ?

Q.4. Which things affect our eating habits ?

Sign Language

After purchasing the clothes, Arsh returned home with his mother and sister. His father was watching television at home.

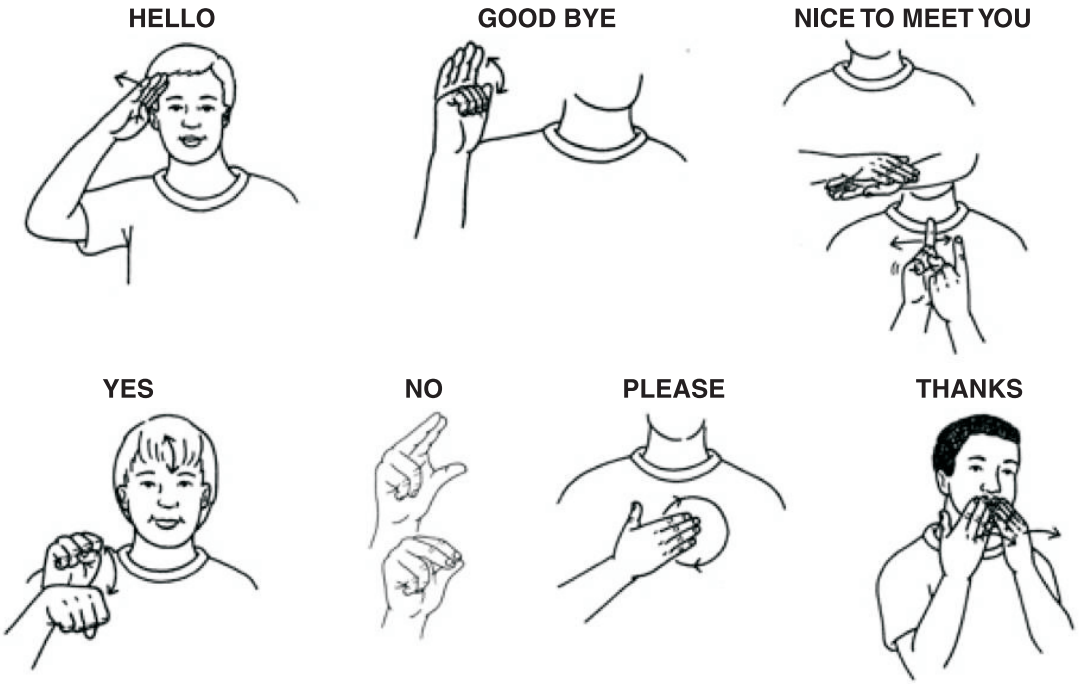
Lady on the television screen was making gestures very quickly but she was not speaking anything. Arsh was astonished to see her because he could not understand any thing. He asked his father, "What is that lady doing?" His father told him that she was presenting news for people who can't hear and speak.

Arsh : How can they understand news with the action of hands?

Father : They have learnt the sign language.

Arsh : Where do they learn this language from ?

Father : There are special schools too for these children where they are taught to express their feelings and to understand others by sign language.



Sign Chart

Although it seems difficult to understand or convey through this type of language, yet these people understand it easily. If a person lacks one sense organ, the brain concentrates on remaining sense organs which become more sensitive, e.g. visually impaired people are more sensitive to touch and their hearing power is also very strong. Similarly, deaf people make more use of eyes. So, these kind of people are now a days called

'differently abled' rather than handicapped. Their needs are different. If their needs are properly fulfilled, they can lead not only a normal life but also can excel in different fields. Helen Keller is a great example.

Helen Keller was deaf and blind, but she got good education, wrote dozens of books, travelled around the world, met with different presidents of America and received many prizes and honours.

Helen Keller

Helen Keller and Anne Sullivan

She was one and half year old when she lost her hearing and eyesight due to illness. When she was seven years old her parents hired an able teacher (Anne Sullivan) for her education. She tried to teach Helen by writing words on her hand but it was difficult as the meaning could not be conveyed to her by speaking or by showing. One day while sitting near a tap, her teacher put a few drops of water on one of her hands and wrote water on the other. From that day Helen was able to understand the meaning of words. She touched the ground immediately and teacher wrote ground on her hand. This way she learnt 30 words in one day and thus started her education. She learnt five languages through brail script and became a famous writer. Many people got inspiration from her life.

Try to Know

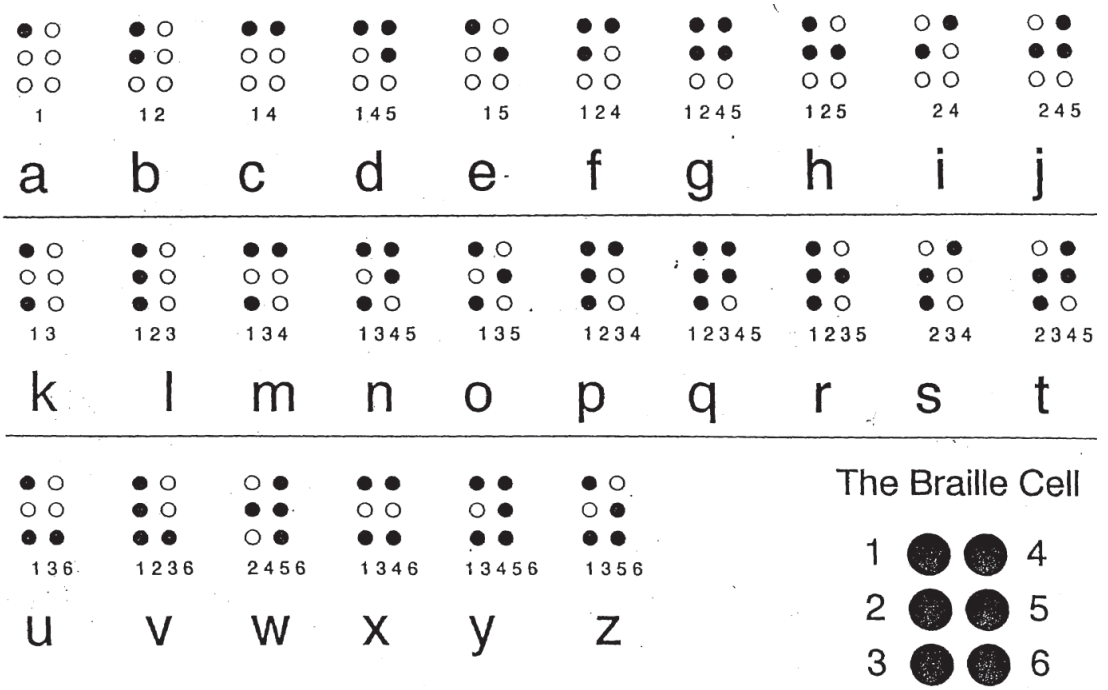
Do you know any person who is unable to listen, speak or see ? How has he overcome his inability ?

Brail Script

You have already learnt in class III that a special script has been developed for people who are unable to see. This script can be understood by touching,

and it is called Brail Script. In this script, dots are engraved on the paper instead of writing words, so that person can touch it.

Given below are symbols in Brail Script for English alphabet.



Symbols in brail script

Some people are unable to walk properly. They can move from one place to another only with the help of crutches, tricycles or on wheel chairs. But tricycles can't reach the buildings which are above ground level and have stairs. To overcome this difficulty, ramps are made near the stairs in public places, so that differently abled people can use tricycles or wheel chairs without any difficulty. You might have seen ramps along with stairs in the recently built rooms or toilets of your school.

Actually, many children affected with polio disease had been unable to walk properly. But the disease has been controlled in India, as a result the number of children suffering from polio has been reduced. Sometimes, due to old age, accidents or other reasons, many people are unable to walk without help. We should always help such persons keeping in mind their problems. We should never make fun of their physical weaknesses.

For Teacher :

Some activities can be peformed to make children aware and to sensitize them about the problems faced by differently abled people.

Example : A child can be blindfolded for two hours, or let a child fold his leg and tie it with a cloth, or cover the mouth of another child

with the help of a cloth, so that he may not speak and may interact only using gestures. Other children should help them in above activities. These activities will help them realize the problems of handicapped people. This activity will make them realize their physical incompleteness and they will become sensitive towards the problems faced by others.

Things to Remember

- People have different tastes for eating and dressing.
- Height, features and physical qualities are inherited from the parents.
- Balanced diet and exercise are necessary for good health.
- The eating habits of the people are deeply affected by their areas and the family cultures.
- Most of the people in Punjab eat chapattis due to the large production of wheat.
- The script which is understood by touching is called Brail Script.

Q.5. Fill in the blanks :

(i) Helen Keller could not ..... .

(ii) The script understood by touching is called ..... .

(iii) The children were unable to walk due to ..... disease.

Q.6. Which sense organs of the blind persons become more active ?

_____

_____

_____

Q.7. Which insperation do we get from Helen Keller's life.

_____

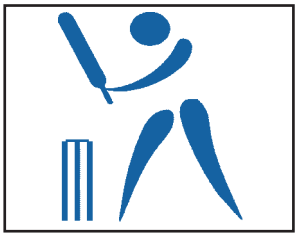
_____

_____

Chapter – 4

Success with Hardwork

Look at the given pictures. Which games do they depict ? Names of the games are also given below. Write the correct name of game under the picture. You can also take the help of your teacher.



1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Picture of few games

Name of Games : Cycling, Cricket, Badminton, Swimming, Hockey.

Which game do you like the most ? Draw a picture of the game. You can also colour this picture.

Some games are played individually by a player. But in other games more than one player form a team. Let's list the games which are played individually and which are played as a team.

Games in which players play individually	*Games in which more than one player play as a team*
Example - Long Jump	Example - Hockey
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____
4. _____	4. _____
5. _____	5. _____

Taking part in games develop a number of qualities such as confidence, accepting defeat, hard work, dedication, etc. We learn co-operation, association, coordination, etc., while playing as a team.

Children! school level games are followed by the block level, district level, state level, national level, and international level games. Olympics are international level games in which players from different countries take part. These are held after every four years. Taking part in these games is a big achievement. In the same manner, Asian and Commonwealth Games are also international level games.

Who is your favourite player? Collect information about him from magazines and newspapers and note it down. Paste the pictures in your note book.

From the last few years, sports meets are being organized for differently abled people. They show their talent. This develops self-confidence in them. Para Olympics is one such activity.

For Teacher :

Discuss different levels of games with the children such as School, Block, District, State, National and International level games (Asian Games, Commonwealth and Olympics) in the classroom and help students understand the difference in these games.

Village Sansarpur of district Jalandhar is an example from where 14 players have taken part in the Olympics. Jalandhar is famous for making Sports goods.

Q.1. Fill in the blanks with a correct word :

games, co-operation, Hockey

(*i*) ..... and cricket are International level games.

(*ii*) Taking part in ..... develop qualities such as confidence, hardwork, dedication, etc.

(*iii*) We learn ..... by playing as a team.

Q.2. Tick (✓) the correct answer :

(*i*) Which of the following games is played as a team ?

Football ☐ Hammer Throw ☐ Weight lifting ☐

(*ii*) After how many years Olympic games take place ?

Four ☐ Five ☐ Six ☐

(*iii*) Which games are organized for differently abled players ?

Olympics ☐ Para Olympics ☐ Common Wealth ☐

(*iv*) By playing

Time is wasted ☐ We remain healthy ☐ We become sick ☐

Q.3. Why should we take part in games ?

_____

_____

_____

Q.4. Name the school level games.

_____

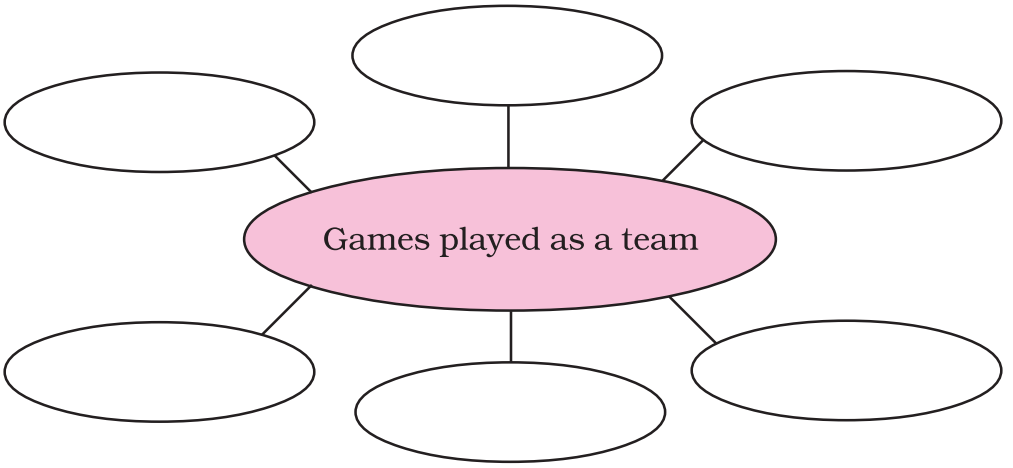
_____

_____

Q.5. Write any four International level games.

Q.6. What do you mean by Para Olympic Games ?

Q.7. Mind mapping



Do you know who are the International players ? Let us meet some of them.

This is the picture of P.T. Usha. P.T. Usha is an International Athlete and also the first Indian woman to enter Olympics. In 1984, she was about to get the bronze medal but missed it with a little difference of 1/100 second. P.T. Usha is also known as the splint Queen.

P.T. Usha

Did this ever happened to you in your life that you lost when you were very close to the victory ? How did you feel at that time ?

Karnam Maleshwari is the first India woman to win medal in weight lifting, in the Olympic Games.

Karnam Maleshwari

Here are some facts from the auto biography of another International player Milkha Singh, known as Flying-Sikh.

My Father, S. Sampuran Singh was a very simple person. He had a little knowledge of Punjabi, but still he tried his best to educate his children. Farming was our ancestral occupation. We were five brothers and three sisters. Our house had two kutcha rooms, in one room livestock (animals like cow and buffaloes) and things relating to them were kept, while in the other we lived with our belongings. After passing class IV from the village school, I went to a city school for further studies. There was another boy from my village. Both of us used to wake up at 4 o' clock in the morning. After getting ready for school we would reach the school at the prayer time after walking a distance of six koh. (almost 14-15 km).

Milkha Singh

And then happened the Massacre of 1947. Our house and the houses of thousands of people of our village were destroyed in the riots. Some of our family members and many other villagers were either killed or were missing. But somehow I reached Delhi.

I started running in 1952 after my recruitment in the Army. Our teacher S. Gurdev Singh, who himself was an athlete, was a hard-task-master. When I took part in the National games held at Patiala, first time I saw women taking part in the games.

Women's participation in games appeared very strange to Milkha Singh because in those times society did not like women to take part in games.

Is women's participation in games disliked now-a-days ? Is it right to do so ? What do you think about it ? (The teacher will discuss it with the students).

I increased my practice day by day, and I won many races. At last, I was chosen for the Olympics which were to be held in the Melbourne city in Australia. My performance in these games was not so good, but I got the opportunity to see many athletes of the world, got motivation from them and tried to learn from them.

Period of 1956 to 1957 was a period of very hardwork. During this period, I had forgotten myself. In 1958, I won 400 mt. race in Asian games held in Tokyo, the capital city of Japan and when it was announced that Milkha Singh has won this race with new record of 46.6 sec., the stadium echoed with loud applause. The King of Japan honourd me with a medal. The "Tiranga" was raised with the tune of our National Anthem "Jan-Gan-Man". I reminded the sacrifices of our freedom fighters. Then, I also won 200mt. race in these games. On my arrival back to India, Prime Minister, Pt. Jawahar Lal Nehru patted my shoulder and said, "My son ! you have made the country proud. Keep up your hard work, you have yet to rise to the International Level."

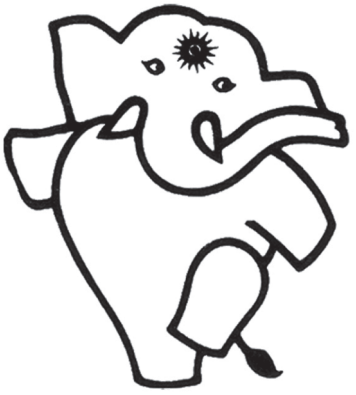
After that, I won 400mt. race in Commonwealth Games also. During these games, in England, when I felt depressed, my coach Dr. Haward counselled me for the whole night and boosted my morale. His love and leadership got me success. Here too I won. In 1960 there was an invitation from Pakistan for the Indian team. Here I won 200mt. race in 20.7 seconds. This was a world record. I was glad to touch this. After winning when I was running around the stadium, it was announced, "Milkha Singh who is passing by you has not run but flown. We honour him with the title "Flying Sikh." After that I became popular in the world as 'Flying Sikh'.

Secret of My Success

I used to run for seven days in a week and 365 days in a year. During this period of struggle, I neither took my training lightly nor did I let laziness overpower me.

Dear children ! continuous and tireless hard work is the secret of success not only in the games but in all walks of life.

A sport mascot is decided for the games played at the higher levels. For Example :



Sport mascot Appu in the Asian Games of 1982

Sport mascot Shera in the Commonwealth Games of 2010

Olympic Games

Things to Remember

- Games teach us co-operation, association and coordination.
- Para Olympic games are organized for the differently abled people.
- Olympic Games are organized after four years.
- Hockey is the National Game of India.

Q.8. Fill in the blanks :

(*i*) Milkha Singh was honoured with the title of ..... Sikh.

(*ii*) Continuous and tireless ..... is the secret of success.

Q.9. Match the columns

P.T. Usha	Magician of hockey
Karnam Maleshwari	Master blaster
Sachin Tendulkar	Weight lifter
Major Dhyan Chand	Queen of track and field

Q.10. What is the secret of success in all walks of life ?

Chapter – 5

Learning While Playing

Today is Sandeep's birthday and his parents have gone to the bazaar to buy a cake. Sandeep was waiting for his friends along with his grandfather. In the meantime his friend Asharf came. He brought a beautiful picture as a gift. Ashraf told grandfather that he was fond of painting. He spends his free time in making pictures. The grandfather became very happy. Sandeep's other friends Harjit, Samuel and Sunil also came. The grandfather wanted to know how the children spend their free time.

Grandfather : Dear children, Ashraf spends his free time very well. Tell me what you do in your free time.

Sunil : Grandfather, I love flowers. I look after my garden at home.

Harjit : Grandfather, I am fond of playing Kabbadi like Sandeep.

Grandfather : Son, one must have practice of long breath along with strength and activeness to play Kabbadi. So you should practise yoga and Pranayam along with exercise. It is useful to hold breath for long.

Finally Samuel said that he played video games and chess in his free time. Grandfather advised Samuel that playing a lot of video games can weaken his eye sight.

When children asked grandfather about his childhood, he told, "In our childhood we had no television or videogames as you have. Since my childhood I loved wrestling. I spent most of my time in the Kushti Akhara practising wrestling. Unlike today, wrestling matches were not played on the mattresses but on the soft ploughed soil. Sometimes 'Baazigars' used to come in the village. The tricks played by them were a source of entertainment in the village."

Asharf said, "I have never seen the baazi. How is it like ?"

Grandfather told him, "Yes, baazi hardly could be seen now a days. Announcements were made in advance, in the village where the acrobatic skills were to be

performed. On the particular day acrobats used to show their tricks which were called "baazi". People from neighbouring villages used to gather in large numbers to watch the 'baazi'.

Sandeep asked curiously, "What would these bazzigars use to show?"

Grandfather replied, "Walking on the rope, long jump, high jump, making human towers, jumping through the fire flames, jumping through the iron ring and many more skills. In return, villagers would give them money, clothes, grains, etc.

On this, Sunil said, "Events of long and high jump take place in our school also."

Grandfather : Sports competitions for such games of old times are organized in a few sports fairs now-a-days. One such sports fair is organized every year in Qila Raipur which is situated 15km. away from Ludhiana. These games are allso known as Village Olympics. This three day village Olympic fair started in 1993. It is organized every year in the month of February. Games representing human muscle-power, will-power and strength are played here e.g. kabbadi, wrestling, tug of war, pulling a truck or tractor with teeth. These games also include some events like camel race, bullock-cart race, dog race and horse dance, etc.

Sports at Qila Raipur

Are these kind of village games or tournaments organized in your village or town too ? If yes, make a list of different events of the fair.

_____

_____

_____

Q.1. Tick (✓) the correct answer :

(*i*) Controlling of breath in Yoga is :

Sirsasana ☐ Pranayam ☐ Football ☐

(*ii*) Which village of Punjab is famous for its sports fair?

Shahkot ☐ Sansarpur ☐ Qila Raipur ☐

(*iii*) Which tricks match the acrobatic skills?

Gymnastics ☐ Football ☐ Hockey ☐

Q.2. How did the people spend their free time in old days?

Ans. _____

_____

_____

_____

Q.3. What can be done in free time ?

Ans. _____

_____

_____

_____

Q.4. Which habits help one choose a profession in future ?

Ans. _____

_____

_____

_____

Over the years, forms of games, rules and articles used in playing have been changed.

Do you know that in many sports grounds, a layer of plastic grass is laid which is called **Astroturf.**

In old times, man used certain weapons to protect himself from other human beings & animals. He used weapons to hunt animals. These days, weapons are used in sports activities also. Such type of games are a source of entertainment and physical fitness.

Gatka

You must have seen Gatka in Nagar Kirtans or in some functions. This was also used as a way of self defence. Gatka is a martial art. In the beginning, wooden rod and a shield were used to attack or protect oneself from the attack. Some Universities have included Gatka in the curriculum and also started giving training of this martial art. Gatka is also included in National Level School Games. In ancient Indian warfare, many skills similar to Gatka were prevalent. Let us learn about their names and the states in which they were prevalent.

Game	**State**
Gatka	Punjab
Thang-Ta	Manipur
Kalaripayattu	Kerala

Kalaripayattu

Thang-Ta

Similarly, a few International games are also famous for self protection as well as for entertainment.

Sports	**Country**
Karate	Japan
Taekwondo	Korea

Height and chest are meausred for selection in Army and Police. Games also help in the growth of our body. Sports are not only a source of entertainment but also help in physical development. Games also contribute in making good mental health.

Things to Remember

- The sports of Qila Raipur is known as village Olympic Games.
- Gatka is a kind of martial art.
- A layer of plastic grass laid on sports grounds is called Astroturf.
- Pranayam is the controlling of breath in Yoga.

Q.5. Fill in the blanks :

(*i*) Playing video games for a long time weakens the ..... .

(*ii*) A layer of plastic grass is laid on the ..... grounds.

(*iii*) ..... is learnt for self protection.

(*iv*) Playing games develop our ..... .

(*v*) ..... and chest are surely meausred for selection in Police and Army.

Q.6. Events like long and high jump take place in Sunil's school. What sports events take place in your school ?

_____

_____

_____

Q.7. In which game do you take part ?

_____

_____

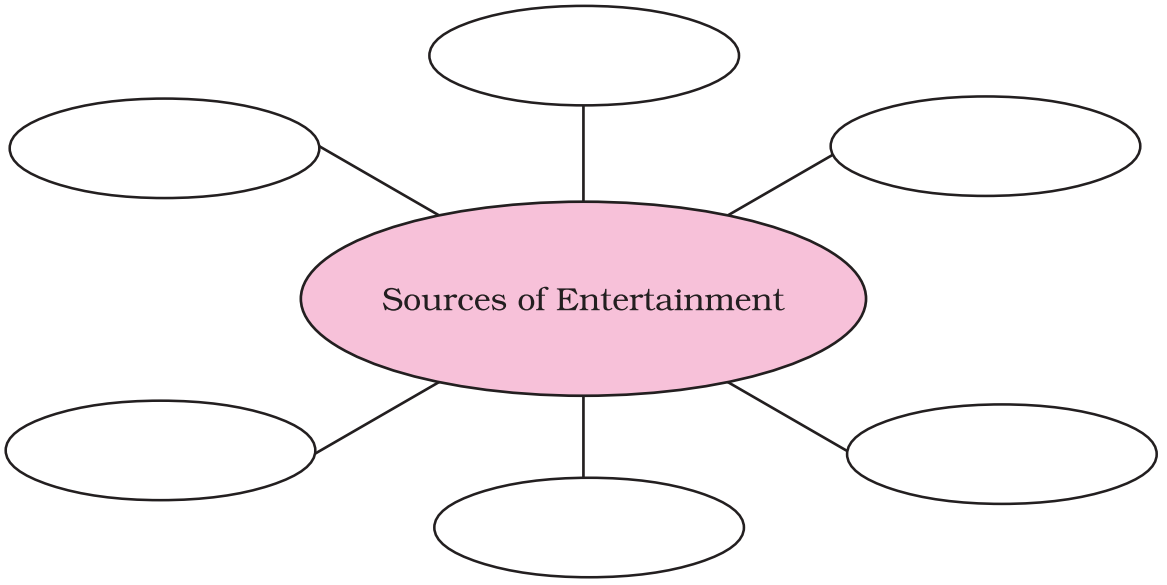
_____

Q.8. What is astroturf ?

Q.9. Match the following :

State or Country	Famous game
Korea	Gatka
Punjab	Taikwondo
Manipur	Kalaripayattu
Kerala	Karate
Japan	Thang-Ta

Q.10. Mind Mapping



Chapter – 6

Earth – Our Home Too

The increasing population has badly affected wild life. Knowingly and unknowingly man has caused much harm to it, to fulfill his needs. Let us learn in this lesson that our wild life is in danger and what role we can play for it.

Tinku was sitting with his parents and was doing his homework. Suddenly he recalled something and asked his mother, "Mother, do you know what date is it tomorrow ?"

Mother : Tomorrow is 2nd October.

Tinku : Guess what is special tomorrow ?

Mother : Tomorrow .... Its Gandhi Jayanti, what is the matter ?

Tinku : Mother, my teacher told that 'Wild life Conservation Week' is also going to start from tomorrow. Therefore, speech and drawing competitions are being organized in our school. I will also make Sheru's (Tinku's pet) portrait.

Mother : Yes my son, your father is also getting ready to celebrate 'wild life conservation week.'

Tinku : But father does not study at school.

Mother : Yes, but he is a forest officer. His department doesn't only take care of trees but also work for the safety of animals.

Tinku : Papa, will you also make paintings ?

Papa : No Tinku! paintings, songs, poem recitation, speech competitions are only the ways to celebrate. Actually the aim of that day or week is to make people aware of a particular subject.

Tinku : But about what are you going to make people aware of, during this week ?

Papa : About all wild animals. Tinku, tomorrow you may come to know that many animal species have become extinct and many are on the verge of extinction. The saddest part is that human beings are responsible for this. Our National Animal 'Tiger' is also in danger.

Decreasing number and extinction of animals is a matter of great worry. Let us learn what are the reasons for the extinction of animals.

Shortage of Habitat : Man damages the natural habitats of animals for the construction of buildngs and roads. So, they become prey to other animals roaming here and there. They are also killed if they enter human colonies.

Scarcity of Food : Because of scarcity of food animals become weak and sick and then they die.

Change in Climatic Conditions : The animals cannot tolerate the sudden change in climate, so they meet their death.

Natural Calamities : The animals die in a large number due to flood, forest fire, drought, etc.

Unlimited Hunting of Animals : Their number has decreased because of unlimited hunting by human beings. In this way there are many reasons that result in the decreasing number of animals.

National Animal of India : Tiger

Tiger

Tiger is the National Animal of India. It is the biggest member of cat family and a skillful hunter. It can weigh upto 300 kg. It is brownish yellow in colour and its chest is white. It has black strips on its body.

Many people do not know the difference between lion, tiger and leopard. They take lion and tiger as the same animal. Let us see the pictures of all the three and try to differentiate.

(a) Tiger

(b) Leopard

(c) Lion

For Teacher :

Teacher can tell students that there are black strips on tiger's body. Leopard's body is marked with black dots whereas lion doesn't have any of these marks. Lion has thick mane around its neck.

The smelling power of tiger is very strong. A tiger has its own fix area which can be 10km to 20km, this area depends upon the availability of food.

Tiger leaves the smell of its urine to mark its territory. This smell alerts other tigers.

Hearing power of tiger is also very amazing. It can distinguish between the ratling sound of leaves and the sound produced by animals hidden in the bushes. It can move both the ears in different dirctions to hear far off sounds. Isn't it amazing ? Its roar can be heard at far off places, upto three kilometers. A tiger can also change its voice according to the situation. Its eyes are able to see easily at night. It can see six times better than human.

Can you see in the dark ?

Tiger's whiskers help to find and locate the prey at night. Its whiskers feel the vibrations caused by air to locate position of the prey.

Many other animals use this efficiency to catch the prey, to asses the danger and to find the way to their destination. Can you name such animals ?

Tiger In Danger

Despite being skillful and active, tiger is becoming prey to some greedy people. Its stripped body looks very attractive. Expensive coats, bags and other wearable items are made from the hide of tiger. Some superstitious people kill tigers for black magic.

In 1900, there were one lakh tigers in the world. Today number of tigers in the world is reduced to 3890. In 2008 there were 1411 tigers in India. Government has taken many steps to protect these animals. 'Project Tiger' is one of them.

Project Tiger

On April 1st, 1973 Project Tiger was started. The main aim of this project was to mark the safety area and to ban the hunting of tigers. Initially, the nine areas brought under this project were Jim Corbett (Uttarakhand), Ranthambore (Rajasthan), Palamau (Bihar), Kanha (M.P.), Sunderbans (West Bengal), Melaghat (Maharashtra), Simplipal (Odisha), Manas (Assam), Bandipur (Karnataka). This project ensures full protection of tigers in these areas with suitable living conditions and right amount of food and water for their urvival. Today these areas have increased from 9 to 50.

Q.1. Write the names of our National Animal and National Bird.

_____

_____

_____

Q.2. (*i*) Tiger belongs to ..... family.

(*ii*) A tiger's body has ..... and leopard has ..... on its body.

(*iii*) Till 2008 there were about ..... tigers in India.

1.	World Environment Day	5 June
2.	Earth Day	22 April
3.	International Tiger Day	25 July
4.	Endangered Species Day	20 May

Activity 1 : You can also help in protecting your national animal, learn how.

You can make Tiger Club in your school. This tiger club can do many things.

* You can make your parents, friends and other people aware by discussing about the endangered existence of tiger.
* You can start letter writing programme in which you can write letters to different people to inspire them about the safety of tigers and motivate them to avoid buying products made from the hide of tigers.
* You can help by collecting funds for Project Tiger.

You can also help by creating awareness about the danger of existence to some other animal by forming a club. For which animal would you like to create a club ?

White tiger : In the year 1951, Shri Martand Dev, the Maharaja of Reeva saw a strange baby cub during hunting. He took the cub with him to his palace. He named it Mohan. When the cub grew up its colour was totally white. Today, all the white tigers of world are successors of tiger Mohan. In this way white tiger is India's valuable gift to the whole world.

White Tiger

For Teacher :

Different days are assigned to create awareness about animals among people, On this day students can be asked to perform different activities. A few days earlier, discussions can be held to motivate the students for active participation.

Some more birds are also facing the danger of extinction. House sparrow is one of them. The main reason behind their declining number is the destruction of their habitat. In the past, there were kutcha houses, in which they made their nests but now-a-days, all houses are made of bricks and sand, leaving no space for their nests.

House Sparrow

Now we are familiar with the smelling and hearing power of tiger and its assessment of danger. The birds also have an immense power to assess of danger. They feel earthquake prior to humans.

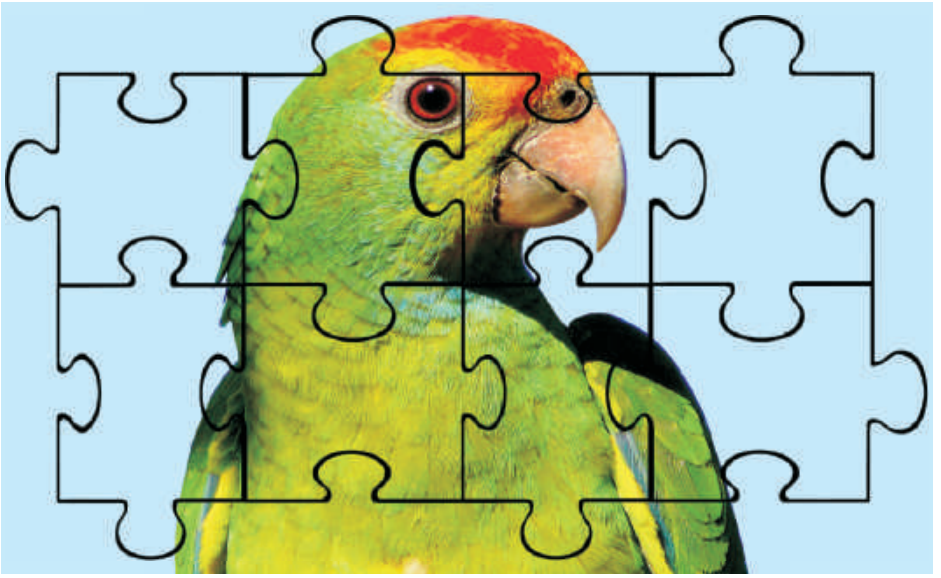
Interesting Facts : Cats are no way behind. Cats have vision equal to humans during day time, but in dim light they possess vision six times better than humans. They have better smelling power as compared to us. Cats sleep for 16 to 18 hours in day but remain alert about nearby dangers even in sleep.

Cat

Cats cannot feel sweet taste.

Come, let us make a jigsaw puzzle.

Puzzle : In this puzzle, a picture is cut to many pieces in such a way that you have to think a lot to rearrange these pieces. To make this kind of puzzle, paste the photo of a particular animal on cardboard and then cut it into pieces. Get the answer to this puzzle by rearranging the pieces in right order.



Jigsaw Puzzle

Postal department issues postal stamps of different animals from time to time. You can collect these postal stamps.

Postal Stamps with pictures of animal

Things to Remember

- Wildlife conservation week is celebrated from 1st October.
- Tiger is the National Animal of India.
- The birds sense dangers like earthquake prior to humans.
- White tiger is India's valuable gift to the whole world.

Q.3. Fill in the blanks :

(*i*) Tiger is a member of ..... family.

(*ii*) There are ..... on tiger's body and leopard's body is covered with ..... .

(*iii*) In 2008 there were ..... tigers in India.

(*iv*) A tiger can be weighed up to ..... kg.

(*v*) Cats cannot sense ..... taste.

Q.4. Match the following tiger reserve with the concerned state.

A	B
Jim Corbett	West Bengal
Sunderban	Uttrakhand
Bandipur	Madhya Pradesh
Kanha	Karnataka

Q.5. Tick (✓) the right and cross (✗) the wrong sentences :

(*i*) A tiger can see six times better than humans.

(*ii*) Cats cannot remain alert about nearby danger in sleep.

(*iii*) Humans can sense the danger of earthquake better than birds.

(*iv*) We should not use products made from the skin of tigers.

(*v*) A tiger cannot change its voice according to the situation.

Q.6. What is the importance of celebrating Wildlife Conservation Week ?

Q.7. What are the reasons behind the declining number of house sparrows ?

Q.8. What is 'Project Tiger' ?

Q.9. What is the difference between a tiger and a leopard ?

You can also prepare an album of your favourite animals. In that album, pictures or postal stamps of that animal can be pasted and other information like habitat, food, habits, height, weight, colour and amazing facts can be written. If you like, you can draw the picture of the animals by yourselves and can colour it also.

Chapter – 7

Animals – Friends of Man

Relationship of animals and human beings is very old. Besides enjoying their company, man gets so many gifts from the animals. Let us get a detailed information about it.

Paritas was the name of a pet dog of Alexander the Great, the Emperor of Greece. Once Darias III, the King of Persia attacked Alexander. An elephant was about to crush Alexander during the war when his pet dog Paritas jumped upon the elephant to divert its attention, and thus saved the life of Alexander the great.

Stories of many great people and their love for animals and the faithfulness of animals are world famous. Do you also know any such story? Ask any elder member of your family to narrate such story. Listen from them, write it and then share it with your classmates.

Dog is kept by humans with love, for his faithfulness and watchfulness. Dog can protect a large herd of sheep and goat. If any sheep or goat get separated from the herd, dog encircles it and brings it back.

Dogs have extraordinary power of hearing and smelling. It can smell approximately 40 feet from under the earth. Due to these extraordinary characteristics, police take the help of dogs to catch criminals. Dog can recognise the voice, its direction and place four times better than humans.

Interesting Facts

Besenji is the world's only hunting dog that can't bark because of the special structure of its throat but produces a prolonged growl which is called yodeling.

The first living being sent to space in Russian Space Craft 'Sputnik' in 1957 was a bitch named **Laika.**

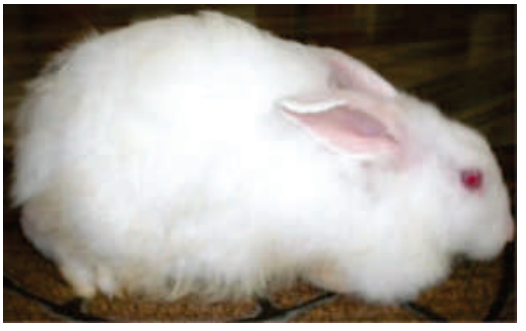
Besenji

Laika

Q.1. What qualities of dog make it man's favourite animal ?

Q.2. What is the name of first animal sent to space in Russian space craft 'Sputnik' ?

Man and animals have an age old relationship. Many animals are reared by man which help him in different ways. Goats and sheep are important among the animals which are reared by man for milk and meat. Not only milk, egg and meat but we also get wool from them.



Rabbit

Do you know which animal gives us wool ?

Many people think that we get wool only from sheep, but there are other animals too from which we get wool.

Rabbit : Wool from Angora rabbit has long fibre and is very soft.

Camel : Man not only gets wool from camel hair but depends on it for many other reasons.

Do you know that Pashmina wool is obtained from a goat named Pashmina found in Himalayas?

Pashmina Goat

Have you seen this mark?

Woolmark

This mark depicts the purity of wool. This is known as wool mark. Next time when ever you buy wool for your family do not forget to check this mark.

You can also see the mark given below on the packing of some items.

Agmark

(1) What does it show ?

(2) On what type of items is it used ?

Q.3. Match the things in coloumn 'A' with the marks of purity in column 'B'

A	B
Things	Marks of Purity
1. Gold	Agmark
2. Wool	ISI
3. Electrical appliances	BIS
4. Spices	Woolmark

We have learnt that animals give many things as gifts to mankind. For example milk, eggs, meat, leather, wool, etc. Selling milk is the main occupation of some people, therefore, they rear cattle.

Have you ever seen *madari's* show ? Many people depend upon animals for their livelihood, like 'Madari' and 'Snake Charmer'. Animals become a source of livelihood for them.

Snake Charmer

Madari

According to law, now-a-days no one can capture and keep the wild animals. This law ensures the safety of wild animals from cruelty.

Animals play an important role in travelling and transportation. Till now, you have learnt that camel is used for travelling and transportation in the desert. In many regions elephant and bull can be seen transporting things even now-a-days.

Let us make a list of animals and the reasons for our dependence on them :

Reasons	Animals
Milk	_____
Honey	_____
Wool	_____
Silk	_____
Carriage	_____
Security	_____
Eggs	_____
Meat	_____

We take the help of animals for fulfilling our needs, therefore, we keep them. We should take good care of their needs like food, water, medicines, etc. Animals are also living beings like us. They also suffer from different diseases. We should consult veternary doctor before treating them with medicines.

Q.4. Which animals can be kept at home as pets ? Write five sentences about any one.

_____

_____

_____

Q.5. Which animals give us wool, besides sheep ?

_____

_____

_____

We have read that animals are the best friends and faithful companions of man. They provide us many things as gift. They not only provide things but also beautify our environment with their sweet voices and attractive appearances.

Things to Remember

- Dog can protect large herd of sheep and goat.
- The first living being sent to space was a bitch named Laika.
- Wool from Angora rabbit is very soft.
- Pashmina wool is obtained from a goat named Pashmina found in Himalayas.
- According to law, it is prohibited to capture or keep the wild animals.

Q.6. Fill in the blanks :

angora, wool, hunters, animals, forty

(*i*) Snake charmer and madari depend on ..... for their livelihood.

(*ii*) Killers of the animals are called ..... .

(*iii*) A dog can smell approximately ..... feet from under the earth.

(*iv*) Wool extracted from ..... rabbit is very soft.

(*v*) Woolmark depicts the purity of ..... .

Q.7. What is the role of animals in transportation and travelling ?

Q.8. What needs of animals should we take care of ?

Q.9. Why are laws made for the protection of animals ?

Chapter – 8

Journey of Seed

Sugarcane was being planted in the fields. My Mother prepared meal for the farm workers. My nephew Sukhman and I took meal to the fields.

Black chana (gram) cooked was very tasty. Everyone ate up to his fill and relaxed for a while. After some time, my elder brother, Sukhman's father, prepared tea. We all took tea and started the plantation again. Small pieces of sugarcane were being planted in the field. Elder brother was sowing gram seeds in the spaces between the sugarcane plants. Sukhman was surprised to see it.

"Papa, grams are for eating, why are you sowing the grams in the soil ?"

"My Son! Grams can be used as seed for new crop and food as well."

Sukhman asked holding my hand, "Can we eat other seeds too ?"

"Yes my son, there are many, you can see some seeds in our kitchen like Jeera (cumin seeds). Some seeds are used to get flour like wheat.

Mustard oil is extracted from mustard seeds".

Q.1. With the help of your famly members complete the following list.

Seeds used as spices (masala)

(1) jeera (2) ..... (3) ..... (4) .....

Seeds used to prepare flour

(1) wheat (2) ..... (3) ..... (4) .....

Seeds used to extract oil

(1) mustard (2) ..... (3) ..... (4) .....

"Uncle, I like flowers. Will you get me seeds of Rose and Marigold", Sukhman asked me.

"Definitely my son, seeds of marigold can be collected.

But rose can be grown by grafting.

Rose grafting

Patharchat

"Uncle! what is grafting ?"

"A twig is cut from the rose plant and is sown in the soil, and after a few days the leaves appear over the stem (twig)."

Do you know that *Patharchat* (Bryophyllum) is a plant in which new plants grow from the leaves of the same plant. Some plants are planted from roots, like *Shakarkandi* (sweet potato).

Activity 1 :

Let us learn the process of growing plants from seeds.

1. Take some wheat seeds.
2. Take some fertile soil from the field.
3. Take a cup of water.
4. Take atleast four pots, glasses or beakers.
5. Name every beaker or pot or glass as A, B, C, D

Process of germination

6. In pot A, put some wheat seeds and keep it in sunlight.
7. In pot B, put some fertile soil, add a few seeds and keep in sunlight.
8. In pot C, put some fertile soil, sow a few seeds, put some water and keep in dark room or almirah.
9. In pot D, put some fertile soil, sow a few seeds and water it then keep it in sunlight.

Watch after few days. In which pot the seeds germinate ?

Seeds will germinate in Pot 'D'.

Why did seeds not germinate in other pots ? Do you know ?

Air, water and sunlight are required for the healthy germination of seeds.

Activity 2 :

You can plant any seed at your home following the procedure given for pot 'D', and fill up the performa given below :

Name of seeds	*Date of sowing*	*Date of germination*	*Height of plant after seven days of germination*	*Height of plant after fifteen days of germination*

Sukhman and I took empty lunch boxes and started back towards home. While passing by a nearby building, Sukhman said holding my arm, "Uncle, see plants are grown on the roof. Who has planted them on the roof?" "No, Sukhman! no one planted these plants, seeds might have reached on the roof top somehow."

Sukhman asked, (Surprisingly) "How ?"

"My son ! seeds are carried away from one place to another by many ways. For example, the birds take fruits to the roof and eat them. The seeds are left on the roof. The seeds of a wild plant *Akk* are hairy and are carried by wind from one place to another. Due to its weight and size, the seeds of congress grass fly in air and reach different places. *Puthh Kanda* and *Gut Patna* usually stick to the bodies of animals and reach other places. Water lily and Water Hyacinth (Jal Kumbi) travel through water from one place to another.

Activity 3 :

With the help of your teacher make a list of all those seeds that travel from one place to another by any means.

Things to Remember

- Small pieces of potato and sugarcane are planted in the field.
- New plants of patharchat grow from the leaves of the same plant.
- Shakerkandi is planted from the root.
- Air, water and sunlight are required for the germination of seeds.

Q.2. Tick (✓) the correct answer :

(*i*) From which seed is flour prepared ?

Mustard ☐ Wheat ☐ Coriander ☐

(*ii*) Which seed is used as spice ?

Turmeric ☐ Maize ☐ Rural millet ☐

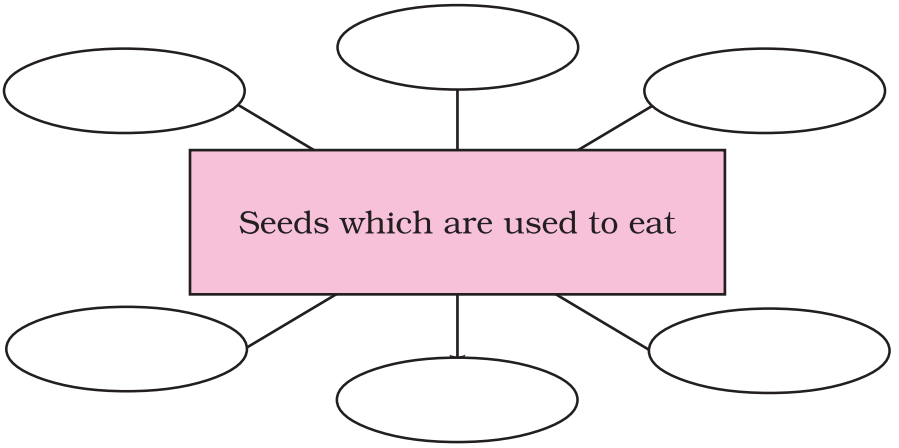
(*iii*) Which new plant is grown from its leaves ?

Radish ☐ Cauliflower ☐ Shakarkandi ☐

(*iv*) Which plant is grown with grafting ?

Marigold ☐ Rose ☐ Patharchat ☐

Q.3. Mind mapping



Q.4. Fill in the blanks :

Oil, *akk*, seed

(*i*) ..... is prepared from the mustard seeds.

(*ii*) The marigold plant is planted by sowing ..... .

(*iii*) Seeds of ..... travel in the air from one place to another.

Q.5. Tick (✓) the right and (✗) cross the wrong sentences :

(*i*) All the plants are grown from seeds. ☐

(*ii*) Small pieces of sugarcane are planted in the fields for the plantation of sugarcane. ☐

(*iii*) Rose is planted with grafting.

(*iv*) The seeds of Jeera are used as spice.

(*v*) Water Hyacinth travels through water from one place to another.

Q.6. How is sugarcane planted ?

Q.7. How are plants grown with grafting ?

Q.8. How does plants grow on the roofs ?

Q.9. What is required for the growth of seeds ?

Q.10. How do the seeds of Gut Patna and Puth Kanda move from one place to other ?

Chapter – 9

Forests and Life

I will never forget that day. There was a huge gathering in the famous park of our city. A documentary film was being shown by an organization. The film was about the forests and the life of tribal people living there. The information about forests was totally new for me, as very few forests are there in Punjab. This film was related to different states of India. I am going to share with you the things I learnt from this film. Forest does not mean just a vast place where vegetation and trees are grown, but it also includes wild plants and wild animals. Many tribes live in these forests.

Forest scene

The state like Andha Pradesh, Bihar, Chhattisgarh, Odisha, Jharkhand, Madhya Pradesh, Manipur, Andaman and Nicobar etc. Have thick forests. The People who live in these forests are called 'Adivaasi'.

There are so many 'Adivaasi' Tribes in our country. Let's know about some Adivaasi Tribes and their regions.

State	*Adivaasi Tribe*
Manipur	Marm and Cheeru
Assam	Bodoz
Rajasthan	Bheel
Madhya Pradesh	Gond
Jharkhand	Munda

Different Tribes

The whole life of Adivaasi people is linked to the forests. They collect their food from these forests. Wild fruits, leaves, roots and wild animals form the part of their food. These people mostly use crowbars, arrows, etc., for hunting. They cure many diseases with herbs and shrubs they get from these forests.

To meet their economic needs, they prepare a number of things such as 'Pattals' from the leaves, furniture and decorative things from bamboo and sell them. Forests are also a source of many other things e.g. seeds, nuts, fibers, food for animals, honey, gums, fuel, etc. Now-a-days tribal people also trade in these items.

Activity 1 :

You must have seen the bamboo tree. Draw or paste a picture

	What do we get from bamboo tree ? Collect the information from your grand parents and teachers ? .... Discuss about the flowers and roots of bamboo with your teachers and your grandparents. Talk to your teachers and your grandparents about date palm tree too.

The forests are being cut at a fast rate. This is a matter of great concern. There are many disadvantages of cutting forests.

Cutting of forest

1. The main and big harm of cutting trees is the destruction of habitats of wild animals.
2. About 70% of Earth's vegetation and animals live and grow in the forests. Many species of animals and plants have disappeared and others are on the verge of extinction.
3. Cutting of trees lead to drastic changes in the temperature of that place which further proves harmful for the plants and animals of that area.

4. The roots of trees hold the soil to maintain the fertility of the soil. But due to deforestation, the topsoil gets loose and is washed away by water or air. This is called soil erosion.
5. With the cutting of forests, life of Adivaasi people becomes tough.
6. Food web and food chain are also affected due to the cutting of forests.
7. Water cycle is also disturbed.

Discussion with teacher : Van Mahotsav is celebrated from July 1 to July 7. The teacher should tell the students about the importance of this festival.

Adivaasi people love forests very much. They can't imagine their lives without forests. Why is it so ? Discuss this with your teacher, in the class.

Dear children, I want to discuss a few things with you. Forests are already less in punjab. We should make efforts to cover up this loss.

* We should plant trees on open land in our surroundings.
* Appropriate place should be chosen before planting a tree. The selection of trees should be done in accordance with climate of the area.
* Choose only those plants which are beneficial for the people and land of that particular area.

It is important to note that though there are a few forests in Punjab, yet the products made from forests are used in plenty. For example bamboo, teak wood, medicinal herbs and shrubs, etc. are used. All these things are brought to Punjab from far off forests.

Are there any trees which are harmful for our area ? Let's know.

Saffeda (Eucalyptus) is a tree which grows very fast. Its wood is used for making paper and sports material. Basically, this is an Australian tree. It has nearly 700 species. At present, it is very harmful for the land of Punjab as it needs a lot of water for its growth. This will further lower the level of underground water. It should olny be planted in waterlogged areas or wet lands.

Eucalyptus

What can we do to save the forests ? Let's think –

- By reusing the things obtained from trees like paper.
- By judicious use of wood.
- By making alternate residential arrangements for the growing population instead of cutting forests.
- There should be an emphasis on new researches and techniques for the better production of crops instead of cutting the forests to meet the requirement of more land under farming.
- Eatables should not be wasted.

Things to Remember

- There are very few forests in Punjab.
- Tribal people live in the forests.
- The Adivaasi people cure diseases with herbs and shrubs.
- Washing away of the topsoil is called soil erosion.
- Saffeda is basically an Australian tree.

Q.1. Fill in the blanks :

Adivaasi, soil, 70, habitats

(*i*) ..... people live in the forests.

(*ii*) About ..... % of earth's vegetation and animals live and grow in the forests.

(*iii*) The roots of trees hold the ..... .

(*iv*) Cutting of trees destroy ..... of wild animals.

Q.2. Tick (✓) right and corss (✗) the wrong sentence :

(*i*) There are many forests in Punjab.

(*ii*) We should not cut the forests.

(*iii*) The adivaasi people cure diseases with herbs and shrubs.

(*iv*) Water cycle is distrubed with cutting of trees.

(*v*) Saffeda treee needs a lot of water for its growth.

Q.3. Match the following

A	B
State	Adivaasi Tribe
Assam	Munda
Rajasthan	Bheel
Madhya Pradesh	Bodoz
Jharkhand	Gond

Q.4. What do you mean by forests ?

Q.5. Who are Adivaasi People ?

Q.6. What efforts can we make to cover up the loss of forests in Punjab ?

Q.7. What things should be ensured before planting a tree ?

Q.8. What can we do to save the forests ?

Chapter – 10

Storage and Preservation of Food

Gaurav's father brought bread along with the grocery for a month from the market. Gaurav ate some pieces of bread with jam and placed the remaining pieces in the kitchen. After some days he opened the packet of bread to eat and found it covered with dots of green and black colour.

He surprisingly asked about the mouldering bread. Mother smelt and ate a piece of bread and said, "Son, all the pieces are smelly and sour. They are not eatable now. They have got mould in the form of dots for keeping the packet open. We can fall sick by eating them."

Gaurav : But Mother, rice, pulses and other products brought with bread did not spoil. Why ?

Mother : Son, all the food products do not spoil at the same time. Green vegetables, milk & milk products, sweets, meat, bread and other wet food products spoil soon. On the other hand, dry grains, wheat, rice, maize, pearl millet, and pulses remain safe for many months.

Mouldering Bread

Dry Grains and Pulses

Activity 1 :

Students will collect the samples of different food products such as, bread, chapatti, pulses, wheat, and vegetables. They will keep them in the open. After 5-6 days they will observe them and discuss, and write about them.

Q.1. Which kind of food products decay soon ?

Q.2. Which kind of food products do not decay soon ?

Gaurav : Mother, how can we preserve the early decaying of products ?

Mother : Son, we have to preserve food products with some methods, so that they may be used for long.

Now I will tell you about these methods :

1. Refrigeration : Green vegetables, fruits, milk, meat, bread, etc., are kept safe by keeping them in fridge. Low temperature in fridge stops the growth of microbes.

2. Boiling : We can preserve milk for some time by boiling.

3. Adding Sugar : Your grandmother prepares murabba of different fruits. A lot of sugar is added to murabba to keep it safe for a long time.

4. Salting : Your aunt makes pickle by adding salt to mangoes, amla and chillies. In this way they can be consumed for long.

5. Oiling : Pickle of different fuits and vegetables is made by adding oil to them. They remain safe for a long time.

1. _____ 2. _____ 3. _____

6. Canning : Now a days a new technique is used to keep food safe. With this technique food is properly packed in a can. As it is air proof, so food is not worsened by the microbes.

But son, before purchasing a packed food, the date of packing, expiry date and time for consumption should be checked.

7. Drying : Your grandmother dry fenugreek, coriander, turnip, ginger, amla, apple, fig, etc., in the sunlight to make them useful for the whole year.

4. _____ 5. _____ 6. _____

Methods to keep the food safe

Activity 2 :

Ask your mother about the methods used for food perservatrion and write them in the following manner.

Food	*Method of Perservation*

Q.3. Why is it necessary to boil milk ?

_____

_____

_____

_____

Q.4. What kinds of murabbas have you eaten ?

Q.5. How can the decaying of food be assessed ?

Q.6. What kind of food is kept in the fridge for perservation ?

Activity 3 :

Collect and write about the information regarding packed food or medicines from the market. Note the date of packing, expiry date and time for consumption.

Type of Food or Medicine	*Date of Packing*	*Expiry Date*	*Time for Consumption*

Gaurav saw his father spreading wheat in the sunlight and asked why he was doing so.

Father : Son, grain like wheat is used for the whole year. So, it is dried up in the sunlight to remove wetness from it. After cooling down in the evening, this wheat will be filled in the drum. If we fill the drum with wet(moist)wheat, it will be damaged by bugs. It should be dried up to the extent that when the grain is broken with teeth it makes a cracking sound. The grain in the drum should be checked from time to time.

Wheat spread in the sunlight

Beetle

Drum

Gaurav : But, maternal uncle added pesticides while storing wheat in the drum. He said that after three or four months, the effect of the pesticide will be over and the consumption of wheat will not be harmful.

Father : The poisons used to preserve pulses like green-gram, chickpeas, moong and masoor grains are very dangerous. The protein in pulses absorb the poison very fast. When we consume these pulses, the poison reachs our bodies. So, it is better not to use them. We should preserve pulses and grains with natural methods. We should use match boxes and leaves of neem.

Gaurav : Father, we spoil our health by using these pesticides. Now I will never buy goods from the shop-keeper in which peticides are used. Father, what is kept in the big sheds built beside our school ?

Father : These closed sheds are called godowns. Government keeps grains there, purchased from the farmers. To save grains from moisture, gunny bags are kept away from the walls, on the wooden boards. In warehouses rat killing tablets are kept between the racks, or poisonous smoke is smeared to prevent spoilage of grains.

Godown

Cold Store

Gaurav : My classfellow, Karanvir's father keeps potatoes and fruits in a cold store.

Father : Yes son, cold stores are used to store and preserve vegetables & fruits, on a large scale. Especially, potatoes are kept in these cold stores in Doaba area.

Pasteurization : With this method milk is heated on a high temperature and then it is immediately cooled. Then it is packed into packets & bottles and is used for many days. In Punjab Verka pasteurizes sells milk on a large scale. Here milk products are packed for the future use.

Milk packed in bottles

Air tight containers are used to preserve food during the journey. Students and workers use tiffin boxes that keep food hot.

Things to Remember

- We should never eat stale food.
- We can identify the spoiled food by seeing and smelling.
- Food can be preserved by using different preservative methods to check the growth of microbes.
- Godowns are used to store grains on a large scale.
- Poisons should not be used to preserve the food products.

Q-7. Which method do you like the most to preserve grains at home? write about that.

Q.8. Why is the use of poisons harmful to preserve the pulses?

Q.9. Why are fruits and vegetables kept in cold stores?

Q.10. Match the following :

A	B
Milk	Drying
Pickle of Lemon	Adding Sugar
Peppermint leaves	Refrigerating
Jamun and grapes	Boiling
Murabba of Amla	Oiling

Chapter – 11

Changing Trends of Food

Gurjeet, along with his grandfather, his uncle and his friend Harman, was watching an agrculture programme on television.

His family is dependent on agriculture. His grandfather and uncle do farming. His grandfather did farming with bullocks. His uncle is expert in farming with tractor. The profession of most of the villagers is also agriculture.

The people of the village do not have much cultivated land. They earn much from the little land with the help of their family. As they owe less land, they have to work on a tenanted land. Seeds, agricultural tools, fertilizer, pesticides and cheep loans can be got from the co-operative societies to do farming. Besides agriculture, they do other subordinate businesses such as rearing livestock, fishery, bee keeping and mushroom harvesting to earn their livelihood. They also grow fruits and vegetables in some land. They are given knowledge and training about these works by the Krishi Vigyan Kendra, at the district level.

His mother and his grandmother also make & sell pickle, sauce, spices and murabba. They also take care of pet animals. In this way they earn a lot of profit every year. The people, who do not have their own land, go to the fields of other farmers to pluck chillies, potatoes, cotton, vegetables, fruits, etc. They also look after the gardens of other farmers. In this way they earn livelihood for their families.

Activity 1 :

Collect information about the various works of the farmers of your village and write below.

Name of Farmer	*Type of work*

Activity 2 :

Try to know from your father about the facilities provided by the co-operative societies.

Name of Facility	*Benefit*

Dada Ji told that it is not possible to do farming everywhere in our country, because somewhere there are hills, somewhere rivers & streams, somewhere desersts and somewhere there are forests. Various crops are grown in different states according to the type of soil and climate.

Punjab is an agricultural state. It is easy to do farming here as compared to other states. Modern tools for farming, sources of irrigation and productive land are available here.

But it is very difficult to do farming in some other states of India e.g. Maharashtra and Andhra Pradesh. Many times the crops are damaged there because of excessive rainfall or drought. So the farmers remain under heavy debt. Therefore, these farmers earn their bread by doing agriculture or other jobs with their families, in Punjab or other states.

Crops destroyed by excessive rainfall and drought

Sometimes the farmers from some villages of Punjab shift to other villages, temporarily with the family to pluck cotton or fruits. In this way the study of their children is also affected. They remain backward in studies as compared to the other children.

Uncle got an advice from the grandfather about the new seeds of wheat. The grandfather said that the seeds got from the wheat grain of last season are very productive. They had kept the old seeds in a drum after cleaning and drying them. Therefore, they will sow old seeds along with the new ones. On Saturday, Uncle brought the purified seeds from Punjab Agricultural University, Ludhiana.

PAU and farmers bringing seeds from there

On Sunday, the fields were ploughed well and the seeds were sown after applying a special chemical on them to save them from mould. After a few days, small plants grew and the fields were full of greenery. Uncle said that moisture and heat are needed for the germination of seeds.

After some days, Agriculture Experts (Agriculture Development Officer) from the Agriculture Department came to see the crops. They advised that the crops should be watered in time and urea should be applied to save the leaves from getting pale.

If the crops are destroyed by some natural calamity, the farmers are given compensation by the Government

Q.1. From where do the farmers get information about the new seeds ?

_____

_____

_____

Q.2. Name the subordinate professions of agriculture ?

_____

_____

_____

Q.3. What jobs are done by farming women ?

Q.4. What do the farmers of the other states do to earn bread for their family, when their crops are damaged ?

Activity 3 : Talk to the farmers of your neighbourhood and come to know which problems they have to face in agriculture.

Food Trends : There are 28 states in our country. Different crops are grown in these states. People also have different food habits. Different food items are prepared at their community programmes.

Today, it was Harman's *Bua ji's* mariage. Gurjeet's family had close relations with Harman's family. So, Gurjeet attended the marriage along with his parents and grandparents.

After having tea and snacks, some of the close members of the family were taken to the nearby Gurudwara for *Anand Karaj*. Other people were busy in listening to the music and having snacks of their choice.

Gurjeet's family members sat on the chairs altogether. Snacks were being served by the waiters. Gurjeet wanted to have an ice cream.

Scene of stalls in marriage palace

So, he asked his grandfather, "Dada ji ! do you want to have an ice-cream ?", His grandfather understood his trick and said, "Son, I don't eat cold things. But, I know, you want ice-cream."

"Dada ji, how do you come to know so quickly that I want to have an ice-cream ?", asked Gurjeet.

"Son, I know all your tricks. You use the same tacts to get gachak, toffees or chips from the shop", grandfather shared his experiences.

"Dada ji, I use the same tacts to have 'fruity' whenever I go to the market with father", said Gurjeet laughingly.

"Son you must take milk, curd, ghee, khoa, etc., instead of all these things. It is better if you eat fresh fruits instead of 'fruity', or ask your mother to extract fresh fruit juice for you."

"Your father was given plenty of milk and ghee by me, that's why he has a good physique. Sometimes milk with powdered almonds or *seweiyan* were given to your father. But, now he has changed his diet because he had stopped working in the fields and has started studying. But he still has the habit of eating *gur* after meal," said Gurjeet's grandmother taking part in the conversation.

"Dadi ji, I also take milk mixed with something or other twice a day but I am not fond of khichdi mixed with milk, which you eat", said Gurjeet.

"Son, in our times diet mainly included milk, butter and cereals. Your grandfather used to drink a big mug of butter-milk in one go, after coming back from fields in summer. The cow was milked directly into the bucket already containing butter-milk. This drink was called Teiur. In the afternoon, all family members used to drink milk from the *karhni*. Now-a-days neither

much physical works are done nor those nutritional diets are needed", said grandmother recollecting her memories.

"Dadi ji ! You admit yourself that diets have changed then why everyone asks me not to eat toffees, chips, kurkure, ice-cream, etc.," Gurjeet got an opportunity to justify himself.

"My son, excessive sugar in candies decays the teeth. Kurkure and chips are neither healthy nor digestable easily. We must not eat very cold things like ice-creams in excess as well " added Gurjeet's mother.

"Now-a-days marriages are a show off matter only," said a middle aged man sitting nearby.

"Show off but its a necessity too. Means of transportation have increased. Food items should also be served according to the choice of the guests invited from far off places," an inhabitant of Haryana said, "*Baathu raita, gaajar halwa, rabri,* etc., are common in our area. If we move a little farther to Rajasthan, *mirchi-vada, makhan vada,* and *dal baati churma* are common. In South, people serve the food like *idli, dosa,* etc., on leaves instead of plates," he said extending the talk.

While having food of their own choice, people leave the food in plates as waste.

"Leaving food in plates has become a fashion now-a-days. It is not good to waste food. See those beggers, with empty stomach, they are forced to beg for food. Their little children rarely eat up to their fill", said Gurjit's grandfather pointing to the beggars standing at the gate with their empty pots.

Things to Remember

- Farmers do hard work in the fields to grow crops.
- Production of crops grows by using manure.
- Crops are damaged by excessive rainfall and drought.
- People of different states eat different food.
- Members of the family also eat food according to their age and tatse.

Q.5. Which type of food should be taken to keep healthy ?

Q.6. Collect an information about the food habits of your friends and write what they eat.

Name of the friend	*What he eats*

Activity 4 :

What did your father used to eat in childhood and what does he eat now ? Collect information about it and write.

List of food products	*Name of food*
Childhood	
Now	

Activity 5 :

What do the different members of your family like to eat? Collect information from them and make a list.

Members of family	*Name*	*Favourite food*
Brother		
Sister		
Father		
Mother		
Grandfather		
Grandmother		

CHAPTER – 12

Eat and Digest Food

Today, our teacher brought a chart in our class. There were different types of food items printed in groups on the chart. Hanging the chart, teacher started talking to us.

Teacher : Children! We have learnt about the functions of food, in the previous class. Who will tell me about it?

Satpal : Food is essential for our living. It gives us energy to work & play, for physical growth and to protect us from diseases.

Shaminder : Sir, food contains five essential nutrients-carbohydrates, fats, proteins, vitamins and minerals.

Keerat : Sir, what are these nutrients ? From where do we get them ?

Teacher : Children, these nutrients are classified according to their function e.g.

1. Energy giving food	Carbohydrates and fats
2. Body building	Proteins
3. Safe food	Vitamins and minerals

Let us now discuss about these nutrients and their sources one by one.

1. Carbohydrates : Wheat, rice, sugarcane, sweet potatoes, potatoes and sweet fruits are rich sources of carbohydrates. These nutrients give us energy for playing and physical work. Their deficiency causes fatigue in our body. Starch and sugar in our food are the sources of carbohydrates. When we are sick or tired, the doctor gives us Glucose for instant energy.

2. Fats : Fats gives more enrgy than carbohydrates. It keeps our body warm. It absorbs so many vitamins into it. Its main sources are ghee, butter, nuts, khoya, eggs, meat, etc. Over eating of fats can cause obesity and heart diseases.

3. Proteins : Proteins are essential for our physical growth. It makes new cells in our body and heals our injuries. We can get it from eggs, fish, meat, cheese, peas, pulses and milk. Growing children should eat food rich in proteins.

Carbohydrats

Fats

Proteins

4. Vitamins : Vitamins keep us healthy by saving us from diseases. They are necessary for the proper functioning of eyes, gums and skin. They are known as vitamin A, B, C, D, E and K. We find them in vegetables, organge, eggs and milk. Vitamin D is gained from the sunlight.

5. Minerals : Minerals also keep our body healthy and strong. They help in the formation of bones, teeth and blood. Calcium, potassium,

Source of Vitamins and Minerals

sodium, iodine and iron are the essential minerals for our body. They are obtained from fresh fruits, vegetables and milk.

6. Roughage : It is essential for the proper function of our digestive system. We get it from fruits and vegetables. It absorbs water in our body. It helps us to excrete waste materials from our body.

7. Water : It is an important part of our diet. It regulates our body temperature. It helps us digest food and remove waste materials from our body. We should drink 8–10 glasses of water daily.

Roughage

Water

Children, the above nutrients should be in proper proportion, in our diet, to keep us healthy.

Activity 1 :

Children! chew the pieces of orange or mousami as long as the juice is not extracted completely. Examine the fibre remained in the mouth. This fibre is called roughage.

Activity 2 :

Write the names of food eaten at different times that are rich in proteins.

Breakfast	
Lunch	
Dinner	

Q.1. Fill in the blanks :

energy, vitamin D, Minerals, Protein, Water

(*i*) ..... is a body building nutrient.

(*ii*) ..... helps in the formation of teeth, bones and blood.

(*iii*) Fats give ..... to our body.

(*iv*) ..... keeps our body temperature in balance.

(*v*) We get ..... from the sunlight.

Q.2. Tick (✓) the right and cross (✗) the wrong sentences :

(*i*) Rice, wheat and potatoes keep vitamins.

(*ii*) Water controls the temperature of body.

(*iii*) Sugar and starch are rich in carbohydrates.

(*iv*) Vitamins save us from diseases.

(*v*) Milk is a complete diet.

Q.3. Why do we eat food ?

Q.4. Name energy giving nutrients.

Q.5. Name the various sources of foods that grow our body.

After school, Keerat went with his friends to the fields carrying tea for his father and lemonade for his uncle, who was harvesting wheat. He started chewing wheat seeds in the fields. Suddenly he started shouting in amazement. He felt as if wheat seeds have become sweet.

His father told that when we chew grains or bread in our mouth, then it mixes with the saliva with the help of our tongue and teeth. Saliva converts the chewed food into glucose. So the food tastes sweets. Glucose is a type of sugar that is easily absorbed.

Players take glucose powder while playing so that they may get energy to play continuously. So whenever you feel tired, you can drink lemonade by mixing a little sugar, salt and lemon juice.

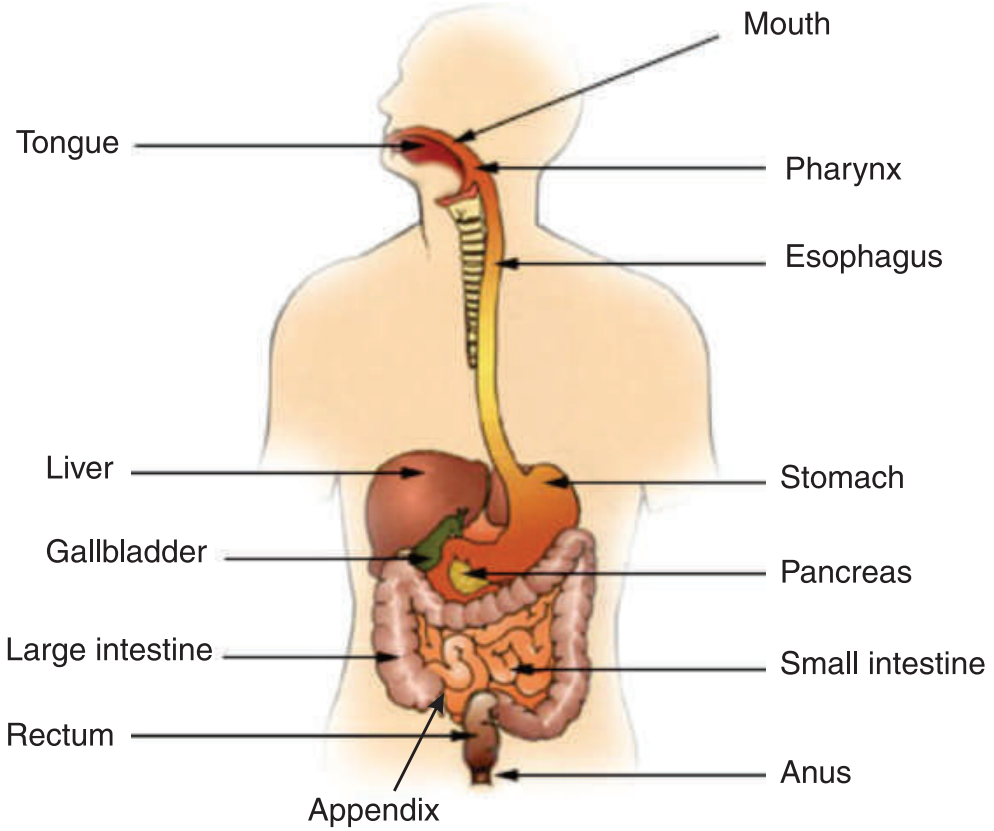
Keerat said, "Now I come to know why my uncle drinks lemonade."

Do you know how food is digested ?

"Food gets soft in the mouth and reaches the liver through food pipe. Gastric juices mixed with acid (HCL acid) sends it to small intestine."

Juice from the gallbladder makes the food of small intestine digestable. Small intestine absorbs essential nutrients from food. Here food mixed with blood reaches other organs.

Large intestine only absorbs water from food. The remaining undigested food is excreted through anus.



Organs of digestive system

Listening to father's talk, Keerat said that his stomach was aching.

Father said that he had eaten many wheat seeds without chewing properly. Food should always be eaten by chewing it properly. By doing so there will be no stomachache and no vomitting. We should sit straight while taking meals.

Activity 3 :

By tasting with tongue, write the name of food and its taste.

Name of food	*Taste*

Activity 4 :

Write the parts of the digestive system in a serial order.

1 Mouth	2	3	4
5	6	7	8

Things to Remember

- Carbohydrates and fats give energy to our body.
- Proteins help our body growth.
- Vitamins and minerals save our body from diseases.
- Glucose is a type of carbohydrates.
- We get vitamin D by sitting in the sun.
- Milk is a complete food.

Q.6. Why should we eat food slowly ?

Q.7. Tick (✓) the correct answer :

(*i*) With which organ can we sense taste ?

(1) Tongue ☐ (2) Teeth ☐ (3) Nose ☐ (4) Mouth ☐

(*ii*) Which substance in the mouth makes the food sweet ?

(1) Tongue ☐ (2) Saliva ☐ (3) Food pipe ☐ (4) Teeth ☐

(*iii*) From which organ does food start digesting ?

(1) Stomach ☐ (2) Large intestine ☐ (3) Small intestine ☐ (4) Mouth ☐

(*iv*) Which nutrients are present in a balanced diet ?

(1) Proteins ☐ (2) Carbohydrates ☐ (3) Minerals ☐ (4) All ☐

(*v*) What do the players eat to get instant energy ?

(1) Ghee ☐ (2) Butter ☐ (3) Glucose ☐ (4) Meat ☐

Q.6. Tick (✓) the right and cross (✗) the wrong sentences :

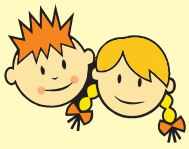
(*i*) We get more energy from fats than carbohydrates. ☐

(*ii*) We should eat food slowly by chewing it. ☐

(*iii*) Undigested food is extracted from the body through anus. ☐

(*iv*) We should drink 8-10 glasses of water daily. ☐

(*v*) Saliva, inside the mouth, makes the food hard. ☐



Always Remember

We should eat vegetables and fruits after washing them properly. In this way we can wash away the micro organisms hidden in dust particles that cause diseases. We should always eat fresh fruits and vegetables.

Chapter – 13

Deficiency Diseases

Daksh talked to his father about a medical camp held in his school yesterday. He said that a team of doctors and nurses checked up all the students of the school. The doctor sent for the parents of a few sick children to school.

Some mothers told the doctor about the weakness of their children as they got tired so soon. Seeing white patches on their nails, the doctor told them that their children were suffering from anemia, a deficiency disease. For treatment, the nurse gave tablets of iron and folic acid and advised them to take the tablets twice a week after meal.

Ravneet complained that she cannot see properly at night. Doctor checked her eyesight and told that the child suffered from night blindness. If the child would have taken milk, leafy vegetables and fruits, she would not have suffered from this disease.

Weak Child

Anemia

After seeing an extremely weak child of 3-4 years, the doctor said that the child suffered from protein-energy malnutrition. The child was weaned

Children suffering from Protein – energy malnutrition.

of mother's milk at an early age. Mother's milk is very important for the healthy life of a child.

Q.1. Name the disease that is caused by the deficiency of blood in the body.

_____

_____

_____

Q.2. Write the name of deficiency disease found in the children, if they are weaned from mother's milk in infancy.

_____

_____

_____

Some children complained of headache and tiredness. The doctor advised them to eat green leafy vegetables, kidney beans and chapattis of unseived flour, so that they may be saved from beri beri disease caused by deficiency of vitamin B.

The teeth of some children were not normal in growth and their bones were also bent and weak. The doctor said that because of the deficiency of calcium, phosphorus and vitamin D, those children suffered from rickets (bow shaped bones) and ostemalacia (weak and fragile bones). The nurse advised them to take diet rich in calcium and phosphorus e.g. milk, eggs & cheese, and to sit in the sunlight in early hours to cover up the deficiency of vitamin D.

Deficiency of calcium.

A child told doctor that he has swollen and bleeding gums. The doctor advised him to eat citrus fruits such as oranges, mousami, amla in plenty to cover up for the deficiency of vitamin C. These children suffered from a deficiency disease named scurvy caused by deficiency of vitamin C.

After that the doctor examined a child's thyroid mother. The lower part of her throat was swollen due to the enlargement of gland. The doctor told her that she was suffering from a disease called **Goitre** due to deficiency of iodine. She could save herself from this disease by using iodised salt and eating sea food.

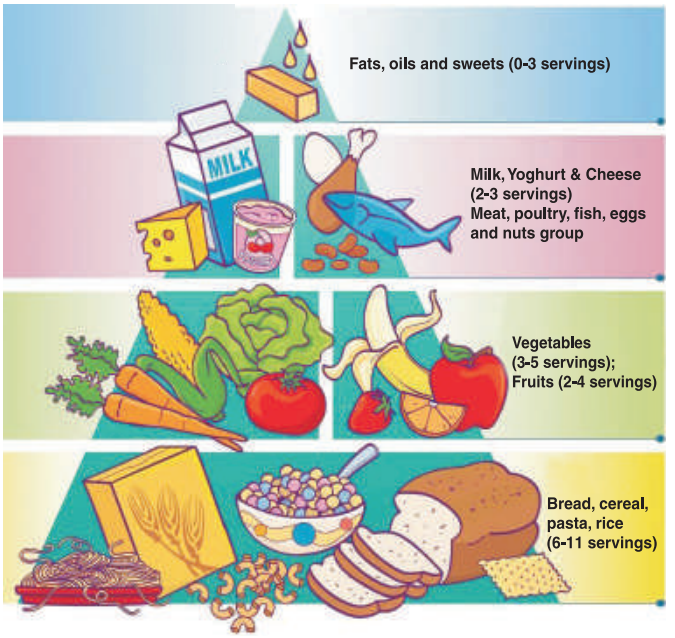
Goitre

At last the doctor asked all the students how they come to know that they are hungry ?

Khushpreet said, "When we are hungry we feel tired. We can not do our work properly. We can work only after taking some meals."

The doctor told the parents of the children that most of their children were suffering from deficiency diseases. These diseases are caused due to the deficiency of carbohydrates, fats, proteins, vitamins and minerals in food.

We cannot do any work properly due to the deficiency diseases. So we should eat a balanced diet containing all nutrients. We should never remain hungry. We should take our diet daily at the proper time. They gave a chart related to nutrients and balanced diet to the teacher.



Maintain a Balanced Diet

Our teacher told the parents that the children are given mid day meal in schools to prevent malnutrition. Different types of foods are provided in mid day meal. The parents should also take proper care of their children's health. If any child is sick, he or she must be taken to the hospital for check up. No medicine should be given to the child without doctor's advice.

The doctor told that sometimes there is shortage of grains due to natural calamities such as tsunami, floods and drought. The shortage of grains leads to famine. As a result people do not get meal to eat. It results in the deaths of many people especially children due to hunger and deficiency diseases.

Do you know about the Famine in Bengal ?

Sometimes famine is caused by the people instead of the natural disasters. In 1943, a great famine in Bengal was caused by the British. For fear of the entry of Japan in India during the second word war, the Britishers closed all the routes to Bengal. Food stored by people began to finish slowly. The food could not reach from other states as all the routes were closed. As a result, millions of people died because of hunger and deficiency diseases. Even today people of many countries are suffering from hunger due to wars among the countries.

Some scenes of Bengal famine in 1943

Now-a-days grains are stored on a large scale, in godowns by the Government to save the people from hunger. Many ration depots have been opened in our country where necessary food items are kept available to the people either free or at very low rates.

Godowns of grains and ration depot

Daksh's father became very happy when his son told him about the information given by the doctor. He advised him to drink milk and eat green vegetables daily.

Activity 1 :

Collect the information related to any famine from your grandfather and share this with your teacher and friends.

Activity 2 :

Ask the children to make a list of food items they eat for a week.

Date	*Morning*	*Afternoon*	*Night*
1.			
2.			
3.			
4.			
5.			
6.			
7.			

Things to Remember

Nutrients	*Deficiency disease*	*Diet to prevent disease*
Carbohydrates and Proteins	Marasmus and Kwashiorker	Mother's milk, porridge, balanced diet,
Vitamin A	Night Blindness	Carrots, papaya, eggs, milk and spinach
Vitamin B	Beri Beri	Sprouted pulses, meat, fish, eggs, milk
Vitamin C	Scurvy	Citrus fruits, amla, tomato
Vitamin D	Rickets	Butter, ghee, eggs, sunlight
Vitamin E	Skin diseases	Sprouted pulses

Nutrients	*Deficiency disease*	*Diet to prevent disease*
Vitamin K	Excessive bleeding (Blood does not clot)	Egg, meat and milk
Iron	Anaemia	Carrot, spinach, milk, egg, meat
Calcium	Osteomalachia and Osteoparosis	Milk, butter, fruits and green vegetables.
Iodine	Goitre	Iodised salt, sea food
Sodium	Dehydration, Blood pressure	Meat and salt

Q.3. Tick (✓) the right and cross (✗) the wrong sentences :

(*a*) Night blindness is caused due to the deficiency of Vitamin A.

(*b*) Deficiency of Iron causes anaemia.

(*c*) The citrus fruits contain vitamin D.

(*d*) Swelling legs occurs due to Goitre.

(*e*) Mother's milk is a complete diet for a child.

Q.4. Fill in the blanks.

sea food, iodine, vitamin C, Milk

(*a*) Bleeding of gums occurs due to deficiency of ..... .

(*b*) Deficiency of iodine can be prevented by taking ..... .

(*c*) Deficiency of ..... causes goitre.

(*d*) ..... is a balanced diet.

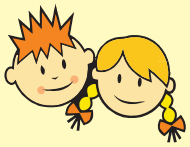
Q.5. What are deficiency diseases ?

Q.6. Name all the nutrients present in a balanced diet.

Q.7. White patches over nails are a symptom of which disease ?

Q.8. Complete the following columns based on the information about deficiency diseases read in this lesson.

Name of disease	*Due to deficiency of which nutrient*	*Symptoms*



Always Remember

Defecating and Urinating in open leads to the spread of various diseases. House flies spread many diseases by sitting on the garbage. So we should always use toilets to defecate and urinate. We should always use soap to wash dirty hands.

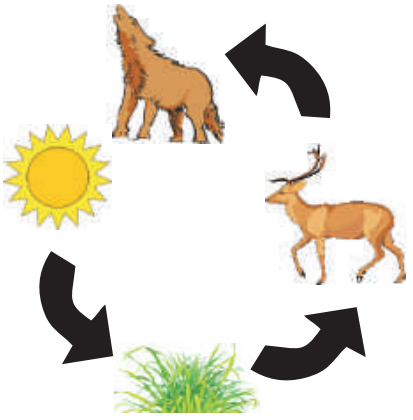
Chapter – 14

Insectivorous Plants

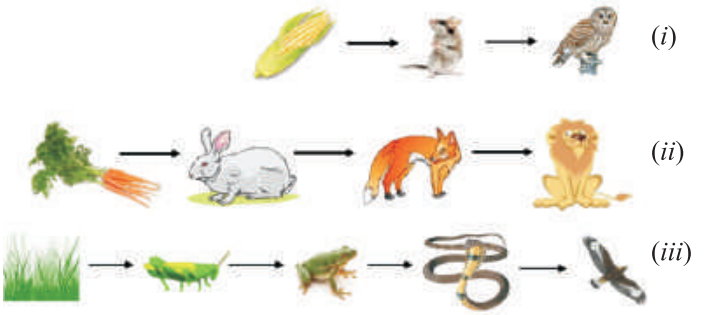
On Sunday, Rakesh and his sister Pooja went for a walk with their father, in a garden. Beautiful flowers had blossomed in the garden. Colourful butterflies, bees and many other insects were flying in the air. An insect sitting on a small plant was eating its leaves. Suddenly, a chameleon attacked and ate the insect by rolling it into its long tongue. Rakesh drew his father's attention towards that, surprisingly.

A chameleon eating an insect with its long tongue

Father explained that it is the law of nature that one animal eats others, and in turn it is eaten by some other. This is food chain.



A Food Chain



Different Food Chains

For example, grasshopper eats grass, frog eats grasshopper, snake eats frog and the eagle eats snake. This forms a food chain. Son, we get energy from the food only. For the continuous flow of energy in a food chain, the presence of every organism is essential, otherwise the food chain will be disturbed.

Activity 1 :

The teacher can tell students the story of a farmer crossing the river with a goat, a bale of grass and a tiger.

Q.1. What is a food chain ?

_____

_____

_____

Activity 2 :

Observe carefully the organisms present around you and make a food chain on the basis of their relations of eating others and being eaten up.

Activity 3 :

What will happen to other organisms of food chain if one organism in a food chain disappears ? Discuss in the class and write in the space given below.

_____

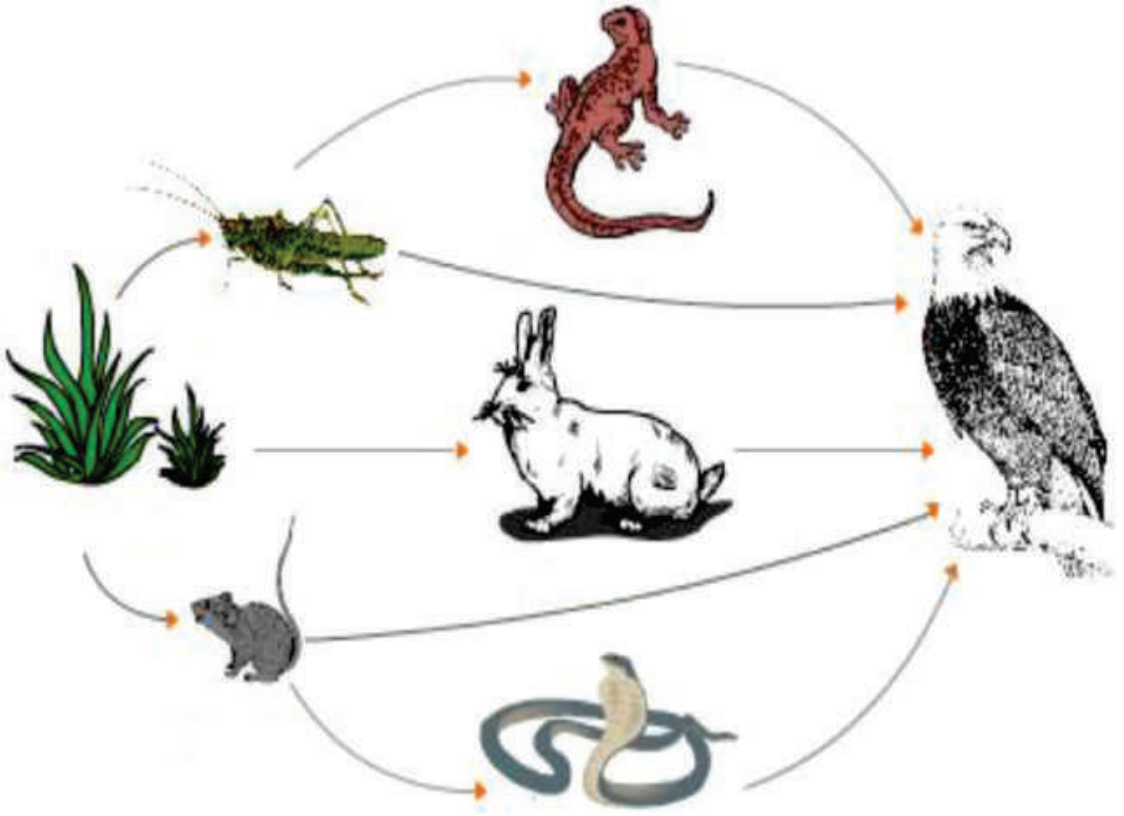
_____

_____

_____

A chameleon was eating small insects. In the meantime a frog also appeared. Frog was also eating same kind of insects. Pooja asked her father curiously why both were eating same type of insects ? Father explained that many animals eat same type of food. When an organism, in a food chain, enters into another food chain, a number of food chains get linked with each other and a food web is formed.

As both grasshopper and deer eat grass, but the lion eats deer and does not eat grasshopper.



Foodweb

Activity 4 :

Write the names of different animals on cards and give them to the students. After this, 'who eats whom', should be linked with a thread. In this way, a food web is formed.

Q.2. What is a food web ?

"Papa, some animals eat plants and some animals eat other animals. Are there some animals who eat both ?", Rakesh asked curiously.

Son, all the animals cannot prepare their own food. They depend on plants and animals for their food. Animals are of three types based on their food habits.

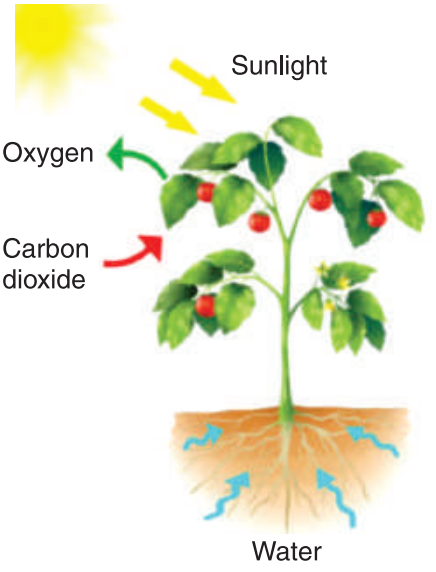
1. Herbivores : The animals which eat only grass, leaves, fruits and seeds, etc., for example deer, cow, buffalo etc.

2. Carnivores : The animals which eat other small animals, e.g. lion, tiger, etc.

3. Omnivores : The animals which eat both, plants and animals for food, e.g. bear, monkey, cat, etc.

Pooja asked surprisingly, "Papa, who prepares food for the plants ?"

"Green plants prepare their own food. Their leaves serve as a kitchen. Leaves are green due to the presence of a pigment named chlorophyll." "Plants prepare their food in the presence of sunlight by taking carbon dioxide from air and by absorbing water and minerals from soil. This process is called Photosynthesis. In this process plants make food (glucose-$C_6H_{12}O_6$) and release oxygen (O_2) in the air. Some part of food is used by plants for obtaining energy. The remaining food gets stored in the form of fruits and seeds," papa explained.



Activity 5 :

Take a potted plant. Place a cardboard box with a hole on one side of the box. Note down the changes you observe in the plant after a few days.

_____

_____

_____

_____

_____

Activity 6 :

Plant a tree in the soil or pot in your house. Note down the requirements of the plant for its growth. Also note where does the plant meet its need from ? Your teacher and your elders will help you.

Insectivorous Plants

"Papa! plants do not kill any organism unlike chameleon and frog", Pooja criticised animals.

"No, not all plants are so. Even plants like Sundew and Pitcher Plant eat insects. The insects provide them nitrogen and phosphorus." Father explained.

"Papa, how do these plants eat insects ?", Rakesh was surprised.

Pitcher Plant

"The leaves of Pitcher plant look like a pitcher. The margins of these leaves are slippery. Pitcher like leaves have a lid over them. Whenever an insect sits over its leaf, it slips into the pitcher like structure and the lid closes. The digestive juices present inside it digest the body of the insect. The lid opens up again to catch a new insect."

Sundew has round leaves with hair like structure, so they look like the sun. When an insect sits over the leaf, hair like stucture traps the

insect. The digestive juices collected on the leaf digest the insect. After its absorption the hair like structure again opens up to trap another insect", father provided information about the strange world of insectivorous plants.

Sundew Plant

Cascuta (Amarvel)

There are some other plants also which do not prepare their food. They get their food from dead and decaying materials by absorption. e.g. mushroom, etc. The parasites like cascuta (Amarvel) wrap their thread like roots around the stems of other plants and get food for their growth.

Things to Remember

- Organisms can be herbivores, carnivores and omnivores.
- There are producers (plants) and consumers (animals) in a food chain.
- There are many food chains in a food web.
- Insectivorous plants get essential nutrients by eating insects.
- Man is also omnivorous.

Q.3. Fill in the blanks :

decayed, carbondioxide, food-web, Green, sun, Pitcher plant, Sundew plant, food chain

(*i*) In a ..... one organism can eat many other organisms.

(*ii*) In a ..... one organism eats only one organism.

(*iii*) ..... plants prepare their food in presence of ..... light.

(*iv*) Plants absorb ..... gas from the air.

(*v*) ..... and ..... are insectivorous plants.

(*vi*) Mushrooms get their food from ..... materials.

Q.4. Tick (✓) the right and cross (✗) the wrong sentences :

(*i*) Many food chains get interlinked to form a food web.

(*ii*) Leaves look green due to a pigment called chlorophyll.

(*iii*) Plants produce glucose in the form of food.

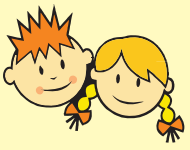
(*iv*) Plants pollute the environment.

(*v*) The leaves of Sundew Plant look like Sun.

Q.5. What is Photosynthesis ?

Q.6. How does the Pitcher Plant meet its requirements of Nitrogen and Phosphorus ?

Children ! prepare food chains of organisms living on trees in your surroundings.



Always Remember

Each and every organism is important in environment. If one organism in a food chain disappears, the food chain will also disappear. So, to maintain balance in environment, we should not hunt animals. More and more trees should be planted.

Chapter – 15

Different Types of Houses

Today, drawing competitions were held in the school. The teacher asked all the students to make drawings on the same subject and the subject was natural scenery. Some of the students did not understand the topic. Being asked the teacher said, "You can make anything about natural scenery such as mountains, trees, river, birds, sky, sun, etc." The students got an idea of the given topic. When they showed their drawings, the teacher noticed that everybody had made mountains and a hut.

Hut Painting

He laughingly said, "Children! You all have drawn the picture of houses of hilly areas."

Manpreet asked her teacher, "Madam! do all the houses on mountains have such type of sloping roofs. Our houses are not like these." At this the teacher started explaining,"Dear students! we have learnt about the mud houses and the pucca houses in the previous classes. In fact people make their houses according to their comforts, economic and physical conditions and climate of that area."

Following are the bases for different types of houses :

* Economic conditions
* Climate conditions
* Physical conditions
* Availability of Material

Let us get a detailed information about them.

Economic Conditions : It means that people build their houses according to their economic conditions. People with low income make small

houses and their houses have less facilities. But people with high income make bungalows, which have all the facilities.

Kutcha Houses : This type of houses are built in the backward areas where the people have low income sources. They are incapable of making brick houses. These houses are made by the residents themselves. Soil, dung, mud, wood and husk are used to make them. These houses have very thick walls and they remain cool during summer season.

Kutcha Houses

Pucca House

Pucca Houses : Now a days, most of the houses are made of bricks. Besides bricks, cement, sand, stones, wood and iron rods are used to build them. Such houses are built by masons and labourers. These houses are very strong. They have strong walls which become hot during summer. Iron rods are used in the roofs of such houses.

Difference in Houses on the basis of climate : Climate means the weather conditions of a particular place. All places do not have same climate. Climate of some places is very hot or cold and some areas have more rainfall. So, on the basis of climate, different type of houses are built.

House with Sloping Roof

Igloo

Houses made of Straw Roofs

Houses with Sloping Roof : This kind of houses are mostly seen in areas facing heavy rainfall and snowfall. Water flows down the roofs of these houses. We can commonly see such houses in Shimla and Manali.

Igloo : These houses are built of snow. They are built in the areas which remain covered with snow througout the year. Polar regions of the earth are extremely cold and people living in those places build snow houses. Although igloos are made of snow, they are warm from inside. People living in them are called Eskimos.

Eskimos

Houses made of Straw Roofs : This kind of houses are built in those areas where rain fall is less. Such areas are mostly dry. Due to extremely hot climate, people live in small houses made of straw roofs. They are generally mud houses. Because of low rainfall, there is no fear of leakage.

Q.1. Where can we find the houses with sloping roofs ?

_____

_____

_____

Q.2. In which areas are igloos built ?

_____

_____

_____

Difference in houses on the basis of Physical Conditions : It means, people live in different types of houses on the basis of physical conditions- such as facilities in the area, business, population, etc. The following houses fall in this category.

Flats

Single House

Multistorey Buildings : Such houses are found in big and metro cities. These cities have large population and less space to build houses.

So, multistorey buildings are built there. These buildings have similar type of houses which are called flats. Lifts and stairs are used to reach the upper floors of the buildings.

Single Houses : Single houses are usually found in small cities, towns and villages. In small cities and towns, people purchase their own piece of land and houses. These houses have different shapes and sizes. Most of them are made of bricks.

Tree House

Caravan

Tent House

Boat House

Tree House : This type of houses are built in forests. They are built over the trees to protect the residents from wild animals. Now a days many people make tree houses for fun and enjoyment. These houses look extremely beautiful. They are generally made of wood.

Boat House : These houses are built in the lakes. Boat houses float on the surface of water. In our country such houses are seen in Dal Lake of Srinagar. They are mostly used by the tourists.

Caravan : These are temporary houses. They are in the shape of a cart that can move from one place to another. These houses are built by those people who have no permanent residence such as *Vanjaras, Khanabadoshas* and Nomadic Tribes.

Tent House : They are also temporary houses that are built temporarily for some time to live in. Mostly soldiers, mountaineers, participants in camps and circus people live in tent houses because they have to move from one place to another. These tents are built with canvas and bamboos tied with ropes.

Q.3. What do you call to the houses which float on water ?

_____

_____

_____

Q.4. Which kind of people use tents to live ?

Activity 1 :

Make a name plate of your house on a drawing book/sheet and also mention the type of the house.

For Teacher :

In this activity, make the students undferstand the importance of name plates to find the houses of the people living in a particular area. The teacher should guide the students to write the number of their house, their name or their father's name, street number, mohalla, etc., on their name plates. Moreover, an activity can be done by using the classroom as a locality and placing name plates over there and finding out a particular house.

Variety of Houses According to the availability of Material : It means if a particular material is available in a large quantity in a particular region that can be easily used to build houses. On this basis we find the following type of houses :

Stone Houses : These houses are usually seen in mountaineous areas where rocks and stones are in plenty. Slates of rocks are easily found in the flowing rivers. They are used to build the roofs of the houses.

Bamboo Houses : These houses are found in those areas where bamboos are found in large quantity. These areas face heavy rainfall and floods. So, the houses are built above the ground by digging bamboos in the earth to save the residents from floods. In our country such houses can be seen in Assam.

Eco-friendly house : These days increasing population is the biggest problem. Therefore, we are forced to cut jungles to make colonies. Consumption of energy has also risen to a great extent. Therefore, we should build eco-friendly houses which may put less pressure on environment.

Eco-friendly house

This type of houses have the following features :

- ❋ Collecting rain water from roofs by making water tanks.
- ❋ Making compost from garbage.
- ❋ Using windows in place of electric lights and fans.
- ❋ Using solar energy for cooking food and heating water.
- ❋ Planting more and more trees in the houses.

Use of Modern Material for Construction Work : Now a days many new and modern materials are being used to build houses. Due to lack of wood, aluminium and iron materials are used to make doors and window panels. Glass, P.V.C. sheets and fibre sheets are also used to make windows and gates. Instead of bricks, large blocks of cement are being used. P.O.P. is used to make beautiful designs beneath the roofs of the houses.

Activity 2 :

Make a list of the materials used in building your house. Ask your elders for help.

For Teacher :

By this activity, the teacher can test the power of observation and imagination of the students. They will try to know about every visible and invisible material used for building the house.

Things to Remember

- ➥ Man lives in different kinds of houses.
- ➥ Man builds his house according to his economic conditions.
- ➥ On the basis of climate, sloping roofs, straw roofs and igloos are built.
- ➥ On the basis of physical conditions, multistorey buildings, single houses, tree houses, boat houses, caravans and tents are built.
- ➥ According to the availability of material, houses of bamboos and stones are built. Now a days many new kinds of materials are being used to build houses.

Q.1. Fill in the blanks :

sloping, panels, Name-plates, temporary, trees

(*i*) ..... are used to find the houses.

(*ii*) In hilly areas, houses of ..... roofs are built.

(*iii*) Tents are ..... houses.

(*iv*) Tree houses are built on ..... .

(*v*) Wood is now replaced with iron for making ..... .

Q.2. Tick (✓) the correct and cross (✗) the wrong sentences :

(*i*) Brick houses are made of mud and soil. ☐

(*ii*) Caravans are moving houses. ☐

(*iii*) Igloos are made of snow. ☐

(*iv*) Brick houses are built in deserts. ☐

(*v*) Tree houses are built over water. ☐

Q.3. Match the Columns

Polar regions	Multistorey buildings
Lakes	Straw roofs
Metropolitan Cities	Igloo
Desert	Bamboo houses
Assam	House boat

Q.4. Use tick (✓) for the correct answers :

(*i*) What do we call the houses built in multistorey buildings ?

(*a*) Caravan ☐ (*b*) Flats ☐ (*c*) Plots ☐

(*ii*) Who uses tents ?

(*a*) Soldiers ☐ (*b*) Doctors ☐ (*c*) Eskimos ☐

(*iii*) Boat houses are mostly seen in ..... .

(*a*) Rajasthan ☐ (*b*) Chandigarh ☐ (*c*) Srinagar ☐

(*iv*) In what kind of houses do Eskimos live ?

(*a*) Igloo ☐ (*b*) Caravan ☐ (*c*) Tree houses ☐

(*v*) Which is the latest material among the followings to make houses ?

(*a*) Wood ☐ (*b*) Stone ☐ (*c*) Aluminium ☐

Q.5. Which material is used to make mud houses ?

Q.6. Which material is used to make brick houses ?

Q.7. Where do the people live in metropolitan cities ?

Q.8. What do we call the houses made of snow ?

Q.9. Where are the tree houses built ?

Q.10. What is the basis for different kinds of houses ?

Ans.

Q.11. Why do people of Assam make bamboo houses ?

Ans.

Q.12. Write about the modern materials used to construct houses.

Ans.

Chapter – 16

Community and Comfort

House in Fields

Amandeep's house is in the fields, quite far from the village. Whereas, his friend Harjit's house is in the village. Amandeep did not come to school for two days. Harjit felt sad without him. Next day, when Amandeep came to school, Harjit asked him why did he not come to school? Amandeep told him that his grandfather had expired. So, he could not come to school.

Harjit : Was your grandfather ill ?

Amandeep : All of a sudden he fell sick, on Thursday night. Our jeep broke down and we could not take him to the doctor at night. Till morning he was serious. We took him to the doctor also but it was too late. He could not survive.

Harjit : Had you taken him to the doctor at night, he would have recovered.

Amandeep : Yes, the doctor also told that we were late to bring him to the hospital.

Harjit : Your house is far from the village. So, no one can reach immediately for your help. When my uncle (Taya Ji) suffered from a heart attack, Varinder uncle, our neighbour, took him immediately to the hospital

in his own car and saved his life. Otherwise, we had no means to take him to the hospital.

Amandeep : We always feel that we lack neighbourhood. I have no one to play or study with, as there are no houses nearby. On my birthday, only a few friends could reach my house.

Harjit : We really enjoy our neighbourhood. Whenever there is any function in our lane we all get together. We celebrate all festivals together. Once, we spotted some suspicious people, all neighbours rounded up those people and took them to the police station. After the investigation, the police found that they were dangerous criminals who had come with the intention of theft.

Amandeep : Sometimes, my family also feels that living in the village, among your own people is very beneficial.

Harjit : Why did you shift to the fields?

Amandeep : Actually, our fields are quite far from the village. Lot of time was wasted in coming and going and taking food to the fields. So, my father decided to build a house in the fields. This made our work in the fields, easy.

Man is a social animal and always stays together in cities, towns and villages. The families staying in the neighbourhood help each other in thick and thin. Staying together gives the sense of security. In a group, we can face all dangers. A common park is developed where elders can walk and children can play. Community buildings are constructed for social functions and people staying in that particular society can use the building collectively. Other facilities like school, hospital and clean drinking water can be provided only to a housing society. Some people may stay far from the populated area for some particular reason but security, social life and other facilities could only be enjoyed living together in groups.

Q.1. Describe an incident when your neighbours helped you in a particular situation or you helped them.

Q.2. What are the benefits of staying in a society ?

Q.3. Among your neighbours which family do you like the most and why ?

Q.4. Name the community places in your locality and for what purpose are they used ? (for e.g. Dharmsala, religious place, marriage palaces etc.)

Not only human beings but many insects also live in colonies. For example, Honeybees, Ants, Termites, Wasps, etc. In the hive of honeybees, three kinds of bees are found – a queen bee, some male drones and worker honeybees. Queen bee and the drones are only for reproduction, whereas all works are done by worker bees i.e. collecting nectar from different flowers, forming wax making hives, cleaning and protecting the hive from enemies. The works allotted to the worker bees keep on changing according to their age but no worker bee shirks its work. In case of danger, worker bees attack the enemy together dispite the fact that worker bee dies immediately after the sting is plucked out of its body. A bee sacrifices its life to protect the hive. Human beings can get inspiration from honey bees to work together.

Beehive

When there was flood : My sister's village is situated on the bank of a river. During normal days the river water takes its course in a narrow passage and people grow crops in the surrounding areas, but in the monsoon season river over flows. This year due to **heavy rainfall, the water level suddenly increased and river overflowed. The water entered the houses and fields and destroyed the crops.** When water level came down we went to inquire. My sister narrated the flood situation as follows :

It was raining continuously for two days. The rainwater started flowing towards low lying areas and then collected into the lanes. Fields were full of water. We tried hard that the water should not enter the houses but in the evening we saw the river water flowing rapidly towards our houses. In a short time whole of the village immersed in five feet deep water. Weak and old houses fell down. Our house was a Pucca house so it didn't collapse and we all went to the roof. Our neighbour Ramu's roof fell down and we took his family also under our roof. People from the Pucca houses or having houses at a high places or those who had two floors in their houses helped and sheltered the poor families. Though our lives were safe, but we had nothing to eat. Water entered in the rooms and everything was immersed in water and hence destroyed. We had no water to drink. **Though there was water all around, but the dirty water could not be used for drinking.**

Scene of Flood

For two nights and one whole day we survived without food and water but next day when the rain stopped and the water receded, people from the town and neighbouring villages came with eatables. They distributed eatables to the people sitting on roofs and other higher levels. Besides eatables, they brought clothes and medicines also, because a lot of people fell ill under these conditions. Among the people coming for our help were

youngsters, students, social workers and many common people. We did-not know those people, nor did they know us but still they came for our help. We realized that people who help others in hard times, are good people. We thanked them from the core of our heart.

When the water receded from our houses, we started cleaning the houses but the people, whose houses collapsed are in a great trouble. Government has made provision, by putting up a tent at a higher place. Families, like Ramu's family are staying in those tents but it cannot be compared to a house. They do not have many comforts as they have in their own house. Moreover, Ramu is worried, how would he resettle the house. He is crying, as he had made that small house with much difficulty, how would he arrange money to resettle.

Destruction with floods

Some old houses are still falling down. Gurjant Singh's house is in the next lane. Yesterday, when his wife went to get something from the back side of the house, where the animals are kept, a wall fell on her and she got seriously injured. Thank God! Water had receded from the road leading to the village and ambulance could reach. We picked her up and put her in the ambulance to took her to the hospital in the town. She is admitted there. Her life is saved as she was taken to the hospital on time but her leg is fractured due to which she will have to stay in the hospital for a few days.

On listening to my sister, we realized the problems faced by them. We have so many facilities in our own house. House protects us from summer, winter and rain. It gives us security. During natural calamities when the houses fall down only then we realize that it is very difficult to stay without a house.

Protection of houses at time of natural calamity : Natural calamities like earthquake, floods, fire, tsunami and storms are out of our control. Lakhs of people become homeless due to such calamities. Mud houses often fall during rainy season. The houses which are not strong fall during floods also. This causes a huge loss to property and lives.

Therefore, in order to avoid natural calamities we should pay attention to the following things :

1. We should run out to open places from houses, offices and schools at the time of earthquake.
2. We should move to up lying areas at the time of floods.
3. Fire brigade should be called at the time of fire-breakouts.
4. Stay inside brick houses at the time of storm.
5. Sick or wounded people should be admitted to hospitals with the help of ambulance.

At the time of these natural calamities social welfare societies and clubs work in collaboration with government to help the people. Hospitals distribute medicines to avoid any break-out of epidemics. We too should help the people caught in difficult situations like this.

For Teacher :
Teachers should discuss with students about other natural calamities e.g., earthquake, cloud burst or drought.

Activity 1 :
Ask your parents if they have faced any natural disaster and then who helped them.

Things to Remember

- A house made in farms out of village is not safe.
- Man is a social being who likes to live in groups.
- There are always some common social places at every village or city.
- Some animals also live in herds.
- A house should be capable of facing against all the natural calamities.

Q.5. Fill in the blanks :

alone, heat and cold, Kutcha, Ambulance, Diseases

(*i*) Man cannot live ..... .

(*ii*) ..... houses can fall during rainy season..

(*iii*) ..... is used to shift patients to hospital.

(*iv*) ..... spread after floods.

(*v*) Houses protect us from ..... .

Q.6. Tick (✓) the right and cross (✗) the wrong sentences :

(*i*) We do not feel secure in community.

(*ii*) Community buildings are constructed for social functions.

(*iii*) Neighbours help us when we are in need.

(*iv*) Honey bees live in colonies.

(*v*) House cannot be saved from the natural calamities.

Q.7. What problems are faced by people during floods ?

Q.8. Why do man make houses to stay ?

Q.9. Which insects live in Colonies ?

Q.10. What is an ambulance ?

Chapter – 17

Water – A Valuable Natural Source

Water, an important natural source, is a gift of nature. Water is present everywhere on earth. Human beings, plants and animals all depend on water. The air that we inhale, also contains water vapours. About 71% part of the Earth's surface is covered with water, and that is why Earth is also known as a blue planet.

Formation of Water : Water is formed of the atoms of oxygen (O) and hydrogen (H), present in the environment.

Properties of water :

- Pure water is colourless.
- Pure water is tasteless.
- Pure water has no odour.
- Water has no shape of its own. It acquires the shape of the container in which it is poured.

Forms of Water : Water has three forms – solid, liquid and gas.

Solid (Ice) *Liquid (Water)* *Gas (Gaseous)*

Solid form of water is called ice, liquid form is water itself and gaseous form is water vapours. We commonly use the liquid form of water. If water is freezed at 0°C, it is converted into ice and when boiled upto 100°C, then it turns into water vapours. It again takes the liquid form when water vapours cool down.

Q.1. What are the three forms of water ?

Q.2. Which gases mix to form water ?

Activity 1 :

Take a piece of used cloth. Wet it with water. Wipe the floor with this wet piece of cloth. Leave the floor as it is. After a while, you will see that the wet floor has dried. Think, where the water has gone from the floor.

For Teacher :

Make the students understand the concept of the evaporation of water through this activity.

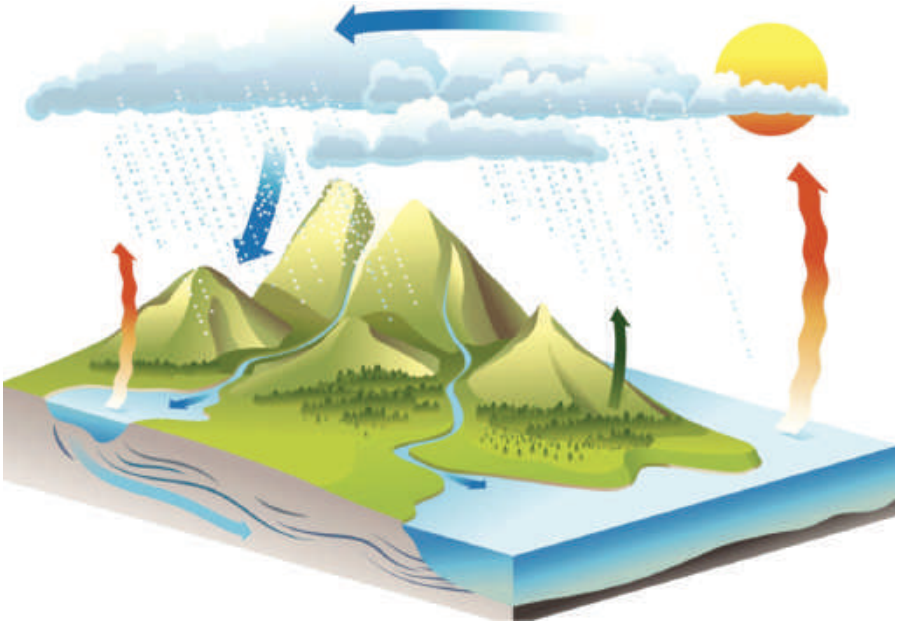
Activity 2 :

Take a glass of water and put some cubes of ice in it. After sometime you will notice that drops of water appear on the outer surface of glass. Can you tell where these drops of water have come from.

For Teacher :

Explain the concept of condensation of water.

Water Cycle : When the water of ponds, lakes, rivers, canals and oceans gets heated with the sunlight, then it evaporates. In fact these are water vapours that evaporate in the air. Water vapours in the air cool down to turn into liquid, forming clouds. This is called condensation. From clouds water falls back on the earth in the form of rain, hails and snow. It flows back to the oceans and lakes through rivers. This natural cycle goes on continuously.



Water Cycle

Solubility : A substance that gets dissolved into water is called soluble e.g. salt and sugar. In the same way the substance that does not dissolve in water is called insoluble e.g. sand and stones. Some liquids are insoluble in water, for example mustard oil floats on water and does not dissolve into it. Whereas milk instantly dissolves in water.

Activity 3 :

Take a glass of water in a pan. Mix two spoons of salt in it. Now separate the salt from water.

For Teacher :

In this activity, the teacher will explain by heating the water. Water evaporates completely leaving behind salt in the pan. This is the same salt that we had dissolved in water.

Floating and Sinking : Dear Students ! you must have played with paper boats during the rainy season. The boats float on water whereas a stone will sink into it. Can you tell why it happens ? Most of you must

be thinking that the boat floats as it is lighter and the stone sinks into water because of its heavy weight. But it is not so. For example a needle is very light, but it sinks into water. On the other hand, a ship, though large in size and heavy in weight, floats on water. Some objects displace more water than their weight, so they float naturally.

Ship

Needle sinks in water

Availability of Water and Social Discrimination : Students ! We have learnt about the formation of water. Some years ago, water was available in plenty for all living beings. But now in some areas, especially in deserts, availability of water is reducing slowly. Even now, in some areas, people have to go far away to bring drinking water. In old days all people were not allowed to get water from the wells, which were very few in villages.

Well in village

Women carrying water

Discrimination was done on the basis of caste. In society, the people considered to be of low caste were not allowed to draw water from the wells. They had to face many problems to get water even for drinking. Their ladies had to fetch water from ponds and rivers that were far away from their habitat. Thanks to God! such discrimination has reduced in modern society and water is made available to all the people by the Government, without any discrimination.

Q.1. Fill in the blanks :

three, blue, cloud, ice

(*i*) Water has ..... forms.

(*ii*) Evaporated water becomes a ..... .

(*iii*) Because of water, earth is called a ..... planet.

(*iv*) Solid form of water is called ..... .

Q.2. Tick (✓) the correct and cross (✗) the wrong sentences :

(*i*) Condensed water changes into vapour.

(*ii*) Pure water has no colour.

(*iii*) In old days many people were not allowed to get water due to caste based discrimination.

(*iv*) Water cycle goes on continuously.

Q.3. Tick (✓) the correct answers :

(*i*) At what temperature does water turn into ice ?

(*a*) 40°C (*b*) 0°C (*c*) 100°C

(*ii*) What is the %age of water on earth ?

(*a*) 60% (*b*) 50% (*c*) 70%

(*iii*) What dissolves into water ?

(*a*) Salt (*b*) Sand (*c*) Stones

(*iv*) What does not sink into water ?

(*a*) Iron (*b*) Stones (*c*) Wood

(*v*) Which gas mixes with oxygen to form water ?

(*a*) Carbon dioxide (*b*) Nitrogen (*c*) Hydrogen

Q.4. Write the name of three things that sink into water.

Q.5. Write the name of three things that float on water.

Q.6. Write the names of three things that dissolve into water.

Q.7. List the properties of pure water.

Ans.

Q.8. What is water cycle ? Explain with a figure.

Ans.

Q.9. How can the dissolved salt be separated from water ?

Ans. _____

_____

_____

_____

Q.10. What is evaporation ? Give some examples.

Ans. _____

_____

_____

_____

Q.11. When does a thing float on water ?

Ans. _____

_____

_____

_____

Chapter – 18

Water – Basis of Agriculture

Today, there is a lot of hustle and bustle in school. It is rainy season. A cool breeze is blowing. All the students are very happy because Van Mahotsav is going to be celebrated in the school. Van Mahotsav is celebrated in the first week of July, every year. On this day plants are planted in schools, on road sides and open common places on a large scale. The teachers have brought many decorative and fruit trees to plant in school. Some students have also brought plants. Plantation of trees has started after the morning assembly. So many pits were dug in a line beside the park and plants were planted, in a row, in them. After plantation they were watered. Preeti asked her madam, "Madam, why do plants need water ?"

Water

Madam answered, "Dear, life is impossible without water. Plants are also alive like humans and animals. They need food and water to remain alive. Water is the main diet of plants. Without water crops cannot grow in the fields.

"Yes Madam! That is why there are tubewells in the fields", Manvir spoke, "The electricity department has installed a new motor in our fields," he further added. Madam smiled and said, "Children! this motor is actually called tubewell that draws water from the depth of earth through the pipes. In the old times there were no tubewells and electricity. At that time wells were dug in the fields for irrigation. Even now you may see old wells in many fields that have dried by now."

Sources of irrigation : We shall study in two parts about the sources of irrigation.

(A) Ancient Sources : The ancient sources of the irrigation had been canals, rain, wells, rivers etc.

Rain : Rain is the oldest source of irrgation in our country. The Monsoon winds cause rainfall from July to September every year. Rain falls in other months also. In old times only those crops were grown which depended on rainfall only. That is why prodcution of grains was less in old days. The rain failure led the peope to famine.

Rain

Well : Deep wells were dug in the fields from which water was drawn using a sakia (The Persian Wheel) that was driven with the help of bullocks.

Well

Rivers and Canals : The areas where the water of rivers reached, the fields were irrigated by canals or water courses. But the rivers did not flow for the whole year. So it was not a reliable means of irrigation.

Canal

(B) Modern Sources : Tubewells, ponds and canals are the main modern sources of irrigation.

Tubewells : In North India, it is a common source of irrigation because in these states, it is easy to draw water from beneath the earth's surface with deep bores. Big electric motors are used for this purpose. These motors are capable of drawing water from the depth. Electricity or diesel engines are used to run motors.

Tubewell

Ponds : This source is much prevalent in Southern India where deep bores are not possible due to the stony land and low level of under ground water. In these areas rain water is collected and used for the whole year.

Pond

Canals : The number of dams has increased and water flows in canals for the whole year as per arising needs. Moreover, there are a lot of canals. Maximum areas have been linked to the canals for irrigation.

Canal

Among these sources many means of irrigation have further been invented. Because of the scarcity of water, drip system and fountain system have also been used to save water.

Activity 1 :

Take a plastic bottle. Cut that from the bottom. Do not remove its lid. Make a hole in the lid. Now tie it with the stem of the tree keeping its upside down. Fill it with water from the top. You will see that the plant is being watered by the drops falling from the bottle.

For Teacher :

Make the concept of drip irrigation clear to the students through this activity. Make them understand how the consumption of water can be reduced.

Crops on the basis of the consumptions of water There are two kinds of crops in India, on the basis of seasons – Rabi and Kharif.

* Rabi crops are sown in the month of November and harvested in April-May. The main Rabi crops are wheat, oat, gram, mustard, etc.

* Kharif crops are sown in June-July when rains begin. The main Kharif crops include rice, jowar, bajra, maize, groundnut, jute, cotton, etc. Pulses are also grown in this season. The farmers start plantation of paddy. They do irrigation without waiting for the rains. By the end of Monsoon these crops are almost ripened.

India is second in the world for the production of rice. Punjab produces more paddy than any other state of India. Paddy needs a lot of water. Farming of paddy is a sign of danger for punjab as water table beneath the earth of Punjab has gone down to the level of danger. Instead of regular farming of wheat and paddy. we should grow other crops alternatively. This cycle of crops will enhance the fertility of soil and save the water.

Rice

Activity 2 :

Ask the old people, which crops were grown in the old days.

For Teacher :

Make clear to the students through this activity that in old days, less water consuming crops were grown because there were a few sources of irrigation.

Effects of Groundwater Depletion : We have understood the importance of water for the agriculture but the excessive use of ground water is a sign of danger for us. From the following reasons we can make an easy guess that what conditions we shall have to face when we get no under ground water :

- There will be dearth of drinking water. People will have to purchase it.
- There will be no growth of crops. It will result in famine.
- The forests will dry and little rain will lead to drought.
- The ponds will dry and the animals will die of thirst.
- The human life will be centred around gaining water, and there will be a struggle for water.
- Water will become a precious thing and the people will fight with each other for it.
- Without water industry and construction works will come to an end.

How to prevent Groundwater Depletion : The above conditions may become extremely dangerous. If we wish to save ourselves from this crisis, we shall have to make efforts from now :

- We should plant more and more trees. We should reduce dependence on wood for buildings and furniture.
- We should grow less water consuming crops.
- Rain water harvesting system should be adopted.
- More emphasis should be laid on the cycle of crops.
- Good habits should be developed to use water with care.
- The people should be made aware of the proper use of water.

Things to Remember

- Water is the basis of agriculture.
- Farming is not possible without water.
- Tubewells are the main source of irrigation in Punjab.
- Rain-fall is the oldest source of irrigation.
- Ponds are used for irrigation in Southern India
- So much water is needed for the crop of paddy.
- Less water consuming crops should be grown to reduce the consumption of water.
- If water is not saved, agriculture crisis and famine will prevail in the whole world.

Q.1. Fill in the blanks :

(*i*) In the first week of July ..... is celebrated.

(*ii*) The chief crop of Rabi is ..... .

(*iii*) ..... is the main crop of kharif.

(*iv*) The production capacity of earth has increased by using ..... .

(*v*) ..... are used for irrigation in Southern India.

Q.2. Tick (✓) the right and cross (✗) the wrong sentences :

(*i*) Rainfall is the oldest source of irrigation.

(*ii*) Wheat is a Kharif crop.

(*iii*) Farming of Paddy is a sign of danger for Punjab.

(*iv*) Crops can be grown without water.

(*v*) Emphasis should be laid on variety of crops.

Q.3. Tick (✓) for the correct answers :

(*i*) In which month is Van Mahotsav celebrated ?

(*a*) June (*b*) July (*c*) August

(*ii*) Which one of the following is the ancient source of irrigation ?

(*a*) Tubewell (*b*) Well (*c*) Ponds

(*iii*) What is the main source of irrigation in Punjab ?

(*a*) Tubewells (*b*) Canals (*c*) Ponds

(*iv*) Which crop consumes much water ?

(*a*) Jowar (*b*) Bajra (*c*) Paddy

(*v*) Which crop consumes less water ?

(*a*) Sugarcane (*b*) Gram (*c*) Cotton

Q.4. Write the names of the ancient sources of irrigation.

Q.5. Write the names of modern sources of irrigation.

Q.6. Write the name of two types of crops on the basis of seasons.

Q.7. Write the names of much water consuming crops.

Q.8. Write the names of less water consuming crops.

Q.9. Cultivation of rice in Punjab is an alarm why?

Q.10. What will happen without water ?

Q. 11 What are the reasons of groundwater depletion ?

Q.12. What are the suggestions to control the groundwater depletion ?

Chapter – 19

Life Under Water

On Sunday, Harman was watching a TV programme related to sea. There were scenes of deep sea. He saw many kinds of fish and tortoises swimming deep in the water. Besides this, he saw many plants grown under water. He was surprised. He decided that he would ask his teacher, about this, the next day.

Next day, he asked his teacher, "Sir, can there be a forest under water ?" Teacher asked him about the reason of this question. Harman told him about the TV programme. Teacher appreciated him. To motivate the other students, he said, "Children! you usually watch cartoons and other programmes on T.V. But you should also watch the programmes that will add to your knowledge." Listening to this, the students got more curious. Teacher further said, "Children! there are not only plants inside the water, but there are mountains also. Actually, these mountains are the rocks. In between these rocks, there grows the vegetation, similarly, as it is on the land. There are many creatures that grow with the help of this vegetation. It means there is a world inside the water. The plants and animals living inside the water are naturally adapted to this environment. Let's discuss about these plants and animals in detail."

Sea inside

Main plants living in water (Aquatic Plants)

Lotus, water hyacinth and water lily are the main plants growing in water. These plants grow in fresh water. They are different from those plants and animals which are found in deep sea. There is a layer of wax on the leaves of these plants. It protects it from getting damaged.

1. Lotus : This plant grows in ponds and lakes. Its leaves are round. It has a beautiful red and pink flower known as lotus flower. It has a long stalk. Lotus is our National Flower.

Lotus

2. Water Hyacinth : Water Hyacinth is just like a vine that grows by itself in the standing water. It grows rapidly. It has beautiful flowers.

Water Hyacinth

Water Lily

3. Water Lily : This is also a beautiful flower which grows in fresh water. Like Lotus, it also grows beautiful flowers. These flowers are of different colours. Its leaves give shade to the animals that live inside the water.

Main Animals living in water : There are endless species of animals living in water. We will discuss about commonly found animals.

Fish

A. Fish : Fish is the main animal living in water. There are endless types of fishes. Fish absorb oxygen dissolved in water. They have special organs, called gills, for this purpose. Fish are found in ponds, rivers, lakes

Aquarium

and sea. Many people keep the fish in the big boxes made of glass, for decoration in their house. These boxes are called Aquarium.

Activity 1 :

Take an empty box of sweets or shoes. Paste a blue paper inside the box. Show the vegetation with grass, at the bottom of the box. Colour the pieces of thermocol and make rocks and stones with it. Now paste the pictures of fish and other water animals. Cover it with a lamination sheet. Now, the model of aquarium is ready.

Model

For Teacher :

Help the students in this activity and exhibit the best model in the class.

* Whale is a big water animal. Blue whale is the biggest of all. Its size (length) is about 90 to 100 feet and its wiehgt is 120 to 150 ton.

B. Crocodile : It is an amphibian found in rivers and ponds. It can live outside as well as under the water. It has very sharp teeth and strong jaws, so it holds its prey very firmly. It looks very lazy but actually it is a very active animal.

Crocodile

C. Tortoise : Like crocodile, it is also an amphibian. This animal is very lazy. There is a hard shell on his body and in case of any danger, it folds its limbs and head within this shell.

Tortoise

D. Frog : Frog is also an amphibian. It swims very fast in the water. It jumps highly outside the water. It has a long tongue. It catches its prey from a long distance.

Frog

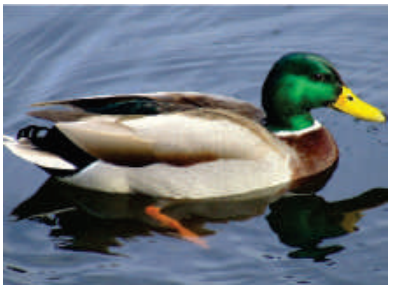
E. Some other animals under water : Apart from the above mentioned water animals, there are many such animals which are not commonly seen. Octopus, Shark, Star Fish, etc., are such animals. All of these animals are adapted to the deep, salty water of sea. They fulfill all their needs from the sea.

Octopus

Star Fish

Shark

Birds Living in water : Besides many plants and animals, there are many birds that live on water. They feed on the insects and small animals inside the water. For example, duck, swans, etc.



Duck

Swan

Activity :

Show the various pictures of water creatures to the students and tell them to prepare a model.

For Teacher :

Help the students in this activity. Arrange clay for this purpose. Help the students in making the clay model and then to paint it. Best model will be exhibited in the class.

Things to Remember

- There is a world under water too.
- Many plants and animals live under water.
- There is also vegetation, grown inside the sea.
- Animals living in water are naturally adapted to that environment.
- Some animals live in water as well as on land. Such animals are called Amphibians.
- Some animals live in ponds whereas others live in deep salty water of sea.

Q.1. Fill in the blanks :

lotus, world, Water/Aquatic, blue whale

(*a*) The whole ..... lives in water.

(*b*) ..... animals always live in water.

(*c*) The biggest sea animal is ..... .

(*d*) Leaves of ..... are round and broad.

Q.2. Tick (✓) the right and cross (×) the wrong sentences :

(*a*) Animals living under water are called Land animals.

(*b*) Blue whale is the biggest water animal.

(*c*) Water Lily grows in fresh water.

(*d*) There is vegetation inside the sea.

Q.3. Matching

A	B
Shark	Eight legs
Octopus	Gills
Tortoise	Sharp teeth
Fish	Hard shell

Q.4. Tick (✓) the correct answers :

(*i*) Which one is an amphibian ?

(*a*) Shark ☐ (*b*) Crocodile ☐ (*c*) Whale ☐

(*ii*) Which flower blooms in water ?

(*a*) Rose ☐ (*b*) Sunflower ☐ (*c*) Water Lily ☐

(*iii*) By which organ does fish breathe in water ?

(*a*) Nose ☐ (*b*) Lungs ☐ (*c*) Gills ☐

(*iv*) Which bird lives on water ?

(*a*) Duck ☐ (*b*) Sparrow ☐ (*c*) Peacock ☐

(*v*) Animal living in deep, salty sea water.

(*a*) Frog ☐ (*b*) Tortoise ☐ (*c*) Star fish ☐

Q.5. Name any five water animals.

_____

_____

_____

Q.6. Name any three amphibians.

_____

_____

_____

Q.7. Which is our National Flower ?

Q.8. Name the biggest sea animal.

Q.9. Name some water birds.

Q.10. What do you know about whale ?

Q.11. How do the fish breathe ?

Q.12. Write about lotus.

Chapter – 20

Earth to Sky

It was the first day of the school after summer vacation. Gagan was very sad, teacher asked him the reason and Gagan replied that while he was coming back from his maternal grand parents' house, he saw a board at the bus stand which read, 'If we do not use petrol and diesel judiciously, they would soon finish.' The teacher said, "Yes, Gagan! this is right. Petrol and diesel reserves are limited. Really they would finish one day. But if we use them wisely, we will definitely be able to use them for long."

Gagan asked, "My maternal grand parents live in Pathankot. It is quite far from here. Sir, how would I reach them without the bus ?"

As soon as Gagan stopped asking, Prabhjot said, "Sir! my father daily goes to city for work. How will he go there ?"

Gagan lives in Mohali and his maternal grand parents are in Pathankot. He goes by bus to meet them.

Q.1. Does any of your relatives lives far away ? If yes, then write which means of transport do you use to go to meet them. If you travel by more various means of transport, you can write the name of all.

	Name of village or town where you live	Name of village or town where you go to meet them	Mode of Transport
1.	Mohali	Pathankot	Bus
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____

Teacher said, "Children, not only petrol and diesel but there are some other resources also which would be depleted like coal, cooking gas, etc.".

Have you ever seen any advertisement which shows this kind of warning with some pictures on it ? What kind of pictures did it show ? Let's write and draw some pictures.

For Teacher :

Electricity Department of Government of India organises various painting and drawing competitions to conserve and save enrgy sources. In these events, children are made aware of consuming natural resources sensibly.

Painting competitions

Millions of years ago, animals and trees got buried under the earth. With the passage of time, these were covered with the layer of soil, rocks and stones. Due to excessive heat of earth and lack of air, those trees and animals got transformed gradually into oil, gas and coal.

Petrol, diesel, LPG, kerosene oil and coal are some of the natural resources that were formed gradually in millions of years. It takes a long time to form them. The speed at which they are being depleted is greater than they are being formed.

Activity 1 :

Some pictures are given below, write something you know about them, in front of them. You can take the help of your teacher, parents or elder family member.

Means of transport	It works on petrol or diesel ?	Distance covered with 1 litre of petrol or diesel.
Scooter	_____	_____
Truck	_____	_____
Train	_____	_____
Airoplane	_____	_____

Activity 2 :

Price of oil and gas do not remain same at all the places. Inquire about the current price of oil and gas in your area ? Mention the current prices of oil and gas in the given space.

Petrol _____ Rs./litre

Diesel _____ Rs./litre

Kerosene oil _____ Rs./litre

LPG _____ Rs./cylender

Activitry 3 :

Note down the expenses of your family on oil and gas, and write it in the spaces given below.

Petrol _____ Rs./month

Diesel _____ Rs./month

Kerosene _____ Rs./month

LPG _____ Rs./month

Coal _____ Rs./month

Wood _____ Rs./month

We know that petrol or gas are consumed in means of transport. LPG, kerosene oil, wood and coal are used in cooking. Burning of coal yields electricity. Similarly, wood is used to make furniture for buildings and as fuel. Over use of these resources and ignorance, not only puts burden on our financial resources but also pollutes our surroundings with poisonous gases. By using some other methods we can save not only money but also our environment. Here are some examples.

* We see that some people keep talking or doing something keeping the vehicles on, like scooter, motrocycle, car, tractor, etc. There are traffic signals in cities. We should turn the engine off when we stop for long at red lights.
* Get the vehicles serviced at the appropriate time to decrease the fuel consumption.
* If possible do not use your vehicle while going to a nearby place.
* If possible, use public transport, instead of private vehicles.

Q.2. How will you save LPG, wood and kerosene oil ?

_____

_____

_____

_____

Activity 4 :

You have already told about your relatives staying at far off places. When you go to visit them, you come across so many things in the surroundings.

Let's make a list of them.

Trees, shops, ……,

Imagine, you are going somewhere and instead of the above things in the surroundings you see clouds everywhere. How would you feel then ? Let's know about it from Sukhdeep.

Let's first know about Sukhdeep. Sukhdeep is a pilot. She was born on 13 May, 1986 in her maternal village Maur. According to Sukhdeep's father S. Randhir Singh, she wanted to be a pilot since her childhood. Whenever she was asked about her aim in life, she would say, "I want to fly in the air. I will become a pilot." She used to wave her hand whenever any aeroplane flew over her house, as if the pilot was watching her.

She became a commercial pilot in 2009 and at that time she was the first woman pilot instructor from Punjab. Sukhdeep was honoured by the Government and many other organizations. Her photographs and articles were published in many newspapers and magazines.

Sukhdeep Kaur

She told about her first flight which took place, on September 26, 2006. "This was a yellow coloured Pushpak. I was very happy. At last I got an opportunity to fly a plane. I was happy as my childhood dream was fulfilled. Passing through the cottony white clouds was like a dream. When I looked down, I could see some match box like things and the far away earth appeared to be covered with a green sheet. After sometime we landed on the ground. All congratulated me on completing my first flight successfully. I could not hide my emotions. I called up my mother and father. They were also extremely happy. Their tremendous efforts and hard work helped me achieve my aim. I remember, when my father used to wake me up for the school he would say, 'get up Sukhdeep, its time for your flight.' Today I have successfully completed my flight. Yes, one thing more, after my flight I came to know that those matchboxes were actually houses of the people and green sheets on earth were actually fields."

Sukhdeep's mother Mrs. Jatinder kaur recalls old days,"Sukhdeep was very hard working since her childhood. She would stand first in her studies, sports and other activities. She was favourite of all in the family. Family always supported her, but some people never liked her joining this profession. So, sometimes we had to face problems. We never discriminated between a boy and a girl. It is a tradition to tie neem leaves on the door when a baby boy is born but we followd this tradition on Sukhdep's birth also. If girls are given the opportunity and support they can also touch the peaks."

Think about it

Sukhdeep's mother says that like boys, girls should also be given the equal opportunities to move ahead in life. What do you think about this ?

Q.3. What would you like to become, when you grow up ?

_____

_____

_____

_____

During her flight at day time, the clouds appeared like cotton to Sukhdeep. Imagine what could be seen in the sky at night. You can stand on the roof top of your house on a clear night and imagine.

There is a tradition to tie neem leaves on the doors and celebrate first Lohri after the birth of a male child . Do you know the fact that now a days many families and social organisations are celebrating 'Dhian Di Lohri' (lohri of girls).

For Teacher :

We celebrate Lohri festival in schools. Why don't we all start celebrating 'Dhian Di Lohri' and start with a good tradition in the society ? Discuss it in class. .....

.....

We have talked about air and road travel. Travelling means going from one place to another.

Have you got the opportunity to see the hills ? _____

How did you travel, on foot or by any vehicle ? _____

Climbing the mountains or hills without any vehicle is called mountaineering. Bachendri pal is the first Indian woman and fifth woman in the world to climb the highest peak of Mount Everest.

Bachendripal got the opportunity to climb for the first time when she was 12 years old. She climbed the height of 4000 m along with her friends. She did not climb this height with any planning. Actually, she went for a picnic orgnized by school. She started climbing with her friends and kept on climbing, it was late in the evening and was not possible for them to reach back. They had no arrangements for stay. That night they had to stay without any tent and food. After that she took proper training in mountaineering and furled the 'Tiranga' on Mount Everest to make India proud in the world.

Bachendripal

Gagan's Teacher was writing something. On being asked by Gagan, he replied, "I am preparing to take you all for a picnic." Prabhjot asked, "Sir, what is there to write ?"

Teacher said, "Before doing any work, it is good to plan it in writing. You have just now listened to Bachendripal's childhood story. So, I have prepared a list of works to be done and things needed.

Gagan saw the list which included :

1. Permission from the Principal
2. Selection of a place
3. Eatables to be taken.
4. A rug for sitting.
5. First Aid kit, some common medicines and bandages.

As per the plan all students went for a picnic, enjoyed and learnt so many new things.

Have you ever enjoyed a picnic ? If yes, then write down your experiences in a notebook.

For Teacher :

Take students for a picnic to a nearby tourist place. This spot should be near the school so that students can go on foot.

Things to Remember

- There are limited reserves of petrol and diesel.
- Blind use of energy sources creates not only economical burden but our sorroundings also get polluted due to the emission of poisonous smoke released by the vehicles.
- Aeroplanes are used to travel abroad.
- To climb over a mountain without using any transport is called mountaineering.

Q.4. Fill in the blanks :

heat, pressure, energy, pilot, mountaineers, limited

(*i*) Coal, petrol and gas are formed due to ..... and ..... of earth.

(*ii*) Buring of coal produces ..... .

(*iii*) Sukhdeep Kaur was a ..... .

(*iv*) The sources of energy are ..... .

(*v*) The mountain trekkers are called ..... .

Q.5. Who was Bachendripal ?

Q.6. How were petrol, diesel and L.P.G. formed under the earth ?

Q.7. Who was Sukhdeep ? What did she want to be in her childhood ?

Q.8. How can we control air pollution caused by petrol and diesel ?

Chapter – 21

Glimpses of Past

Children! Let's see some Pictures.

Victoria Memorial Clock Tower, Faridkot

Victoria Memorial Clock Tower, Faridkot

This monument was constructed by Raja Balbir Singh (1869-1906) in the year 1902 in the memory of Queen Victoria. This 115 ft. tall building is based on French design and stands on a 3 ft. high padestal which is now burried under road. It has clocks made in switzerland which strike every hour and can be heard in the city.

Infomation Board

Now, let us fill up the blanks with the information you get from these pictures.

Name of the monument .....

Where is it located ? .....

When was it built? .....

Height of the builing .....

Who built it ? .....

Many cities and towns of Punjab have clock towers (Ghantaghar). Have you seen the similar monument at some other place ? Write down the details in your note book.

This picture shows the Qila Mubarak in Bathinda.

Outer View of Qila Mubarak Bathinda

Inside View of Qila Mubarak Bathinda

In the structure of this fort you can see raw bricks along with small and fully baked bricks which are also called **'Nanakshahi bricks'** or **'Lahori bricks'**. It is very small in size as compared to the normal brick which is used now a days. In those times, the bricks were stacked with chuna powder mixed with the fibre of flex plant (for strength). This was not a

residential fort but an Army Camp. So, we cannot see Deewan-i-Khas, Deewan-i-aam, etc., as in the forts of Delhi and Agra.

Nanakshahi bricks

Razia-Sultan was jailed in this fort. Razia was the daughter of Iltutmish, the King of Delhi. She was the first woman to rule Delhi, but during those days it was uncommon for a woman to rule, and many of her courtiers were against her. *Parda Pratha* was prevalent specially among Muslim women but Razia used to dress up like men and sit in the open court. During that period, Governor of Bathinda, Malik Altunia revolted. As a result a battle was fought between Razia Sultan and Malik Altunia. Razia was captured and put in to jail. Later, Razia married Altunia. When Razia left Delhi, her brother Muiz-Ud-Din Bahram Shah started ruling Delhi. Razia and her husband fought a battle with her brother but could not win, and were murdered near Kaithal.

Rajia Sultan

Brief History

Qila Mubarak Bathinda

The fort is known as Qila Mubark Bathinda or Qila Gobindgarh. It is believed to have been built by Raja Deb during the reign of Kushanas in early centuries. Actually, this fort is built of clay bricks.

In the eleventh century, after Raja Jaipal committed suicide, Mehmood Gazni captured this fort. Later, first empress of Delhi, Razia Sultan was imprisoned (1236-1240) in Qila Bathinda by the Governor Mohamad Ikhtiar ud-din-altunia. It is said that Razia Jumped off the fort to consolidate her forces for fighting back. During Mughal era this was an important place enroute to Lahore. In 1754 this Qila was conquered by Chief of Phulkia, Ala Singh and remained under Maharaja of Patiala untill the princely states got merged in India. The fort is constructed on a higher plinth and is circular in shape with 32 small and 4 large burjs. Its walls are strong having base width of 16 mts. and height 30 mts. Main door is towards North east with sharp and pointed rods on it.

This notice board gives information about Qila Mubarak in Bathinda. Let us read this and note down the information.

Name of the monument .....

Where is it situated ? .....

Who built it ? .....

Who possessed this fort after Raja Jaipal ? .....

Razia Sultan ruled till .....

Q.1. Write in brief what you know about Qila Mubarak.

Aam Khas Bagh, Sirhind : The construction of this Bagh was started by Babar. Mughal Kings like Jahangir and Shah Jahan extended it from time to time. This place was used by Mughal Kings to stay while travelling from Delhi to Lahore. Jahangir got Sarodkhana, Hamam and Sheesh Mahal constructed while Daulat-i-Khas was built by Shahjahan.

Hamam

We are learning about old monuments having historical importance. We get very useful information from historical or heritage monuments. For example, the architecture of those times, the materials used for construction, who got it construtecd and when, etc. Many monuments are getting ruined due to lack of proper care. Aam-Khas Bagh of Sirhind is an example of one such monument. Its existence is in danger today.

Daulat Khana

When these monuments were being constructed, kings added some new things of their choice. Let us learn some interesting facts. When you see the doors of historical monuments they are in semi circular shape from the top. This shape is called an 'Arch' (Daat). Types of arches (Daat) are shown below.

This arch (Daat) is horse shoe shaped structure and the building with such arches were built during the reign of King Jahangir.

These arches have many small arches in them. Building with such arches are known to be made during the reign of King Shahjahan.

Activity 1 :

Have you ever seen any of the above types of arches in any monument ? If yes, where did you see it ? You can also write something important about that monument if you remember.

Kos Minar : These were constructed by Mughal Kings after every mile to know the distance during travelling. Delhi to Lahore route was through Punjab and was very important. So, Punjab has many such minars.

Kos minar

Kos minar is constructed on a square padestal. It is of octagonal shape and its tip is dome shaped.

Q.2. What method is used now a days to measure road distance ?

Sarai Noor Mahal

Noor Mahal is a town near Jalandhar. It is said that it was named after 'Noorjahan', the wife of Jahangir. This Sarai was built with the order of Malika Noorjahan. **This is a beautiful piece of architecture.**

Sarai Noor Mahal

Q.3. What was the use of constructing the Sarai ? Ask from your teacher or some elder in your family.

Ans. _____

_____

_____

_____

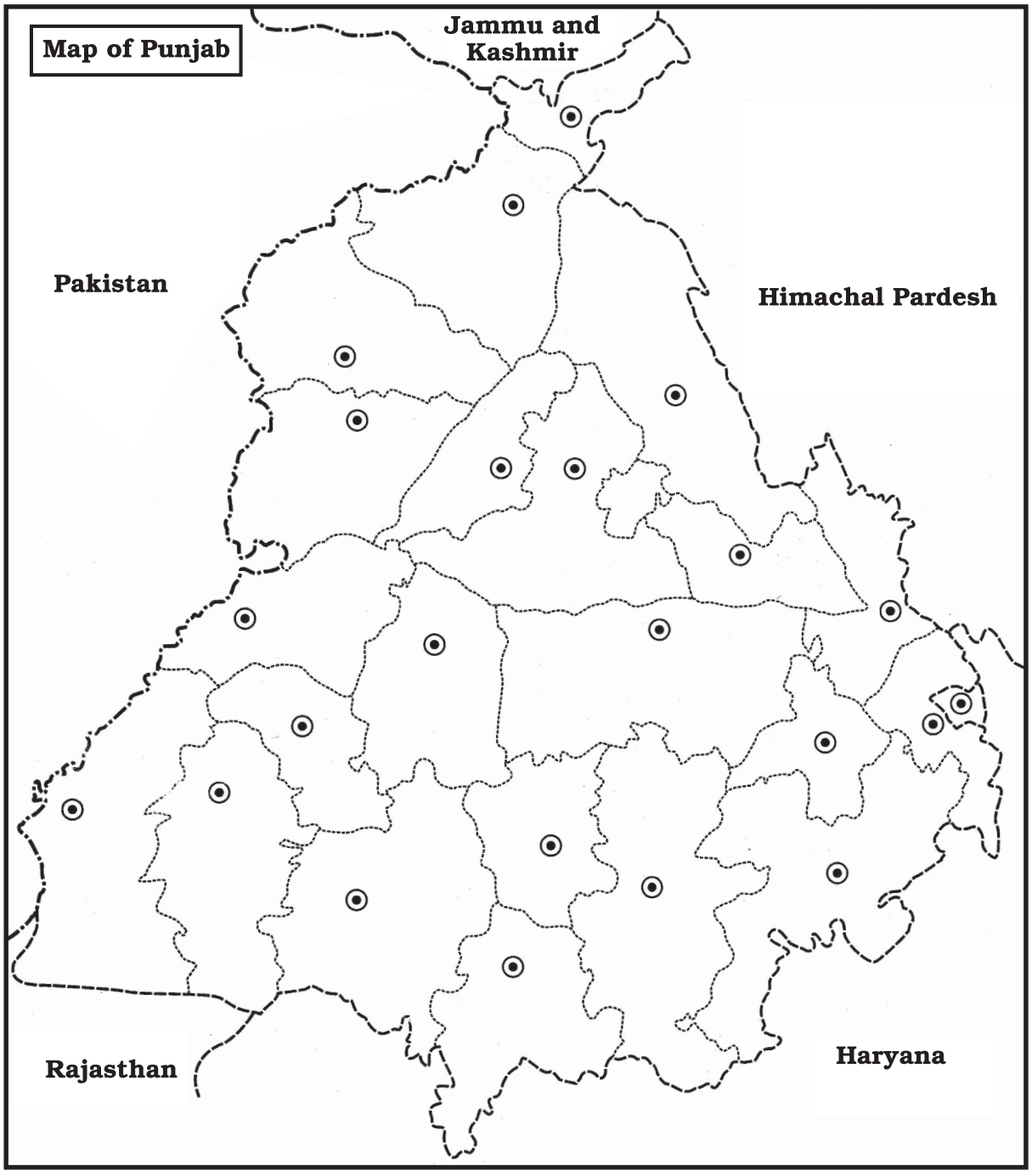
Archeology Department takes care of such historical monuments.

For Teacher :

Given is a list of historical monuments in Punjab help the students to collect information of a nearby historical place. Aim of this lesson is to make students familiar with its structural art and the personalities associated with it.

S.No.	Name	Place	Distrcist
1.	Sarai Akbar	Amanat Khan	Sri Amritsar Sahib
2.	Purani Sarai	Fatehbad	Sri Amritsar Sahib
3.	Rambagh Road	Shri Amritsar Sahib	Sri Amritsar Sahib
4.	Qila Mubarak	Bathinda	Bathinda

S.No.	Name	Place	Distrcist
5.	Kutcha Qila	Abohar	Fazilka
6.	Barandari	Batala	Gurdaspur
7.	Grave of Shamsher Khan	Batala	Gurdaspur
8.	Takhat-i-Akbari	Kalannaur	Gurdaspur
9.	Mughal Kos Minar	Cheema Kalan	Jalandhar
10.	Mughal Pul	Dakhani	Jalandhar
11.	Sarai Dakhani	Dakhani	Jalandhar
12.	Mughal Kos Minar	Dakhani	Jalandhar
13.	Mughal Kos Minar	Jalandhar	Jalandhar
14.	Thheh Ghatti	Nakodar	Jalandhar
15.	Mughal Kos Minar	Nakodar	Jalandhar
16.	Grave of Mohd. Momin and Hazi Jamal	Jalandhar	Jalandhar
17.	Sarai Noor Mahal	Noor Mahal	Jalandhar
18.	Mughal Kos Minar	Shampur	Jalandhar
19.	Mughal Kos Minar	Toot Kalan	Jalandhar
20.	Mughal Kos Minar	Uppal	Jalandhar
21.	Mughal Kos Minar	Veerpind	Jalandhar
22.	Kos Minar	Ghugrali Rajputan	Ludhiana
23.	Kos Minar	Lashkari Khan	Ludhiana
24.	Kos Minar	Dhandar Kalan	Ludhiana
25.	Kos Minar	Sherpur	Ludhiana
26.	Sunet Village	Sunet	Ludhiana
27.	Kos Minar	Sahnewal	Ludhiana
28.	Virasati Sthan	Ropar	Ropar
29.	Bodhi stup	Sanghol	Fatehgarh Sahib
30.	Sumer Mahal	Sri Amritsar Sahib	Sri Amritsar Sahib
31.	Phillaur Da Qila	Phillaur	Jalandhar
32.	Purana Tilla	Phillaur	Jalandhar
33.	Bodhi Stupa	Khamano	Fatehgarh Sahib



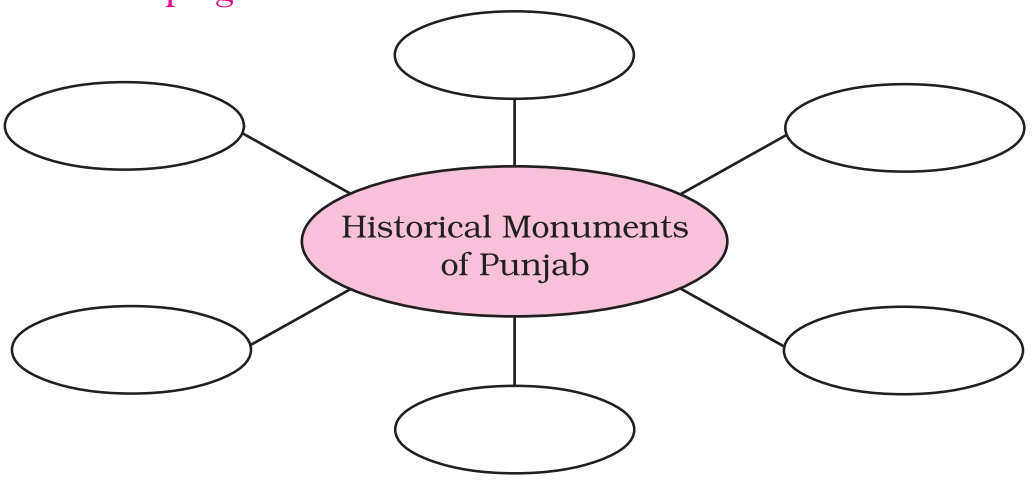
Q.4. How many districts are in Punjab ? Write the names of all districts with the help of your teacher.

Q.5. Write the names of five historical buildings shown in the map and colour the districts in which these historical buildings are situated. Also write the names of these buildings ? You can take the help of your teacher.

Q.6. Match the Following :

Sarai Noor Mahal	Sanghol
Takhat-i-Akbari	Amanat Khan
Aam Khas Bagh	Noor Mahal
Bodhi Satupa	Kalannaur
Sarai Akbar	Sirhind

Q.7. Mind Maping :



Q.8. Which department of Punjab does take care of historical monuments ?

Q.9. What kind of information do we get from a historical monument ?

Q.10. Which king of Delhi was the father of Razia ?

Q.11. Where and why were Razia and her husband murdered ?

CHAPTER – 22

Natural Resources

Morning prayer was going on, in the school. As usual, after singing National Anthem and reading thought of the day, one of the students read news headlines. A news headline disturbed Gurleen. It read as :

'One wild leopard entered a village and attacked at two deer. People were very scared. They started keeping vigil.

After attending morning assembly, as the students reached their classes, Gurleen started talking to her friends about this news. Not only Gurleen but other students were also curious to know about this.

As the teacher entered, she heard the murmuring of students. She asked about the topic of discussion. Gurleen at once asked, "Madam! why did this wild leopard enter the zoo and kill the deer ? Did it not get anything to eat, in jungle ?"

Teacher : Yes, Gurleen you are absolutely right! this is actually a very serious issue. We will definitely discuss it today.

Forest

Dear students! first of all, man is cutting down forests to expand villages and towns, thus attacking the animals and destroying their habitat. Due to this it is difficult for wild animals to live and find their food. If the natural habitat of the animals will be destroyed like this, where will they go ?"

Q.1. Why do leopards and other wild animals come towards the residential areas ?

_____

_____

_____

Q.2. Has any such incident happened in your area, that a wild animal entered a residential area and caused harm ? If not, you might have heard any incident on television or read in a newspaper. Write it down with the help of your teacher.

_____

_____

_____

Gurleen : Madam, man does not need forests!

Teacher : It is not so. Forests are one of the basic necessities of man. In the earlier times, man used to live in forests like other animals. He depended on forests for all his needs. Man has progressed but even now he is dependent on natural resources such as forests, air, water, soil, coal, petroleum, natural gas for his survival. Out of all these natural resources forests are of prime importance as forests are the main source of all other resources. Air, water, soil are renewable resources which are renewed and replaced naturally by the forests.

Coal

Petroleum

But coal, petroleum and natural gas are non renewable resources as it takes millions of years to replenish these resources.

Q.3. What are natural resources ? List different types of natural resources.

Q.4. Given below is one example each of renewable and non renewable resources. Complete the list.

Renewable natural resources	Non renewable natural resources
Forest	Coal

Forests : Forests are important natural resources. During the process of photosynthesis trees take the carbondioxide from the atmosphere and release oxygen. In this way, the balance of gases in the atmosphere is maintained. Due to the process of transpiration, trees loose water in the form of water vapours which keeps the atmospheric temperature under control and these water vapours help in cloud formation, which in turn causes rain.

Let us understand this natural process through an activity.

Activity 1 :

Select a branch of the tree without breaking it from the tree. Cover this branch with dry polyethene bag and tie its free end tightly. Observe it on the second day.

What do you observe ? Do you see some water droplets inside the polythene bag ? Where does this water come from? Find out and note down the answer in your notebook.

Gurleen: Ma'am what are the other advantages of forest?

*** Teacher :** In the forests, the branches, leaves, flowers, fruits, etc., fall down fertile. on the ground. They decay and mix in the soil to make the soil

* Medicinal herbs, fruits, rubber, gum, and colours are obtained from the forests.
* Wood is obtained from forests to build houses, to make furniture and for fuel.

Q.5. What products are obtained from forests ?

_____

_____

_____

Q.6. How do forests make the soil fertile ?

_____

_____

_____

Gurleen : If forests are so beneficial then why man is making such a big mistake of cutting the forests on a large scale ?

Teacher : To meet the needs of increasing population, more agricultural land was needed, industries were set up, new cities were developed, roads and railway lines were laid and for many more reasons forests were cut down. So, wild animals are coming towards the residential areas in search of food. Due to cutting of forests, other natural resources are also affected. Now, a lot of steps are being taken to save forests. For example :

* Cutting of remaining forests is prohibited by law.
* Forests are being conserved.
* Public and students are inspired to plant more trees.
* Development of green belts is being promoted in and around cities.
* Planting of trees on the boundary of fields is encouraged.

Van Mahotsav is celebrated in the first week of July to plant more trees.

For Teacher :

Teacher can plan a trip for the students to a nearest forest.

Q.7. Why are forests being cut ?

Q.8. What would you do to save the forests ?

Air : Air is an invisible natural resource. It surrounds the earth and thus constitutes the atmosphere of the earth.

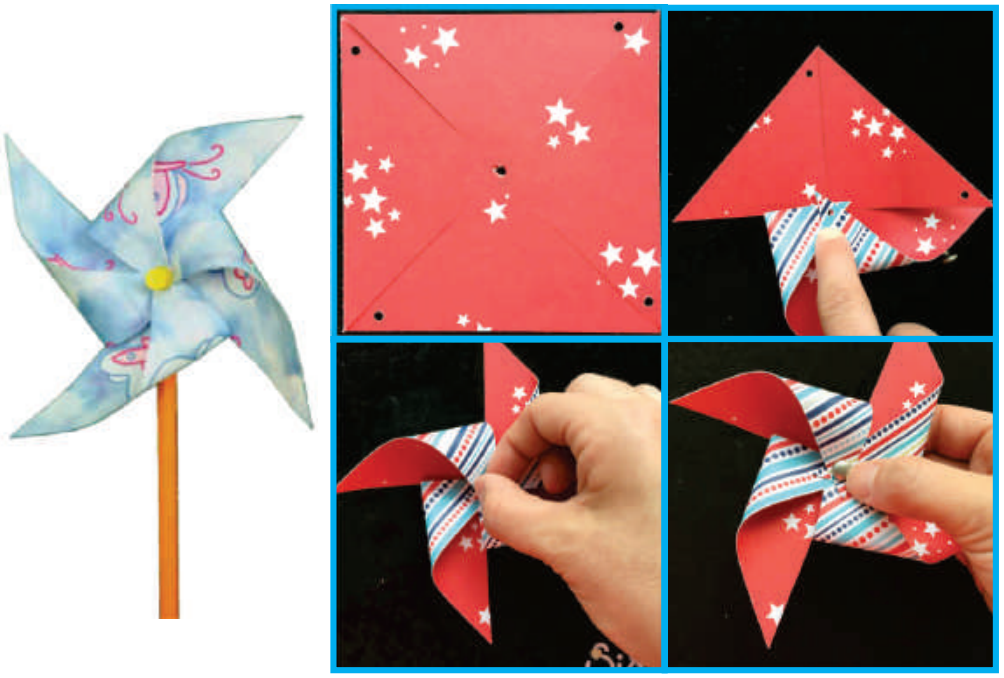
- All green plants take carbondioxide from the air to prepare their food.
- All living organisms use oxygen from the air for respiration.
- Oxygen is required for burning of the fuel.
- Air is filled in balloons and tyres.
- Wind mills, used to generate electricity, also run on air.
- Besides, we use air in our daily life, e.g., to fly kites, to separate grains from husk and to run fans in summer.

Activity 2 :

Let us understand the principle of wind mill.

1. Take a square sheet of paper.
2. Give a cut from all the four sides towards the center of the paper.
3. Fold the paper from four corners towards the centre and put a pin.
4. Insert the pin in the straw and bend it a little.

5. Hold it in your hand and run or hold this in front of a running fan it would start rotating.



Steps to make paper fan by paper folding

Wind mills

Q.9. Which gas do plants use from the atmosphere for photosynthesis ?

Q.10. Which gas is used by living beings for respiration ?

Q.11. Which gas is released out by living beings during respiration ?

Children, the air is also being polluted by a number of activities.

* Burning of crop residue and dry leaves.
* Burning the garbage.
* Dumping the garbage in open.
* Due to the burning of the forests.
* Cutting down of forests.
* Throwing dead animals in the open instead of burying them.
* Due to emission of smoke from household fuel, automobiles, industries and factories.
* Due to smoke of cigarette.
* Due to the smoke produced by bursting crackers.
* Due to cough and sneezing.

Air pollution

For Teacher :

On Diwali night, so much pollution is caused due to bursting of crackers. Burning of crop residue also causes pollution. Discuss about the ill effects of this pollution with the students and motivate students to stop buying/bursting crackers and celebrate Green Diwali.

Q.12. Listed below are some activities, which of these activities cause pollution and which do not ? (Write 'Yes' or 'No')

(*a*) Burning of wood _____

(*b*) Filling the tyres _____

(*c*) Breathing _____

(*d*) Burning crackers _____

(*e*) Working of fan _____

(*f*) Storm _____

(*g*) Burning the wastes _____

(*h*) Burning crop residue _____

Water : Water is a very important natural resource. It is present on earth in the form of oceans, rivers, streams and lakes. It exists underground also. It is on the poles in the form of snow. But still the percentage of usable water is very less. Water is used by all the living organisms in their daily life. Liquid waste of households and factories is discharged into lakes

Water pollution

and rivers. It pollutes fresh water. Drinking contaminated water causes dangerous diseases like cholera and jaundice in humans. Animals and fish are also dying.

- ❋ Water is necessary for all living organisms.
- ❋ It is used for irrigation.
- ❋ Water is used to run steam engines of trains.
- ❋ For shipping.
- ❋ For industrial use.
- ❋ For fish farming.
- ❋ In hydroelectric power houses to generate electricity.

Q.13. In which day-to-day life activities do you use water ?

_____

_____

_____

Q.14. What steps would you take to curb the wastage and pollution of water during our daily activities ?

_____

_____

_____

Soil : Like forests, water and air, soil is another important natural resource. We use soil for building houses, growing plants, making pots and in number of other works. But soil is also being polluted with a number of activities :

- ❋ Using fertilizers more than exact requirement.
- ❋ Throwing polythene and plastic.
- ❋ Using insecticides more than requirement.
- ❋ Using pesticides more than exact requirement.
- ❋ Erosion of soil due to wind storms.
- ❋ Washing of fertile topsoil by floods.
- ❋ Uncontrolled digging of mountains.

Soil Pollution

Q.15. In which day-to-day life activities do you use soil ?

Q.16. Give suggestion to reduce soil pollution.

For Teacher :

To show the importance of soil, students should be asked to make toy pots from soil (clay).

Non renewable natural resources : Coal, petroleum and natural gas are all non-renewable resources as it takes millions of years to replenish them. In nature, they are present in a limited amount. They are being used at a faster rate and are thus being depleted. This is why they are getting costlier day by day.

* Coal is used in thermal plants to generate electricity, in steam engines to make steam and in kilns to generate heat.

* Petrol, diesel, kerosene oil and petroleum gas are obtained from petroleum. Petrol and diesel are used in transportation. Petroleum gas and kerosene are used for cooking, to give light, and to heat the water.

Besides the above mentioned uses, these resources have many more uses.

Activity 3 :

Which certificate regarding pollution is essential for a driver ? This certificate is related to the protection of which natural resource ? Try to find out with the help of your teacher.

POLLUTION UNDER CONTROL CERTIFICATE

Authorised by Transport Commissioner, Punjab (An Isuzu Vehicle)

PUCC NO. 10DG10000982
000982
VEHICLE REG.NO. PB11BP5007
MAKE HONDA
MODEL CITY
CATEGORY Car
YEAR 01/09/2014
FUEL Diesel
DATE Dec 29, 2017
TIME 17:07:00
VALID UPTO Mar 28, 2018
Authorised Signatory

It is certified that vehicle's smoke density level confirm to the standards prescribed under Rule 115(2) of C.M.V. Rules, 1989

PRESCRIBED STANDARD
Idling CO emission limit
1) For Diesel Driven Vehicles
a) Limit of smoke density
b) FREE ACCELERATION SMOKE

1.	17.4	0.446	254	3747	5
2.	13.8	@0.346	257	3782	5
3.	13.7	@0.344	233	3735	5
4.	10.9	@0.269	256	3717	5
	13.3	@0.333	256	3804	5
	*****	********	250	3692	5
	AVG	12.9%	246	3724	5
	SULT	PASS	247	3746	5
	*****	********	249	3749	5
	FLUSH	ING CYCL	251	3720	5
		PASS	12.9	0.323k	

VALID FOR 3 MONTHS

PB11BP5007

License No. 29/P/DTO/PTA

Pollution Control Certificate

Activity 4 :

Ask your mother which fuel does she use in the kitchen ? Is it a renewable or non-renewable resource ? What steps does she take to save fuel ?

Name of fuel used at home	*Non-renewable or renewable*	*Methods to conserve fuel*

Q.17. List of some non-renewable resources is given below. Write their uses in front of their names.

Coal	_____	_____
Petrol	_____	_____
Diesel	_____	_____
Kerosene oil	_____	_____
Cooking gas (LPG)	_____	_____

Mr. M.C. Mehta is a prominent lawyer and an environment lover in India. He has filed a number of cases in Supreme Court to save the environment and Taj Mahal in Agra from turning black due to pollution. Supreme court has issued orders to Government of India to reduce pollution. Notices were issued to factories located around the Taj Mahal either to reduce pollution or to close the factories. As a result, Government of India has taken several steps to save the environment.

Children! You must have understood that all natural resources are very important for us. Not only human beings but also all other living organism have equal rights to use them. They also have equal rights to live on the earth like human beings. We should use natural resources judiciously so that coming generations and all other living beings may also live peacefully on earth.

Things to Remember

- We should make sensible use of land for making our house.
- Due to the increasing population, forests are cut to build flats and houses.
- Earth is the home of different living beings i.e. animals, birds and insects.
- Man is continuously misusing the natural resources.
- We should plant more and more trees to save the forests.

Q.18. How do you use air in your day-to-day life ?

Q.19. Which gas is used and which gas is released in the atmosphere when fuel is burnt in scooters, cars, trucks, etc. ?

Q.20. List the causes of air pollution.

Q.21. What steps would you take to save the air from pollution ?

Chapter – 23

From Field to Plate

Summer vacation in school were to begin from June. Mani was very happy because he had planned to go to his maternal grandparents during vacation. Mani's happiness had no bounds as his maternal grandparents had a joint family which included his Nanaji, Naniji, Mamaji, Mamiji and their children. As per the programme Mani reached his grandparents' house with his mother. After greeting them, Mamaji said to Mani and his mother, "Sister! enjoy yourself, I am going to fields on tractor. I have finished the harvesting of Rabi crop and now I have to prepare the soil for sowing Kharif crop." Mani who was listening to all this asked, "Mamaji, what are Rabi and Kharif crops ?"

Mamaji : Son, the crops like wheat, mustard (Sarson) and the chickpeas (Channa) which are sown in the month of October and harvested in the month of April are **Rabi crops** and the crops sown in the months of June-July and harvested in September-October are known as **Kharif crops** e.g. Paddy (rice), Maize (corn).

Activity 1 :

Collect seeds of different crops. Identify them. Classify the seeds according to their sowing season and paste separately in your note book and also write their names.

Mani : Mamaji, I will also accompany you to see how the seeds of a crop are sown ?

Mamaji : Alright, let us go to the fields. Sit on the tractor.

Tractor

Nanaji was very happy to see Mani. He was already in the fields instructing the workers about the work and at the same time he was taking the bullocks to tubewell trough

to drink water. Mani greeted his Nanaji and curiosly told him that he would also see the process of sowing seeds in the field.

Mamaji : I am going to plough fields with tractor, you sit with your Nanaji and satisfy your curiosity.

Nanaji : There had been a time when we used to plough the fields with bullock driven ploughs. Now, because tractors are being used in fields, bullocks are only used to carry fodder or manure. Earlier bullocks were reared by farmers as their own sons. They took good care of them so that strong bulls could help him in fields but since the tubewells and tractors came into being, agricultural works have changed.

The works which were completed in months are now completed within a few days. Now the plough is attached with tractor and the field is ploughed, with the help of roller (suhaga) the soil lumps are broken, with the leveller (Karaha) the soil is levelled, if required. Then the field is divided into compartments (Kiara) and manure is added in the soil. This is how the field is ready for new crop.

Q.1. How were the fields ploughed in earlier times ?

_____

_____

_____

Q.2. How are the fields prepared for sowing now-a-days ?

_____

_____

_____

Mani : Nanaji, why are the workers filling the compartments (Kiara) with so much water ?

Nanaji : Your Mamaji is preparing field to sow paddy crop. The field should have enough water standing in it to sow the paddy crop. First the seeds are sown to get saplings. The saplings are then planted into water filled compartments of the field at equal distance. But seeds of wheat are directly sown with the help of seed drill. Wheat crop does not require excess water.

Earlier, when wells were the only source of irrigation, the crops like paddy were not sown. Only the crops like jowar, bajra, maize, etc., were sown. As these crops do not require much water.

Planting paddy

Q.3. Name the other crops which are sown by transplantation ?

Q.4. Write down the names of five crops which are sown directly with seeds.

Q.5. Write down the name of a crop which requires excessive water to grow ?

Mani : Nanaji, Is the crop ready, after sowing ?

Nanaji : No son, not so soon. After sowing the crop it is irrigated from time to time, because the plants need water to grow. Look at the tubewell, water is rushing out and flowing into the fields. See, there is one more well, which has now dried up. There had been a time when this well irrigated the fields.

Tubewell

Persian wheel

Mani : Nanaji, where has its water gone ?

Nanaji : Underground water level is decreasing day-by-day. So, it has dried up. Your Mamaji has to dig tubewell bore deeper and deeper every year. It is very expensive and time consuming task. This year we had to dig a deeper bore at home too for supplying water to the overhead tanks.

Q.6. Why are crops irrigated ?

Q.7. There are other means of irrigation also. Find them out with the help of your teacher and write.

Q.8. Pictures of some agricultural tools are given below with their names. Each tool is used for some agriculture work ? Write about it.

Tractor

Plough

Seed drill

Leveller

Tractor _____

Plough _____

Suhaga (Roller) _____

leveller _____

Seed drill _____

Mani was still talking to his Nanaji when his Mamaji came back to relax for a while. He drank water from the tubewell, washed his face and asked Mani, "Are you now satisfied with the knowledge about agriculture."

Nanaji : O.K. my son, now both of you carry on the discussion. I will rest for sometime.

Mani : Mamaji, what is that man doing in the other fields with a bag on his back and a gun like thing in his hand.

Mamaji : He is spraying an insecticide on the crop. It will kill the insects which attack the growing crops. Some other plants like grass, bathu, chulai, gulli-sitta, etc., also grow along with crops which are called **weeds.** So, **weedicides** are also sprayed to remove them. To replenish the minerals of

the soil, some fertilizers are also added to soil after irrigation. But all these things have to be used carefully.

Adding fertilizers

Spraying insecticides

Mani : Mamaji, if these chemicals kill insects and weeds, do they not harm us when we consume them?

Mamaji : (With a deep sigh) Yes, my son! the same thing has been explained by agricultural scientists to the farmers that the insecticides, weedicides and fertilizers which are being used to increase the crop yield are very dangerous for human beings. So, the agricultural scientists have suggested to switch over to organic farming. In this type of farming artificial or poisonous substances are not used. They are not only expensive but also harmful for both our health and environment.

Q.9. Fill in the blanks.

harmful, fertilizers, weeds, insecticides, weedicides

(*i*) To save the crops from insects, ... are sprayed.

(*ii*) To save the crops from weeds, ... are sprayed.

(*iii*) To replenish the minerals in the soil ..... are added.

(*iv*) Along with the crops certain ..... also grow.

(*v*) Insecticides are ..... for human health.

For Teacher :

Why should we be careful while using insecticides, weedicides and fertilizers in the fields. Discuss in detail with the students.

Organic farming : In organic farming manure, compost and vermicompost is used instead of chemical fertilizers. Mixture of cow urine, jaggery and besan is used to increase the nutritious elements in soil. A solution is made by grinding neem leaves, garlic, green chilies and tobacco

leaves to spray as an insecticide. Buttermilk and alum is used as a fungicide. Weeds are plucked out with hand, khurpa or harrow. Thus in organic farming all the natural substances are used which are not harmful to both, humans and environment.

Compost and Vermicompost

Mani : Then we should also practise this kind of farming ?

Mamaji : Yes, you are absolutely right, we would now start organic farming. This time we are going to sow rice crop only in a small area as the water table is going down day by day and expenditure is also rising. If the underground water is finished, the soil of Punjab would become barren.

Mani : Mamaji, what will you do after the crop is ready.

Mamaji : Son, ripened paddy crops harvested with the help of combine harvester. It is drived in sun and then sold in the grain Market some rice are kept for houshold use. But when the Rabi crop is ripened and ready for harvesting we cut it with the sickle. The harvested crop is gathered and tied in stacks, then with the help of thrasher, grains and straw are separated. Now-a-days combine harvesters have made harvesting much easier. These combine harvesters cut the crop and at the same time grains are also separated. In old times your Nanaji used to cut the crops.

Ripened wheat crop

Then stacks were made. These stacks were spread on a hard surface in the village and then with the help of bullocks the grains were separated. This method would take a lot of time.

Some amount of grains is kept for personal use and rest is sold in the market. In this way expenditure incurred upon crops is met with, and farmer also saves money for his household needs. When farmer harvests his crop successfully, he comes home singing, dancing and enjoying. This day is celebrated as Baisakhi. You must have seen 'Baisakhi Mela. The atmosphere of Punjab is very happy on this day.

Activity 2 :

Cut pictures from newspapers related to farming and paste in scrap-book.

For Teacher :

Cut news or pictures from newspapers related to the new techniques informing the students. Discuss with them in the class.

Q.10. Write down the process of harvesting and threshing ?

Q.11. How were grains separated from husk in earlier times ?

Q.12. How has combine harvesters made the work easier ?

Mani : Yes Mamaji, one day Baisakhi was celebrated in our school and one student sang a poem written by Dhani Ram Chatrik.

Turi Tand Saambh Harhi vech wat ke
Lambran Te Shahan Da Hisab kat ke
Pug, Jhaga, Chadra Nawan Sawai ke
Samma Wali Daang Utte Tel Lai Ke
Kachche Mar Vanjhali Anand Chhha Gaya
Marda Damame Jatt Mele Aa Gaya.

Baisakhi celebration

Talking to each other and singing Baisakhi songs, Mama ji and Mani-came back. As soon as they reached home Naniji asked them to wash their hands and have food. Mamaji told Mani that chapattis were made from the same wheat grains about which they had been talking.

Mani : Mamaji, how can we get round chapatties from wheat grain ?

Mamaji : Only your Nani ji can explain this.

Nanaji : My son! your Mama ji and Nana ji work hard in the fields to bring the grains home. From these grains, *atta* (wheat flour), *dalia* (Poridge), *suzi* and *maida* are obtained to cook many dishes. For example, *halwa* and *panjiri* are prpared from flour. *Halwa* and *kheer* are prepared from *suzi*. *Poori* and sewian are prepared from maida. Similarly we get popcorns form maize seeds and chapatti from maize flour, which is fondly eaten in winters with *sarson ka saag*. *Pulao, sweet* rice and *kheer* are cooked from rice. Crops are brought home, dried and stored in drums. Wheat flour is obtained by grinding the wheat grains in grinding machines. Earlier when electric grinding machines were not available, wheat was grinded with

manual *chakis* to get flour. This flour is kneaded to make dough. Round balls are made and are flattened with rolling pin (*belan*) to get round *chapattis* which are cooked on hot plate (*tawa*). Finally it is served in plate. Isn't it labourious ?

Mani : Wow! This is really a hard work. So, Naniji, only that much food should be taken in plate which we can eat. we should not waste food by leaving it in the plate.

Mamaji : Yes my son, you are very wise. If everyone stop wasting foods then it can be made available to the entire population of our country.

For Teacher :

Discuss with students about the food industry where different grains are used to make different types of food products. Bakery is an example.

Things to Remember

- Wheat, mustard and chickpeas are Rabi crops.
- Cotton, Paddy, Maize and Bajra are Kharif crops.
- Farming can be done today with the help of modern tools.
- Instead of chemical manure, organic manure should be used.
- To destroy weeds and insects poison should not be used.

Q.13. Which dishes are made from wheat flour in your house ?

Q.14. Apart from wheat flour which other flours are used to make chapatti and in which season ?

Q.15. List a few special dishes which are cooked on special occasions in your house ?

Q.16. Which festival is related with crop harvesting in Punjab ? Write a short note.

Q.17. Which dishes are made from rice?

For Teacher :

Teacher should discuss with students about some other festivals celebrated on account of ripening of crop, in any other state than Punjab.

Always Remember

Leftover in farms should not be burnt. Dangerous gases pollute the environment by burning it. Some animals and bird die in this way. Humans suffer from breathing and eye diseases by this. So, residue of farms should be ploughed in the ground. It serves as organic manure by decaying. So, we should not burn the leaves and wastes of crops. We should always be friends with environment.

Chapter – 24

Use of Computers

Children, we have learnt about computer in the previous classes that

1. What is Computer ?
2. Characteristics of Computer
3. What we can do on Computer ?

Uses of Computer in Various Fields

In this chapter, we shall know in which fields computers are being used. Now a days computer is used in almost every field, but here we shall talk about a few fields about which you often hear and see.

1. In the field of Education : To raise the standard of education, both the students and teachers make use of computers in schools and colleges. In the computer labs the teachers use it to maintain records, to make time table and for research works etc. The student, besides preparing projects on computers, gain latest information.

Education

2. In the banks : In banks computers are used to maintain record of accounts and other dealings. Because of computers A.T.M. machines have become very useful to us and it has become easy to withdraw money. We can do all the works related to the bank on our computer at home through net-banking.

Bank

3. In the field of trade : Computer is very useful to us for doing trade. With it we can make a full detail of purchasing and selling of goods, keep accounts, sell goods online and reach new traders or customers.

Trade

4. At home : At home computers are used for entertainment, to maintain the household accounts, to prepare the budget of expenditure and on-line payment of electricity, water, telephone and other bills. With it much work can be done at home in less time and cost.

At home

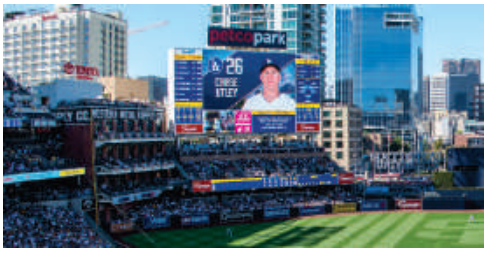
5. In the field of entertainment : Computer has become a very popular source of entertainment. Children use it to play different games. Moreover, computers are used to listen to music and watch movies. Now the T.V. programs can be seen on the internet. In fact today computer has exceeded all other sources of entertainment.

Entertainment

6. In the field of Health : Computer has brought revolution in the field of health and medicine. With computer a patient can be treated from a distance. Computers are used in hospitals to keep record of patients, for testing, X-ray, M.R.I. scanning and in the operation theatres.

Health

7. In sports : Computer is playing a remarkable role to make the modern games interesting. Live telecast, digital screen board or distant empiring are taking the games to the peak.



Sports

Q.1. Fill in the blanks.

project, field, games, internet, treatment

(*i*) Computers are now-a-days used in almost every ..... .

(*ii*) Students prepare ..... on computer.

(*iii*) Children play ..... on computers.

(*iv*) With the help of computer ..... of patients can be done at a distance.

(*v*) Now the T.V. programs can be watched on the ..... .

Q.2. Tick (✓) the right and cross (✗) the worng sentences :

(*i*) Computers are used in schools only.

(*ii*) Computers are a good source of entertainment.

(*iii*) We can pay our bills at home with computer.

(*iv*) Computer provides no help in the field of health.

(*v*) We can listen to music on computer.

Q.3. Write the names of the fields where computer is used.

Q.4. Which work can you do with computer at home ?

Q.5. Match the column A with the column B

A	B
Work to be done	**Name of field**
(*a*) Digital score board	Entertainment
(*b*) X-ray	Bank
(*c*) Games	Education
(*d*) A.T.M.	Games
(*e*) Time table	Health