

ENVIRONMENTAL STUDIES

Class - 5



2019-20

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Foreword

It is necessary that both teacher & student be active for the acquisition of knowledge. It was a great challenge to bring out the different social, cultural & geographical diversity which is the strength of our state, in this book. It was greatly planned that each student would find the book to be his personal one.

Children of this age group have an overall view of their surroundings. So care has been taken to include the natural, cultural and social things in their surroundings. To make the book child centred, care has been taken to provide opportunities to children for search, observe, express their views and find solutions by them selves.

In the textbook many opportunities has been given for the students to work individually, in groups and with the society. It has also be devised in this book that the children take the help of other sources along with that of the textbook and their teachers-as-family, society, newspaper, library etc. By this Family and society will be connected to the school.

During the making of this textbook many environmental points have been kept in mind as forests, animals, plants-trees, rivers, transport, petrol, water, pollution, natural disaster, family relations and disability so that the children may be aware of these and develop a positive thinking about them. The activities given in the book are suggestive. You are free to add more at your level.

Evaluation would be at your level but must be continuous, comprehensive and child centred.

Right to Education Act-2009 stresses on providing quality education. NCERT New Delhi has established class wise, subject wise, learning outcomes for students of class 1 to 8 and has suggested pedagogical activities for achieving the all-round development of the children. So for the year 2018-19 textbook has been made even share & relevant so that children get maximum opportunity to acquire knowledge. Hope this book will help teachers, parents and children to reach their goals.

In the production of this book we have received great help and guidance from teachers of government and private schools DIETs colleges and Ravishankar University Raipur, private institutions and enlightened citizens. We are greatly obliged and offer sincere thanks to all.

We would welcome suggestions for the improvement of this book from all of you.

Director

State Council of Educatoinal Research
and Training Chhattisgarh, Raipur

Preface

SCERT has tried to prepare this book as child centred. So that the children may be in continuous contact with the environment. Opportunities for the children to do by themselves, search and work in groups, do experiments, discuss and come to a solution have been given in this book.

There are chances given in this book to openly discuss and argue on topics related to environment, may it be natural, social or cultural as water, forest, pollution, natural disasters, animals and conservation of natural resources; so that they may respond to these and comprehend it properly.

A list of the skills are given in the textbook. You should provide an open space for the children to learn. Motivate them to do as many activities as they can, give them a chance to know and ask questions about the world around them. You know that children are aware of their surrounding and getting a chance to tell something about it will help to build up their self-confidence.

The main objective of elementary education is comprehending the written matter. It is expected that some measure to develop their linguistic skills is also taken.

While teaching some lessons as our Occupations, Roots and Leaves, Historic places, Haat Bank, Forest and Let's make a Survey children are to be taken outside the class/school and for lesson as Directions, scale and map, magic with mirror Solar Energy, Friction, Mosquitoes and Malaria, Ant and Bones, materials for the activities has to be collected locally. It is better to collect these articles before the teaching of these lessons. You should take the help of the students for this. Mostly all the materials could be collected easily from nearby areas.

Maps of India, Chhattisgarh and your district must be displayed in the classroom. Students must be encouraged to look and read the maps when teaching lessons based on maps.

Every lesson has questions along with the activities and experiments, which the children have to answer by themselves. Please don't be over anxious to provide the answer, instead encourage the children to find the answer and later have a discussion on it.

In the book there are portions where the children can discuss about their experiences and also write about them. Here your participation is very important as you have related their experiences to environmental studies. In the end of each lesson a subtitle of "Find Nearby" is given where some extra interesting activities for the children are given. Please divert their attention to this also. May be on working with the students you may need to change the sequence of the lessons. You are completely free to do this.

Which portions in the book was difficult for the children? Or do you think these must be something new in it? Please try to find such lessons and kindly inform us about it.

In each lesson subtitles as 'Oral' 'Written' 'Exercise' 'Find Nearby' is given. From all these children will be able to express their views discuss observe and find solutions. It is necessary that all students even differently abled students are treated carefully. From this, we can know how much and where the child has learned.

When you go through the book or our teaching from the book you may come across something which you think is "not correct. Please inform us about these points. Do also tell us how we could rectify it. You may also come across points which you may appreciate. Do tell us about these also. All these experiences of yours would be helpful to enhance this book.

If you are with us in this journey of making Environment Studies interesting in general then together we could achieve a lot.

With Wishes.

Director

State Council of Educational Research and Training
Chattisgarh, Raipur

The Total Skills Inclusive in The Text Material

We hope that the children of class five have learnt some of the basic skills in the earlier classes before they move towards more difficult skills. The effort is to continue the work started in the last two years and find new chances to understand the environment. The skills we have tried to develop in the children of class five are as follows:

(1) To observe, to recognise, to collect information and note it down.

- To identify qualities of a thing by touch and feel.
- To be able to observe minutely things like trees, plants, insects-animals, fruits and vegetables, seeds, soil etc. To be able to collect information about famous mountains building nearby, festivals etc. and be able to arrange the information in a tabular form.
- To go on a visit to banks, hospitals etc, to observe and understand their works and things related to these and develop a thought on their reasons.
- To be able to read a chart or map on the basis of symbols and understand their meanings. To be a part of the occasions, festivals, feasts, journey in your region and be able to make observations on them or describe them. To be able to express it orally or in written form.
- To be able to observe minutely, express observations clearly and be able to attempt to reach to a conclusion.
- Observe by conducting a survey. Collect information and analyse the information. Classify and tabulate obtained information.
- Conduct experiments and make observations.
- Make connections on the basis of observations. For example- to establish a relation between roots and leaves, the relation between surface and friction.
- Make conclusions on the basis of observations.

(2) Differentiation, comparison, classification and generalisation.

- In relation to the information and observations listed or tabulated, to be able to find similarities or dissimilarities and to think about the reasons for these.
- To be able to list or tabulate facts and observations and hence be able to make groups.
- To recognise the sequence of an event, arrange the incidents in sequence and analyse facts to come to a simple conclusion.

(3) Pattern interrelations and development of imagination.

- To recognise the sequence or pattern in a social or natural incident.
- To understand the pattern using the experience and information.
- To understand the life cycle of trees and plants.
- To develop creativity by making models, charts etc.
- To read the information related to things found in nature like rivers, mountains, jungles etc. and be able to understand their relationship with human lives based on their own experience.

(4) Identifying problems, giving solutions and taking decisions.

- To understand the problems and to be able to identify facts which will help solve them.
- To understand the implication of written information or a picture and predict what would happen and be able to express this.
- Be able to understand by reading, observing or looking at a picture.
- To apply logic and explain situation things systematically to others. This also includes the reasoning.

(5) Reasons, effects and Solutions

- To understand ways to avoid and treat simple regional/local illnesses.
- The uses and importance of natural resources.
- Sensitivity towards physical handicaps.

(6) To make hypothesis, to inspect and experiment to understand information or processes.

- Follow instructions after understanding them, depending on the procedure, analyse and be able to reach conclusion.
- Depending on the incident, to be able to make hypothesis and be able to inspect it and reach conclusions.

(7) To be able to make or read a map or a picture.

- To be able to make different types of pictures. To understand the incidents shown in the picture and discuss among friends.
- To be able to read the maps of the district, state or country and be able to fill the information in an empty map.
- To understand the map and be able to answer questions based on it for example which place is in a particular direction in relation to another. Look at the map and find the answers according to the given instructions.

(8) Report writing and expressing oneself.

- To be able to express oneself with confidence in different way.
- Give opportunities for independent expression in written form. To be able to instruct friends to do some work.
- To be able to explain logically one's feelings, thoughts and opinions about ones experiences.
- To visit places of historical importance or ancient monuments in the nearby areas and do a project on them.
- To write a project and present it.
- To collect different crops, leaves, flowers and seed of trees and plants. To make a herbarium and arrange for a plant exhibits.
- To know the history of the state, the autobiographies of great men and the culture of Chhattisgarh and the country.

Environmental Studies

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CHAPTER- 1

Let's Do A Survey

You may not find answers to certain questions in your textbook. But they do have answers. For eg. How many families and how many people live in your village?

You must be thinking why is it necessary to know the number of families and people living in your village. Have you ever thought of the different needs people have, eg. water, electricity, food, clothing, material for construction of houses, schools, hospitals etc. Greater the population, greater the needs. This would lead to scarcity of resources. It is not just enough to know the needs but it is important to find ways and means to fulfill it. Such information creates a base for solving many problems. To collect such information we carry out is a survey.



Many times your teacher also carries out a survey. Find out from them, the kinds of survey they do?

Let's Find out

To find answers to such questions, let us carry out a survey. There are certain things that you already know, but with the help of a survey you'll get more information.

How to carry out a survey?

Firstly, divide yourself in groups of two's. Both partners should either be neighbours or live in the neighbourhood.

Each group should visit at least 8-10 houses in a colony or a lane and collect information. At least one group must visit a colony.

With the help of a survey, collect the following information

Table-1

S. No.	Name of the head of the family	His profession	No. of people in the family	Kuccha or a pucca house	People in the family use wood/gas/coal/kerosene/cow dung cakes as fuel
1.					
2.					
3.					
4.					
5.					

Now look at the table and answer the question :

How many families are there in your locality?

.....

How many houses are there in your locality?

.....

How many kuccha and pucca houses are there in your locality?

.....

How many families in your locality use wood? How many use cow dung cakes as fuel?

.....

How many families use cooking gas?

.....

How many families use kerosene as fuel?

.....

Look at the table and find out what is the major occupation of the people in you locality ?

.....

Similarly, you can conduct a survey to collect information of many such things.

Survey of Crops

Table - 2

Find out the different crops grown in your area? When is it sown and rcaped/cut?

Name of the crop	Time of sowing	Time of Reaping
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----
-----	-----	-----

On the basis of the survey conducted, answer the following questions-

Name the crops sown during monsoons.

.....

How are seeds, leaves etc. obtained from these crops and how are they useful ?

.....

Name the crops sown after the monsoons.

.....

Survey on Pedestrians

One day, at a city crossing, Ramu and Iqbal counted the number of pedestrians. The survey was carried out from 4-5 in the evening. The number of pedestrians counted is given below. Counting was done like this- They would put a “ / ” sign for one pedestrian passing by. For four they put “ / / / / ” this sign. For the fifth pedestrian, they drew a vertical line across it “ / / / / | ”. Such signs are called tallies. eg. for 13 pedestrians, the tally sign would be- “ / / / / | / / / / | / / / / | ”



Table -3

Area	Women	Men	Total
1. From clock tower crossing to Victory pillar	63	135	198
2. From clock tower crossing to Moti Garden Crossing	52	203	255
3. From clock tower crossing to Railway station	09	196	205
4. From clock tower crossing to Teli Bandha crossing	60	227	287
5. From clock tower crossing to Gol Bazar	120	254	374

Looking at the table tell-

Which area has the least number of pedestrians/ What could have been the reasons? Discuss.

.....

Which area has the highest number of pedestrians?

.....

In which area did you find maximum number of female pedestrians ?

.....

What facilities should be provided to pedestrians on a crowded road so that they can walk safely? Give suggestions.

Survey regarding pedestrians with the help of your teacher.

Representation of the data through sketches.

During your survey, you have seen that you have collected many data related to the survey which you have shown in table-3. This data can also be represented through sketches. Here we will deal with bar diagrams and pie charts.

Bar chart

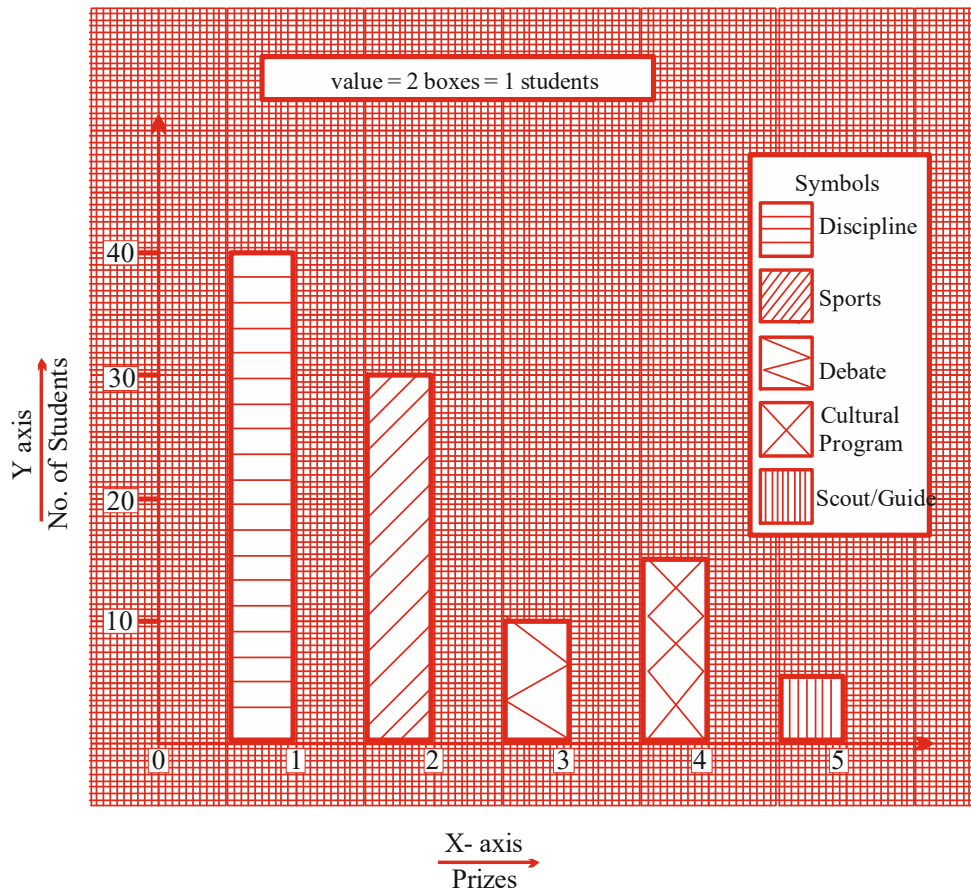
This is made on a graph paper. Look at the picture given below. You see it is made on a graph paper. It has two axis. The x-axis line is horizontal and the y-axis line which is vertical. X-axis always has to be greater than y-axis. Their ratio can be 4:3,5:4 or 6:4. We find standing bars of y-axis on x-axis. All these bars have the same width and are at equal distances on the x-axis. To indicate data through bar diagram or bar chart we must determine the size value. Here one example of data is shown through bar chart.

Example - Students of class V have been given prizes in different categories which is shown below.

S.N.	Prizes for	No. of students who received the prizes
1	Discipline	40
2	Sports	30
3	Debate	10
4	Cultural Program	15
5	Scout/Guide	5

In the figure the prizes are represented on x axis and the number of students receiving the prize is on y-axis. The size is determined as -[2 boxes = 1 student]

Graph - Bar chart



Pie charts -

Pie chart is another form of representing data. When the data is given in percentage we can easily represent it through pie chart. There are 360 degrees in a circle. Here 3600 is taken as equal to 100%. To make a pie chart the value of percentage is to be changed in to degrees. Come we will understand this with an example.

The result of Primary Education Certificate examination is as follows

S.N.	Class/ Grade	Percentage of students passed
1	1st class (A Grade)	20%
2	2nd Class (B Grade)	50%
3	3rd Class (C Grade)	30%

At first we will change the percentage of the students passed in to degrees,

Formula for Changing the value of percentage is - $\frac{360}{100} \times \text{percentage}$

$$\text{As } 100\% = 360^\circ$$

$$\begin{aligned}\text{So } 20\% &= \frac{360}{100} \times 20 \\ &= 72^\circ\end{aligned}$$

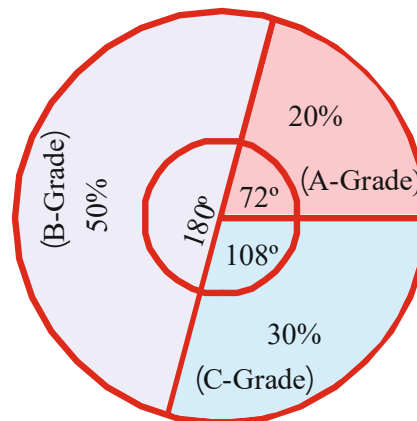
in the same way

$$\begin{aligned}50\% &= \frac{360}{100} \times 50 \\ &= 180^\circ\end{aligned}$$

$$\begin{aligned}30\% &= \frac{360}{100} \times 30 \\ &= 108^\circ\end{aligned}$$

After changing the percentage to degrees, we draw a circle according to the available space.

We draw a circle which is clear on the given space and looks good. Now we draw lines measuring the degrees as per the values calculated.



Represent the data given below in a pie chart. Students of class 5 took part in the following games -

Kabadhi	-	20%
Cricket	-	30%
KhoKho	-	40%
Badminton	-	10%

What have we learnt?

Oral

1. Why is the survey done?

Written

1. While conducting a survey, what are the things to be kept in mind?
2. What information can be inferred with the help of family survey?
3. Draw tallies for 17, 25, and 10.

Find Around you

1. Apart from the surveys mentioned in the book, find out some other surveys carried out in your village.
2. Hobbies of the students of class-5 are as given below.

Singing	40 students
Reading	30 students
Acting	10 students
Gardening	20 students

Represent this data through a bar diagram or bar chart.



CHAPTER- 2

Direction, Scale and Maps

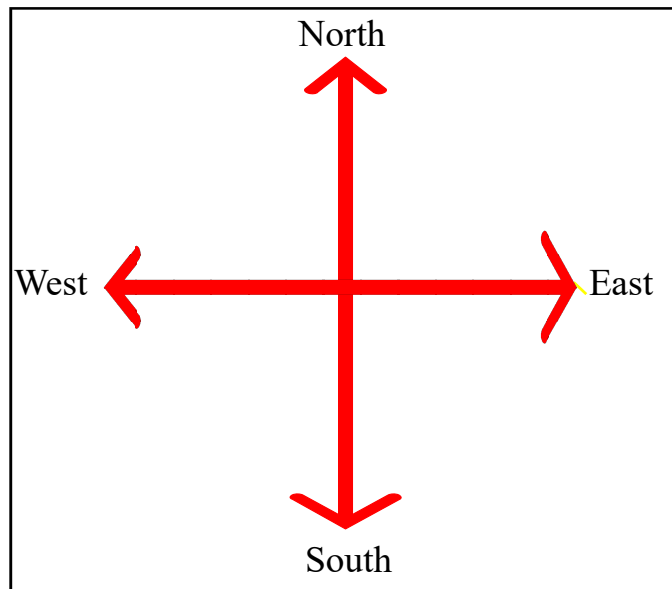
In class IV you have learnt about directions and maps. Do you remember, how you were taught to show directions on a piece of paper. Now you'll learn to make different maps.

Make your direction arrow

For this you can take any of these - an old copy, a thick book cover, an old postcard or a wedding card. On it, sketch direction arrows with the help of a pen or a pencil and write the names of the four directions.

Carefully cut the arrows that you have drawn.

You can now keep the direction arrows in your bag for reference.



Puzzle

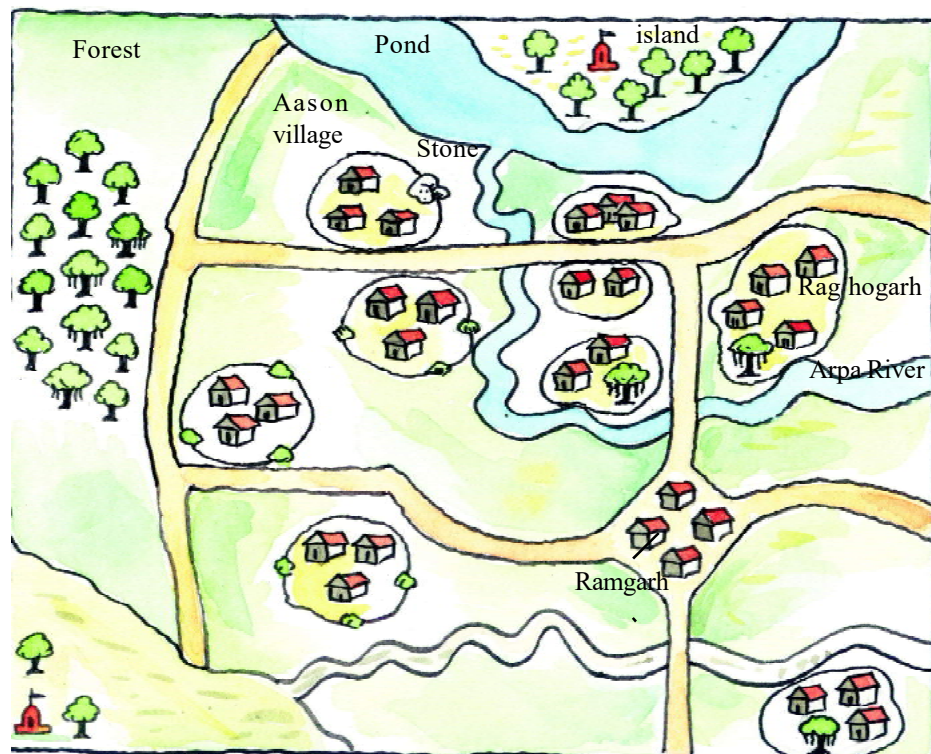
The teacher gave the students a puzzle to solve which is as follows-

Babbar Singh has hidden his treasure in an iron box and buried it behind a temple. He had put two locks on it. The keys were hidden in two different villages. To find the keys and reach the hidden treasure, the instruction were as follows:

If you take the road to the North of Ramgarh, you'll come across the Arpa river. On crossing this river, move to the East of the road and you'll reach Raghogarh. To the south of Raghogarh, is a banyan tree. One of the keys were kept in a box, in a hole in the banyan tree.

From Raghogarh, move to the north, and you'll come to a junction of three roads. From there, turn West, move further to the West and you'll once again find the Arpa River. To the West of the river and to the North of the road is Aasan village. To the East of Aasan village is a huge stone. Beneath the stone you'll find the second key. From Aasan village, move further to the West and you'll come to a dense forest. Just before the jungle begins, take a turn towards the North, go straight and you'll come to a pond. You can see a temple on a small island in the middle of the pond. Behind this temple is the hidden treasure box.

As per the instructions given above a map was made. On the map, village Ramgarh was marked. Though the other villages were drawn, they were not marked.

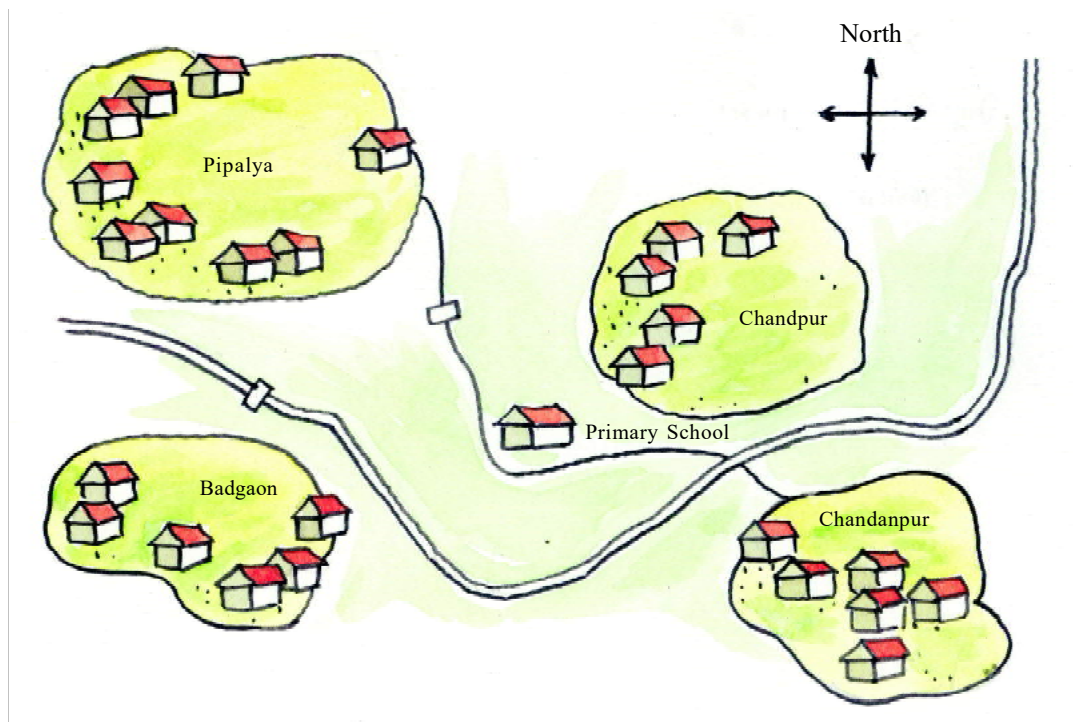


Now take the help of the direction arrow. On the map given, draw arrows to show the route you'll take. Identify Raghogarh and write its names in the map. Also mark the two places where the keys were found.

Draw a key and a treasure box where the treasure was found.

A Map of Four Villages

Complete the map given below by indicating a narrow path connecting Chandanpur to Chandpur.



On the map given, look for the narrow path which goes along the western edge of Chandanpur to Badgaon.

With the help of arrows, mark the river which flows along Pipalya, touches Badgaon and then passes through Chandpur and Chandanpur.

With the help of symbols draw a jungle in between Pipalya and Chandpur.

Now, draw a narrow path from Chandpur to Badgaon in a way that the Primary school lies on its way.

Also show a hospital in the North of Chandanpur.

Sketches and Maps

Till now, you must have drawn many sketches. Normally, sketches are an imitation of the real objects.

But on a map, the things are shown with the help of signs/symbols.

In class IV lesson, 'Aazad Made a Map', many signs and symbols were used.

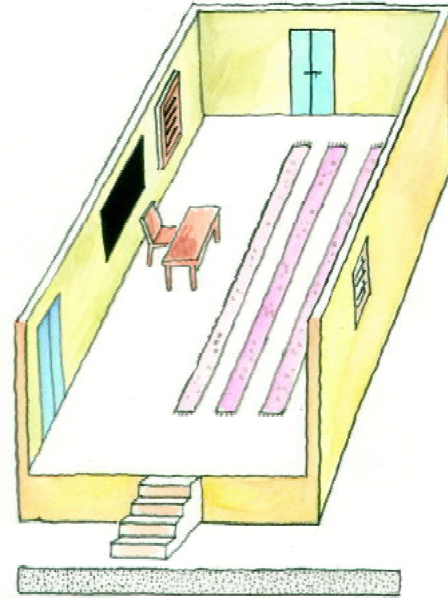
Can you see the sketch of a classroom?

It shows all the things used in a classroom.

If you have a view of the classroom and the things kept, from the ceiling, how would they look like?

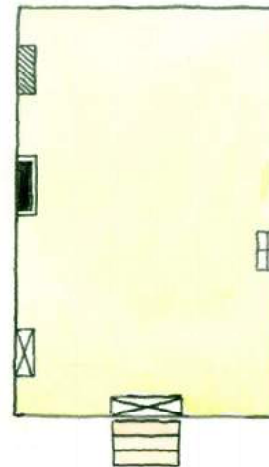
The map is always drawn showing an aerial view.

Compare the given two pictures. From the picture given below, can you tell how the classroom is arranged?

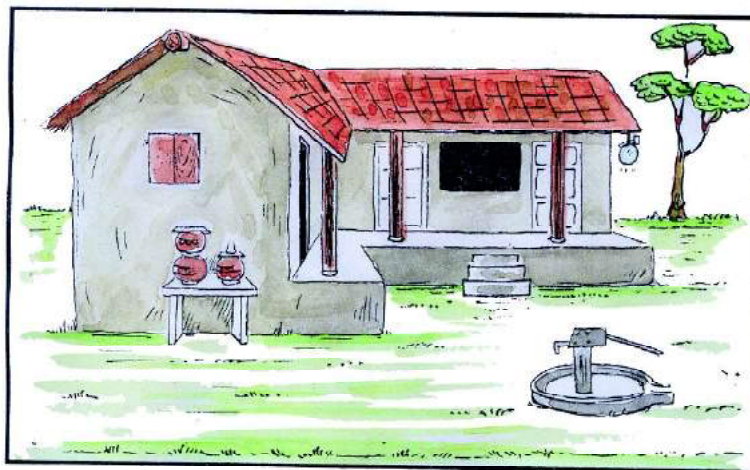


How is the Map Made?

When we draw a map, it is small in size. For this, we use a scale.



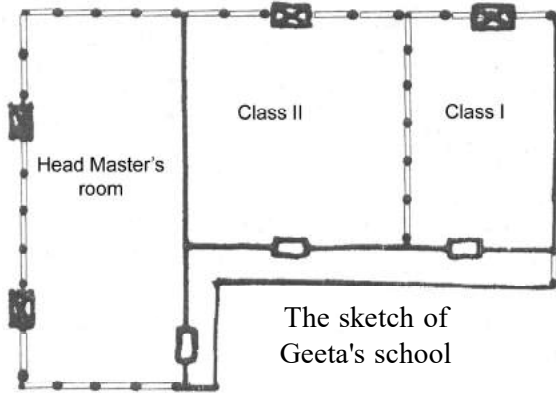
Symbols	
door	
window	
Almirah/Cupboard	
Black-board	
Stairs	



Picture of Geeta's school.

Geeta drew a sketch of her school which looks like this. There is a courtyard, two classrooms and a headmaster's room.

One day, Geeta draw a sketch of her school. While sketching, she took into consideration the length of each room. For this, she collected match-sticks. She measured the three rooms with her footsteps. Each match stick indicated a footstep which was taken to measure the length of the wall. Similarly, she arranged matchsticks to indicate the length of the other walls.



On the basis of the sketch drawn by Geeta, tell the following:

Class I is _____ footsteps in length and _____ footsteps in width

Class II is _____ footsteps in length and _____ footsteps in width

Headmaster's room is _____ footsteps in length and _____ footsteps in width

Courtyard is _____ footsteps in width.

You have studied the sketch which Geeta had made of her school. Now, you make a small sketch of your classroom. For this, you'll have to measure the length and width of your classroom.

Give an approximate account of the length and breadth of your classroom.

Measure it with your footsteps and make a note of it. Now you'll have to change the footsteps into smaller scale. For this, we'll use match-sticks.

To draw a sketch of your classroom, consider a matchstick equivalent to the measurement of one footstep. This is going to be your measuring scale (1 match stick = 1 footstep)

Take matchsticks equal to the number of footsteps taken to measure the length of your classroom. On a big sheet of paper arrange the matchsticks in line, leave no space in between. Thus, the length and width of your classroom shall be converted into a smaller scale using matchsticks.

First, let's draw the wall to the north of the classroom with the help of matchsticks.

Measure the wall to the North with your footsteps and convert it into a smaller scale using match sticks.

How many matchsticks were used to measure.

- a) the wall to the north _____
 b) the wall to the east _____

Now calculate the length and width of the wall to the south and the west, in terms of matchsticks. In this way, make the four walls of the classroom with the help of matchsticks. Now draw a line on all four sides with the help of a pencil and remove the matchsticks.

Now indicate the things kept in the room, using symbols.

Using the same technique, prepare a sketch of your school.

Till now, you've used your footsteps as a tool for measuring length. Is this an accurate way of measurement.

For accurate measurement, what tools should be used? Discuss with your teacher and write.

What have we learnt?

Oral

1. In which direction is your house from the nearest crossing of your town or village?
2. You have solved the puzzle. Where was the treasure box ?

Written

1. Sonu measured his room. The length being 10 feet and width 8 feet. He has to draw its sketch. The length of the sheet of paper is 5 erasers and width 4 erasers. What measurement scale should he take?
2. Draw symbols for the following- well, river, path, temple, jungle and school.

Look around you

Draw a map of your Village Panchayat Hall, Hospital or a Playground.

Draw a sketch of the things of daily use as books, pen, pencil, rubber, chair, table, school bags etc. or draw the sketch of a part of your school. Hang this picture in your classroom.

Students can make sketches of any other items of their interest.



CHAPTER- 3

Roots and Leaves

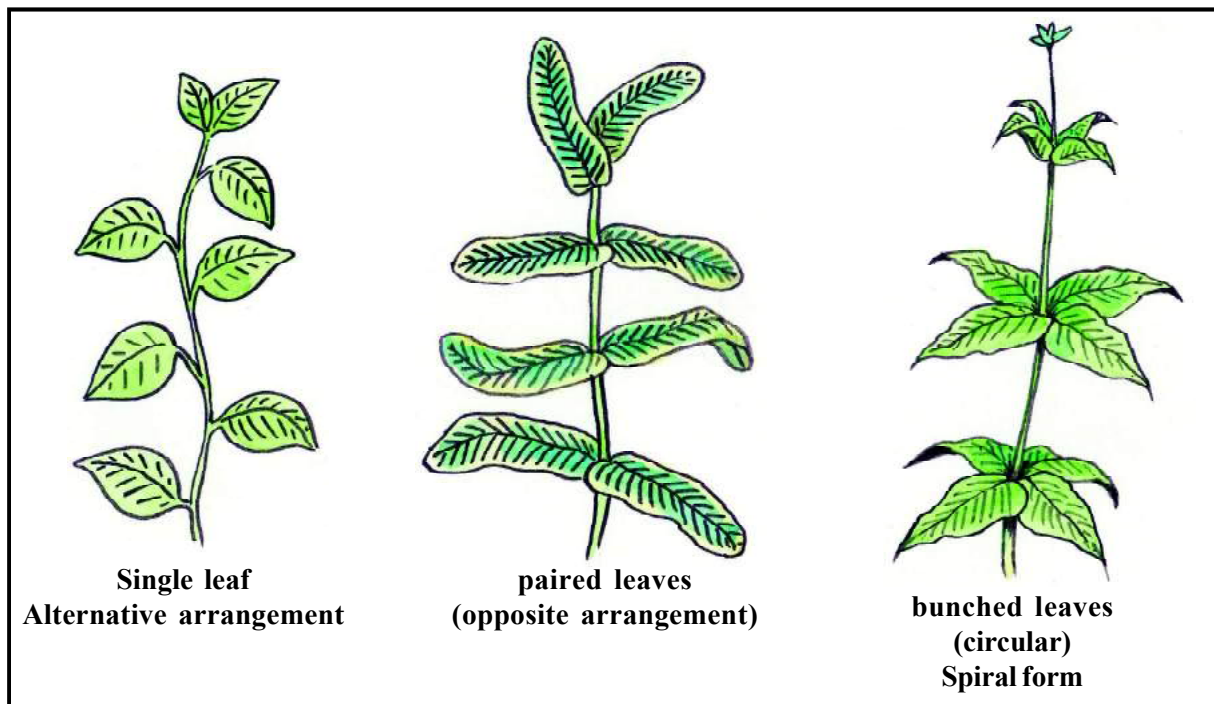
Looking around, we get to see a lot of greenery around us. The plants and trees, especially the leaves, contribute in making our surroundings green.

To have a look at these plants, go out to the nearby fields, grounds and orchards with your teacher. Make sure, you carry an old newspaper, a note-book, a pen and a bag with you.

Now divide yourself in groups of 4-5.

Arrangement of the leaves

Observe how the leaves are arranged on the plants and trees. Also observe whether the leaves on different plants grow in a particular order or grow just here and there.



Leaves on branches grow in three different ways. In some plants, you'll see only one leaf in one place. This type is called single leaf (or alternate arrangement).

In a few plants they come out in pairs. This kind of arrangement is called ‘paired arrangement’ (opposite order). On the other hand, there are few plants which have leaves growing in a bunch at a single place. This is called ‘bunch or assemblage’ (circular arrangement).

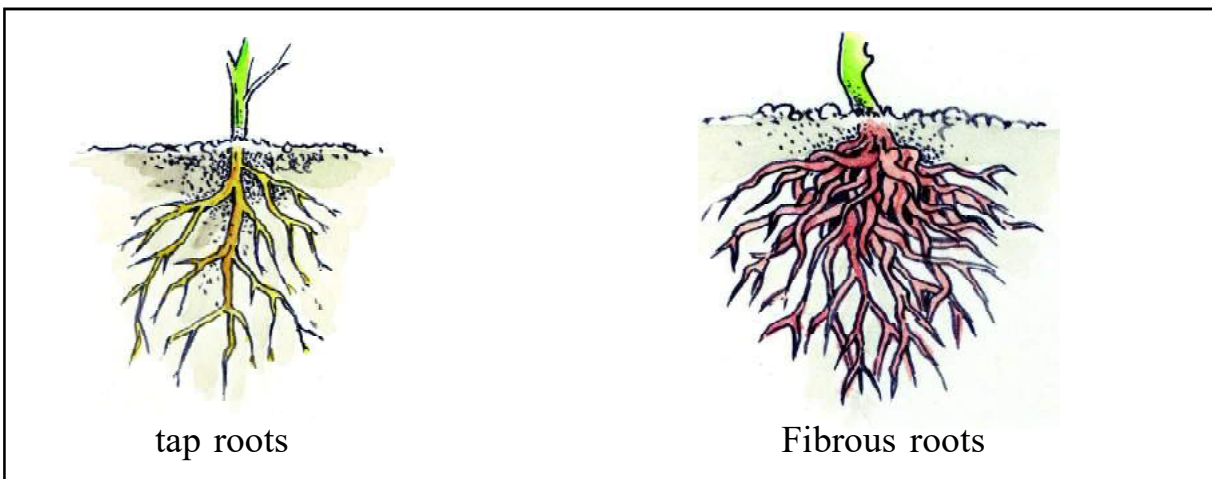
Now each group should collect different kinds of leaves fixed to tender branches. Take care you cause no harm to the plant. Also uproot 8 to 10 plants.

Make sure you uproot only the wild plants. Don't harm plants which are useful to us.

Spread the leaves and the uprooted plants carefully between the pages of a newspaper and press them gently. Write the name of the plant from which the leaf is taken. Similarly, write names of the plants you had uprooted. If you are not familiar with the name of any of the plants, ask your teacher, or a gardener or a farmer or a knowledgeable person. Still, if you fail to identify give the plants the identity- A B C D.

Study the roots

After coming back to your class, each group should sit together in a circle. Observe the roots of the plants you had uprooted and draw them in your note-books.



Are the roots similar in each plant ?

What difference can you observe in the two different kinds of roots shown above?

Compare

Looking at the picture write which category the roots of the uprooted plants belong and tabulate them accordingly.

Table 1

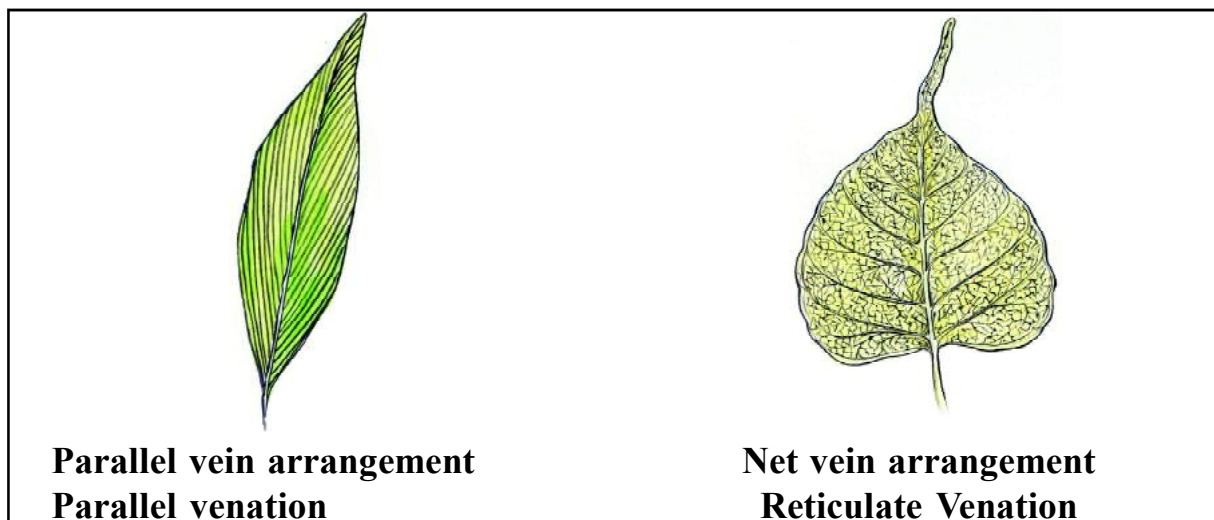
S.No.	Name of the plant	Tap root	Fibrous root
1.	_____	_____	_____
2.	_____	_____	_____
3.	_____	_____	_____
4.	_____	_____	_____
5.	_____	_____	_____

Vein arrangement in leaves

Let us find another interesting fact about leaves. Carefully observe both the sides of the leaves. You'll see thread like veins in the leaves.

Are these veins seen all over the leaf?

The arrangement of veins in leaves is called '**vein arrangement**' or **venation**. In the picture given below observe how the veins are arranged in a leaf.



Which kind of Venation (vein arrangement) can you observe in the leaves brought by you? Match the leaves to the picture given and write them in the table given below. Mention which category each falls into.

Table 2

S.No.	Name of the plant	(Parallel vein arrangement) (Parrallel Venation)	(Net vein arrangement) (Reticulate Venation)
1.	Mango	Reticulate
2.
3.
4.
5.
6.

The relationship between roots and leaves

Till now you’ve learnt about leaves and roots. Now we’ll try to find out the relationship between the two.

Observe the plants you had uprooted once again.

Now tell which plant has ____

What kind of Venation parallel or reticulate (vein arrangement) ?

What kind of root, Fibrous or tap ?

Till now you’ve observed the roots and the leaves and have filled Table 1 & 2. On the basis of this now fill in the table on the next page.

Table 3

S.No.	Name of plant	Venation (Vein Arrangement)		Type of Root	
		Parallel	Reticulate	Tap	Fibrous
1.	Paddy/rice	Parallel	---	---	Fibrous
2.	_____	_____	_____	_____	_____
3.	_____	_____	_____	_____	_____
4.	_____	_____	_____	_____	_____
5.	_____	_____	_____	_____	_____

Study the table given above and answer the following questions:

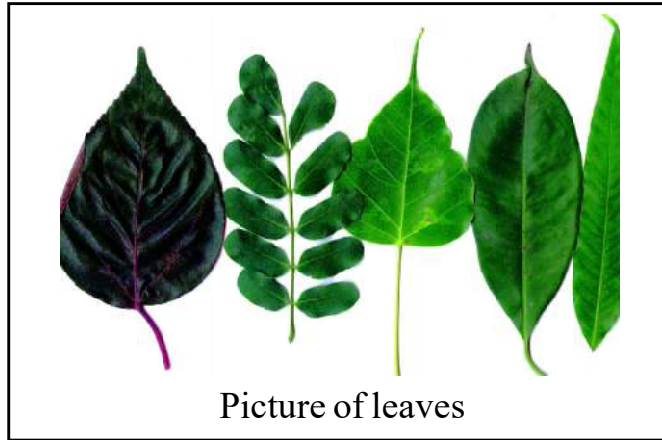
What Venation (vein arrangement) do the leaves of plants with tap roots have?

What Venation (vein arrangement) do the leaves of plants with fibrous roots have?

Can you see some kind of relationship between the roots of plants and vein arrangement of leaves? Write in your own words.

Exhibition of leaves

Exhibit the leaves you had collected. Spread the leaves between a newspaper and put some weight on them. After every 2-3 days keep changing the newspaper. While changing, take care not to break the leaves. When the leaves are completely dry, paste them on a hard board and write their names below.



What have we learnt?

Oral

1. Which part of the plant is under the soil?
2. In which part of the plant are the veins found?

Written

1. With the help of a diagram, explain the different kinds of roots.
2. Name the different Venation (vein arrangements) found in leaves.
3. What is the difference in the Venation (vein arrangement) of a peepal leaf and a grass leaf?
4. In which order are the leaves arranged on the branches of the following plant?
Draw them?
 - i. Channa / Bengal Gram
 - ii. Mustard
 - iii. Rose
 - iv. Peas
5. Name the kind of root and the Venation (vein arrangement) in leaves found in the following plants-
 - i. Tomato
 - ii. Wheat
 - iii. Bean
 - iv. Marigold
6. What is the relationship between Venation (vein arrangement) in leaves and the kinds of roots?

Look around and find

1. Look for plants with colourful leaves. What kind of vein arrangement do you find in it?
2. Look for plants which secrete milk like substance.
3. Look for any two plants with spines in their leaves.



CHAPTER- 4

Our National Symbols

India is a land of diversity. People of different religions, languages, dresses stay together as one - 'Indians'. Despite these differences, there is only one National Symbols eg. - National Flag, National Emblem, National Anthem, National Song, National Bird- Animal and flower etc.

It is the duty of every citizen to respect the National symbols. These symbols bind the entire Nation into one.

Our National Flag

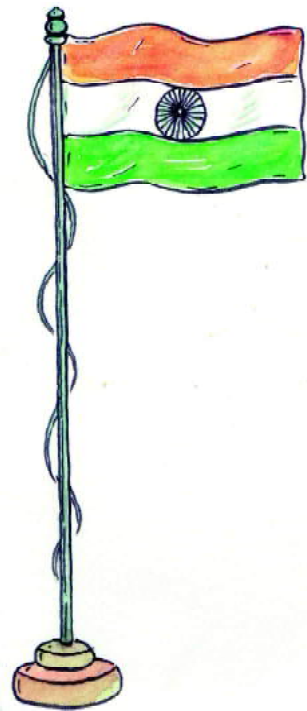
Our National Flag is tricolour. It is a symbol of Nation's pride.

Write the three colours in our National Flag

1. _____
2. _____
3. _____

On what occasions is the National Flag hoisted in your school?

How do you pay respect to your National Flag?



Each colour in our National Flag symbolises a different feeling-

Colour	Feeling symbolised
saffron	Courage and Sacrifice
white	Truth and Peace
green	Faith and Prosperity



In the centre of the National Flag is the wheel which symbolises motion, progress and change.

Count and write the number of spokes in our National Flag?

What is the shape of our National Flag?

What is the colour of the uppermost strip of our National Flag?

Find out from your elders, what are the things one should keep in mind while hoisting the National Flag.

1.

2.

3.

Our National Emblem

Look at this picture carefully. This is our National Emblem. It has been taken from the iron pillar at Sarnath, built during the time of Ashoka. Below it is written "Satya Meva Jayate", which means "Truth shall always triumph."

Look at the pictures given and tell-



How many lions are there in our National Emblem?

Which sign stands common in our National Flag and Emblem?

Which two animals can you see on both sides of the wheel in the National Emblem?

Where else have you seen the National Emblem?

On a one, two, five rupee coin, see the side with the impression of a lion. How many lions can you see?

There are four lions in our National Emblem but only three can be seen. To understand this let us do an activity.

Activity

One of you should stand in a place. In front of him/her, at a little distance away, four of your other friends should stand with their backs to each other. Now ask your friend standing alone - how many faces can he see? Others should take turns to see the number of faces visible. Similarly, the four lions in the National Emblem stand facing their backs towards each other. From whichever side we look at, we get to see only the three faces of the lions.

Our National Anthem

You must have memorised Jana Gana Mana.....

This is our National Anthem, It was composed by Rabindra Nath Tagore.

Now tell-

How should we stand while singing the National Anthem?

Fill up the table given, with the states, mountain ranges and the rivers mentioned in the National Anthem.

S.No.	Name of rivers	Name of Mountains	Name of State
1.			
2.			

Our National Song

Vande Mataram..... is our National song. Its lines were taken from a book titled 'Anandmath' written by Bankim Chandra Chatterjee. This song instilled the feelings of patriotism and freedom in the hearts of the Indians, during the Indian freedom struggle.



When do you sing the National Song in school?

Our National Animal

The tiger is our National animal. It is a symbol of strength and agility. In the



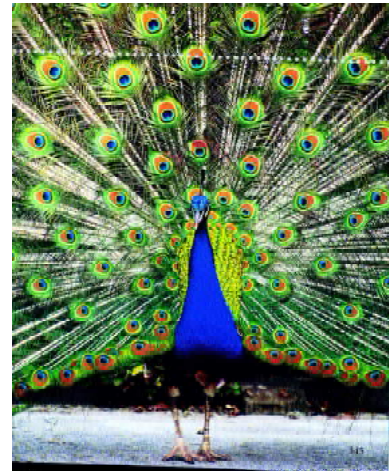
past, India could boast of many tigers. But their numbers have dwindled fast. So, as an Indian, it is our duty to save our National Animal.

Which project has the Government of India taken to save the tigers? Find and write.

Our National Bird

Have you seen 'the peacock' in a jungle or a zoo? This is our National bird. It is famous for its colourful feathers. Find out more about this animal- for eg. what does it eat? Where does it live? etc.

What is the difference between a peacock and a peahen?



Our National Flower

You must have seen the lotus flower in ponds and tanks. This is our National Flower. How is the stem and fruit of a lotus used?



For the entire country, there is just one National Flag, National Anthem, National Song and National Emblem. But different states may have their own state bird, animal, flower etc. The state animal of Chattisgarh is the wild buffalo and its state bird is the Pahari Maina.



What have we learnt?

Oral

1. On what occasions is the National Flag hoisted?
2. From where is our National Emblem taken?
3. What is written beneath the National Emblem?

Written

1. Describe the significance of the National Flag?
2. Why is it important to save tigers?
3. Name our National Symbols?
4. What was the importance of our National Song 'Vande Mataram' in the freedom struggle?
5. Write the name of the state animal and state bird of Chhattigarh.

Find Around you

1. Have a collection of stamps of different countries with their National Flag, flower and animal on it.
2. Make a chart of pictures of different animals, birds, trees and flowers of different states of India and display it in your class.

S.N.	Name of state	State animal	State Bird	State Tree
1	Chhattisgarh	Bison	Pahari Myna	Teak
2				
3				
4				



CHAPTER- 5

Mosquitoes and Malaria

After many days, Chandu came to school today. He looked quite weak. His friends enquired, what had happened to him. He told them that he had been suffering from malaria.

The children asked the teacher how malaria is caused? The teacher said, "Let us ask Chandu first.



Chandu told them that at first he started shivering with cold, followed by fever and body ache. When he was taken to the doctor, the doctor pricked a needle in his finger to take blood sample for testing. He spread the blood on a glass slide and kept it in a box.

The doctor asked them to take the report the next day. The next day, while giving the report, the doctor confirmed that Chandu was suffering from malaria and gave him some tablets.

The teacher asked Chandu - What kind of needle did the doctor use to take the blood out ?

Chandu replied that the doctor took a new needle. The teacher told them that these days for giving an injection or for taking blood sample disposable needles are used.

Has anyone at home suffered from malaria? What was done after malaria was diagnosed?

What are the common symptoms of malaria? Discuss it with your teacher and write.

Mosquitoes and Malaria

You all must have suffered mischiefs of the mosquito. They buzz around whole night. They bite badly and disturb our sleep many times.

Malaria spreads by a particular kind of mosquito. The mosquito that bites us is female Anopheles.

The female mosquito sucks blood from living creatures like - cows, oxen, goats and humans. When it bites some one it sucks the blood very quietly. It is only when it finishes sucking blood that we get to know of the bite.

Can you name some more creatures which suck blood ?

Do they also spread diseases? Ask your teacher about it ?

While sucking blood, the female mosquito pricks its sting in to the skin. To prevent the blood from clotting it injects its saliva. The parasite which causes malaria can be present in this saliva. If these germs enter human blood through the saliva of mosquito the person may suffer from malaria in a few days. Male mosquitoes cannot bite as their sting is not sharp and piercing. It is necessary for the malarial parasite to enter female mosquito again if it has to complete its life cycle.

If a person is already infected with germs causing malaria and is bitten by female mosquito, then the germs are passed on into the body of the female mosquito. On biting another person, it transmits the germs into this body, thus, a female mosquito spreads the germs of malaria from one person to another.

After the bite of a female mosquito, when these germs enter a human body, it takes 10-15 days for malaria symptoms to appear.

What should one do if one is suffering from malaria?

If a person is shivering with cold and has fever, he/she should immediately be taken to the hospital.

How is malaria diagnosed in the hospital? Find out from a doctor or a health worker.

Find out where malaria is tested in your area?

It is important for a person suffering from malaria to take a full course of treatment. If the full course is not taken it cannot be cured completely. The doctors advice that while taking medicines for malaria, the patient must eat properly and have lots of fruits, milk and water. At times a person suffering from malaria may vomit. But one must not stop eating for fear of vomiting.

How to protect oneself from malaria?

To protect oneself from malaria, it is important to prevent the breeding of mosquitoes.

In your area, is any insecticide sprinkled to kill mosquitoes?

In which season are the mosquitoes mostly found in your area? Think and tell?

Find out the places in your surroundings where mosquitoes are found in plenty ?

Study the mosquitoes

Catch hold of a big mosquito.

What all can you see in a mosquito?

Now look at the mosquito with a hand lens.

How many legs and wings does a mosquito have? Count and write.

Draw a mosquito in your note-book.

Do you know where mosquitoes lay eggs? In your surrounding area, look for a place where you can find stagnant water. Observe this water carefully.

In this stagnant water, can you see a creature similar to the one shown in the picture above.

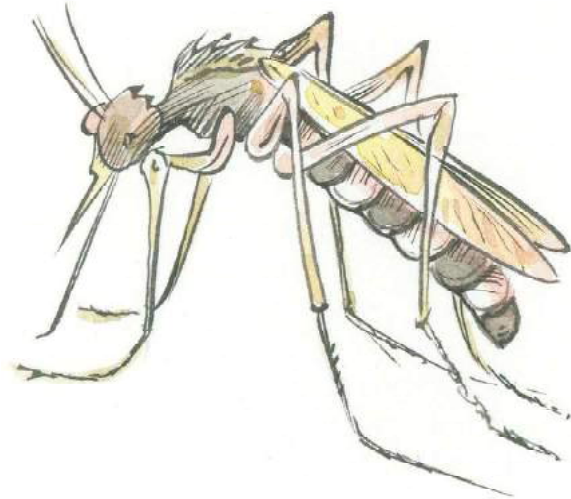
Draw this in your note-book.

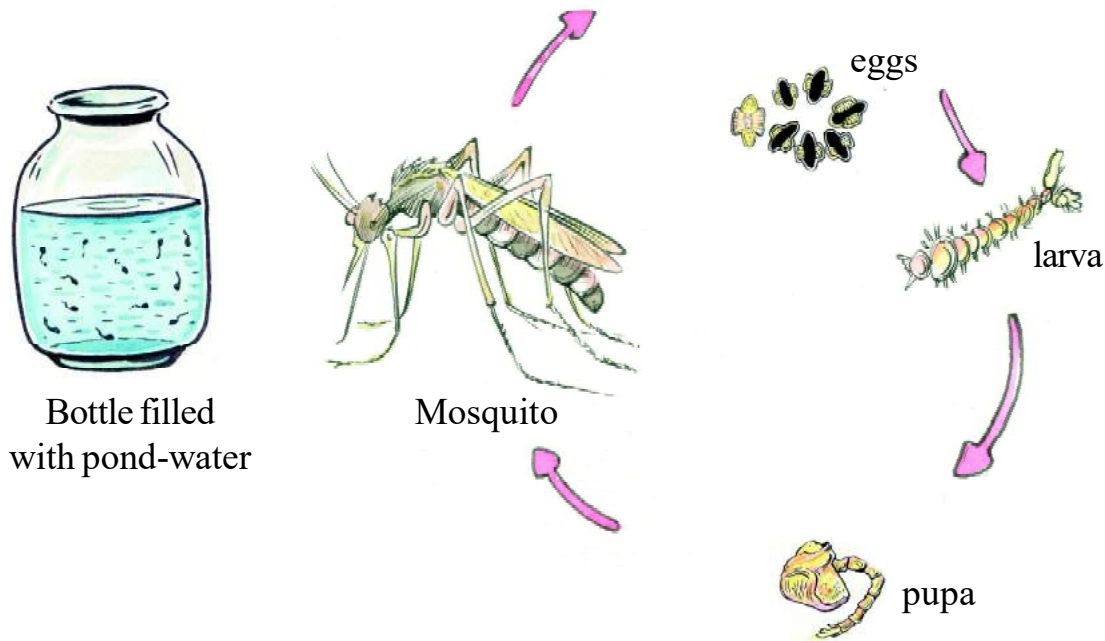
Take an empty glass bottle and fill it with water from a pond. Make sure that the water filled in contains larva too.

Now tie the mouth of the bottle with paper or polythene and make holes for the air to pass.

Keep the bottle in a safe place. Now watch the bottle everyday. Given below are the different stages of the life cycle of a mosquito.

Can you find any mosquitoes inside the bottle?





Life cycle of a mosquito

By now you must have understood where mosquitoes lay their eggs.

By only killing the mosquitoes, can you get rid of them? Or is it necessary to kill the eggs & the larva too? Discuss in class and write.

Write the ways in which mosquitoes can be killed?

What should be done to prevent the breeding of the eggs and the larvae of mosquitoes? Discuss with your friends and write.

What efforts are made in your area by the Health Department to get rid of mosquitoes?

While sleeping at night, many people use mosquito nets to prevent mosquito bite. Some cover themselves with a thin cloth.

You must be using other ways of protecting yourself from mosquitoes. Write about them _____

Apart from malaria, mosquitoes are carriers of other diseases as well. Discuss it with your teacher or elders.

Why was glucose drip given?

Other than malaria another disease is vomit and loose motion.

All day long Neetu was vomiting continuously; she was also having loose motion. Her mother made a drink with equal amount of salt and sugar dissolved in water and gave it to Neetu. On finding no betterment in her health, her parents took her to the doctor. The doctor asked them to admit her in the hospital and to give her glucose drip. In school, during sports teacher has given glucose drink but what was glucose drip and why? Doctor said "Your body is weak as food and water is not retained in your body. You have an upset stomach. With the glucose drip, you will get strength without food and water."

- Was you or anyone in your family given glucose drip? When and Why? Tell your friends about it?
- Why is sportsmen asked to drink glucose from time to time?

What is Anemia?

Deficiency of haemoglobin or iron in blood is known as anemia. To remove deficiency of haemoglobin or iron doctors advice to give jaggery (gud), goose-berry (amla) and green leafy vegetables along with the medicines. The normal range of haemoglobin in blood is 13.5 to 17.5gm per decilitre for men and 12.0 to 15.5gm per decilitre for women.

Ask any doctor or your elders and find out which food item have iron in them.

What have we learnt?

Orals

1. Name any one disease caused by mosquito bite.
2. What steps will you take to prevent mosquitoes from breeding in your area?
3. Name the different stages in the life cycle of a mosquito.

Written

1. What is the cause of malaria?
2. How can we protect ourselves from mosquitoes?
3. What are the main symptoms of malaria?
4. What must one do if suffering from malaria?

Find and do

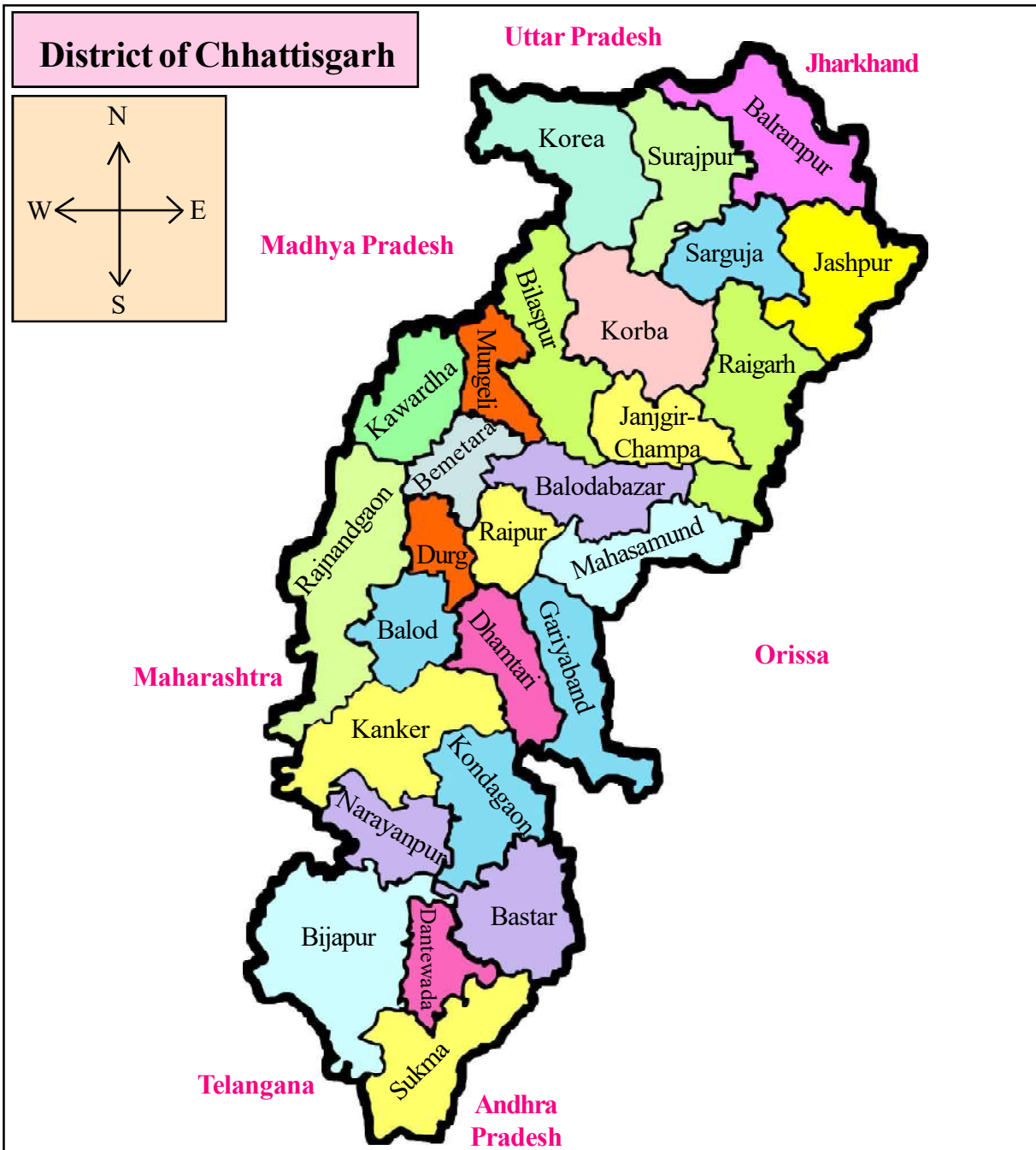
1. What steps should be taken to prevent mosquitoes from breeding?



CHAPTER- 6

The Map Speaks

The town/village we live in is a part of the state of Chhattisgarh. Given below is the map of Chhattisgarh.



There must be a big map of Chhattisgarh in your school. Hang it on a wall and see.

Name the neighbouring states of Chhattisgarh?

How many districts are there in Chhattisgarh at present?

Write the name of the districts which are to the north of Dhamtari?

Which is the largest district in Chhattisgarh?

Which is the smallest district in Chhattisgarh?

In which district to your friends and relative live, Put a (√) tick mark on those districts.

Put a (√) tick mark on the districts you have been visited.

Map of a district

Hang the map of your district on the wall of your classroom and look carefully.

In which district you live?

Name the district to the east & west of your district.

Find the district in which you live in the map. Write the names of the neighbouring district to your district.

Hang your district map observes it and answers.

Write the name of the tehsils of your district?

7. Locate your village, small town & city in the map?

If somebody comes to visit your district, then in your opinion, what are the places one should visit and why?



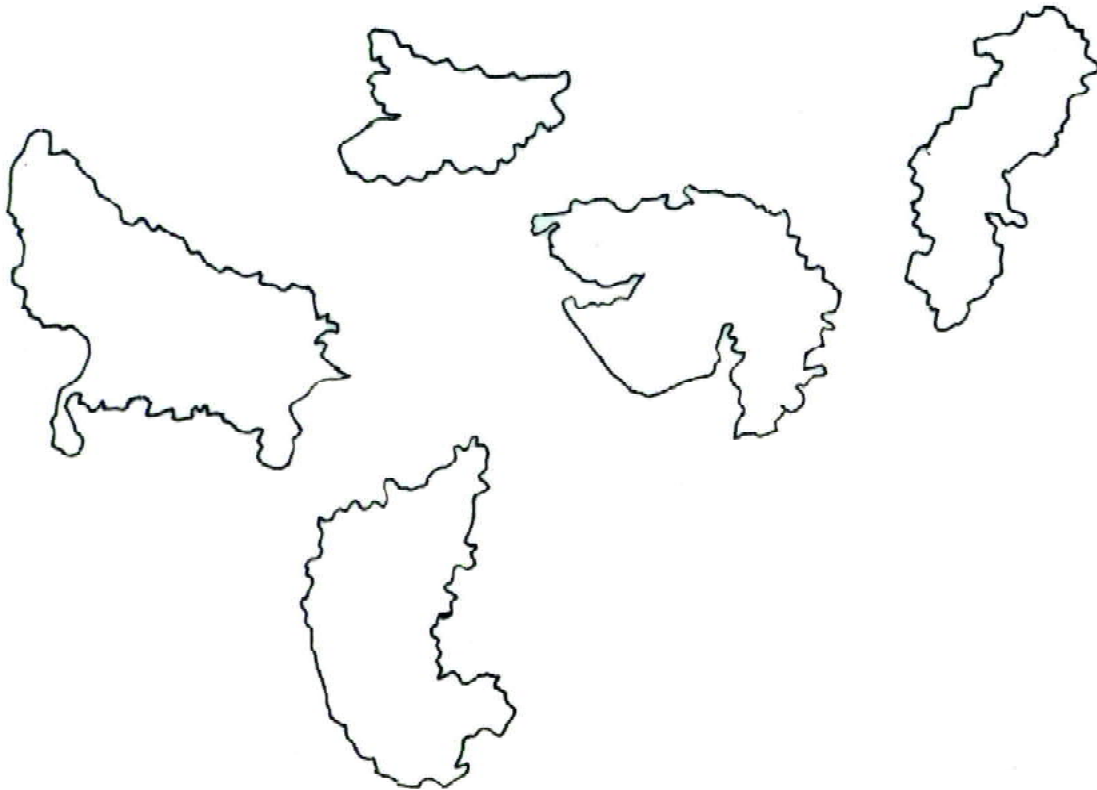
Map of India

Though India is a vast country which is hundreds of kilometres in length and width, it is shown in a small size.

On the previous page is given a map of India. You must have seen this map earlier. Tell where you've seen it?

There are many colonies in our villages and towns. Similarly, there are many states in our country. In the map given, you can see all the states of India.

Identify the shapes of different states given below and write their names ?



Which are the neighbouring states surrounding the state of Chhattisgarh? Look at the map, mention the direction of these states.

North _____ East _____

South _____ West _____

Look at the lower most tip of India on the given map. There is no state or town shown beyond India's borders? It is because there is sea on the southern side of India.

Identify the sea on the sides of India and colour it blue.

On the map of India, you can see small dots. The dots indicates the location of the capital of that state.

Chhattisgarh is surrounded by land on all sides. Is it the same for Andaman and Nicobar Islands?

Nicobar is surrounded by water on all sides. A piece of land surrounded by water on all sides is called an island. Look for more such islands in the map.

What have we learnt?

Oral Questions

1. When was the state of Chhattisgarh founded?
2. How many districts are there in Chhattisgarh?
3. On the confluence of which three rivers is the Rajim pilgrimage situated, in Chhattisgarh?

Written

1. Write the names of the neighbouring states of Chhattisgarh. Give their directions too.
2. Write the names of the coastal states of India.
3. On a map of India, mark the states and their capitals.

Look around

How many states and union territories are there in India? Make a list of their names with their capitals.



CHAPTER- 7

Snakes

We see different kinds of creatures around us. Some are small, some big, some crawl, whereas some run very fast. There are some animals whose name itself scares people. One of them is the snake.



After all, what is there in a snake?

Why are we scared of snakes?

Where do snakes live?

Draw a snake you've seen.

Have you ever come across a snake in your house or your friend's house or in the neighbourhood?

If a snake is seen in a house, what do people do to chase it out?

What do people do if a snake bites? Discuss and write.

You yourself must be having several questions in your mind regarding snakes. Make a list of some such questions that comes to your mind.

Find out from your teachers or elders as to how many kinds of snakes are found in your area?

Can snakes hear?

Have you ever seen a cobra who seems to be dancing to the flute played by the snake charmer?

Do, you think snakes can hear?

Actually, the cobra does not dance to the music of the flute. But, it dances as per the movement of the flute. The cobra considers the flute a threat to him. It can swing its head even at the sight of a moving stick or a piece of cloth.

To find out whether a snake can hear or not, a scientist conducted the following experiment.

- He bandaged a snake's eyes and played the flute in a room. The music of the flute had no effect on the snake.
- Then he pulled a cot kept on the floor of the room. The snake immediately raised its hood.
- He then removed the bandage from the snake's eyes and pretended to play the flute in front of the snake. The snake started swinging to the movement of the flute.
- He conducted the same experiment using a stick instead of a flute. The snake still moved in the same way.



On the basis of this experiment, think over the following questions.

Do snakes dance to the tune of the flute?

When farmers and labourers go to the jungle, they carry with them a stick or a long staff. This, they bang on the ground while walking. People believe that by banging the stick or the long staff on the ground, the snake senses danger and moves away from there.

Can the snakes hear the banging of sticks or long staffs on the ground. Find out from the farmers in your village.

Kinds of Snakes

Snakes are of two kinds:- a) poisonous, b) non-poisonous

The snake, on biting a person, injects poison into his body through its teeth which is hollow like that of a needle of an injection. In its upper jaw there are two pouches of poison.

When poisonous snakes bite they inject poison into a person's body. That poison can at times be fatal.

There is no poison in non-poisonous snakes. They only bite when they are teased. But their bite not fatal.

Let's identify the non-poisonous snakes with the help of pictures.



Green snake



Python



Pitpiti



Water snake

Poisonous snakes

Cobra- This brownish black coloured snake can be found, all over India. It can be easily identified because of its hood. It is a deadly snake.

The symptoms of a Cobra bites are as follows:

- The bitten place gets swollen and sometimes there is a wound.
- The bitten person finds it difficult to see and his/her hands and feet start trembling.
- The tongue thickens and the person finds it difficult to speak. Froth starts coming out from the mouth.
- The person suffering from cobra bite feels sleepy and finds it difficult to breathe.



Ordinary Krait (करैत)- The Krait comes out at night. It is extremely shiny and has white diagonal stripes. Apart from this, it has a row of hexagon shaped scales. They live beneath stones, between bricks in brick kilns, in the piles of fire-woods and cowdung cakes kept in the fields.



The symptoms of its poison is more or less the same as that of a Cobra, except that there is no swelling or wound. At times, the symptoms appear very late and suddenly the patient feels restless. Once the poison of krait reaches the body, the victim experiences severe pain in his stomach and joints, followed by vomitings.

Krait normally bites at night. Because the symptoms appear very late, the patient, at times go unnoticed. It is said that a person bitten at night by this snake, does not live to see the morning sun. Hence, immediate treatment is a must.

Viper- Viper is approximately 1 meter long and has a flabby body. It is light yellowish brown coloured and has a chain of round rings on its body. It has a pointed head and a thin neck. It is lazy and lies coiled up in one place. It bites farmers when they work in the fields during monsoons. Many bite cases of viper during the harvesting of soyabean, moong, urad etc. Its colour helps it to camouflage in the dried leaves and crops.



The viper's poison affects the blood

- Its poisonous teeth are big, so they leave a deep wound.
- The blood flows out continuously from the wound.
- If timely vaccination is not given, the affected part gets infected.

Phoorsa/ Saw-Scaled viper- It is a small sized snake. This uneven-scaled snake has big eyes, broad head and a heavy body. It is commonly found in open places.



The symptoms of its poison are quite similar to that of a viper's. In comparison to the other poisonous snakes it ejects less poison and hence, its bite is not fatal.

What should and what should not be done if bitten by a snake?

- Do not let the bitten person get excited. He/she should remain calm.
- Tie a piece of cloth, above and below the bitten place. Tie it in such that the index finger be put through.
- Give the person hot drinks like tea, coffee etc. Give him a pain killer and mental support.
- Rush the patient immediately to the hospital and do not waste time on charms and incantations and getting the evil spirits expelled.
- Do not let the person run, fall asleep or ride a bicycle or a motorcycle.



Vaccination given to neutralize the effect of a snake's poison is readily available in the hospital.



Is the vaccination to neutralise the effect of snake's poison available in your nearest government hospital.

If somebody is bitten by a snake, advice to rush him to the hospital.

What do people who perform charms and incantations do to a person bitten by a snake? Find out. If bitten by a snake, do not believe in expelling the evil spirits.

In every village or town you'll come across someone who treats people bitten by snakes. Charms are commonly used to neutralize the affect of snake's poison. There are people in town who claim to neutralize its effect on telephones too. Such names can be seen on name board hanging here and there giving their contact address and numbers. Though people who indulge in driving away evil spirits claim to neutralize the snake's poison, many a time they fail to save the lives. **Now tell, if a person has been bitten by a non-poisonous snake, will the poison enter his/her body?**

If a person bitten by a non-poisonous snake is treated by a person who claims to be an expert in driving away evil forces, will he survive or not?

When a person bitten by a non-poisonous snake is taken to the hospital, he is not given any anti-poison vaccination. Only his wounds are treated and he given pain killers to over come the pain caused due to snake bite.

Find out whether a person bitten by snake was cured after being taken to the person who drives away the evil spirits?

At times a person bitten by a non-poisonous snake dies or falls unconscious due to shock.

Snakes our Friends too

Snakes are great friends of farmers. They eat the rats and other creatures who destroy the crops in the fields. Find out in what ways are snakes helpful.

What have we learnt?

Oral

1. How can we protect ourselves from snakes?
2. Are all snakes poisonous?

Written

1. What should one do if bitten by a snake?
2. Classify the snakes mentioned here into two categories- poisonous and non-poisonous.(Black cobra,Python Saw-scaled viper, Two headed snake, Krait viper,Green snake, Cobra)
3. Draw a Cobra and write its special features.
4. Write the difference between a viper and a karait.
5. What are the symptoms of snake bite?

Look around

1. Find out from your elders, snakes found around you.
2. Who are the person other than snake charmers who depend on animals for their livelihood?



CHAPTER- 8

Bank

Everyone is engaged in some work or the other. Whether one is an artisan or a farmers, labourer or an industrialist, employee or an officer; all are paid wages for their work. Some amount is spent on household necessities and the balance money is kept as savings for the future.

Find out where people deposit the money that they save?



One day Lalita went to a bank with her mother. Her mother took a withdrawl form from the clerk, filled it up and submitted it. The clerk after receiving the form gave her mother a coin like token. After some time a clerk called out her mother's name from the Cash cabin box. Lalita's mother gave him the token and she received the money in return Lalita wanted to know how money is deposited and withdrawn in a bank. Her mother told her that first she should open an account before by depositing some money. The money despositied is safe in the bank. In times of need the money can be withdrawn.

Where do you have a bank? What is the name of the bank?

Do your parents have an account in a bank?

Ramesh's mother is a teacher in a school. Every month her salary is deposited in the bank. Whenever she needs money, she goes to the bank and withdraws it.

Your money deposited in the bank is not only safe but you also earn an interest on it. eg. Ramesh's mother has Rs. 5000/- in her account. She'll get interest on it. If this amount is kept at home, it will neither increase nor will it be safe.

Discuss with your parents or teacher 'what is interest?' and write what you have understood.

Any one can open an account in the bank.- a shopkeeper, green grocer, labourer, officer, lawyer, doctor, farmer etc. At the time of opening the account, a passbook is issued. It has all the details of the money deposited and withdrawn.

Find out from your elders or teachers, the necessary documents required at the time of opening an account.

An account in which one can withdraw the money as and when he/she wishes is called 'Savings Account'. The pass book for such an account has 'Savings Account' written on it.

It is a rule that the "Saving Account" must have a minimum amount in it.

What is the minimum amount which is to be compulsorily deposited in the banks of your town/village? Find out from your teacher.

Faiza's father is a sculptor. He sells beautiful things made of clay. He deposits the balance money left after the household expenses in the bank. As he has been continuously depositing his savings in the bank he now has Rs. 10,000/- in his account. A bank clerk advised him to deposit his saving in Fixed Deposit for a fixed period of time. He also told him that he would get more interest in fixed deposit. Faiza's father, as advised by the clerk, deposited his saving in Fixed Deposit for a period of five years. After five years, he got his principal amount of Rs. 10,000 back along with a good amount of interest. This is how the Principal amount keeps increasing.

What is the maximum limit of keeping your money in fixed deposit

What are the other accounts that can be opened in the bank? Find out.

How to deposit and withdraw money from the bank?

There are different forms for withdrawal and deposit of money.

Given below is a form for depositing money. Read it. If someone has an account in the bank and wants to deposit money, he will have to fill up this kind of form.

Fill up the given form yourself.

Get a deposit form from a bank nearby and try to fill it.

There is another rule in the bank- A third person can deposit the money but cannot withdraw it.

If at all the money has to be withdrawn, it cannot be possible without the signature of the accountee.

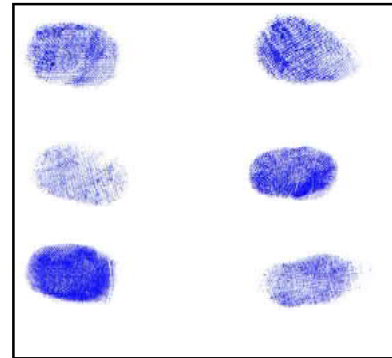
A copy of specimen signature of the accountee is with the bank. Illiterate people have to give their thumb impression. Whenever a person withdraws the money, his signature or thumb impression is verified. If the signature or the thumb impression do not match the specimen signature/ impression, the bank refuses to give the money.

People who are illiterate put their thumb impression, in place of their signature.

Does the thumb impression vary from person to person?

.....
--

You along with your five friends take chances to put your right thumb impression in a copy. Now, carefully observe the thin inner lines.



Are these thin lines the same in all the impressions?

Another important thing is that no over writing or cutting is permitted in any of the bank forms. If any overwriting is done, the form is rejected. Hence, the form should be carefully filled up.

Withdrawals using a Cheque

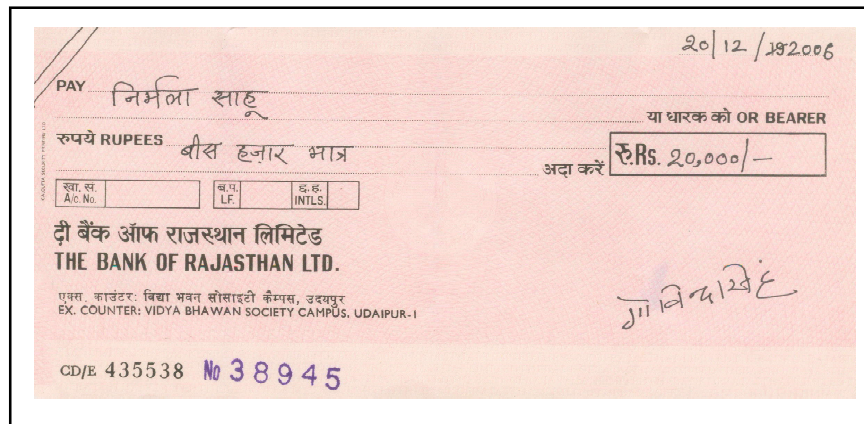
There is another provision for withdrawing of money. For this the accountees or account holders are given cheque books. If the accountee has to make payment to somebody instead of giving him money he can give him a cheque of the same amount. For example. Faiza's father has to make purchases for his work, he does not carry money but a cheque book. He makes his payments by cheque. Similarly, out station payments can also be made by cheque and delivered by mail.

Money transaction by shopkeepers, traders etc. is made by cheque. For eg. a trader Govind Singh, gives a cheque of Rs. 20,000 to Nirmala Sahu. This cheque

belong to Rajasthan Bank Ltd. When this cheque will reach Nirmala Sahu, she'll go to the bank, deposit the cheque and the bank shall give her the money. This cheque is like money. But there is one risk. By mistake, if you happen to lose it, the finder can easily withdraw the money.

To encounter this problem, there is a solution. A cheque with two lines across on the left shows that it can only be deposited in the concerned account at a bank and no other person can withdraw the money.

Now this cheque can be deposited only in Nirmala Sahu's account. Even Nirmala Sahu cannot receive the money directly. This cheque will be deposited in Nirmala Sahu's account.



Another way of withdrawing money

These days, bankers in town have provided facilities for their customers by opening centres, called ATM (Automated Teller Machine), for the transaction of money. For this, the accountee is given a card. With the help of this card, the accountee can withdraw money from any of the bank's ATM centre.

Niranjan lives in Ambikapur. All of a sudden he had to go to Jagdalpur. He had money just to buy his ticket. He thought that on reaching Jagdalpur, he would withdraw money with his ATM Card. He reached Jagdalpur and at 10 PM withdrew Rs. 5,000/- from the ATM.

If, someone you know has an ATM card, you must see it. Find out how money is withdrawn from the ATM?



ATM Card



ATM Centre

Till now we've talked about how to withdraw money from the bank.

Electric funds transfer

Electronic fund transfer (EFT) is a system of transferring money from one bank account directly to another in a very short time, without any paper money. It is used for both credit transfers and debit transfers. This process can be done by through mobile phone and ATM also.

Loan from the Bank

Another important work of the bank is to give loans in times of need. Karim works in a factory. He does not have enough money to buy a house by giving full payment in cash. Karim went to the bank and discussed the matter with the manager. The bank manager told him that he could get a loan of Rs. 2 lacs. Karim bought a house with the help of the bank. To repay the loan, Karim pays back the money to the bank in instalments. In this way, Karim shall be able to repay the loan with interest in 10 years.

For what all purposes can a loan be taken from the bank? Find out.

Adhar Card - Right of Common Man

A unique 12-digit number is allotted to each & every Indian Citizen. This number in form of a card known as ADHAR CARD is allotted to all Indian citizens by the Indian Government. This ADHAR Card be used throughout India as an identification card for that individual Indian citizen.



What have we learnt?

Oral

1. How many types of accounts can be opened in a bank?
2. What is current account?

Written

1. Write, what are the advantages of a bank?
2. What all documents are required to get a 'Saving Account' opened?
3. What are the different facilities for the withdrawal of money from a bank?
4. How is ATM facility useful?
5. Why are signatures/thumb impression taken in banks?

Find and do

1. Collect information on how a bank works. You can visit a bank in your neighbourhood.
2. Visit a post office or hospital along with your friends or your elders and collect information about their work and system.



CHAPTER- 9

An Autobiography of the Mahanadi

You must have all seen a river and must have strolled along its banks and taken a dip.

Come, let's hear the story of Mahanadi in its own words.

Children, I am Mahanadi, Chhattisgarh's most important river. Before I begin my story, let me ask you a few questions.

Is there any river near your village or town. If yes, then collect the following information from your elders or teachers.

What is the name of the river?

What is the source of that river?

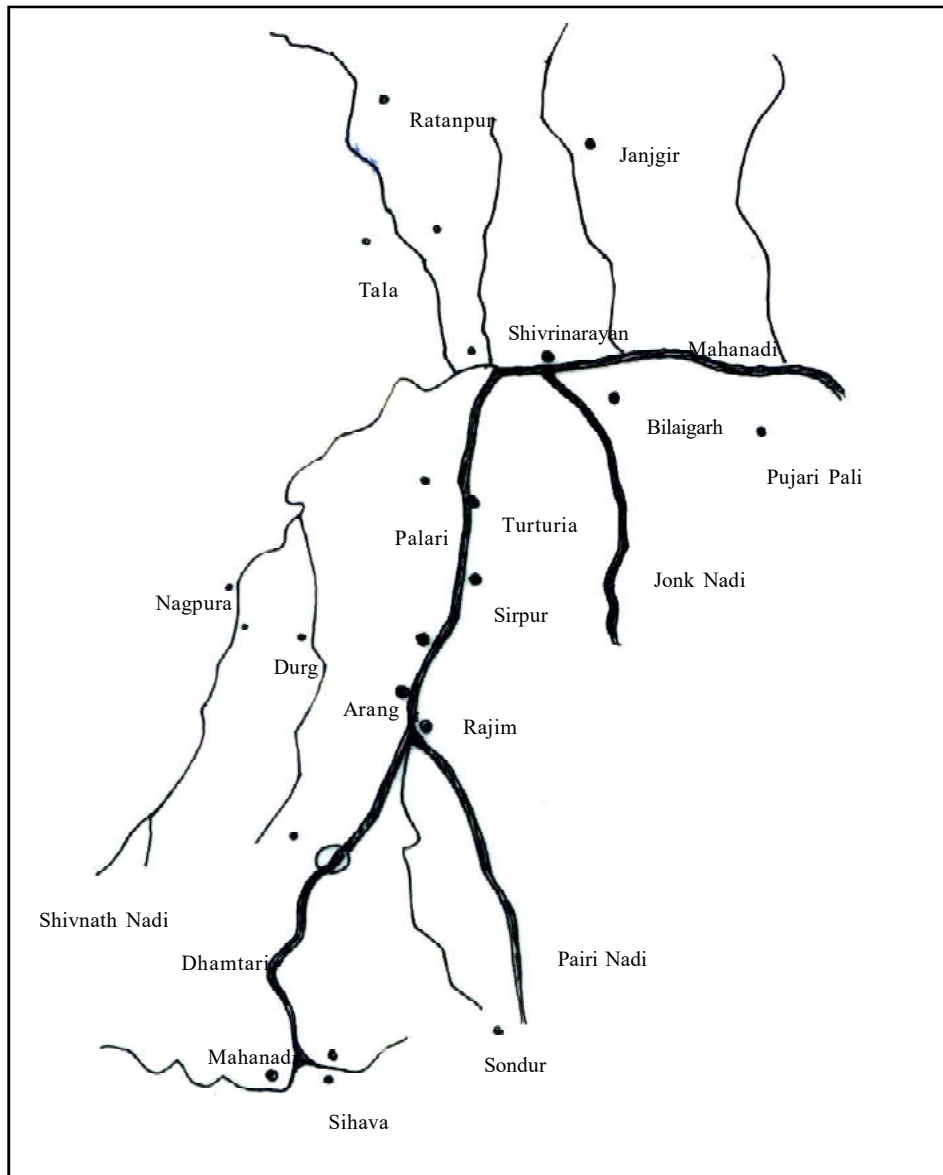
Where does the river fall ?

Does any other river join it or does it have any tributaries?

Is it filled with water through out the year?

Name the villages/towns situated on its banks?

Now, carefully look at the map given below. You must have seen that I emerge from the Sihava hills which is in the Dhamtari District. At the source, I look like a narrow stream. If you've identified the place, then mark it.



Now look at the map and find out the villages/towns situated on my banks.

On the map colour them with different colours.

The Gangrel Dam (Ravishankar Sagar Project) , in Dhamtari, is full of my waters. Find out Gangrel Dam in the map- My importance has increased ever since this dam has been constructed. Its water is used for irrigation which has helped increase crop production. The production of electricity could also be started due to the construction of this dam.

From Dhamtari in Chhattisgarh, I reach Rajim, an important centre of pilgrimage. Here, two more rivers - the Pairi and the Sondhur, merge into me.

Look for these rivers in the map.

Rajim has become more important due to the confluence of these three rivers. This place is a host to a fair during Mahashivratri, every year. Discuss with your teacher about this fair.



From Rajim, I further move to Aarang and reach Sirpur. The Lakshman temple, the Ravi temple and the Gundheshwar Mahadev temple at Sirpur are very famous. From Sirpur, I reach Shivrinarayan. Before entering Shivrinarayan, river Shivnath joins me. After this, I enter, Maa Chandrahasini Devi's holy place, Chandrapur, where another river the Mand merges into me.

While marking on the map you must have realized how long my journey is. You've seen how I emerge from the East of Chattisgarh and enter into the neighbouring state of Orissa.

On me at Sambalpur in Orissa, is situated a huge dam, Hirakund.

Like other rivers, I too carry silt, stones, pebbles, sand along my course. The silt brought by me is very fertile and thus useful. The silt found along my banks is used for farming and potters make clay vessels and toys with it.

You must have eaten the watermelons that grow along my banks.

Find out the names of other fruits/vegetables that are grown on the river banks.

How do I appear in the delta region of Orissa? Find out. Here I'm divided into small streams. The silt that I carry along my course deposits on my banks. This makes the land fertile. From here, I, with all my big and small branches flow into the Bay of Bengal.

Have you ever been to a river side? If yes, then where? What all did you see there?

I'm sure you must not have littered my banks. This reminds me that there are people who bathe, immerse flowers and idols on my banks. They also throw polythene bags and bottles in me.

The city sewage and industrial waste also flow into me. The continuous flow of filth in me has made my water impure. My water can no more be used for drinking for which I become very sad. After listening to my story, I am sure, that you will not pollute me or other rivers any more.

What kind of waste flows into the river and ponds of your area?

When dams are constructed on a river, a large wall is placed on the river. Due to which a large number of neighbouring villages are flooded. For rehabilitation of these villagers, they are provided places to live, school, electricity, hospitals, bus, train facilities.

Think and answer.

What are problems faced by people living in the dam area?

What have we learnt

Oral

1. What is the source of river Mahanadi?
2. Name the three town/cities situated on the banks of river Mahanadi.

Written

1. Where is the Hirakund Dam situated?
2. What are the advantages of a dam?
3. Name the tributaries which flow into River Mahanadi in Rajim.
4. At which point does the journey of River Mahanadi end?

Find out

1. Look for an autobiography of a river which flows near where you live. You can take the help of books or find out from your teachers or friends.
2. What can you do to save the rivers and ponds around you from being polluted?



CHAPTER- 10

How is iron made?

You must have used things made of iron either in your house, fields, factories, stations shops etc.

Fill in the table given below with things made of iron. Write its uses as well.

Table-1

Things made of iron	Its uses
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

There was a time when man did not know the use of iron.

What kind of life did man lead before the discovery of iron? Find out from yours teachers or elders and write in your own words.

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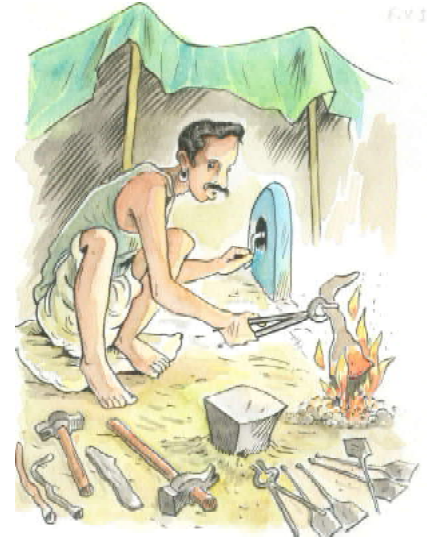
.....

.....

A blacksmith makes things of iron. In your village you must have seen a blacksmith making various things of iron.

Name the things that are made by a blacksmith.

1.
2.
3.
4.
5.
6.



Write in your own words, what a blacksmith does to make these things.

.....

.....

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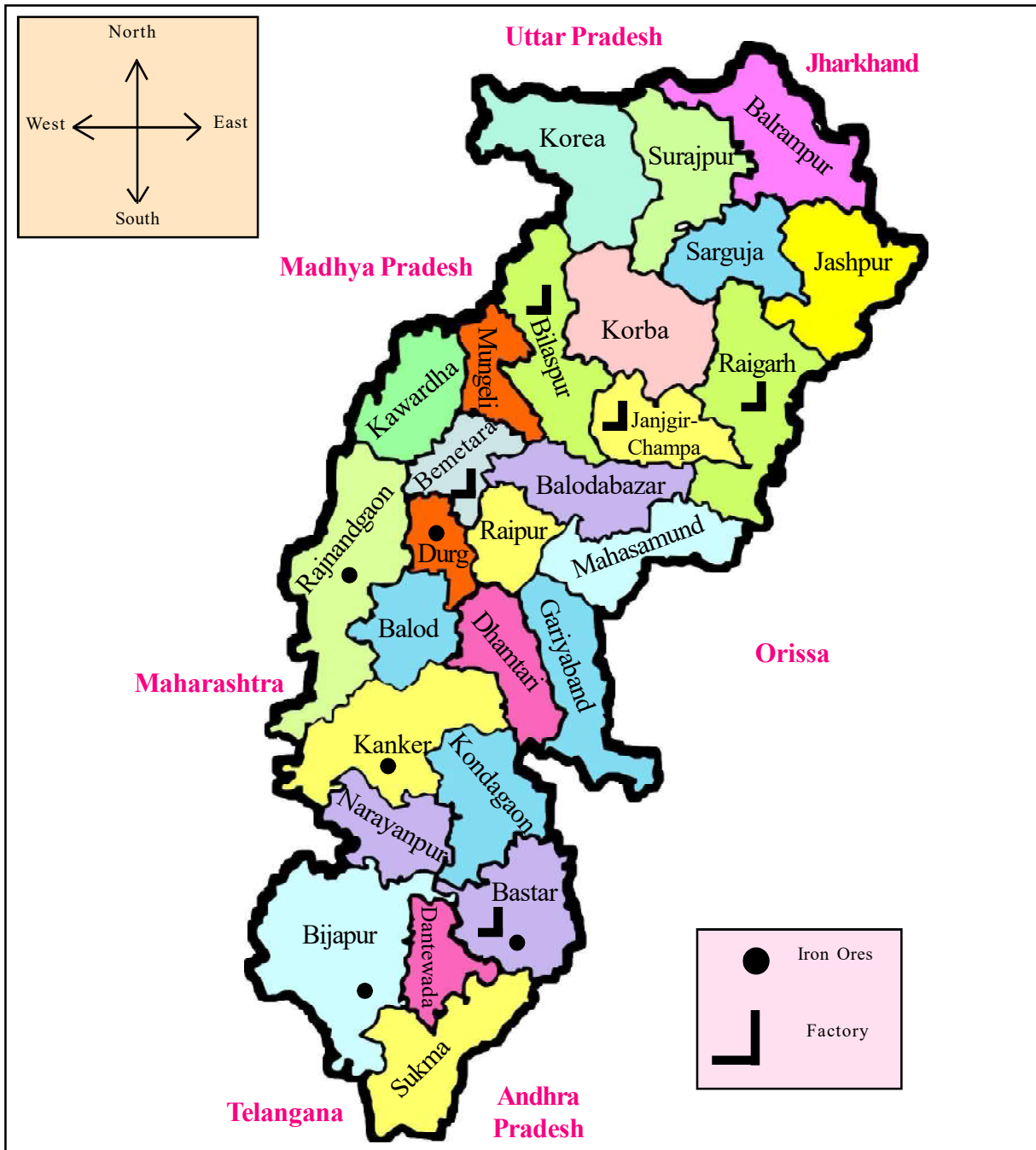
Have you ever thought from where do we get this iron from? Let's find out.

The same question was haunting Ram Singh. He asked this question to his uncle, who happens to work in an iron factory. He told Ram Singh, that iron is obtained from iron ore which is dug from the mines. The raw material, i.e. the iron ore is then taken to factories where it is processed and made into iron.

From where is iron ore obtained in Chhattisgarh?

Iron ore is found in abundance in the mines of Chhattisgarh. Raw iron is also called 'iron-mineral'. It is found under the ground in the form of rocks. It is dug out from the mines. The mineral is of two types - one of red colour and the other blackish-brown.

The iron - ore rocks are very hard to break. Hence, a number of labourers work day and night to break them. To break the rocks, holes are drilled through them and filled with gunpowder. The site is cleared of people before blasting.



Iron ore, extracted from the earth, is then loaded in trucks, tractors etc. and brought to factories.

Look at the map given and mention the following in the table given below with the help of the teacher :

- Districts where iron is found.
- Districts with iron factories/steel plants.

Table-2

S.No.	Districts where iron ore is found	Districts with iron factories
1.
2.
3.
4.
5.
6.

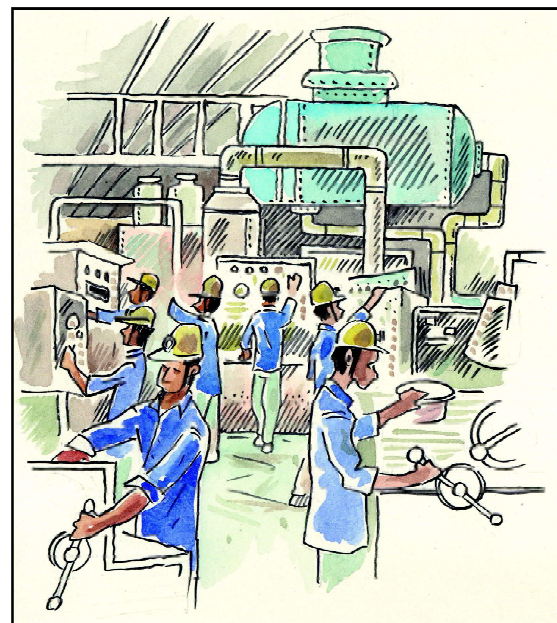
Factory

Have you ever seen a factory where iron is made from iron ore? If yes, then where?

.....

.....

A factory is a place where hundreds and thousands of workers work day and night. In a factory, the things manufactured are not for a few but for many people. For example in a cloth mill, the cloth manufactured in a day can fulfill the requirement of a village. This means that a factory is a place, where things are produced at a large scale.



Can you think of a few things that can be manufactured on a small scale at home but for those things factories are also there?

.....
.....

What are the things required to run a factory? Find out from your teacher, how and from where they are supplied?

.....
.....
.....

Bulk of iron is manufactured everyday in an iron factory. For this iron ore is required. There is a large iron factory in Bhilai, in the district of Durg, of Chhattisgarh.

Does anyone from your area work in this factory ? Collect some more information from him, like - How much iron is made everyday? How much water is required? etc.

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.....
.....

Approximately, 55 thousand workers work in this factory. This factory is in Bhilai, situated near river Shivnath. Due to the size of the factory and the number of people working there, a beautiful city has developed in Bhilai.

Find out from your teacher, why most of the factories are situated near a river?

.....
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Also find out the number of workers working in other factories of Chhattisgarh?

.....
.....

Is there a factory in your neighbourhood? What does it manufacture? How many people work in it?

.....

.....

How is iron made in factories?

First and foremost, lumps of iron are broken into small pieces.

It is then melted in a coal furnace with extremely high temperature.

When minerals are heated too much in furnace, some of the impurities get burnt and come out through tall chimneys. Some impurities get melted and come out through the lower outlet of the furnace. Pure iron is obtained in melted form. This is also let out through another lower outlet of the furnace. This iron is very soft and hence is called 'sponge iron'.

The iron that we take in use must be hard and durable. Just think, if the nail that is fixed on the wall softens what will happen?

To make the sponge iron hard and durable, some more minerals are added to it. After mixing it, it is again heated in the furnace to the extent of melting it. This iron is now made to cool.

The melted iron is put into moulds to make iron rods, railway tracks, wheels of a train etc.

Iron, manufactured in these factories is sent to different parts of the country through rail, trucks etc.

Safety of the employees

There are big furnaces and machines in the factories. The temperature in these furnaces is extremely high to melt the iron. Minute stone particles come out of the fast moving machines. Hence it is essential for people operating these machines to take safety measures.

What safety measures are taken in the factories? Find out.

The picture shows a worker working in an iron factory. Looking at it, tell the safety measures taken?



Pollution

The iron factories emit smokes and dust particles, which settle in the neighboring jungles, fields and village. The dirty water which comes out from these factories pollute the nearby soil and crops. People living in the surrounding areas are prone to many diseases because of the dust and smoke. To ensure that air, water and land are not polluted, the government has enforced strict rules.

Is there a factory in your neighborhood? If yes, then what are the problems that have come up because of it?

.....

.....

To control pollution, have the people taken any action against such factories?

.....

.....

According to you, what measures should be taken to control pollution caused due to these factories?

.....

.....

What have we learnt?

Oral

1. Name the famous steel factory in your state.
2. Name the machine used to join iron mesh on an iron gate.
3. Name the iron furniture, most commonly used these days.

Written

1. Why should more and more trees be planted near factories and industries?
2. How is sponge iron made?
3. Name the places in Chattisgarh from where iron ore is obtained?

Find Around you

1. List some other factories in your surrounding area.



CHAPTER- 11

The Jungles of Chhattisgarh

The jungle of Chhattisgarh

Were explored by Uncle's binoculars.

Birds at a place

Appeared near and easy to trace.

Uncle climbed a tree

And saw panthers there.

Then suddenly Kalu, the monkey

Played tricks and looked funny.

Make a note in your diary of animals that your uncle saw in the jungle.

29th April 2005

Today, it was quite hot. The local tribals were collecting honey in the jungle. I talked to them. They told me a lot of interesting things about the jungle which were unknown to me. They told me about the living creatures of the jungle and also the use of many wild plants.

20th June 2005

It was wonderful day today. I saw many species of plants, insects and birds. I saw an insect eating a bug.

There was a spotted bird catching a fish. For the first time I got to see a birds nest.



21st Sept. 2006

It was raining today. All the creatures of the jungle hid themselves in the cluster of trees. The thick vegetation was preventing these creatures from strong rain showers. There was total silence in the jungle. Because of the rain, even the

Have you ever been to a jungle?

What have you seen in a jungle?

Draw a jungle scene in your notebook.

Come, let's find more about the jungles of Chhattisgarh.

Part of Chhattisgarh has thick jungles whereas some parts have scanty vegetation. There are a variety of trees in these jungles. To name a few, we have Sal, Sagaon (Teak), Mahua, Sheesham, Haldu, Amla, Bamboo etc.



Sal Forests

Sal trees are most commonly found in the jungles of Ambikapur and Jashpur in Chhattisgarh. These areas experience heavy rain fall resulting in thick vegetation. Though a variety of trees grow here, sal is found in abundance. Hence, these jungles are named after the 'Sal' trees as, the Sal jungles

The sal jungles are recognized by these tall trees. Its bark is black, hard and twisted.

These trees shed their leaves in the months of March-April and look green all the year round. Such trees are called evergreen trees. These forests look green and remain cool even in summers.



Sal Tree

Apart from clay, sal trees require hot and wet climate to grow.

Use

Sal wood is used in construction. As it is firm and durable, it is used for making doors, windows furniture etc. It is waterproof and hence is durable. Earlier, its wood was used for laying rail tracks and making sleepers. Today, sleepers are made of cement or concrete. Apart from this, sal is also used for making bridges, boats, tools and implements. Its bark and leaves are used in leather industry. Its juice 'ral' is extracted to prepare incense, shoe polish, medicines for ear problems etc. The oil extracted from its seeds is used in making soap.



Flowers and leaves of sal

If you come across a sal tree, you must observe its bark, leaves, flowers, fruits etc.

If you happen to find sal wood, just look at it and tell how its colour is?

.....

How are the different parts of Sal used? (eg. its bark, seeds, fruits and leaves)

.....

Find out what are the things which are made with sal wood?

.....

Sagaon jungles

The sagaon jungles are found in the south-west areas of Chhattisgarh. There trees remain green only for a few months after the monsoons. By the end of winters, its leaves dry up and by summers the trees shed their leaves. As a result, the sagaon jungles look withered and deserted during the summer season.

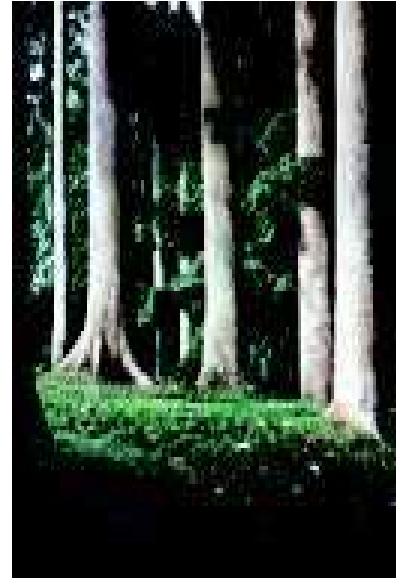
How are the various parts of sagaon tree useful? Find and write.

.....



Flowers and leaves of teak

Apart from sal and sagaon, many other trees like Sheesham, Mahua, Kher, Bija, Saja, Tendu, Bamboo, Arjun, Palash, Mango, Tamarind etc; are also found in these jungles. Tendu leaves, mahua, tamarind are means of livelihood for the local people. Many herbal plants are also found here. This is why Chhattisgarh is called the herbal state.



Sagon Tree

Many other varieties of trees are also found in these jungles. Find out from your elders how their leaves, wood, flowers, fruits etc. are useful to us. Fill up this information in a tabular form.

If the deforestation goes on how will the wild life survive? Think and write.

.....
.....

Find out from elders at house whether the jungle have increased or decreased in comparison to the past. If at all they have decreased then-

a) How has it affected the local tribals?

.....

b) How has it affected the wild life?

.....

Do you know that the elephants are killed for their horns (ivory). In the same way rhino for horn and tiger, crocodile and snakes for their skin are killed. In our country Tiger and in our state animal Bison and state bird PahariMaina's numbers have lessened so much that our government is protecting many forests to conserve these birds and animals. In these forest, people are prohibited to harm animals and the forest. These are known as sanctuaries.

Find out where are the sanctuaries for conservation of animals in our state.

Conservation of Forests

Cutting of trees is banned in forest. If the forest catches fire it causes

heavy loss. Hence, the workers of the forest department regularly clean the dry grass leaving patches of clean ground in the centre. Care is taken that no damage is caused to the trees by bugs and insects.

What have we learnt

Oral

1. Name the districts of Chhattisgarh, where we find dense forest.
2. How is the Sal wood useful to us?
3. Name the trees found in the forests of Chhattisgarh.

Written

1. Why is the Sal tree so special?
2. Why is Chhattisgarh called the herbal state?
3. Name the creatures found in these jungles.
4. How can deforestation affect us?
5. Compare the forests of sal and sagaon on the basis of the following titles-

No.	Title	Sal	Sagaon
1.	Districts where they are found		
2.	Use of bark		
3.	Use of wood		
4.	Use of seeds		
5.	Time when they shed their leaves		

Find around

1. What are the reasons for deforestation in your surrounding areas?
2. Find out from your elders the creatures found in these jungles.



CHAPTER- 12

Magic with Mirrors

Every house has a place for me. While combing your hair you look at the mirror. You can see me in a barbers shop. I am called by different names mirror; or looking glass.



Discuss and write the name of places where a mirror is commonly required.

Apart from looking at oneself, there are many interesting activities you can do with a mirror. Do these activities yourself.

Get a mirror from home when this chapter is taught to you. It is necessary to have a mirror for such experiments. Also get a mirror strip of 9 cms length and 8 cms. width. You can get such a strip act at a glass shop. Do this experiment yourself.

Experiment -1 Right-Left?

Every day you look at the mirror. Do we look exactly what we are? Look carefully, where our right hand appears in the mirror.

When you comb your hair with your right hand, which hand do you see lifted in the mirror? Right or left?

Experiment -2

If you close your right eye which eye will close in the mirror?

Write your name in a note book at book at it through the mirror.

How does your name appear in the mirror? Write exactly how it appears.

Experiment -3

Now write your name, class etc. exactly as each letter was reflected by the mirror. Can your friend read it or not? Now look at the mirror. What ever has been written by you, is it correct?

You must have seen letters written in mirror image in an ambulance or a fire brigade so that they could be read if looked through a mirror.

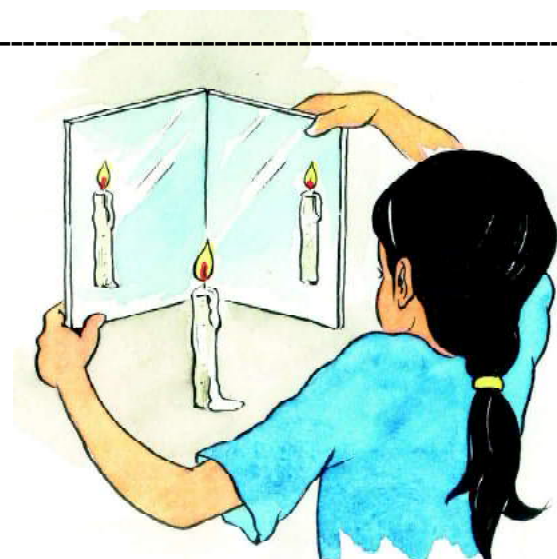
Are there some letters in Hindi that appear the same when looked at the mirror? Think and write and look at them in the mirror.

Are there some letters in English that appear the same when looked at the mirror? List such letters.

Experiment -4

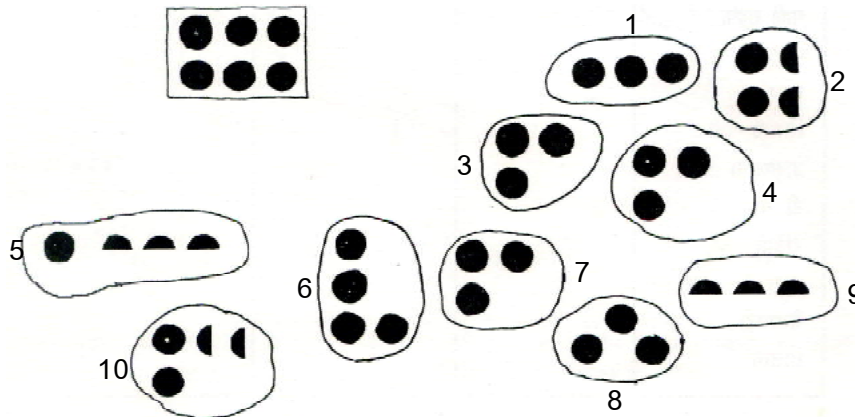
Keep two mirrors as shown in the picture and place any small object in the centre like pencil, candle, eraser or a Pebble.

Now tell, how many images can you see in both the mirrors.



Experiment -5 mirror magic

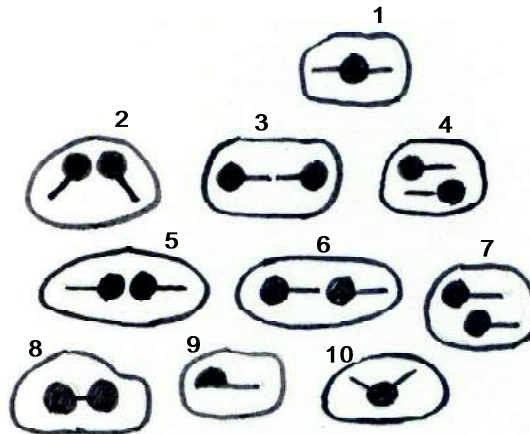
Given below are few pictures. There is a rectangular box at the top on left hand side. Keep the strip of mirror on images which would help to make the pattern given in the rectangular box.



Number the pictures with which the pattern could be completed.

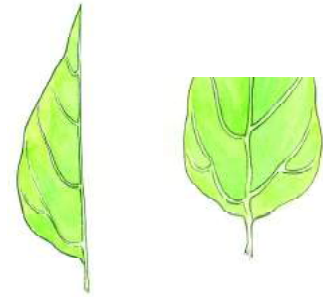
Turn upside down

Place the mirror on the square box in different ways.. Now keep changing the position of the mirror. Out of the patterns given below, (frame 1 to 10) which pattern can be formed.



Experiment -6 complete the Half leaf

Given below are pictures of two half leaves. Both the leaves have been cut into halves differently. The point from where it had been cut is a line. Keep a mirror on the broken lines of both the figures.



On looking at the mirror, which leaf appears to be complete?

Now bring few things from outside. Divide them into halves differently. Keep the mirror from where it has been halved and see if it is the same shape or a different one.?

Experiment -7 Reflection of Colours or game of colours.

Fill half a bowl with water. Now place the mirror strip in the bowl as shown in the picture. Now keep it facing the sun so that the sun rays fall on the mirror strip. The light reflected by the mirror should now reflect on a white wall.

What can you see on the wall?

What colours can you see on the wall? Find out the order of the colours and draw its picture.



Colours of Rainbow- Violet, Indigo, Blue, Green, Yellow. Orange and Red.



Rainbow

Experiment -8 Make your own Kaleidoscope

Till now you have conducted experiments using mirror strips. Now, let us make a Kaleidoscope with the help of mirror strips.

Take three strips of mirror. Tie them as shown in the picture. The side of the mirror which reflects the image should face inside only.

Now tie polythene on one side of the mirror strip. The polythene used should be transparent.

- Now fill it with pieces of coloured bangles.
- Now tie polythene on the other end also.

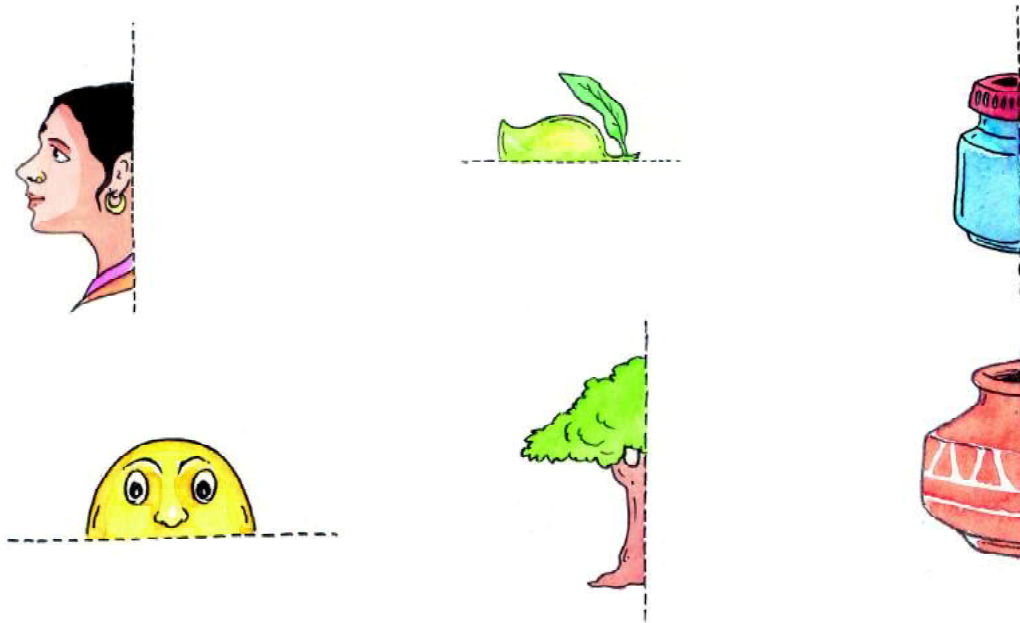
Your Kaleidoscope is ready. Look at it from one side and keep rotating. How does it look?



Draw patterns of different pictures that you have seen.



Given below are some half pictures. List the pictures which can be completed with the help of a mirror and which cannot.



What have we learnt

Oral

1. Which are the places where mirror is used?

Written

1. Tell how the following letters would look in a mirror.

अ इ A B O ठ C

2. How many colours are there in a rainbow?
3. Why is 'AMBULANCE' written in letters in mirror image?

Find and Do

1. Look for things around you in which you can see your reflection.



CHAPTER- 13**The Skin**

All living beings have an outer covering on their body, called skin. It is one of our sense organs and hence is sensitive to touch. We immediately get to know if a thorn pricks our feet. Even if somebody touches us, we can feel it.

What else does our skin help us to feel. Fill up the table below:

What happens?	You feel it or not?
If a fly sits on your body	-----
when wind blows	-----
When it is dry/wet	-----
If a thorn pricks you	-----
When it is hot/cold	-----
When you are hungry/thirsty	-----
If a thing is circular or square	-----
When it is light or dark	-----
Colours	-----
Whether smooth/rough	-----
Whether soft/hard	-----

What problems would you have to face, if there is no skin?

Is the skin on the various parts of the body equally sensitive to touch?

Experiment

Let's do an experiment. For this, you'll require 3-4 friends Blindfold one of your friend and ask him/her to put his/her feet on a white sheet. Now sketch the outline of his feet. Now ask him to sit with his legs stretched out so that his sole could be seen in the front. Now touch the various places of his sole with a pointed leaf. Take care that you press the leaf at different points with equal intensity. The blindfold must say 'yes' whenever he experiences touch. Ask another friend to keep marking the pressed points on the white sheet. Repeat it all over the sole. Whenever he does not experience touch, mark that area on the sheet with a 'x'.



Which part of the sole is more sensitive to touch?

Which part of the sole is not sensitive to touch?

Skin and sweat

An important function of the skin is to throw out waste water in the form of sweat.

In which part of your body do you sweat more?

When do you sweat more?



How is sweat useful for the body? Discuss this with your teacher.

Our Skin

On what part of the body do you have more hair?

Do all creatures have hair on their body?

Write names of two creatures who have hair on their body?

Creatures who have a hard covering on their skin.

Creatures whose skin is covered with feathers.

Creatures who have scales on their skin.

You must have seen a snail. When it moves, it takes out its body from its shell. As soon as it feels danger, it hides itself in its shell.

Some creatures have a lot of hair on their body. You must have seen a mongoose. It has a thick covering of hair all over its body.

Thorny skin

In the picture given, you can see a porcupine. It has a thick covering of spine which stand erect when it senses danger.

How are the spines on a porcupine's body useful to it? Find out.



Porcupine (Shahi)

Falling skin

You must have seen feathers falling off from the birds. If you want, you can collect the different features of the birds.

Have you ever seen a snake's skin? Is there any other animal who shed its skin?

Skin of animals

Some animals are killed for their hide or outer skin to make shoes, purses, jackets etc. After the death of these animals their hide are used.

Find out the names of animals killed for their skin.

There must be people making leather goods in your village/town. Find out, what things they make.

Hunting of animals

Many animals like snakes, peacocks, cats, rhinos are killed for their skin, despite a ban on their killing. Their skin is used for making different items.

Think if the use of things made of leather is stopped then do you think the killing of animals will be lessened? Which other methods are there which can stop killing of animals.

Animals that blend with the colour of nature

The skin of some creatures match their surrounding. Look for such animals that are not easily seen.



A caterpillar on a leaf



A hidden frog

How is it useful for the animals?

Our body is a home of many creatures

List the different ways to kill lice.

You must have seen dandruff on your scalp. While combing your hair you must have seen white shreds falling off. This is dandruff. Because of dandruff, the upper surfaces of the skin of our scalp dries off and start falling.

How is dandruff harmful to our hair? Find from your elders at home.

Here are other micro organisms that live on our skin. They cannot be seen with our naked eyes. They are found in our nails and the tiny pores of our hair.

What do you do to keep your skin and body clean?

What have we learnt?

Oral

1. Which sense organ helps you to feel heat and cold?
2. Name any two creatures which have a smooth skin.
3. Why is it important to clean our skin?

Written

1. How is the skin useful to us?
2. On which part of the body do you find thick skin?
3. How do climatic changes affect our skin?
4. What kind of skin do fish have?

Find Around You

1. Find out about some skin diseases.
2. Name some animals that are killed for their skin. What are the methods which can stop hunting of animals.
3. Write the characteristics of skin of any five animals.



CHAPTER- 14

Friction

Rub both your palms together. Now apply a few drops of oil on your palm and rub them again.

In both the conditions what difference did you feel on rubbing your palms?

.....

What may be the reason?

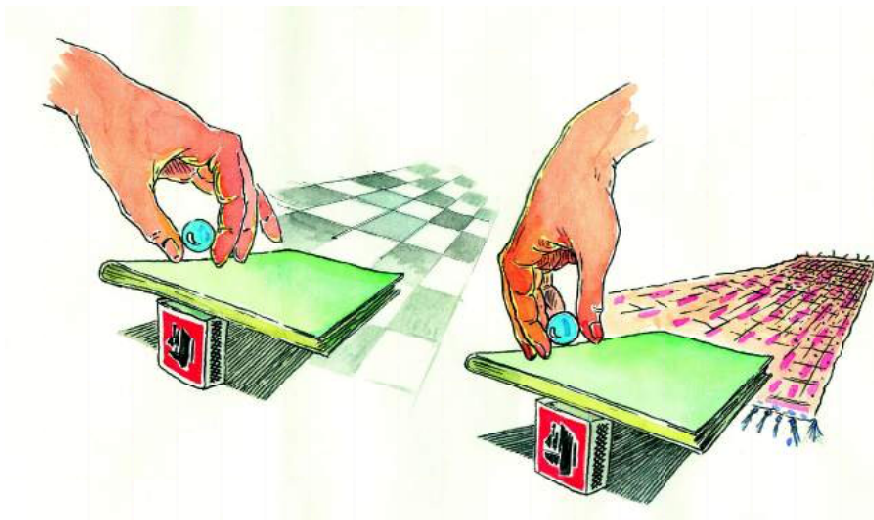
.....

Friction generates heat when two surfaces rub each other. This prevents the things from slipping and rolling.

Let's experiment

Experiment 1

As shown in the picture, keep the book in a sloping position on a plain surface and roll a marble on it. Now spread a rug on the plain surface and roll the marble again.



In which condition would the marble cover more distance?

.....

In which condition would the marble not go so far?

.....

Out of the two surfaces, which surface was able to produce more friction?

.....

Experiment 2

This time, roll the marble from different heights. Observe the effect on its movements.

Change the level of the slant of the book. Hold one end of the book with your hand and the other should touch the floor. Now, roll the marble from the end which is high to the plain floor. Mark with a chalk, the place where the marble reaches. Conduct the same experiment by changing the slope of the book each time.

The marble rolled at what height covers the longest distance?

.....

The marble rolled at what height covers the shortest distance?

.....

Is there a relation between the slope of the book and the distance covered by the marble?

.....

Experiment 3

Take a book. Keep it on the floor and push it with your finger. Now keep 3-4 or more pencils under the book in a vertical position. Now push the book.

Is less effort required to push the book?

.....

What do you feel is the reason behind it?

.....

Experiment 4

Whenever Neelam opens the door of her house, she has to exert a lot of effort and the door opens with a creak. Neelam's mother asked her to put oil in latches of the door. Neelam did what her mother was told. The problem solved.

On opening the door, why did it produce a sound?

.....

After oiling, why could the door be opened easily without any noise?

.....

Why are the parts of the cycle oiled at regular intervals?

.....



Think and Tell

On which rolling pan can you roll a chapati easily- a smooth wooden one or a rough wooden one?

.....

On which grinding stone would you be able to grind spices and chutney better?

.....

On what kind of surface can we walk easily?

.....

Read the table given below and answer the questions that follow-

S.	Condition	Friction	What happened?
1.	Walking on sand	A lot	difficulty in walking
2.	Stepping on the peel of banana while walking	very little	slip
3.	Walking on a road	appropriate friction	easy to walk

Can you think of a surface with no friction? What will happen there?

.....

What have we learnt?

Oral

1. What are the conditions that cause friction?
2. Why is there a risk of slipping on a smooth surface?

Written

1. Why are the board of a flour mill stitched?
2. How does friction help in walking and running?
3. Why do the cycles slip on applying breaks on a wet street during rains?
4. Why do the parts of machines regularly oiled/greased?

Find Around You

1. What measures are taken to reduce friction? Observe the things, machines etc. around you and find out.
2. What is the height of a slide in your school and why does it have a slope. Find out.



CHAPTER- 15

Ants

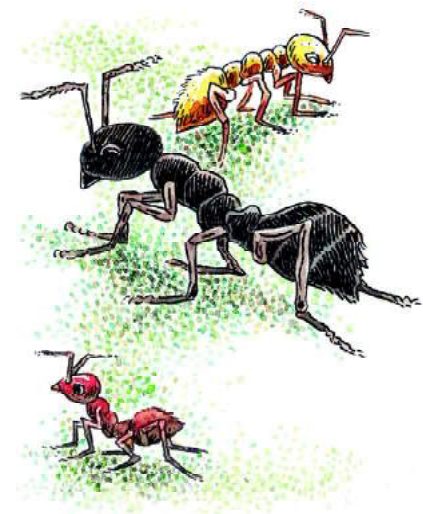
It's a very common sight to see an army of ants moving in a row, dragging a dead insect or attacking food items. It's interesting to watch them do so.

Where do you get to see the ants?

What are the various colours of ants that you get to see?

Now, let us observe the ants minutely. Go and get a big ant from somewhere. If you could get a big, black coloured ant it would be easy to observe it.

Use a hand lens to see the ant. Ask your teacher to help you know how a hand lens is used.



The Ants' body

With the help of a hand lens, see the ant. Now tell, how many parts is its body divided into? Compare the ant with the picture given.

With the help of a hand lens, observe what you can see in the picture.



The Head

Using a hand lens, observe the head of the ant. On the fore-head are two antenas/whiskers which help it to know the atmosphere, like- temperature, smell etc.

Name any two creatures found around you which have the similar structure of the head.

Can you see the eyes of the ant? How many eyes does it have?

Can you see eye lashes on its eyes?

The Legs

Looking at the ant, tell how many legs does it have?

Can you name some other creatures who have 6 legs?

Stomach

The portion below the chest is called stomach. Try and see the ant's stomach with a hand lens. Are there any organ attached to it?

Name the creatures with the same body structure.

Which other organism have you seen, whose body is divided into three parts as ants.

The Wings

Have you ever seen ants with wings? When do they appear? Find from your elders.

Do Ants Talk?

Look for a place around you where the ants are moving in a line. Now watch them carefully. Are the ants moving only in one direction or are they going to and fro? What are the ants doing while moving in a line?



If you watch them carefully, you'll see that they touch each others mouth and then move ahead. It seems as if they are talking to each other.

Wipe off the path on which they are moving with a wet cloth. Take care that no physical harm is caused to the ants.

Now tell, did the wiping off their path with a wet cloth cause any difference in their movements. Write your observations.

Many years ago scientists did such experiments. They came to the conclusion that ants, leave some substance behind which is smelled by the ant coming behind and thus they find in their path.

Have you ever been upset by the mosquitoes. Think how they come to know where you are? Mosquitoes find you by your body smell especially from the soles of the feet and also by your body heat.

Have you see any dog smelling something here & there?

A dog can identify that another dog has entered his territory by the smell of urine and faeces of the other dog.

Where can we use the dog's quality of identifying by smell? We also have the quality of smelling.

On which occasions do you need your quality of smell?

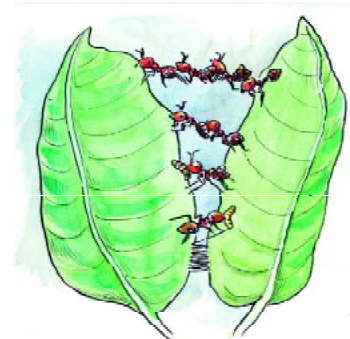
For example - By smelling we come to know that the food is spoiled. We also can smell and know that something is burning.

Chapada (चापड़ा)

There is a special kind of ant, which is commonly known as Chapada in Bastar.

Find out, which are the tree on which chapada or red ants are found.

This red coloured ant makes its nest on trees by sticking leaves and live in it in a group. Living in a group has its own advantages. eg. when you work together with your friends, the task is easily accomplished.



List the different tasks which become easy if done in a group.

How do the red ants stick the leaves?

From where do the ants get the substance to stick leaves? Let us try to understand.

In a group of ants, there is one male ant, one queen ant and the rest are all labourers. The queen ant only lays eggs.

To stick the leaves, the labourer ants use their babies as aids and they provide the sticky substance from within them.

It's interesting to know that the adult ants cannot make this sticky substance.



This is How the nest looks like

Hundreds of labourer ants, with the help of baby ants, stick leaves to make a nest. These red ants hold the white coloured baby ants in their mouths and squeeze them as we squeeze a gum tube, and a sticky substance comes out. This substance is used to stick leaves.

The entire process seems to be a mechanised one.

Try to look for a dried nest on a tree and see for yourself how the leaves are glued to each other. Also look for the place where the ants live.

The Red Ant Sauce (Chutney)

The tribals of Bastar ground the red ants, their eggs and their babies to make chutney. To make this chutney, they collect ants from the trees and ground them on a stone. Chilly and local spices are added to it.

This chutney tastes sour due to the presence of some sour substance present in the body of the ants. It is eaten with great fondness.

In Bastar these tribals can be seen selling this sauce in clay pots.

In some places, these red ants are boiled in water and given to patients suffering from fever and asthma.

What are the red ants called in your area? Find and write.

Different varieties of chutney

Name the different varieties of chutneys you've eaten and their main ingredients in the table given.

S.	Name of the chutney	Ingredients used?	How does it taste?
1.	-----	-----	-----
2.	-----	-----	-----
3.	-----	-----	-----
4.	-----	-----	-----
5.	-----	-----	-----

Which chutney is eaten in which season? Which chutney do you like the best?

Find out from people at home, the ingredients used to make any one chutney and note them. Write its method, in your copy.

What Have We Learnt?

Oral

1. Ants move one behind one in a line. How do they do so?
2. How many legs do the ants have?

Written

1. The body of an ant is made up of how many sections ?
2. Where are the ants normally found?
3. How do the red ants make their nests?

Look Around You

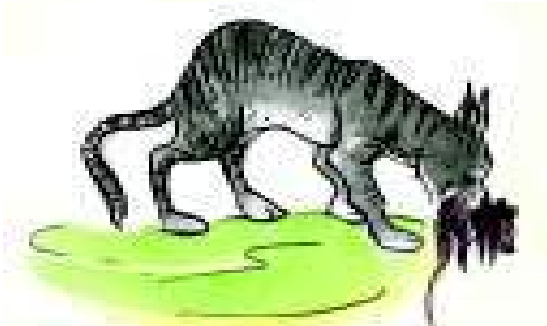
1. Observe the nests of the ants. Do different ants make different kinds of nests?
2. Many people feed the ants with wheat flour, sugar etc. and protect their nests. What is the belief behind this?
3. You must have seen ants carrying dead insects in their mouths. In comparison to their weight, how much weight can they lift? Guess.
4. Think, how ants are able to enter a packed container of food items? They cannot see the sweets, then how can they reach the container containing sweets?
5. Sometime ants bite also. Find out what treatment is given in ant bite?



CHAPTER- 16

Food of Animals

All living creatures need food to live. Do humans, animals, birds, insects etc. eat the same kind of food?



To help understand this, let's try to fill the table given on the next page.

In table 1 are written the names of a few creatures.

In the space provided against each creature, write what they eat?

Table - 1

S. No.	Name of creatures	Food
1.	Buffalo	Grass, grain, straw etc.
2.	Cat	
3.	Rat/mouse	
4.	Crow	
5.	Goat	
6.	Spider	
7.	Tiger	
8.	Hen	
9.	Vulture	
10.	Lizard	
11.	Bed bug	
12.	Worms	
13.	Monkey	
14.	Dog	
15.	Man	
16.	Honey bee	
17.	Mosquito	

Looking at the table, list the creatures that eat only plant food like fruits, flowers, grain, nectar etc.

Such creatures are called herbivores.

Name the creatures that eat other creatures or their eggs.

Such creatures are called carnivores.

Name the creatures that eat both plant food as well as flesh of other creatures.

Such creatures are called omnivores.

List the creatures that do not kill other creatures for food but still obtain food from other living creatures.

Such creatures are called parasites.

What is the main difference between carnivores and parasites?

Hunting Plants (Insectivorous Plants) -

There are some type of plants which hunt/eat mice frogs and insects. In these the pitchers plants (Nepenthes) is the most famous. These are found in Australia, Indonesia and in India it is found in Meghalaya state. It's shape is of a long pitcher with a lid of a leaf. From this pitcher a typical smell comes due to which the insects which enter the pitcher, are trapped inside and could not come out. Other examples of insectivore's plants are Utricularia and Drosera.



Nepenthes
(pitcher plant)

Fill up the table given below

Table 2

S. No.	Name of creatures	How is food eaten	Helping organs
1.	Cow	Chew and swallow	Lips, tongue, teeth
2.	Mosquito	Suck	A pipe like structure below the head
3.	Frog		
4.	Butterfly		
5.	Lizard		
6.	Dog		
7.	Housefly		
8.	Goat		
9.	Man		
10.	Bed-bug		
11.	Crow		
12.	Squirrel		

What would have happened, had there been no lips, teeth and tongue in our mouth.

What have we learnt

Oral Questions

1. What does a fish eat?
2. How does an elephant's trunk help it to have its food?

Written Questions

1. What is the difference between carnivores and herbivores?
2. Write names of five carnivores and five herbivores.
3. What are parasites? Give an example.
4. Differentiate the following creatures and fill up the given table Buffalo, Lion, Rat, Tape worm, Man, Honey Bee ,Spider, Crow, Bed-bug.

Herbivores	Cornivores	Omnivores	Parasites

Find Around You

1. You must have seen a cow chewing the cud. Why does it do so ?
2. Draw the diagram of an insectivorous plant in your copy.



CHAPTER- 17

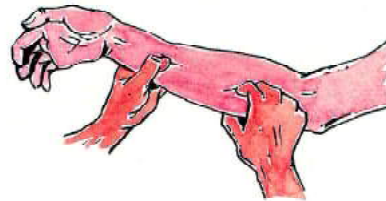
Bones

You all know that there are bones in your body. When a building is constructed, first and foremost iron rods are placed. Then it is covered with brick and cement. It is because of the iron rods that the structure takes its shape and becomes strong. Similarly, our body is made up of bones. The structure which comprises of bones is called skeleton. Can you see the bones?

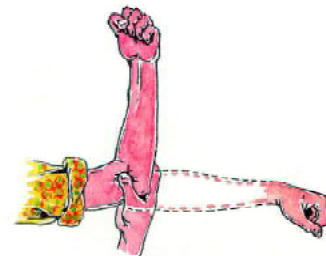
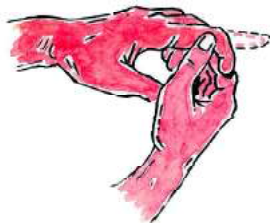
Can you see the bones?

Feel your bones

Let us feel the bones in our body. To find out, press your fingers, legs, arms, chin with your hands.



What did you feel?



Try to bend your arms, fingers and knees.

Do these body parts bend?

Prepare a list of the parts of your body that can bend.

.....

.....

There are many bones in our body which are joint together. The place where the two bones join together is called a joint. Can you bend only that part of your body which has a joint?

Where can you find all joints in your body?

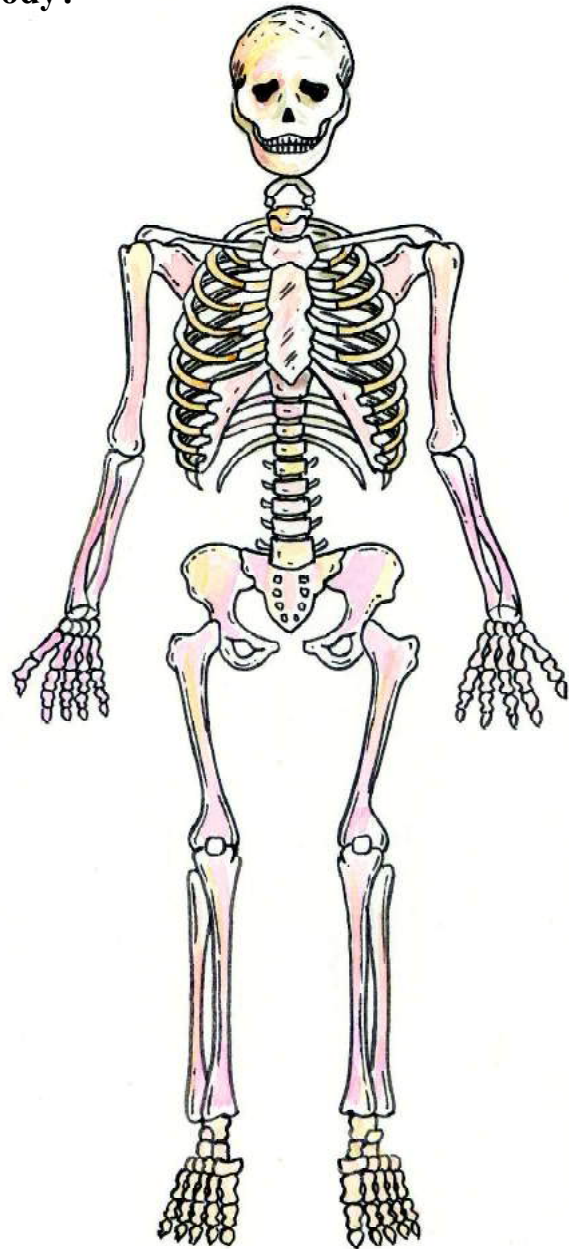
Feel it with your hands and list them.

.....

.....

In the picture given is shown a human skeleton.

- Carefully look at the different bones in the picture given. Now try and feel these bones in your body.
- Look for the joint bones in the picture of the skeleton. Try and identify these bones in your body.
- In the picture given, identify the parts of the body from head to toe and fill up the table given.
- How many bones are there in each part of the body? Try and count them. Now count the bones of the same body part in the picture given. Is there a difference in number? Similarly, count the bones of the other parts of the body and compare their number with the picture given. Now, fill up the table.



Part of the body	No. of bones	No. of bones shown in the skeleton system	How many bones could not be counted?
-----	-----	-----	-----
-----	-----	-----	-----
-----	-----	-----	-----
-----	-----	-----	-----
-----	-----	-----	-----
-----	-----	-----	-----

- Colour with red the bones that you could not count.
- Colour with blue the bones you were able to count.
- Wherever you find the joints, encircle them with black colour.

Had there been no bones in your body, what would have happened?

.....

.....

.....

.....

.....

Name some creatures who have no bones.

.....

.....

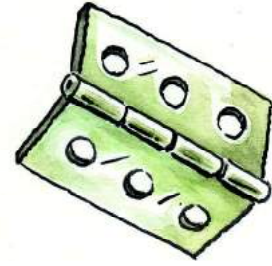
Do mosquitoes, house flies, earth worms etc. have bones?

.....

.....

Different types of joints

Each part of our body does different work for us while throwing a ball while playing or while exercising. When you do these actions, various parts of our body bend.



Bend your hand from the elbow. What happens?

.....

Stretch your hand and move it in the opposite direction. Tell what happened?

.....



Carefully, look at the doors of your class. The door is fixed to a frame with the help of a hinge which helps the door to open in only one direction.



Is the elbow joint like hinge ?

.....

Where are such joints present in your body? Write.

.....

.....

Take an empty coconut shell. Take a fused bulb that can easily be moved in the shell. Now, move this bulb in the coconut shell.



As the bulb moves in the coconut shell, the rounded head of the hand bone fits into a cup shaped cavity formed by the shoulder bone which allows movement in all directions. This is called ball and socket joint.

How is bowling done in cricket? Do this action yourself. How does your hand move?

.....

.....

Where do you find such joints in your body? Try to find them.

What have we learnt?

Oral

1. What is the structure of our body made up of?
2. What is Ball and socket joint?

Written

1. What are the functions of the bones in our body?
2. Explain with the help of an example what you know about ball and socket joint.

Find Around You

1. If you happen to see bones of a dead animal then discuss it in your class to find which animal is it from ?
2. What treatment would you give to a person with a fractured bone?



CHAPTER- 18

Haat (A Weekly Market)

Every Wednesday, when mother returns from the weekly market haat, she would give Munni and Krishna a packet each. They would take out Jalebis and Sev from the packet and eat it. She would get many other things. Every Wednesday, they would try to go with their mother, but she would refuse by saying she would take them the next time.



Why did she refuse to take Munni and Krishna with her to the haat?

.....

Munni asked her mother- From where do you get so many things every Wednesday?

"From the haat" - said mother.

Kishna asked his mother - "What is a haat?"

Mother told Munni and Krishna that in a haat you get fruits, vegetables, other eatables and necessary household items. The shops are temporary i.e. they open in the morning and close by evening.

People from the neighbouring villages come to the haat. They get to meet their friends and relatives. Mother told them that their aunt would come to the haat, today. On hearing this, Krishna and Munni jumped with happiness. Both Krishna and Munni wanted to see the haat as well as meet their aunt.

Do you have a haat nearby?

.....

On which day do you have a haat in your town/village?

.....

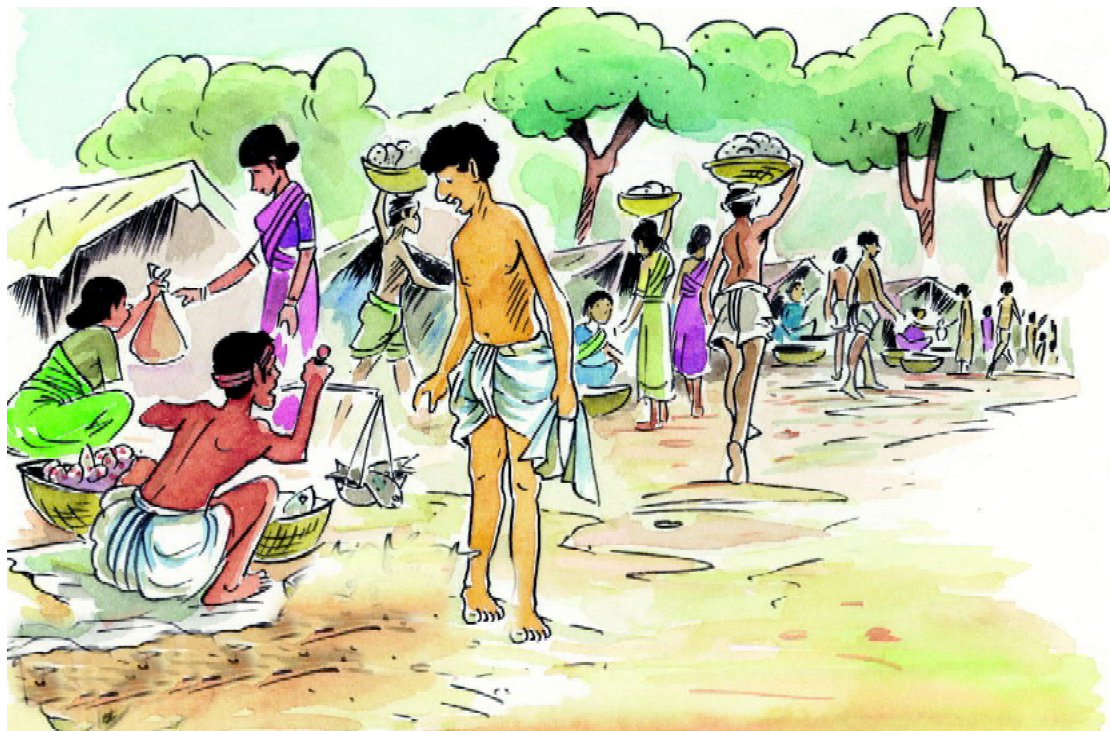
How do people in your town/village go to the haat?

.....

From which neighbouring places do people come to the haat in your village/town?

.....

Krishna and Munni went to the haat with their mother. After some time they saw many people in the ground. Some had bags and some had baskets on their heads. Some were walking, swinging their empty bags.



Go to a nearby haat with your friends and find out-

What all things can one get in a haat?

.....

From where do the shopkeepers come in a haat?

.....

Ask the shopkeeper the difference in the haat 10 years back and of now?

.....

Earlier, people would get oil, ghee etc. in tins and vegetables in hand bags. In what do they get these now?

.....

A variety of vegetables could be seen in a haat. Bitter gourd, lady's finger, bottle gourd, brinjal, green chillies, ginger etc. All were available. The green grocer was shouting aloud. "fresh capsicum for you".

Krishna and Munni had seen so much capsicum for the first time.

What are the things that are not grown in your town/village but are available in the haat?

.....

.....



In the same line ahead was a sweetmeat maker selling jalebies. Munni told her mother that she wanted to eat jalebis. Mother gave them five-five rupees each. On reaching the shop they found houseflies sitting on the jalebies. Krishna refused to have it.

What measures should be taken to prevent sweets shops from houseflies and dust in hotels?

.....

.....

Mother suggested that they should take bananas, for it is protected from dust and flies. On approaching the banana seller they heard him calling aloud-take butter like bananas, spotted bananas.

Krishna's mother purchased a dozen bananas.

On the other end of the haat were the cloth shops, where clothes were available both for children and adults.

Krishna said - "Mother, I want a shirt".

The mother replied - Only last month I had got a shirt for you. Not now, I'll buy you later.



Prepare a list of items in your house that are bought from the haat.

.....

Are these things available in the haat every time?

.....

Name the things available only in the haat.

.....

Just across the cloth shop was a shop where combs, locks, containers, ribbons, tikli, varieties of bangles, eye soot were kept. Mother purchased ribbon for Munni worth Rs. 3. She also bought bangles and combs for herself and Munni worth Rs. 15.

A little ahead was a shop selling rice and grain. There was a big crowd there. Bags of grain was unloaded from bullock carts and purchased grain was loaded on to it.

There was a toy shop nearby. Both, Munni and Krishna demanded toys. Mother bought them a car with a key and a doll.

It was evening and the haat had become more noisy.

The vendors were shouting aloud and asking the people to buy oranges, sweet oranges, fresh oranges.

It was getting dark now. Mother said to them-
Let's go home now.

Some shopkeepers in the haat were settling their accounts whereas the others were packing their things.

Both Munni and Krishna draw a picture of the Market.



**Draw the scene of a haat in your copy and display it in the class.
What are the different kinds of shops put up in the haat of your town/
village and what all things do you get there?**

.....

Describe the haat of your village/town in your own words.

.....

**Discuss with your teacher the difference between a haat and a market in
the town/village.**

.....

.....

Is the haat the same or different during winters, monsoons, and summers.

.....

.....

Why is there a difference?

.....

Fill in the table given below with different things you get in different seasons?

During winters	During summers	During rainy season
.....
.....
.....
.....

What have We Learnt?

Oral

1. From where do the village people buy the necessary items?
2. What all items are available in a grocers shop in the haat?

Written

1. What are the different shops set up in a haat?
2. What are the different fruits and vegetables that you have seen being sold?
3. What are the advantages of a haat?
4. What are the difficulties we face when there is no haat?

Find and Do

1. Find out the different places from where the shopkeepers get the things in the haat.
2. Find out from your people the problems they face to set up a haat during the rainy season.
3. The haat is a weekly market. Do you have an yearly fair in your village? What all happens in it? Find out.



CHAPTER- 19

Divyang : Not a Curse

Naresh had to go to another town. He had to collect things from his house and reach the railway station. He went to a crossing near his house to get an autorickshaw. There was an autorickshaw standing by the road. He was looking for the driver of the autorickshaw.



A young man, with the support of his crutches came near him and asked - where do you want to go?

Naresh said - I have to go to the station. The divyang man was ready to take him. Naresh could not believe that this young divyang man could drive an autorickshaw.

Naresh asked him with suspicion - How will you drive an autorickshaw?

He moved ahead with his crutches and asked Naresh to have faith in him.

Even though I am lame by one leg, I can drive an autorickshaw.

Naresh said - Never mind. I just have to reach the station on time.

The divyang man kept the crutches in his autorickshaw and drove towards the station with Naresh.

Naresh came to know from the autorickshaw driver that he had polio in his childhood. Because of polio one of his legs could not function. But he did not lose hope. He has completed education up to class Twelve. So he decided to work. He took loan from a bank and purchased an autorickshaw. Now he looks after his family and leads a respectable life.

Naresh wondered how a divyang man could take him safely to the station.

Is there a divyang person in your neighbourhood?

If yes, then what kind of physically challenged does he have?

Does he do any work?

You must have heard of pulse polio. Children from 0-6 years are given polio drops all over India by the Government. Polio is a kind of disease that occurs in childhood. In it either the legs get deformed or fail to function. Find out more about pulse polio from your teacher or health department.

Rajaram was visually challenged since childhood. Rajaram's parents got him admitted in a school for the divyang. He studied there. He even obtained higher education. Today he is working in a bank.

Even though he could not see, how did he manage to study?

There is a special script for the visually challenged. It is commonly known as 'Braille script'. As we look into the printed material and read, similarly, the visually challenged with the help of Braille script, read by feeling the words. Those who are visually challenged are made to practice reading and writing with the help of Braille script.

The person who invented Braille script was himself visually challenged. His name was Louis Braille. He lost his eyes in childhood while playing. But Louis parent did not lose hope. They did not want Louis to beg like other visually challenged people.



Though Louis could not see, still he would help his mother. Every day in the morning he would fetch water from the well. At times he would stumble on a stone and fall. But gradually he learned the way. His father made a thin stick for him. While walking Louis would feel the road with his stick. If his stick hit a thing he would change his way.

Louis would recognize some of the things with his smell. He would recognize most of the things with their sound. He would recognize his people with their voice.

Is there a visually challenged man in your neighbourhood who can tell things by smelling, touching or hearing?

How does he do his work? What are the things he can do by himself? For what all things does he take help from others?

Louis was a man of great self-respect. If ever someone took pity on him he would get angry.

Louis did not know how to read. He would talk to people and listen to stories. This helped him learn many things.

Books for the visually challenged

150 years back there were no books for the visually challenged children. At that time, each letter was embossed so that it could be felt and recognized. It was easy to recognize a few letters while the others were difficult to recognize.

Louis Braille had a solution to this problem. He invented an easy script for the visually challenged children to read. He made different signs for different letters in English.

He embossed the signs for English letters on a thick sheet with a thick needle. The other side of the sheet had embossed impressions. He adopted this technique.

Braille script in Hindi

The signs for Hindi letters is shown. This is Braille script in Hindi. It has embossed dots on a sheet of paper. A visually challenged person reads it by touching it.

While reading Braille script

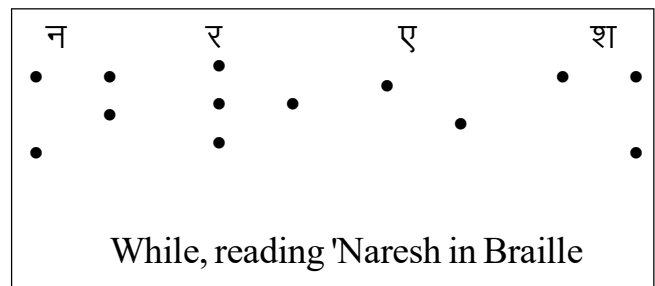
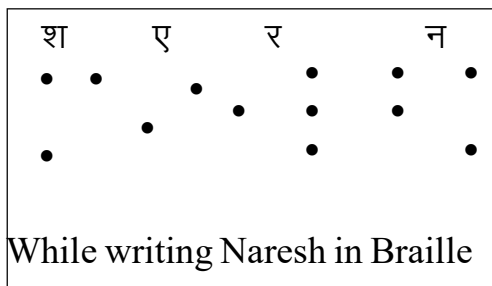
अ	आ	इ	ई	उ	ऊ	ए	ऐ	ओ	औ
क	ख	ग	घ	ङ	च	छ	ज	झ	ञ
ट	ठ	ड	ढ	ण	त	थ	द	ध	न
प	फ	ब	भ	म	य	र	ल	व	ळ
श	ष	स	ह	क्ष	ज्ञ	ऋ	ॠ	ॡ	
अं	अः	अँ	,	ऑ	ऐँ	ऽ			

How to read and write in Braille script?

Make holes on a thick sheet of paper with a thick needle. The embossed portion should resemble the picture shown below. Care should be taken that these signs are made from right to left. So that it can be read from left to right.

Out of the 6 dots, one, two or more are arranged in different order to make a letter. While embossing, each dot is given a number $\begin{matrix} 1 \bullet \bullet 4 \\ 2 \bullet \bullet 5 \\ 3 \bullet \bullet 6 \end{matrix}$. But on reading the order changes. the order will be $\begin{matrix} 4 \bullet \bullet 1 \\ 5 \bullet \bullet 2 \\ 6 \bullet \bullet 3 \end{matrix}$ for e.g. for 'त' $\begin{matrix} 1 \bullet \\ 2 \bullet \end{matrix}$ sign is made. On reading it will appear to be $\begin{matrix} \bullet 5 \\ \bullet 6 \end{matrix}$. It will appear so because while reading the page is turned.

In our devnagari script we have 'मात्रा' 's' e.g. नरेश has र after न and an 'ए' मात्रा on it. But Braille script has no vowels. You will have the signs in this order - first न , followed by र, ए and श।



One more thing to remember. While writing if you write from right to left, only then can you read from left to right.

On the previous page is given a reading chart. Can you tell how these signs are made while writing.

Write your name in Braille script with the help of a nail or a thick needle.

Try and read the name of your friend in Braille script. Are you able to read the name?

These days many books are available on book of Braille script. Every district has a school for the visually challenged .

If ever you happen to come across a book of Braille script you must try to read it.

You must have seen divyang person begging for food and money.

Think, is this right?

What should be do make them able?

Find out which institution are working for them?

What schemes are the government running for them.

Many times people make fun of viyang person. Is this right?

What have We Learnt?

Oral

1. How could Louis recognise the things?
2. What was the reason for Ramesh being divyang?

Written

1. What is the difference while writing and reading Braille script and why?

2. The visually challenged, with the help of Braille script, can express their thoughts and can also know about others, opinions. Similarly, how do the dumb convey their thoughts to one another.
3. How can you motivate to make divyang able.

Find Around You

1. Observe a visually challenged man in your neighbourhood. Find out how he does his work?
2. Collect information of divyang persons from news papers and magazines.
3. What are the divyangatas other than being visually challenged. How do they live an easy life?



CHAPTER- 20

Solar Energy

It was 9:00 am on a Sunday. Sonu sat beside his elder brother Sunil and was reading a newspaper.

At that very moment, mother called out from the kitchen "Oh! There is no gas left in the cylinder. How shall I cook food now?"

Sunil was listening to this. He said, "Today, we'll cook food without using fire".

Sonu asked, "But how"

"With the help of solar energy! Uncle has a solar cooker. We'll use it to cook food," said Sunil. Sonu asked with great interest, "Tell me about solar energy and how food can be cooked in it."



Sunil said, "Yes, definitely. But first you'll have to answer my question."

After taking bath, you dry the wet clothes in the open and they dry.

How do your clothes dry?

.....
.....

What things can be done with the help of the heat of the sun?

.....
.....

Sunil and Sonu went to their aunt's house.

At their aunt's house a box was kept in the open. Sonu saw that the lid of the box had a mirror fixed to it. Inside the box were four containers painted with black varnish. The inside of the box was also painted black.

Sonu observed that the rays of the sun fall on the mirror and were reflected back to the containers.

Sunil said, "The containers are heated by the rays of the sun which help to cook the food inside it."

Sonu asked, "Why are the containers and the inner surface of the box coloured black?"

Sunil asked Sonu, "During summers, do you feel more heat on wearing white or black coloured clothes."

Sonu answered promptly that on wearing black coloured clothes we experience more heat.

Sunil explained that it was because of this reason that the containers and the inner surface of the solar cooker are painted black.

"What things can be cooked in it?" asked Sonu.

Sunil told Sonu that one can cook dal, rice, idli, cake, vegetable etc.

Sunil and Sonu placed dal and rice in the solar cooker. The mirror lid of the cooker was opened and was positioned in a way that the sun rays fell directly on it and reflected the heat onto the containers. After approximately two hours they opened the lid and found the rice and dal cooked.

Sonu said, "Can we too make such a solar cooker?"

Sunil said, "Surely, why not."

The method of making a solar cooker as told by Sunil is given below:

Make Your Own Solar Cooker

To make your solar cooker divide the class in groups of 2-3.

Take an empty carton box. Paint its inner surface black. Take 4 metal containers that can fit into it. Paint the outer surface of these containers with black varnish. On the inner surface of the lid, paste a mirror or a shiny sheet. Open the lid and fix a transparent sheet on the box. Put some rice and dal in the containers and keep them in the box.



Now position the lid in such a way that the rays of the sun fall directly on the mirror/shiny sheet and is reflected to the containers kept inside. Open the containers after 2-3 hours. Is the food cooked?

Sonu said, How wonderful is this solar energy! How easily can we get it without spending anything.

Solar Lights

Sunil said, "We can also obtain electricity from solar energy" that can convert the solar heat into electricity.

These solar cells are fixed on the top most part of the house where maximum sunlight is available.

In many cities, solar cells have been placed which help in lighting tube-lights bulbs etc. Sunil further said, "Now you can even run the vehicles with the help of solar energy."



What have We Learnt?

Orals

1. Write any two uses of solar energy?
2. Why is black colour used in solar cooker?

Written

1. Which fuel is used for cooking in your house and in the neighbourhood?
2. During which seasons a solar cooker can not be used?
3. What are the benefits of a solar cooker?
4. Why is a mirror fixed to the solar cooker?

Find Around You

1. If someone has a solar cooker in your neighbourhood, observe it and find out how food is cooked in it.
2. Make a model of the solar cooker with the help of your friends.



CHAPTER- 21

Talagaon

The teacher said, "In class IV you must have read about the caves of Ramgarh. There are many places of historical interest in Chhattisgarh. One of them is Talagaon. Today, we shall talk about this place.

Arya : Teacher, where is Talagaon and why is it famous?

Teacher : It is 32 km's away from Bilaspur, situated on the banks of river Maniyari. Though it is like any other village but there are many ancient temples which are now in the state of ruins.

Does your town/village also have ancient temples or monuments for which it is famous?



Picture - Devrani Temple

There are two famous temples in Talagaon. They are popularly known as 'Devarani-Jethani temple. Looking at the picture given below, can you tell the material used for making these temples?

Tushar : Teacher, when were these temples built?

Teacher : As per the information given on the inscription rocks, they were built some 1500 years ago. Red sandstone was used for making these temples.



Picture - Devarani Temple

Kirti : Teacher, from where was red-sand-stone obtained in large quantities?

Teacher : Interestingly, red sandstone is found locally in Talagaon, which is situated on the banks of river Maniyari.

How was red-sand transported for the construction of temples?

Were there trucks and tractors some 1500 years ago?

How were big rocks transported from the river to the construction site?

If such temples were to be constructed in the present, how would the rocks/stones be transported to the construction site?

Ananya : Teacher, the idol of which deity is found in these temples?

Teacher : The temples made in Talagaon are known as Devarani - Jethani Temples.

Out of the two, the 'Devarani' temple has an idol of Shiva. Earlier, both were Shiva temples. Today, the Jethani temple stands in a complete state of ruin whereas two/ third of the Devarani temple is still safe. Being an ancient temple one can now just see the debris. In the process of clearing the debris, metal coins, idols etc. were found. A large, wonderful stone idol of Rudra Shiva was also excavated from the site. The idol is unique in itself as it is different from the idols of Shiva found all over India.



Picture - Jethani Temple

Mehak : Teacher, what is so special about this idol that it is different from the other idols of Shiva?

Teacher : As it is seen in the picture given, this stone idol of Shiva has 10 faces. All the faces are different from each other. On these faces there are carved images of a cobra, peacock, chameleon, crab, fish, snake and other such creatures. This idol is 9 feet high and 4 feet wide. Its circumference is about 2.5 feet and weight 5000 kgs. It is carved out of a single stone.

Krishna : Teacher, why are the images of different creatures carved on Shiva's idol?

Teacher : There can possibly be two reasons. Firstly, as Shiva is also called 'Pashupati', these images may symbolise that he's the lord of the creatures. With this imagination, the sculptor must have carved out the images of various creatures. Secondly, it could have been to save these creatures who are an integral part of nature. Keeping this in mind, the sculptor must



have carved out the images of various animals.

Have you taken any measures to save creatures found around you?

Do sculptors of today carve out images of birds/animals in the statues that they make?

Dolly : Teacher, why this village is named Talagaon?

Teacher : My grandfather said that in ancient times there existed a temple of Goddess Parvati in the form of Taradevi. Probably, that is why this village must have been Taragaon which slowly and gradually changed into Talagaon.

Find out from your elders how and why the name of your village/town was given to it.

Vibha : Teacher, what are the other places of interest in Talagaon?

Teacher : Every year tourists from India and abroad come in large numbers to see the famous idol of 'Rudra Shiva' found in Talagaon. Seven days fair is held every year during Shivratri. Pilgrims from neighbouring areas visit the fair situated on the banks of river Maniyari. Talagaon has a lot of natural beauty. A few kilometres away is the confluence place of River Maniyari and River Shivnath.

The children were very happy to learn about Talagoan and requested their teacher to take them for a visit to Talagoan.

Name some other ancient places in Chhattisgarh? Find out from your teachers or elders why those places are so special?

Some people write their names on historical monuments and building.

Do you think this is right?

What can you do for preserving such historical monument/buildings?

Is there any museum in your village/town or nearby city? Find out what all are there.

Museums are places where very old ancient things are kept. These things could also be those which were found while digging inside the earth. From these things we can know how people of that time lived, what all things they used, what all they made.

Think if these things were not preserved, could we have been able to know so much about them.

Make your own Museum -

Collect old items from your surrounding as utensils, farming tools, handicrafts, coins other daily use items as watches, slippers, bells etc. and display them in a place. Remember to write same words for each item.

What have We Learnt?

Oral

1. The ruins of which two temples have been found in Talagaon?
2. The idol of which God is there in 'Devrani temple'?
3. What kind of stone is used in the temples of Talagaon?

Written

1. Compare the temples of Talagaon with any other temple.
2. When and during which dynasty were the temples of Talagaon constructed?
3. What is special about the Shiva idol excavated from Talagaon?
4. From where were the stones used for the construction of temples, obtained?

Find Around You

1. Visit the nearby historical places and fill up the table given below with the information collected.

S. No.	Name of Place	Types of buildings (Temple/momument etc.)	Year of Construction	Name of the founder	Speciality

2. Observe the nearby ancient monuments and find out what measures are taken to preserve them?
3. Collect and past picture of famous historical monuments and building of the world in your copy?

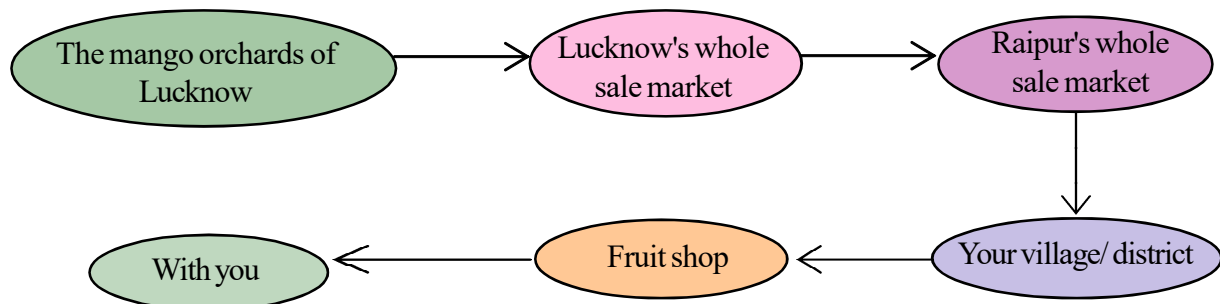


CHAPTER- 22

Means of Transport

At the time of teaching this lesson, don't forget to hang a map of India and Chhattisgarh on the wall.

You must have eaten or heard of the famous 'dashari' mangoes of Uttar Pradesh.



You buy mangoes from a fruit shop. The fruit seller gets mangoes from the whole sale market. The mangoes come to the whole sale market from Lucknow in Uttar Pradesh.

Can you describe the journey of mangoes from the orchards of Uttar Pradesh to you?

.....

Write names of two more things that are brought to your village/town from another state.

.....

Are there things in your village/district that are sent to other places?

.....

How do you think these things are transported in and out of your village/ district. Discuss and write.

.....

Find out from your elders, how people travelled from one place to another 25-30 years back?

.....

How do you go to meet your relatives who stay far away from your house?

.....

Road Transport

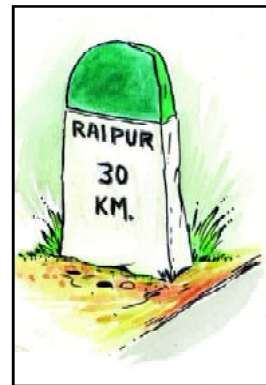
Look at the road network on the map of India. On one side of the map are given symbols. With the help of these symbols, identify the roads.

On the map of India find the road that links Bilaspur with Lucknow. Trace the road line with your finger and write the towns/cities that fall on route between Bilaspur and Lucknow.

.....

Now look for the state Highway connecting two or more district headquarters of a state. A road connecting two or more states is called 'National Highway'.

Look at the pictures given below. Milestones on the road side with yellow border on the top indicate 'National Highway' whereas milestones with a green border on the top indicate 'State Highway'.



In the state map of Chhattisgarh try to identify the National Highway.

.....

What kind of road do you have near your village? National Highway or state Highway or none of these?

.....
What kind of road do you have? Road made of tarcoal, gravel or 'Kaccha' road?

.....
Find out from your teachers or elders the difference in the roads of National Highways, state Highways and roads that link a village to a town.

.....
Each vehicle has a number plate on which is written the state code, district code and its registration number.

If there is any vehicle in your house, find out the number written on it?

.....
Kundan and Chandan are two brothers. Both live in Pendra. They write the numbers written in the front and back of each truck, bus or car that pass that way.

The numbers which they noted a few days back are as follows :

CG - 04 J 2356 _____

MP - 09 K 0091 _____

RJ - 27 SC1234 _____

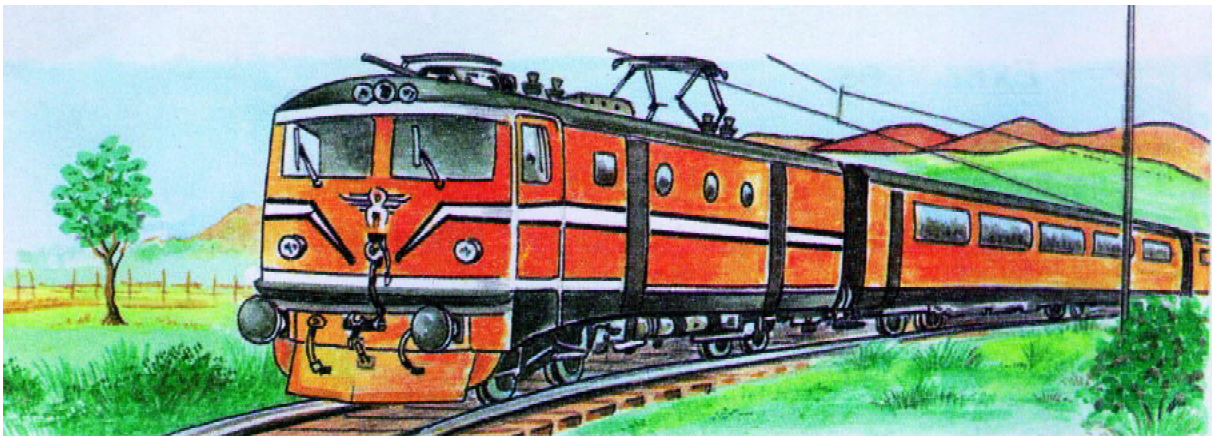
Ask your teachers or your elders as to which state these vehicles belong to?

.....

What is the district code no. of vehicles of your district?

.....

Rail Transport



Means of Transport

Apart from carrying passengers trains are also used to transport goods from one place to another. Train used for carrying goods is called freight train whereas trains used for carrying passengers are called passenger trains.

Meera travelled with her family on train and then a bus. Her father bought tickets.

Find on which kinds of transport you need to buy ticket?

Have you seen a railway ticket? What all informations are there in a ticket? We find the following informations in a railway ticket -

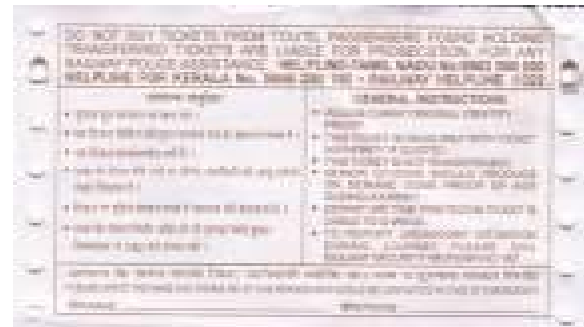
Train Number

Starting date

Destination Date

Berth Number

Fare



As the railway ticket we can get information from Railway Time Table as - From which station the train will start. At what time it will reach any station, how much time it will stay there and when it will leave it. We can buy a Railway Time Table from any railway station.

Look at the part of the time table of the train in which Meera travelled and try to answer these questions.

18237 Chhattisgarh Express from Bilspur to Amritsar.

S.N.	Station	Arrival Time	Departure Time
1.	Bilaspur	Start	14.15
2.	Bilha	14.33	14.35
3.	Bhatapara	14.58	15.00
4.	Hatbandh	15.13	15.14
5.	Tilda	15.23	15.25
6.	Raipur Junction	16.10	16.20
7.	Bhilai Power House	16.40	16.42
8.	Durg	17.10	17.15
9.	Rajnandgoan	17.36	17.38
10.	Dongargarh	18.00	18.02

From which station did Chhattisgarh Express start?

How much time did it stay at Bhatapara station?

When did the train reach Raipur?

Look for the rail route in the map of India. Identify the rail route from Raipur to Howrah.

Make a list of stations that fall on route Raipur to Howrah. You can take the help of the railway timetable.

Name a the stations that fall enroute Raipur to Howrah.

Have you seen a freight train? What all things can be transported in it? Approximately, how many coaches are there in a freight train? Whenever you happen to visit a railway station, try to collect answers to these question.

Is there a railway station in your village or in your neighbouring village/ town? If yes, then find out its name.

.....

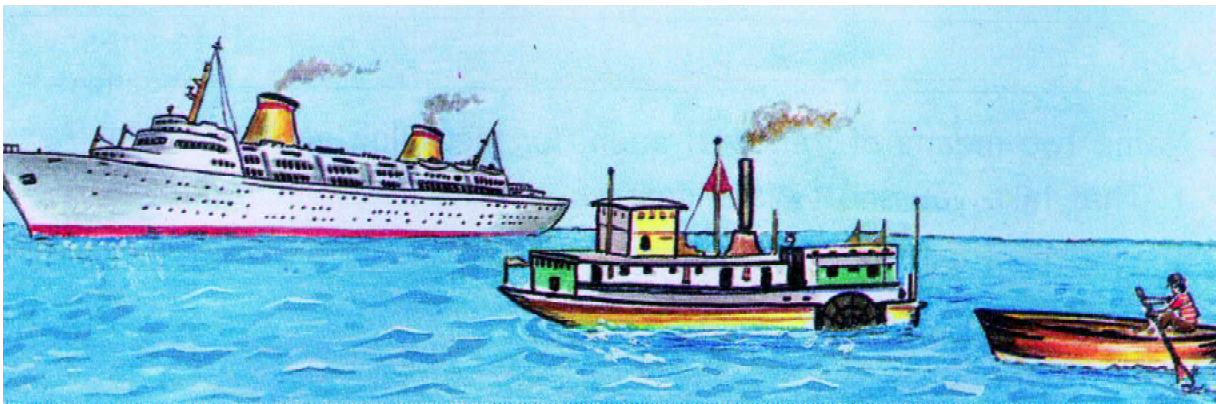
Which passenger trains pass through your village?

.....

Water Transport

Write the names of different means of water transport that you know.

.....



Big boats and streamers carry passengers and goods to villages and towns situated on the banks of big rivers.

People living in coastal areas use sea routes. To travel from one country to another ships are most commonly used.

Goods like tea, fruits etc. are sent from India to other countries by ships through sea route.

Many things like petrol, is brought from other countries by ship.

From where do petrol and diesel come from in the pumps?

They are formed when plants and animals are buried deep inside the earth for many long years. When these are inside the earth these are in form of strong smelling thick oil. Scientists discover the places where these oils are found deep inside the earth and then these oils are extracted using big pipes and machines. This oil is then refined to make petrol, diesel, kerosene, cooking gas, grease etc.

What is the price of petrol and diesel in your area?

What will happen in your village/ town if these petrol & diesel are not available for a week?

Now you may have come to know how useful petrol and diesel are for us and why we should protect them.

What measures will you adopt for its conservation ?

Do we have any problem with the smoke emitted from our vehicles? If so what type of ?

Do we have any problem due to the loud noise of the horn? If so what type of ?

Air Transport



Shekhar lives in Raipur. He has to leave for Delhi for some work. It takes approximately 25-28 hours to travel by bus or train. Do you know of any mode of transport that can help Shekhar reach Delhi in 2-3 hours.

The place from where a plane takes off and lands is called an airport.

Name the different town/cities in Chhattisgarh that have an airport.

.....

From here, where can one go in an aeroplane?

.....

With the help of your teacher, prepare a list of places where air travel facility is available

.....

.....

Air transport is an important mode of transport for people travelling from one country to another. Travelling by air saves our precious time. People can travel long distance in a short time, though this journey is very expensive.

If someone known to you has ever travelled in an aeroplane, ask his/her experiences and list them.

.....

What have We Learnt?

Oral

1. Which means of transport is most commonly used in your village/town.
2. Name the various means of road transport used to carry goods from one place to another.
3. What is the important means of water transport.

Written

1. Write the names of two 'State Highways' of Chhattisgarh.
2. What precautions must we take while travelling by train?
3. Which mode of transport can be used to send goods abroad?
4. What are the advantages of air transport?
5. What all information can you gather from the numbers written on the number plate of a vehicle.

Find And do

1. Collect information of the important National Highways.
2. Recollect your memories of a train journey.
3. Collect pictures of the various means of transport.



CHAPTER- 23

A Visit to Goa

The school reopened after Diwali break. There was a lot of excitement in the class. All the children were sharing their experiences with one another. Some had gone to their uncle's place and some to their grandparent's. Everyone in the class knows that Salim had been to Goa to stay with his uncle, who works on a ship.

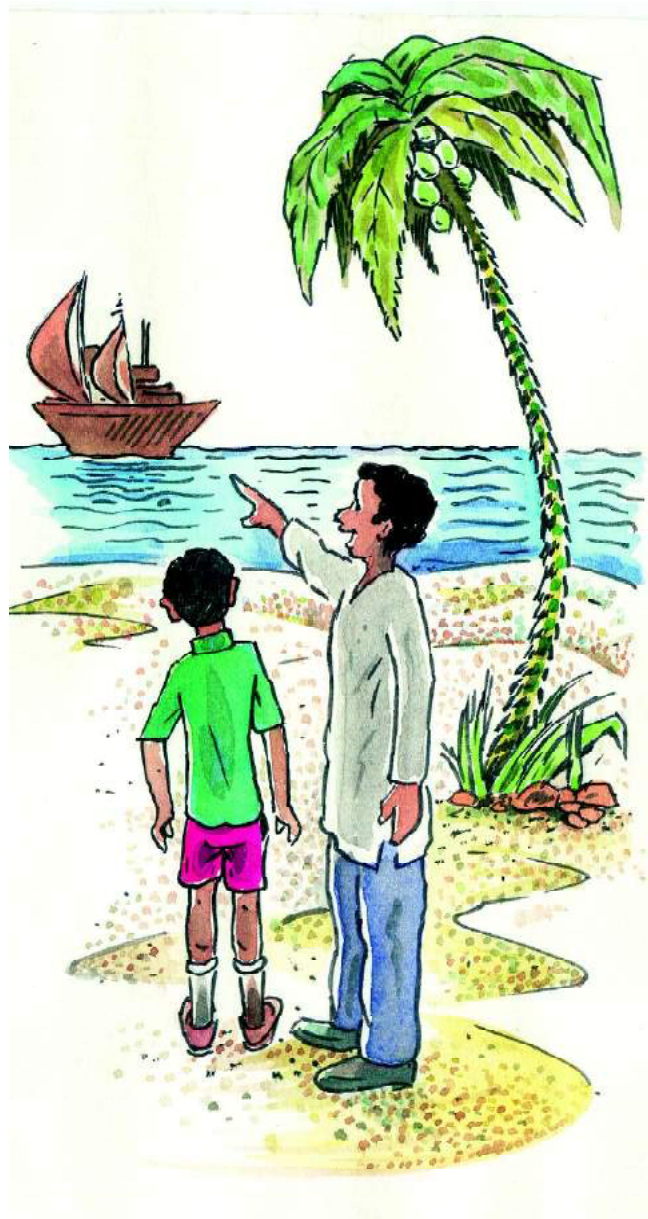
All the children in the class wanted to listen to Salim's experiences in Goa. In the mean time, the teacher entered the class. The teacher too looked at Salim and asked him to narrate his experiences in Goa.

Teacher : So Salim, how did you reach Goa and what all did you see there?

If you too had been somewhere, write what all you saw there.

Salim said : "I saw many things. There were things we have not seen in Chattisgarh.

Children (speak together) : What all did you see? How did you reach? What all did you see on your way? Tell everything.



Salim said : From Jagdalpur to Raipur, we went by bus. From Raipur we boarded a train. On our way to Goa, we passed through Durg, Nagpur and Pune. It took us two days to reach Goa. The journey was quite interesting. The train halted at many stations before reaching Goa.

Neelu asked : What did you do when the train reached a station?

Salim told : We filled our water bottles from the platform. There was a rush for water. With great difficulty we managed to fill our empty bottles. Then we purchased some fruits. When we arrived Pune it was dark.

Prepare a list of items available at the station when the train stops?

Salim : When we reached Pune, it was dark.

Neelu : Salim, then where did you sleep?

Salim : In the train you have to get your ticket reserved to have a berth to sleep on. All berths are numbered.

Mahesh : Tell us more about Goa. What all did you see there?

Goa is a state divided into Northern and Southern Goa. The two languages spoken here are Marathi and Konkani. Marmgao and Madgaon are the two important cities of Goa. After every few miles you'll find a village in Goa. Houses in Goa are built of wood, bamboo and coconut leaves.

Find out with the help of your teacher, the capital city of different states and make a list of them.

You can see the vast expanse of sea from Goa. One can see ships, boats, motor boats in the sea. Tall waves rise in the sea.

Do people in Goa indulge in farming? Asked Monika.

Salim : Fishing is an important occupation of the people of Goa. Yet, people do grow paddy, black pepper, spices, coconut, mangoes and cardamoms. Coconut is found in abundance. Its fibre is used for making rope, baskets, mattresses and

brooms. Women can be seen sorting out fish on the shores. Then they are sold in the market. Some fishermen dry fish to extract its oil which is used for medicinal purposes.

Sonu : Is it very hot there?



Salim : No, Goa is very pleasant. It is neither too hot nor cold. Days are sultry but the nights are cool. It gets heavy rainfall.

Neelu : Tell something special about this place.

Salim : A rare kind of vegetation is found on the shores of Goa. It grows only in salty water. They are called mangroves. It has pointed roots with tiny pores which rise above the marshy land. The fruits of mangroves germinate when they are still on the trees. The roots come out of the germinated fruit and fall onto the marshy land where they start growing into a bigger tree.



Umesh : From where do people come to visit Goa?

Salim : Many people from various parts of India and abroad come to Goa to enjoy its long and sandy beaches.

Neelu : Salim, what is a beach?

Madam : That part of the sea coast which does not have slopes and does not experience high waves is called a beach. Beaches are always crowded with people. People swim in the sea and play on its sandy beaches. Kalingut is a famous beach of Goa and is visited by hundreds and thousands of tourists every year.

Madam asked Salim : Had you been to the various churches in Goa?

Salim : Yes, Madam, There are many big churches in Goa. Christmas is celebrated here with great enthusiasm.

Do people in your region celebrate Christmas?

What do people do on Christmas? Discuss.

Write, where do you have a church in your region?

Salim told them that tourism is the main source of livelihood for the people of Goa.

Write any five things you know about Goa.

What have We Learnt?

Oral

1. Name the two big cities of Goa.
2. Which festival is celebrated by the people of Goa?
3. What material is used by the people of Goa to construct houses?

Written

1. What is the language spoken by the people of Goa?
2. Write the difference in weather conditions of Goa and Chattisgarh.
3. What is a 'sea beach'?
4. What is the occupation of the people of Goa?

Find Around You

1. Name the coastal states that attract tourists to their beaches.
2. Find about the tourist places near your neighbourhood and write about its attractions in your copy.



CHAPTER- 24

Louis Pasteur

In ancient times, if a man happened to be bitten by a mad dog, he was taken to a blacksmith for treatment.

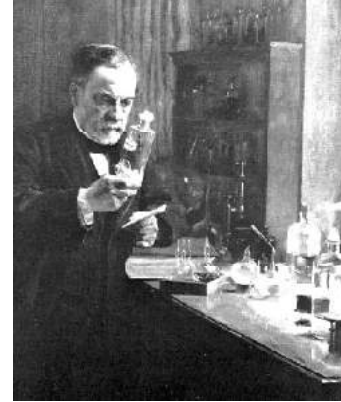
The blacksmith would take an iron rod, heat it on the burning coal till red hot and burn the patient's wound with it. In very rare cases would the patient survive. Normally this doesn't happen and neither the patient nor the disease remains. Louis Pasteur had also seen blacksmith treating such patients in his village. He would tremble with fear, everytime he saw this.



Find out from elderly people, in what other ways were people bitten by a mad dog treated? Write about it.

Louis Childhood

Louis Pasteur was born on 27th Dec., 1822 in France. He obtained his primary education in his village school. He was sent to Paris by his father to obtain a degree in teacher's training. Louis could not adjust himself in Paris for he would always miss his house, village and parents.



He fell sick and returned home. After recovery, he was sent to college in another city. There he studied science.

Earlier people believed that decayed objects were a birth place for germs and bacteria. After repeated experiments, Louis proved that this line of thinking was wrong. He proved that decayed things have no strength to form bacteria/germs. On the other hand, it is the bacterial/germs present in the air that enter into flesh, fruits, vegetables etc. and decay them.

Do people in your village/town also believe that decayed objects produce place for germs/bacteria?

.....

He wanted to invent the cure to the disease caused by the biting of a mad dog. For this, he collected a number of mad dogs in his laboratory. He carefully studied the germs present in their body and conducted experiments on them. His own life was in danger because of these mad dogs. One day, he happened to swallow the poisonous saliva while sucking a mad dog's saliva with a glass tube. But this did not deter him from going ahead with his experiments.



You must be knowing that inoculation (vaccination) is a preventive medicine which is given to a person to help prevent the occurrence of that disease. Like tetanus and polio drops. Small number of germs are injected into human body. The red cells present in the body, fight the germs and

develop immunity against them. In future, if ever polio germs attack our body, these cells fight out these germs and protect us from diseases.

Pasteur experimented on rabbits using minimum number of germs present in a mad dog. This medicine was again used on mad dogs. He conducted experiments for almost three years. By the end of three years, he had approximately 50 dogs of different breed and age, in his laboratory. He had freed these dogs from rabies.

Should man be given the same inoculation? If yes, then what should be the dose of this medicine? These questions were troubling Pasteur. But, he could not find an answer to it till he experimented on humans.

As you all must be knowing, a mad dog is very dangerous. When it bites, a person does not get to know anything for 2-4 days, but the poison gradually spreads in his body. He experiences headache and talks too much. His thirst for water grows rapidly. He wants to drink water but cannot gulp it. He first experiences stiffness in his neck and later in his entire body which is followed by death.

14 bitemarks by a dog

A few people brought an 8-9 years old child who had been bitten by a mad dog at fourteen places. His condition was serious.

Louis got the child examined by two different doctors. Everybody thought he would die without treatment. Then Louis decided to experiment his newly invented vaccination. On that very evening the boy was given the first dose. Then he gave twelve more doses for nine days that followed.

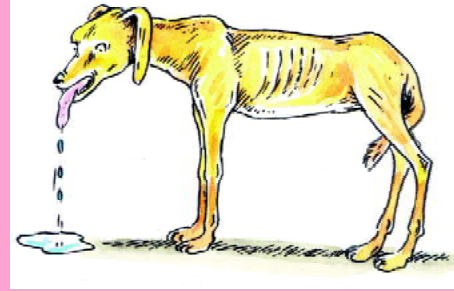
The boys showed signs of recovery within a few weeks. After three months he was absolutely fine. The news of the recovery of the boy spread like wild fire in the whole world. This made Louis Pastur very famous.



What should you do if bitten by a dog?

If a person is bitten by a dog, it is most important to see that the dog's saliva has not come in direct contact with that person's blood. If yes, then it is necessary to find out if the dog is mad or not.

If its a stray dog and has not been injected for anti-rabies and has run away, then it is necessary for the person to have the injection. These injections should be started immediately.



In case of a pet dog, or if the stray dog has been caught, it is necessary to chain the dog for 10 days and observe carefully. In these 10 days, if the dog shows signs of abnormal behaviour or falls sick, it should be considered mad. In this case, the person bitten should start taking injections.

If the dog shows no signs of abnormality and sickness, then it should be let free. The person bitten should not worry. Another important thing is that the bitten place should be immediately cleaned with water, soap and an injection is to be taken.

What do you do if a mad dog bites a person? Find out.

.....

.....

What are the symptoms found in a person bitten by a mad dog?

.....

.....

What advice would you give to a person bitten by a mad dog?

.....

.....

What have We Learnt?

Oral

1. How will you know whether the dog is mad or not?
2. To which country did Louis belong to?

Written

1. How was a person bitten by a mad dog treated in older days?
2. Why was Louis called the 'Saviour of Mankind'. What do you understand by it? Do you agree with what was said about Pasteur ?
3. Explain, what is inoculation.

Find Around You?

1. Go to a nearby hospital and find out if anti-rabies injection is available or not?
2. Find out the different medicines given to a person bitten by a mad dog.
3. You have read here how Louis Pasteur discovered the rabies vaccination. Read and make a report of any other scientists and his discovery.



CHAPTER- 25

The Journey of Seeds

Have you ever thought of the fact that plants/trees remain in one place then how do their seeds move from one place to another?

Imagine, if all the seeds of a tree grow in one place. Will they all be able to grow?

You must have observed a farmer sowing crops. He leaves some space between two saplings. In certain crops if the saplings are too close together, the farmer uproots them.

Ask a farmer, if maize saplings are grown close to each other, how will it affect the crop?

.....
.....

Also find out the plants which are cropping?

.....
.....

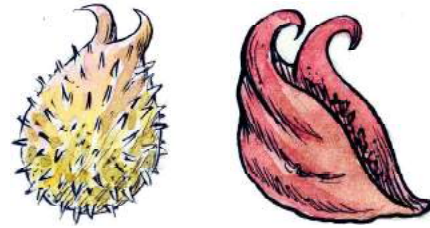
Fruits and seeds of plants that grow in jungles, open grounds and fields have the property to disperse from one place to another.

Go to a field or jungle of your school and collect atleast 20 different kinds of fruits and seeds.

Now observe these seeds carefully. Discuss with your friends the different ways in which the seeds are scattered.

Animals as an agent of dispersal/ fruits/seeds dispersed by animals

You must have seen thorny fruits of (Gokharu) thistle around you. These fruits get entangled in the body or tail of a cow, buffalo or a goat. The seeds of this fruit travel with the animals wherever they go. Some fruits have thorny hooks which get hooked to the hair of the animal.



Find out names of some more fruits and seeds that stick to animals.

.....

.....

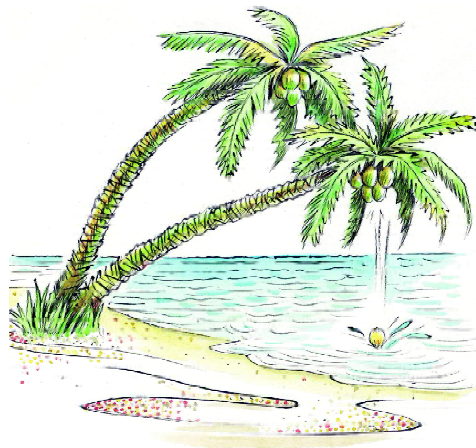
Dispersal caused by bursting of pods

Some kind of fruits after drying bursts and their seeds are scattered here and there.



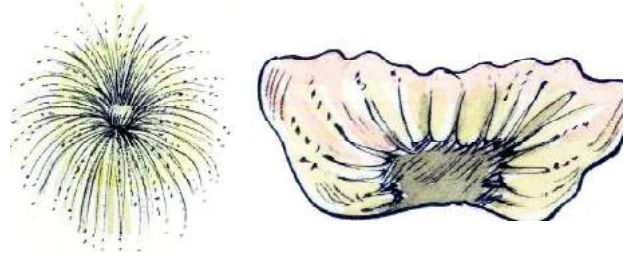
Water as an agent of dispersal

Normally, coconut trees are found near the coasts. As a result, the coconut fruit travels hundreds of kilometers along with the waves. The fibre on the coconut fruit help it float on water.



Wind as an agent of dispersal

The wind also helps in the dispersal of seeds. Many seeds have feather like structure that enables them to fly long distances.



Find and write name of seeds with feather like structure.

.....

You must have seen fruit of sheesham tree. This tree can be seen on a road side or in a garden. Its fruits are very light and can be easily carried away by the wind to far off places.

Do plants of swallow wort remind you of something? How its fruits burst and the seeds are carried away by the wind! In its fibrous structure is entangled blackish brown coloured flat seeds which seems to fly like a parachute and land at far off places.



Get the fruit of swallow wort. Open the fruit and observe its seeds.

Draw swallow wort seed in your notebook.

List the names of seeds which are fibrous.

.....

.....

The seeds of semal tree are also enveloped in fibre like that of cotton (Kapas) seed. Its fibres are carried away by the wind and scattered in distant places.

Dispersal by animals/birds

Birds and animals also play an important part in dispersal of seeds of many plants and trees. When birds eat the fruits of such trees, their sticky seeds stick to their beaks and are carried away to other places. You must have seen birds sitting on branches of trees and clearing their beaks. The fruit that they eat is digested whereas the seeds come out in their droppings. The seed falls along with the droppings.

Think and tell how plants of banyan, peepal etc. grow on the walls of buildings, forts and wells?

.....

.....

Given below are the various agents of dispersal of seeds. Give five examples for each.

Agents of dispersal of seeds	Name of seeds
Dispersal by wind
By water
By birds/animals
By man
By bursting

On a card sheet, paste the fruits and seeds that you had collected from the jungle and the fields. Name each and write the agent that helps them disperse.

Now hang/paste this cardsheet in your class.

What have We Learnt?

Oral

1. How are the semal seeds dispersed?
2. Name the plants with thorny seeds.


Written

1. How is the seed of coconut fruit dispersed?
2. What is the advantage of seed dispersal?
3. Draw the given seeds.

swallow wort, thistle, Coconut

Find Around You

1. Collect fruits and seeds found in your surroundings and find out how their seeds are dispersed.
2. Ask all of students of the class collect different seeds. Study the seeds, see their colour, shape (round or flat) outer covering (rough or smooth). Write in a table on a chart. All the students in the class will help in filing the chart.

S.N.	Name of the seed	colour	Shape	outer covering
1	Chana	Brown		Rough

Tabulate the seeds on the following points -

1. Seeds used for spices.
2. Seeds of vegetables
3. Seeds of fruits
4. Seeds which are very light
5. Seeds which are cooked as curry
2. Do you play any game with seeds? If so play it in the class and teach others about it.



CHAPTER- 26

Mud and Stone

Like water and air, mud is also an integral part of our lives. We can not think of life without it. We pay no heed to it but keep using it.

List how mud can be useful to us?

Different types of mud?

Collect different samples of mud, e.g. mud from the fields, rivers/ponds, roadside, open grounds etc. for this you'll have to go with your friends.

Collect these samples in a transparent polythene and label them.

Experiment 1 - How is the mud?

What can you test in the mud?

How does the mud look like? Coarse or smooth?

What is its colour?

How do you feel on touching or pressing it?

How does it smell?

Did you find any plant or animals in the mud?

Test the samples collected and fill up the information in your copy in a tabular form.

Were any living organisms present in it? If yes. How does it look?

How can decayed plants/trees and creatures useful for the mud/soil. Find from your elders.

Find out from a farmer, the kind of soil considered fertile for the crops?

For a bumper harvest, the farmers add organic manure to the soil. Find out how the farmers prepare organic manure?

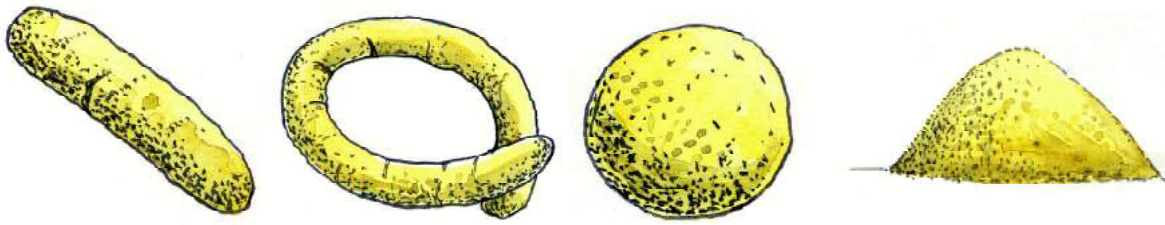
Experiment 2 - Make clay toys

You must have made earthen toys.

What kind of mud is best for making toys? Is it from the fields or from the roadside?

Take a handful of mud. Remove, pebbles, stones, grass etc. Now add water, drop by drop and knead as we knead a dough of flour. Add water that is enough to make a ball and it should not stick to the hands. On a flat surface, try to make a rolling pin with this mud ball. Now turn it as shown in the picture. If the rolling pin can be bent easily, then a ring like structure can be made of it.





If a full ring is formed, then it is soft clay.

If the ring breaks but a rolling pin can be made then it is mixed soil .

If you fail to make a rolling pin but can make a ball then it is 'sand soil' .

If a ball can not be formed then it is sand.



Now tell what kind of mud does the potter use to make toys and vessels.

Experiment 3

Now get clay to make different varieties of toys and exhibit them in your class.

Have you ever seen a well or a pond being dug? If not then don't miss any opportunity that comes your way. Given is a picture of the different layers of soil that can be seen at the time of digging a well.

Are the different layers of soil of the same colour?

Name the colours you can see in the different layers of soil?

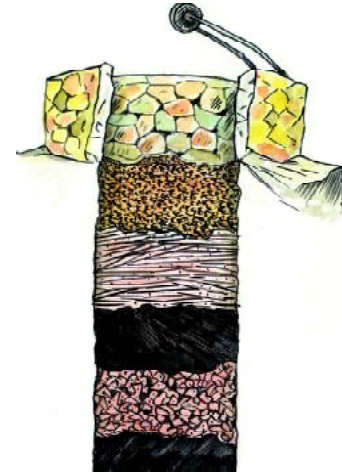
On digging a well, we get mud at the deepest end. It is followed above by red soil and then by pebbles and rocks.

Soft stone, Hard stone

Collect samples of different stones.

Throw the stones from a height and see which ones break?

Mud and sand are formed by the breaking of stones into small particles. Some stones can be easily broken, whereas, these are some which are difficult to break even with a hammer or a chisel.



The different layers of soil

Conduct this experiment with two different stones.

Fill a bucket or tumbler with water. Rub the two stones in water for five minutes exerting pressure. Let the water in the container stand still for some time. Now carefully remove the water.

What do you get to see at the bottom of the container?

You can repeat this experiment with other stones. Did you get more or less particles on rubbing these stones?

What can you say on the basis of this experiment?



What have we Learnt?

Oral Question

1. Name the different kinds of soil?
2. What is added to the soil for a bumper harvest?

Written Question

1. What are the uses of mud/soil?
2. How is soil/mud made?
3. How will you know that the mud is soft or mixed or sandy?

Find Around You

1. Collect different samples of mud/soil and write their names.
2. How do a potter make vessels and toys? Find out about it & write.



CHAPTER- 27

The Brave Warrior of Chhattisgarh

Geeta and Mohan have come to Raipur to attend a marriage at their uncle's place. Today, they, along with their cousin Ramesh, went out to see the local market of Raipur. They found a huge crowd at a square. Mohan went near the crowd to see what was happening. The people had flower garlands and wreath in their hands and were chanting slogans in praise of a great man. A person standing there told them that since it was 10th Dec., they were celebrating death anniversary of the Martyr Veer Narayan Singh the worthiest son of Chhattisgarh.

About, 150 years back, Veer Narayan Singh was hanged to death. Every year, people assemble here pay homage to the great martyr.

The people adorned his statue with garlands, wreaths and flowers. On this occasion a man sang the following song with great enthusiasm and zeal-

The haldighati of Chhattisgarh is the soil of
sonakhan,

India's sacred pilgrim is the land of sonakhan.

Narain fought against oppression and injustice.

He clashed with the Britishers and walked the
path of- sacrifice,

Welcoming death with a smiling face,

And was blessed with God's grace,

That is the spring of worthy sons, the soil of
sonakhan.



Sing this song together in the class. If you remember any such song, then sing it in your class.

Which place did Veer Narayan Singh belong to?

.....

Whom did he fight against?

.....

Write in your own words the different episodes mentioned in the poem.

.....

.....

Veer Narayan Singh's father, Shri Ram Rai, was the landlord of 'Sonakhan', which was a state on the banks of River Mahanadi. Sri Ram Rai was fearless, generous and extremely popular amongst his people. This was not liked by the other zamindars.

Veer Narayan Singh was born about 200 years back. After his father's death, he took over the responsibility of his state.

Like his father, he too was fearless, generous and just. He was popular among his people. The other zamindars were jealous of his popularity. At that time, India was ruled by the Britishers. All the kings and landlords of the Indian state had to give a part of their income to the Britishers. The zamindars acquired this money from the farmers. The oppression by the Britishers were increasing in Chhattisgarh also.

Once, there was a famine in Sonakhan. People began to die due to hunger. Veer Narayan Singh tried his best to help his people. He took grain on credit from the merchants and distributed to his people. Once, a merchant refused to lend him any grain. "Narayan Singh got so furious that he broke open the lock of the merchant's godown and distributed the grain amongst his people.

Why do you think the merchant must have refused to give his grain to Veer Narayan Singh?

.....

Discuss in your class the problems people face during famine.

.....

What do you think the merchant must have done after the lock was broken?

.....

The merchant lodged a complain against Narayan Singh, to an English officer. The English, put Narayan Singh in jail on charges of dacoity.

Later, Natrayan Singh with the help of his people and soldiers, escaped from the prison.

On reaching his state, Sonakhan, he collected an army to fight against the Britishers.

The English too sent an army against the state of Sona Khan.



The English did not know much about this state. But, with the help of traitors, they managed to reach Sonakhan.

A fierce battle took place in Sonakhan. Narayan Singh fought very bravely. At one point of time, the Britishers were about to lose the battle. But, a few traitors helped the Britishers and Narayan Singh had to leave the battle field.

Had the traitors not helped the Englishmen, what do you think must have happened?

.....

Narayan Singh was made a prisoner and a case was filed against him. He was given death sentence.

This great son of Chhattisgarh was hanged to death on 10th Dec. 1857, in Raipur. Every year, on this day, people pay homage to this great man.

What have We Learnt

Oral Questions

1. When is Veer Narayan Singh's Martyr's Day celebrated?
2. With whom did Veer Narayan Singh fight?
3. In which district of Chhattisgarh is Sonakhan?

Written Questions

1. What did Veer Narayan Singh do for his people?
2. Why was Veer Narayan Singh sentenced to death?
3. Why did the Britishers put Veer Narayan Singh in jail?

Find Around You

1. Collect information regarding heroic people of Chhattisgarh and write their deeds.
2. Cut pictures of great men from newspapers, magazines etc. and paste it in your copy.



CHAPTER- 28**Punjab**

Punjab is the only state of India through which five rivers flow. Punjab means the land of five rivers. The five rivers are- Jhelum, Chenab, Ravi, Vyas and Sutlej. At the time of partition, a part of Punjab was included in Pakistan whereas the other half became a part of India. Both the new countries have Punjab as a state. The part of Punjab that is with India has three rivers flowing through it. In this lesson we will learn about the state of Punjab which is a part of India.

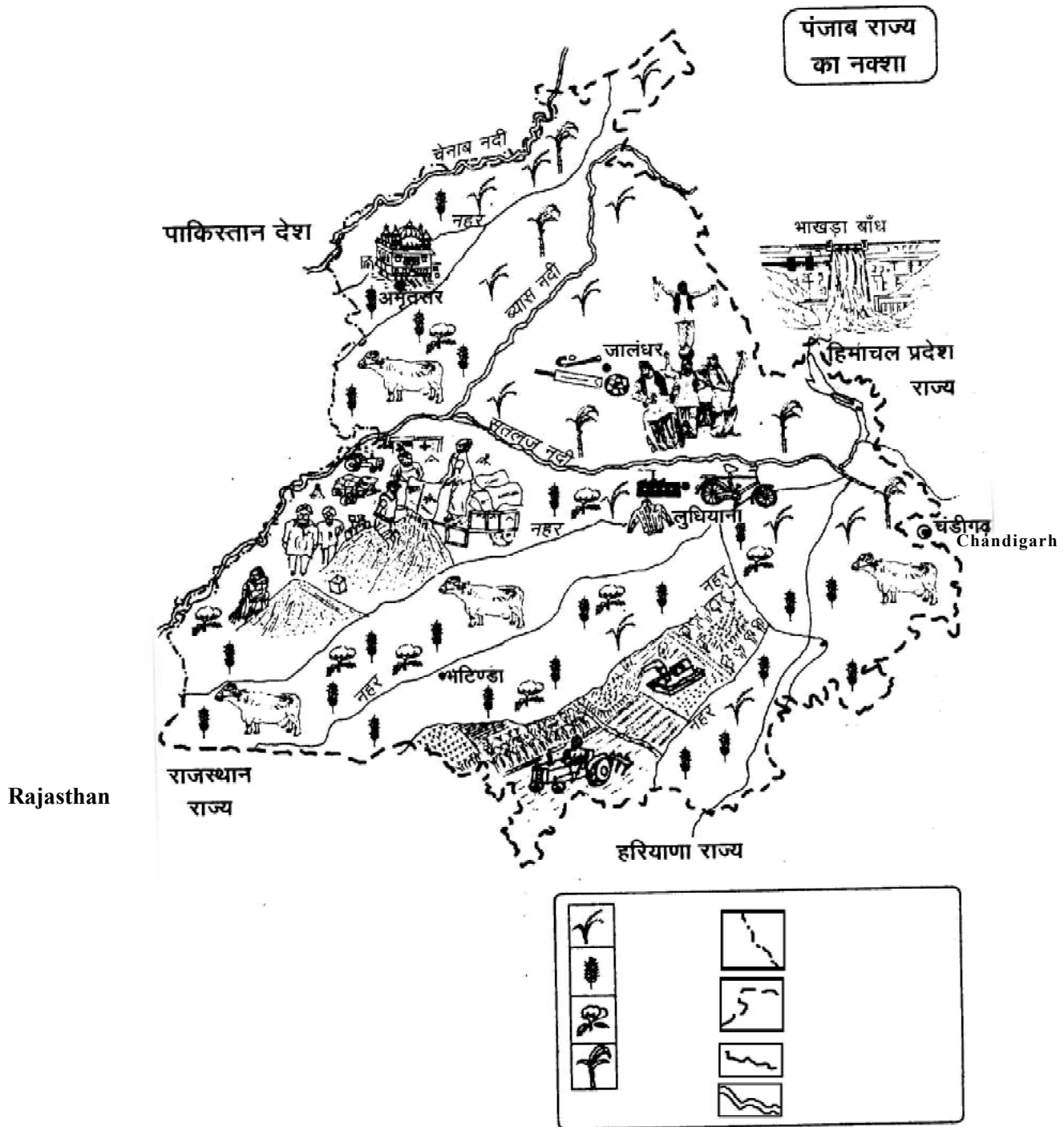
Why should a farmer not dance if he has had a bumper harvest after months of hard work? In the picture given below you can see the most popular folk dance of the farmers of Punjab i.e. the Bhangra. They are wearing kurtas and lungis with coloured turbans on their heads and dancing to the beats of the 'dhol'.



1. Look at the map given below and write the names of the three rivers that flow through Punjab.

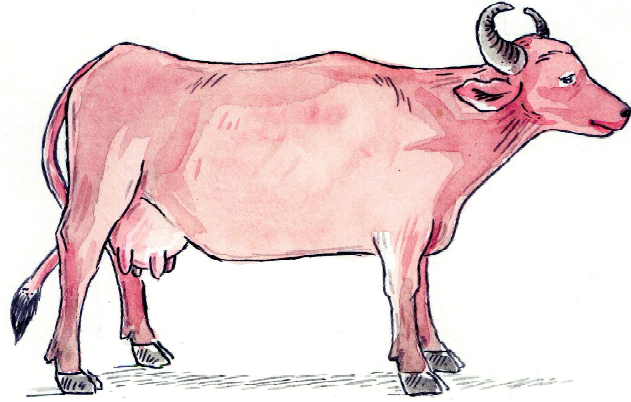
1. 2. 3.

The map of Punjab gives a lot of important information of crops, occupation of its people and its industries.



Land where rivers of milk flow

Punjab and its neighbouring state of Harayana are famous all over India for their superior breed of cows and buffaloes. The cows and buffaloes here are well built and can give nearly 10-12 liters of milk a day. The milk is thick in consistency and hence a lot of cream is taken out. Cream is used to make butter and ghee. As milk is plentiful, a part of it is used in their homes and the rest is sold to the dairies. Here milk is pasteurize and then sold out to far off places. Milk is also used to prepare cheese and ghee. Due to its increasing demand, the farmers have started rearing more and more cows and buffaloes.



What is so special about Punjab that the cows and buffaloes of Punjab give milk in plenty. Firstly, the cows and buffaloes belong to the 'Dudharoo' breed. Secondly, fodder, husks of rice, wheat and cotton seeds are in plenty. The cakes of crushed cotton seeds are very nutritious.

Complete these sentences

1. The cows and buffaloes of Punjab are given cakes of crushed _____ and _____ to eat. Whereas in our state the cows are fed with _____.
2. The cows and buffaloes in Punjab give approximately _____ litres of milk everyday. Whereas the cows and buffaloes in our state give only _____ liters of milk.

Hills of Grain

If you wish to see hills of grain, you must visit Punjab. After the harvest, you can see lines of trucks tractors and trolleys proceeding towards the whole sale market. You'll get to see heaps of grain all around. Each heap is about 10-12 feet high. Merchants from distant places come to buy it.

Irrigation

There are many reasons for a good harvest in Punjab. Firstly as Punjab lies in the northern plains, its land is very fertile. Secondly, it has proper irrigation facilities. India's largest dam is built across the river Sutlej. The water from the Sutlej is collected here and sent to different villages through canals.

Find out the name of this dam in the map given.

Look at the important canals which flow from this dam.

The canals here are flooded with water and look like rivers. You can see people swimming and bathing in these canals. Electricity is also generated from these dams and sent to different villages. Electric pumps are used to draw water and machines like threshers are used for harvesting.

Another very important factor for a good harvest is the farmers of Punjab, themselves. They are known for their hard work and foresight. They are keen to adopt new methods and experiments. The farmers of Punjab were fast to adopt hybrid seeds, organic manure, pesticides, tractors etc.

1. Look at the map and name the different crops that are grown more in Punjab.
2. Is cotton grown in the north or south of the river Sutlej?
3. Is sugarcane found in the northern or the southern part of Punjab?

With the help of irrigation facilities, the farmers of Punjab, have 2-3 crops a year. there is so much work in the fields all the year round that labourers from different states come to work here.

Disadvantages of modern farming

This kind of farming has its own disadvantages. Excess water given in the fields is fast changing the fertile land into swamps, making it infertile. The use of pesticides has reduced the rate of production. This has also harmed drinking water, fish, crops, vegetables etc. Its negative effects can be seen on the health of birds, animals and the people. To save their land and water, the farmers of Punjab are finding new ways to cope with this threat.

Cities of Punjab

Amritsar

Find Amritsar on the map of Punjab situated between two rivers.

Amritsar is a well known city of Punjab. Its Golden Temple is very famous. It is called so because it has an outer covering of gold. In the centre of a square pond lies the temple, which shines brightly in sunlight. There is a big holy book kept in the temple called '**Guru Granth Sahib**'. This book contains the teachings of well known saints like Guru Nanak, Baba Farid, Kabir, Rai Das etc. This book is the holy book of the sikhs and the Golden Temple is an important pilgrim centre for the Sikhs. People take a holy dip in this pond. they also go around the holy book and bow before it. Tourists from far off place visit this place.



Ludhiana

The largest city of Punjab is Ludhiana. It has big industries. Look at the map and find out the things manufactured in these industries. Another city of Punjab is famous for its sports goods.

Find out the name of this city and write it below.

Between which two rivers is Amritsar located?

Do you know the special kind of wood used for making cricket bats and hockey sticks? To make this, light weight wood is required which is obtained from the pine trees.

1. If you happen to go to Punjab, which of the following would you get. Encircle them.

Mountains, tractor, teak forest, paddy fields, canals, ships, tiger, cycle, coconut trees, buffalo, rocks, pine jungles.

What have We Learnt?

Oral Questions

1. Why has the state of Punjab been named so?
2. Why do the cows and buffaloes of Punjab give more milk?
3. What are the means of irrigation in Chhattisgarh?

Written Questions

1. What are the factors responsible for a good harvest in Punjab?
2. What are the disadvantages of the modern methods of cultivation?
3. Name the things manufactured in Ludhiana.
4. For what is Amritsar famous?

Find around You

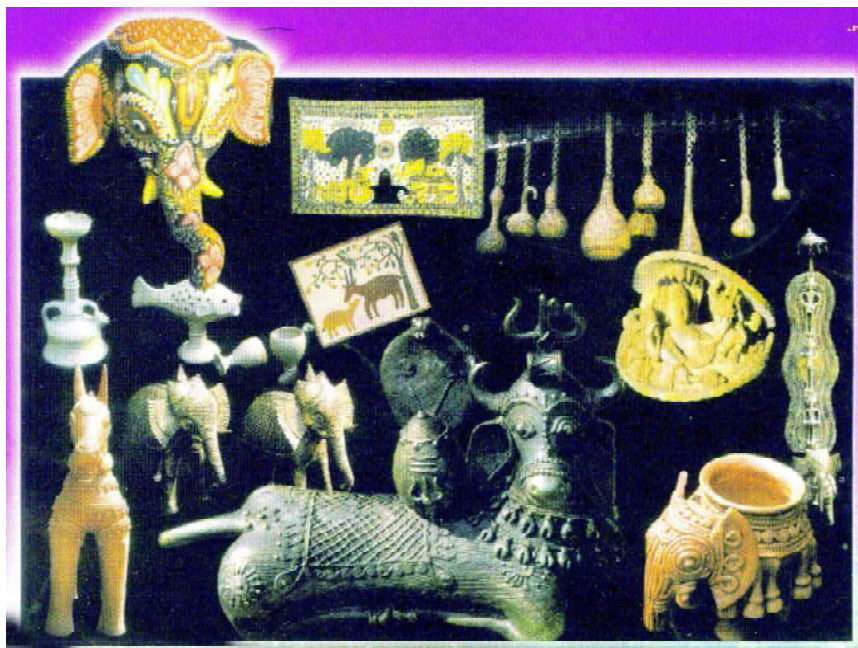
1. Apart from the cities mentioned, name some other cities of Punjab and their special features.



CHAPTER- 29

Handicraft of Chhattisgarh

Carefully look at the picture given below :



Identify and name the artifacts given in the picture above.

.....

.....

What kind of workman ship is required to make the items look artistic?
Discuss in group and write.

.....

.....

Artisans give an artistic form to the things skillfully.

There must be artisans staying in your neighbourhood-

Go and find out-

What all do they make?

Which raw material do they require to make these artifacts?

What do they do to make it look attractive?

How much time is taken to make these things?

Where do they sell these things?

Do they exhibit those things?

Collect information regarding different artifacts made by different artisans, in the table given below:

S. No.	Name of the artifact/item	How is it made?	What is done to make it look artistic	Uses
1	_____	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____

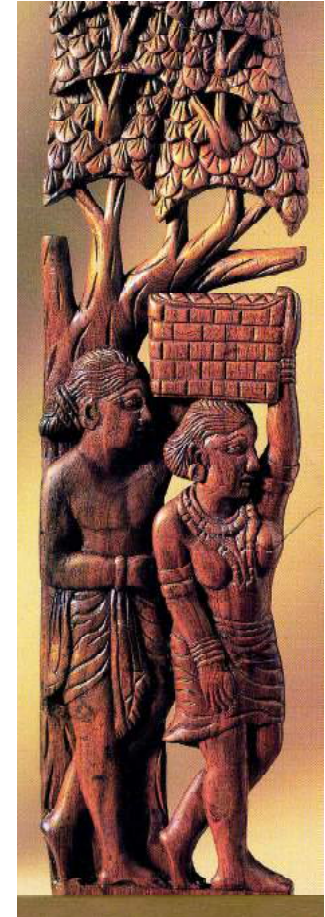
The artisans of Chhattisgarh use clay, bamboo, brass, iron, wood etc. to create beautiful artifacts. They are given different shapes and decorated with colours and engraved flowers, leaves, birds, animals etc. This makes it look very attractive. These artifacts are sold at a high prize in the market. The craftwork of the state of Chattisgarh is recognized both in India and abroad.

Wood Craft

Bastar Anchal is famous for producing engraved items of wood and metal. Even a knife sickle, handle of farming tools, wooden stool, comb, flute and other decorative items are artistically engraved in Bastar Anchal. The sculpted doors and pillars of houses, temples, the swing of the lord etc. are wonderful examples of the wood craft of this place. The wooden masks worn for folk dances are highly artistic.

You should also collect information of artifacts made of wood and fill up the table given below:

S. No.	Name of the wooden artifact	Use



Handicraft of Chhattisgarh

Terracotta Craft

Even today, Chattisgarh is famous for its clay vessels, idols of deities, lamp stands and pots to store grain.

The terracotta of Bastar has a special place in craft. The images made are related to life, nature and religion. This form of art is famous all over India.

What are the various designs made on things of terracota?

Metal Craftwork

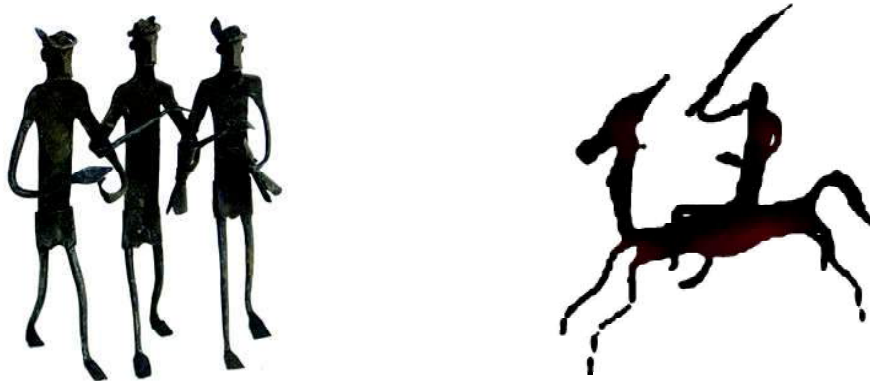
Iron craft holds a special place in traditional craft. The craftsmen of Bastar create various pieces of art used in the



Diagram of Terracotta craft

worshipping of Gods and goddesses. The use of craft as decorative items is also very popular.

People belonging to the 'Gharwa' class use brass and bronze to create various pieces of art. The heated metal is put into moulds to create various images. This is why it is called 'Gharwa Craft'.



Collect information on things made of metal in your village/town and fill up the table given below:

S. No.	Things made of iron	Things made of brass
1
2
3
4
5

Find out from your elders how designing is done on metal items?

Bamboo craft

Bamboo baskets of different shapes and sizes are used for different purposes. They are also used in marriage and religious occasions. In Chhattisgarh, for the purpose of wedding, artistic baskets with lid called 'Jhanpi', (A kind of artistic basket with a lid) fan and the crown (a 'Maur') which is worn by the bride-groom, are made.

What things are made of bamboo in your surroundings? collect information and fill up the table given below :

S. No.	Name of item made with bamboo	Its use
1
2
3
4
5

Rajwar Bhatti Craft

The home decoration of the Rajwar is unique in itself. Beautiful nets for windows and courtyard are made. Apart from this, artifacts of earthen lamps, snakes, birds/animals etc. are also made. White clay and the local colours add life to these pieces of art. Observe houses around you. Find out the kind of painting made on the walls of the houses. Draw any one in the space given :



Rajwar Bhatti craft

What have We Learnt?

Oral

1. Which music is produced by the folk musical instrument made of bamboo?
2. What is terracotta craft?

Written

1. Art facts made of metal are known by which craft?
2. What all things can be made with bamboo? Name any five.
3. Name the wooden artifacts made in Bastar?
4. What all is done to make the artifact look attractive?

Match the following

Swing for the lord, handles, stools

Idol of a deity, lamp stands

Jhanpi, peacock

Bamboo craft

Wood craft

Terracotta

Find Around You

1. Collect information on the various works of art made in your village/town.



CHAPTER- 30

The Wonders of a Computer

Manglu and his mother had to go from Raipur to Bhopal after a week. He went to the railway station with his mother, filled up a form and deposited it at the reservation counter. The Railway Reservation Officer pressed the keys of the keyboard and in no time produced a ticket. Manglu was surprised. How fast can a computer give a ticket !

Manglu asked his mother - What is there in the computer that can search and tell the berth/seat available in a coach after a week's time?

The mother told Manglu that a computer is a unique machine. You can do many things on a computer.

Discuss with your teacher and write-

What can a computer do for us.

.....

.....

Rani's mother works in the electricity department. Her mother told her that in her office electricity bills are made with the help of a computer. Earlier it used to take a lot of time to prepare these bills. But now, with the help of computers, the work has become easier.

Is there a shop or an office in your area where there is a computer? Find out the nature/kind of work done with the help of computers?

.....

.....

Find out from your teacher how a computer would have helped in the making of this book?

.....

.....



There is a typing machine in an office which helps in typing letters etc. OR
Can errors, while typing on a typing machine, be corrected/rectified? Find out from your teacher.

.....

Errors, while typing a letter on a computer, can be corrected again and again.

Memory of a Computer

A computer has a specific quality that it can save the text, photographs, letters, songs, speeches, films etc. in its own language. These can be repeatedly used. For e.g. a letter typed ten years back, if saved in the computer, can easily be obtained if required.



Ali has a computer. He has a circular shiny disk like thing. They are called CD and contain songs and films of your choice. Whenever Ali's family wants to see a movie, they place the CD in the computer and watch it.

The book you are reading has been typed on a computer. For printing this book, all matter was saved on a CD and given to the printing press. Similarly, we get CD's of various films and games in the market.

Parts of a Computer

Look at the different parts of a computer and tell.

Monitor

The part of the computer that shows films and the written results on the screen is called a monitor.

Does this part of the computer look like a TV screen?



Monitor

Key Board

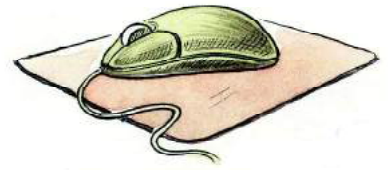
Key Board is used to work on the computers. The keys of the keyboard have alphabets, numbers and symbols printed on them. These keys help us to write numbers words and sentences on a computer. You can type letters etc. with the help of computers. The computer has a provision of typing in different languages.



You can write in capital or small letters with the help of a computer.

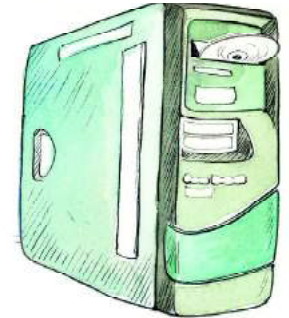
Mouse

As it looks like a mouse, hence, this name is given to it. It can be used to draw pictures, point and select the items on the computer.



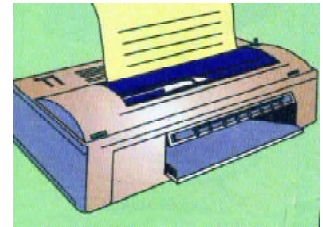
CPU-The Memory box of a Computer

Attached to the monitor is a box called CPU. On pressing its bottom, the computer starts working. It is called the memory of the computer. All information sent by keyboard and mouse are analysed and decoded here.



Printer

If a letter is written on a computer, it can be printed on paper using the printer.



Speaker

There are two speakers attached to a computer. As a speaker helps to produce sound, you can listen to the songs and the dialogues of a film.



Computer - A store House of Information

If you have to collect information on a famous personality or a place, then what will you do? Where will you go? Whom would you talk to?

1.
2.
3.
4.

Internet is a technique through which various computers of the world over can get connected to each other. For example there is an information of Tirathgarh in Chattisgarh on the internet. If you want pictures of Tirathgarh, you can get it through internet. Information fed on one computer can be transferred to different computers. You can also get information on living creatures, plant kingdom, tourist centre, sports, politics etc. of the country and abroad with the help of internet.

Kanchan's sister appeared for class XII examination. As soon as the results were declared, she went to a cyber cafe and within no time saw her result on the computer.

There is a lesson on Louis Pastur in your book. Louis's picture has been taken from the internet.

Do you remember, that Manglu and his mother obtained their tickets from the computer. Had Manglu's mother wanted, she could have obtained their return tickets from Bhopal to Raipur from Raipur itself.

Modern way of sending letters - E-mail

We write and send letter to our relatives by mail, which takes a few days to reach them. The same information can be sent by the internet in seconds. This is called e-mail. It requires no phone or paper.

How to E-mail?

Champa lives in Bastar. She sent an e-mail to her uncle who lives in Calcutta.

Had Champa written a letter, she would have written the address and posted it in the letter box.

Champa typed a letter on the computer and sent it at her uncle's e-mail address. In no time, she received her uncle's reply. Within minutes both could exchange messages.

E-mail address is always written in English. Like Champa's uncle's address is written below : `prashant@yahoo.com`

This address has Champa's uncle's name in the beginning. Then with the help of keyboard is written @ then yahoo is written without leaving any space. The yahoo named agency sends letters. When the mail account is opened, all the alphabets are written in small letters.

Make your e-mail

There is a girl named Salma. She wants to open her mail account in yahoo. She made her e-mail address like this-

salma@yahoo.com

Similarly, you too can make your own e-mail ID.

What should you remember while making your own e-mail ID?

What have we learnt?

Oral

1. Where can the computers be used?
2. What is the work of the mouse of a computer?
3. What are the functions of a computer?

Written

1. Name the important parts of a computer.
2. What is the work of the keyboard?
3. How can you e-mail with the help of a computer?
4. How is a computer better than a typing machine?

Find Around You

1. What can a computer do? Find out.
2. You can draw pictures with the help of computers. Find out how? If you get an opportunity you must try it out.
3. How has the computer affected the work in the offices? Find out.
4. Is there a cyber cafe near your house from where you can e-mail? Collect more information on e-mail and internet.
5. Find out about other mail agencies like **yahoo**.



CHAPTER- 31

Disaster - Management

Today the teacher in class V started discussion on flood and asked "Have you heard about flood, earthquake etc.? You must have read about them in the newspaper."

Flood - Have you ever seen a flood affected area? Think what all happens when there is flood. When this is flood all the nearby areas are filled with water. Water enters inside the house. Due to the force of water cracks develop on the walls and the buildings fall. Our crops are destroyed or we can say there is great loss of life and property. Our whole life is disturbed.

Accumulation of water at places for days creates puddles of dirty water which breed diseases as malaria dengue etc.

Why does flood occur?

There are many reasons for flood -

Floods at different places have different reasons. If there are heavy rains in an area then it will cause the amount of water in river to rise and then water of the river overflows to the nearby areas.

Sometimes due to heavy rains the dams break which can also cause flood?

In the costal areas there is always a change in atmospheric pressure, which causes storms in the sea and the costal area have flood.

Does flood always cause losses or does flood give any benefits too.

Along with the floods a lot of mud also arrives and gets distributed over the plains making it more fertile

Can we control flood? Can you tell of any way to stop floods?

You know that roots of the plant hold the soil together and stop the mud from flowing away. So trees can help in the control of floods.



You must have seen or heard of small dams or check dams which are built on rivers and big canals to control the flow of water. By the check dams the speed and force of the flowing water is lessened. What are the benefits of check dams?

If there is flood how can it help in checking its effects?

Some solutions are given below. Informing the people soon about the dangers.

Shifting the people to safer areas. Arranging food, shelter and medicines in these places for the people.

Earthquake -

Get information about the earthquake which occurred in Bhuj area of Gujarat from your elders, teacher or internet.

This earthquake on 26 January 2001 made thousands homeless at one instance. There was much loss of life.

Why does earthquake happen?

Earthquake happens due to the heat deep inside the earth. The core of the earth is about 30 Kilometres deep. There are many layers in it which are made of hard and soft rocks.

When the heat increases in the earth's crust, weaker layers and the neighbouring rocks shift their places due to which the surface of the earth has shaken or

tremors. These tremors can be mild or violent. We can feel the violent ones but the mild ones cannot be felt by anyone.

Do you know that we can measure the magnitude or intensity of earthquake? You can measure the intensity of an earthquake on a seismograph. The magnitude of an earthquake is measured on the Richter scale.

The tremors of an earthquake are quite brief but their effects are destructive and injurious to life.

By the tremors of the earthquake the building starts shaking. Sometimes this happens so suddenly that people doesn't get the time to came out of the building. And people get crushed under the debris. Even big trees and electric poles are damaged due to the earthquake. Sometimes there is fire due to breaking of electric wires.



In places where earthquake usefully happen the houses are made of wood why?

What must we do if an earthquake happens.

We must move to an open area.

We must sit under a table etc.

We must not stand under a tree or near an electric pole.

Think and discuss with each other -

Heavy rains can cause flood, what will happen if there is scarcity of rains?

If there is no rainfall for a long period of time in any area then these won't be any crop grown there. The water level in rivers, ponds and wells will go down. In this state we say that there is a drought.

What are the causes of a drought -

Mostly droughts occur in places where there is no natural source of water supply.

If the area is far from sea (source of water), then the intensity of the moisture is very low in these areas. So in these areas there is less or no rainfall.

Which are places in the states of our country where droughts happen?

Farmers are the most affected due to drought. They are not able to do farming. In this drought areas there is shortage of grains, fruits and vegetable. There is even shortage of drinking water. Due to which people have to face many difficulties.

Discuss -

Can we lessen the possibility of a drought?

If we plant more trees there will be more greenery, which will increase and so there will be rainfall. If we conserve the rainwater, we can increase the ground water level.

Earthquake, flood, droughts and such events occur suddenly and man has no control over it. Such events are called natural calamities or disasters.

If anyone has to face natural disasters then what must one do?

- Inform about the natural disaster to maximum people.
- Help people to move to safer places.
- Obey the instructions given by the police, doctor or army men doing the rescue work.
- Don't encourage rumours and half truths.
- During natural disaster the whole world helps in one or the other ways. Some examples are -

Red Cross Society - This is a voluntary organization. It provides medical help and money for rehabilitation.

WHO (World Health Organisation) - This organization provides facilities related to health in those areas.

The role of doctors, police, information broadcasting system, fire brigade department are very important.

It is necessary for doctors to reach these places immediately to provide medical help in time.

Police must reach these places to maintain law and order.

Army men help in removing people from these accident areas. They also provide food packets through airplanes.

Broadcasting system - Radio, Television and Newspapers provide correct information to the public.

What have we learnt?

Oral

1. Why is it said that we must sit under something strong as a table during earthquakes?
2. What are the problems faced during floods.
3. What must we do to avoid drought?

Written

1. What will happen if in some places-
 - a. there is no rains for a long period.
 - b. there is an earthquake
 - c. there is no fresh drinking water.
2. How can we help persons stranded in a flood?

3. During natural disaster or any other accidents we may need the help of these groups. To contact them in emergency write their phone/mobile numbers in your copy. You can add other names to this list.

S.N.	Name	Address	Phone Number
1	Fire brigade		
2	Nearest Hospital		
3	Ambulance		
4	Police Station		
5			
6			
7			
8			

Find Around You

Many a time people have to face such problems that there may be a great loss of life. Many people become homeless. Write about such a disaster from a newspaper report on the following points –

- Cause of the disaster
- Time and date
- Type of losses

Who and which organisation helped for this? You can take the help of Newspaper, T.V. , Internet etc.

