

Environmental Science

Standard III

Part - 2



**Government of Kerala
Department of Education**

**State Council of Educational Research and Training (SCERT), Kerala
2016**

The National Anthem

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

PLEDGE

India is my country. All Indians are my brothers and sisters.

I love my country, and I am proud of its rich and varied heritage. I shall always strive to be worthy of it.

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

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

State Council of Educational Research and Training (SCERT)

Poojappura, Thiruvananthapuram 695012, Kerala

Website : www.scertkerala.gov.in

e-mail : scertkerala@gmail.com

Phone : 0471 - 2341883, Fax : 0471 - 2341869

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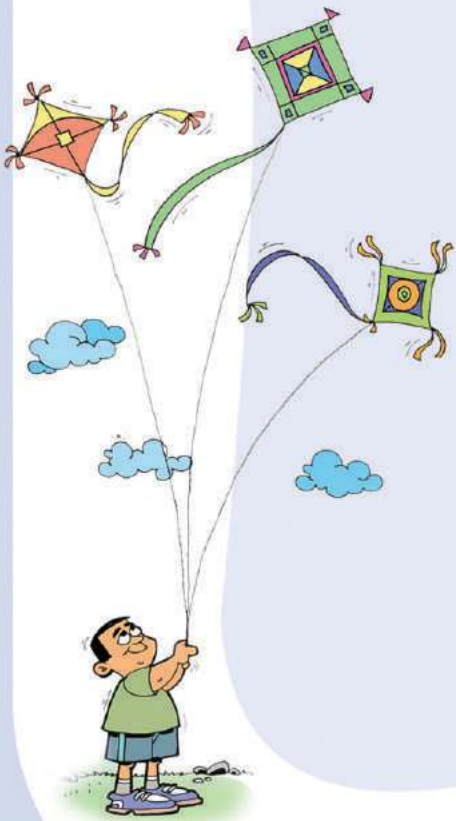
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Dear children,
How wonderful are the things in the magic bowl of nature!
Many of them you discovered,
walking along the soil.....
watching sights of the sky.....
whispering to the flower and the fly!
To remind you of them.....
To provide you new ideas.....
this textbook will be with you
as your friend....
Many treasures lie hidden
in nature's lap.
Let us march ahead
seeking those unending truths.....
Let us conquer that wonderland
looking, listening, examining and experimenting!

Regards,

Dr. J. Prasad
Director,
SCERT



Textbook Development Team

Pradeep Thanoor

Thanaloor AMLPS

Rajan P P

GUPS, Mundothuparambu

Biju Mathew

GHSS, Kadungapuram

Jahangeer Kabeer T P

Farook College L.P.S.

K.John

NKMGHSS, Dhanuvachapuram

Jolly J R

SASUPS, Venganoor

Muhammed Swalih

AMLPS, Pattarkadavu

Sajeev Kumar P R

GLPS, Rosemala

Prameela

B.R.C, Tirur

Experts

Dr S.Mohanan

Reader & Head (Rtd), Department of Physics, University College, Trivandrum

Paul P I

Associate Professor, Department of Zoology, Mar Ivanios College, Trivandrum

Dr Alaudeen A

Principal (Rtd.) Govt. College, Elerithattu

Dr Sushil Kumar R

Associate Professor of English, D.B.College, Sasthamcotta

English Version

Dr. Saji Mathew, Asst. Professor, School of Letters, Mahatma Gandhi University

Padma Chandran, Asst. Professor of English, Mar Ivanios College, Trivandrum

Famila E R, HSST, GHSS, Karunagappally

Artists

Moosa Musthajib E C, MMETHS, Melmuri

Noushad Ali E M, Ganapath AUPS, Kizhisseri

Vijayakumar, GUPS, Nemom

Shameem, VAUPS, Kavanoor

Lohithakshan K, Assisi School for the Deaf, Malaparambu

Academic Co-ordinator

Dr Ancey Varughese

Research Officer, S C E R T



State Council of Educational Research and Training (SCERT),

Vidhyabhavan, Poojappura, Thiruvananthapuram-695 012



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*Certain icons are used in this
textbook for convenience*



**For further reading
(Evaluation not required)**



**ICT possibilities for making
concepts clear**



Significant learning outcomes



Let us assess



Extended activities

7

On Colourful Wings



"Wow! Butterflies..."

Appu ran to the garden. A pretty butterfly sucking honey from a flower! Seeing Appu tiptoeing behind it, his father said:

"Dear Appu... don't catch it... its wings will be hurt."

"Papa... What is the name of this butterfly?"

"This pretty butterfly is *vilasini*."

"Her name is similar to our names."

"Appu, did you see a yellow butterfly on that flower? It is *manjapappathi*."

"Manjapappathi? Oh! Nice name"

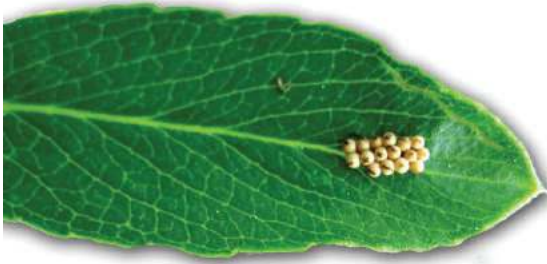
"There are many butterflies like them in our place. And they have wonderful names too."



Manjapappathi

"How beautiful are these friends who rush to flowers to suck honey!"

How different are the types of butterflies around us!



Garudashalabham

Do you know?

Garudashalabham is the largest butterfly seen in our country.

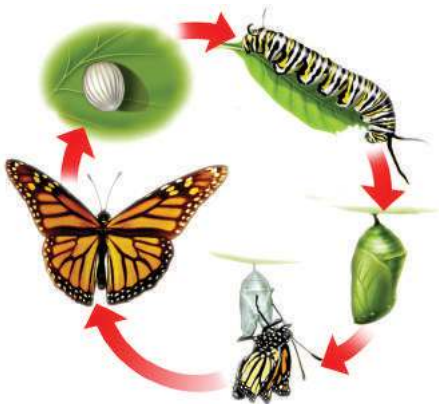
Ratnaneeli is the smallest butterfly. *Ratnaneeli*

Showing the lower surface of a leaf, Appu's father said: "Appu, look at this. These are eggs of a butterfly."

"Do butterflies come out from these eggs?" Appu raised his doubt.

Let us observe...

Wrap with a mosquito net that part of the branch where the leaf with butterfly eggs is. Observe it carefully everyday. Write down the changes you observed in the environment diary.



You can see the changes similar to those in the picture. The change of the egg hatching into a caterpillar and the caterpillar into pupa can be seen. How fascinating is the sight of a beautiful butterfly flapping its wings out from the pupa!

Aren't there beautiful gardens at your home and school?

Observe the variety of butterflies that visit the garden and its premises.

Observe the butterflies and fill up the card given below.



How long...?



Varieties of small butterflies live for a period from two weeks to three weeks and the bigger ones for a period from three weeks to twenty weeks. The life span of our striped tiger butterfly is around nine weeks.



The butterflies I saw

Name of the butterfly :.....

I saw the butterfly on (date) (month) (Year)

The place (forest, yard, garden, fields) where I saw the butterfly

The number (one, pair, group) of butterflies

The plant on which the butterfly was seen



Have a look at some of the butterflies seen in Kerala.



Thakaramuthi



Kariyilasalabham



Aralisalabham



Natturose



Neelakaduva



Erukkuthappi



Neelakuduka



Vilasini



Slate flash



Nattukomali



Pulitheyyan



Chakkara salabham



Thavidan aara



Karuppan



Manjapappathi

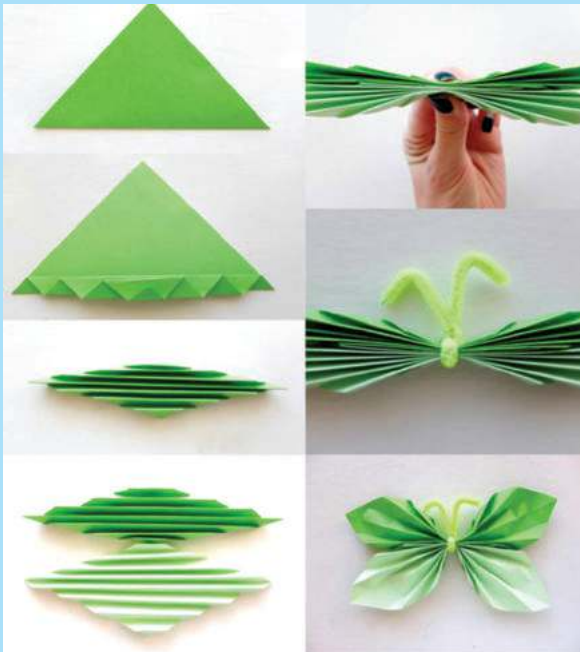
These pictures will help you identify the butterflies.

Look at a butterfly drawn by Sanimol.

Colour the remaining half.



Let us make a butterfly with paper



Look at the butterflies made by Appu using colour papers. Beautify your classroom by making butterflies with suitable colour papers.



Those flying away

Butterflies are now decreasing in number. Many varieties of butterflies have disappeared from the earth. Many kinds of plants like *thumba*, *krishnakireedam* etc. that give honey to the butterflies are also disappearing. Butterflies that suck honey help to produce new plants. Shouldn't we protect these wonders of colour that fly from flower to flower?





Significant learning outcomes

The learner can

- realize that there are different types of butterflies around us
- identify by name a few butterflies in one's own locality.
- identify the various stages of the life cycle of butterflies
- compile information by observing butterflies
- engage in activities to protect butterflies.



Let us assess

1. Which among the following will possibly happen if butterflies become extinct?
 - a. Plants dry up
 - b. The growth of plants decreases
 - c. Many plants will not have new saplings
 - d. Plants will not flower
2. You have understood the stages of growth of butterflies. Which of those mentioned below is the correct order of growth?
 - a. Egg → caterpillar → butterfly → pupa
 - b. Caterpillar → egg → butterfly → pupa
 - c. Pupa → egg → caterpillar → butterfly
 - d. Egg → caterpillar → pupa → butterfly
3. Butterflies are decreasing in number today. What may be the reasons for this?

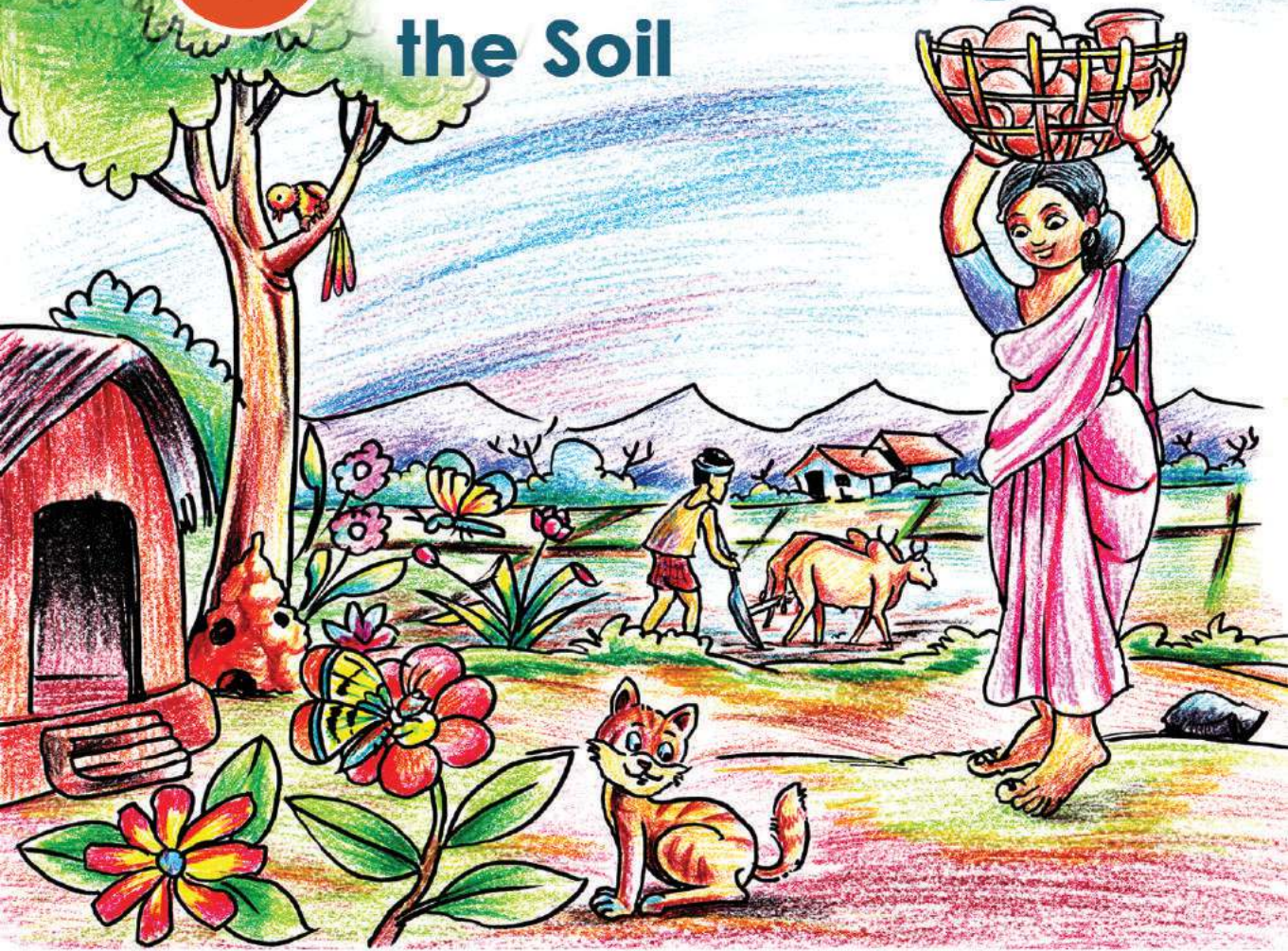


Extended activities

1. Collect pictures of butterflies and prepare an album.
2. Collect poems on butterflies.
3. "With a spotted shirt on you dear,
where do you fly, O butterfly?
"On my way to the goodly garden,
To suck sweet honey from flowers there!"
Draw a picture suitable for this poem and colour it.
4. Observe the plant in the premises of your house, on which more varieties of butterflies visit.

8

Let's Walk along the Soil



How beautiful is our earth!

How lucky to be born in this soil!

Trees, houses holding their heads high in the soil!

Butterflies buzzing to suck sweet honey.

Farmers toiling hard to reap gold from the soil.

Numerous creatures crying out “this land is ours too.”

Let us play in the soil and grow joyfully sensing the smell of the soil.

Let us try to know more about the soil.



Unnikuttan and Manikutty were playing making mud buns in coconut shells. While filling the coconut shell with mud, Unnikuttan saw a tiny creature in the mud.

He shouted in fear “Mom... a snake!”

His mother came running.

“Shame Unnikutta, that’s an earthworm, a poor creature of the soil.”

“Does it bite?” Manikutty raised a doubt.

“No, never. It is a little creature that helps us.” Mother’s words were a relief to Unnikuttan and Manikutty.





Friends,

I am an Earthworm. Don't I look like a small snake? But don't be afraid of me. As my name suggests, I live in the soil. I move by making small holes in moist soil. We move atleast seventy times up and down in the soil in a day. Thus we

make small burrows in the soil. This increases the passage of air through soil. Our food is soil. The soil we excrete is good manure. It may be because we keep tilling the soil day and night that we are called "friends of farmers." How happy we are to be addressed this way!

However, the chemical fertilizers and pesticides used for agriculture today, have put our lives in danger. Do you know how much we suffer due to the plastic waste thrown away by you to the soil?

Dear friends, you must at least take the initiative to save our soil. Please let us live.

*With love,
Your own Earthworm*

Didn't you read the earthworm's letter?

Which are the other creatures you have seen in the soil?

A voyage through Nature

Observe the soil and the creatures living in it in your premises.

Identify the creatures in the soil. Remember to find out the plants growing in your school premises too.



Let us complete the table

Creatures	Plants
• Earthworm	• Thumba
• Termites	• Thottavadi
• Antlion	• Coconut palm
•	•
•	•
•	•

How many are the creatures and plants in the soil! There may be even more creatures and plants that we haven't noticed. Many microorganisms invisible to the naked eyes also live in the soil.

We also live in this soil where there are numerous known and unknown creatures and plants.



How was the soil around us formed? Unnikuttan also had this doubt. Manikutty rubbed two stones together and collected the soil particles that fell down on a piece of paper kept below.

“Look Unnikutta, don't these stone particles look like the soil particles around us?”

“So, do stones break into smaller particles to form soil?” Unnikuttan asked.

“Yes, stones and rocks break into smaller particles to form soil. Teacher taught me so.”

Formation of the soil

Soil is formed by the breaking down of stones and rocks. They break due to the sun's heat, wind, rain and friction. This does not happen in a day or two, but in several years. Similarly, in several years, the soil hardens and forms rocks.

When his father came in the evening, Unnikuttan asked:

“Father, when we went to Appu chetan’s house, we saw red soil there. And at the sea shore we saw fine sand. Why is it so?”

His father smiled and replied, “all the soil that we see around us is not of the same kind. We can see some differences.”



Soil

What type of soil is found in your locality?

Is the soil in your locality the same as the soil in different places you see when you travel?

Soil is of different types.

Soil can be classified into alluvial soil, sand, red soil, clay and black soil.

Alluvial soil is the top soil that is carried away by water and sedimented at a place. Sand is mainly made up of tiny granules. Soil in red colour is red soil. Clay soil is soil that is sticky. Black soil is soil seen as black granules. Collect different types of soil and prepare an album.



“Unnikutta ... Amma is calling. Now let’s play after food.”

“My hands are dirty. Look Manikutty, how is that so much of dirt comes from the soil?”

“This dirt is formed from soil and other things in the soil.”

Composition of the soil

Friends, what is the composition of the top soil?

Let us try a simple experiment.



Collect soil from various places like the area around the well in your school, the school yard, area around a tree and the playground. See that you take the same quantity of soil from all these places. Put them in different glasses. Pour water and stir well. Keep them still for some time. What all do you see, dear friends? Write down the experiment note in the environment diary.

You might have seen soil settling down at the bottom of the glass. What else do you see apart from soil? Aren't there certain other particles floating on the surface of the water in the glass? Is the amount of particles in the soil taken from all four areas the same? In which soil were the other particles in greater quantity?

What are the things you could see in the soil?

- Dry crumbled leaves
- Crumbled twigs
- Tiny creatures
- Pieces of paper
-
-

Most of such particles that collect on the top soil decay in the soil and make it fertile. Plants grow very well in this soil. Such fertile soil is the best for cultivation.



“Manikutty, the soil has absorbed all the water I poured out for this plant. Will the plant get atleast some?”

“Unnikutta, isn't the soil dried by the heat of the sun? It would also be thirsty. It is the water in the soil that a plant absorbs through its roots.”

Soil and water

Do all types of soil hold water in the same quantity? Prepare yourself for the next experiment.

Collect muddy soil from a field, red soil and sandy soil. You must collect only dry soil.

Take three coconut shells and put holes in them. Keep cotton or cloth in the hole of the coconut shells. Fill the three coconut shells with the soil collected. See that the soil



is taken in equal quantities. Now place these coconut shells on a glass tumbler each. Pour water in same quantity in each of the shells. Observe for some time. Notice the quantity of water collected in the glasses. Is it the same?

Which of the soils in the coconut shells absorbed more water?

The capacity to absorb water is not the same for all types of soil. The capacity of sandy soil to absorb water is less. The capacity of red soil that contains organic matter to absorb water is greater.



The soil that is fertile and has greater capacity to absorb water is the best for cultivation. “Unnikutta, come.... I’ll show you a trick. There is air inside soil. Teacher told me so. “Air inside soil also?” Unnikuttan was surprised. Unnikuttan and Manikutty are preparing themselves for an experiment. Is there air inside soil too? Do you also share Unnikuttan’s doubt?

Let us do an experiment.

The air present in soil

Fill a glass half with water. Put one or two dry mud blocks into water in the glass. Don't you see bubbles coming up? Where do these bubbles come from?

Write down the experiment note in the environment diary.

Air is present in mud blocks too. When the mud block falls into water, water percolates into it. As a result, the air in the mud block does not have space to remain there. It comes out in the form of bubbles.

Isn't your doubt cleared now?

Place a straw inside the water in a glass and blow through it. Don't bubbles rise upward?



“Mother, look, all the plants in our vegetable garden are going to fall. The soil beneath the plants has been washed away. All the roots can be seen.” Manikutty expressed her grief.

“So heavy was the rain last night! The top soil must have been washed away.” Mother joined Manikutty.

“Mother, what is the problem if the top soil is washed away?” Unnikuttan came forward with his doubt.

“How can the plant stand firmly if the soil is washed away? It is the fertile top soil that is required for the growth of the plant.” His mother explained.

“That’s right. Mother, our teacher has taught us this too,” Manikutty replied.

Prevention of soil erosion

What are the harmful effects of soil erosion?

- Top soil is washed away
- Agriculture is destroyed
-
-

During the rainy season, the soil from our yards and premises is often washed away.

Soil erosion is greater on slanting land surfaces. All the factors that are required for the growth of plants are present in the top soil. Thus soil erosion leads to the destruction of plants.

If this is so, shouldn’t soil erosion be prevented? Why not try an experiment?

Prepare a mud mound in your school premises.

Fix grass stocks on one half of the mud mound. Make many holes at the bottom of a metal vessel. Pour water over the mud mound through it. What happens to the soil in the portion where grass stocks are fixed and that in the other portion?



The roots of grass and plants prevent soil erosion by holding soil firmly. A lot of soil on the other side gets washed away. Much of the soil is washed away like this during the rainy season! Haven't you seen hill-slopes cut into different levels for farming? This not only enables rain water to seep into the soil but also prevents soil erosion. When rain water falls over open land, the soil is loosened and it gets washed away. This sort of erosion can be prevented by planting trees and grass. The roots of trees, plants, grass etc. grow into the soil and prevent the washing away of soil.



“Look, our father has come” Unnikuttan ran to him and took the packet from his hand. “Wow, biscuits!” He opened the packet and started eating, and did not forget to give some to Manikutty too. He threw away its cover to the yard. “Dear child, don’t throw the plastic cover to the yard. It is harmful if it is left there.”

“Why? What is the problem?” Unnikuttan had a doubt again.

Do you act like this?

What will happen if this is done?

Do not pollute soil

Let us try an activity.

Take two pits in the school premises. Put plastic bottles, packets, polyester cloth pieces, glass pieces, thermocol etc. in one pit and bury it under the soil. Put green leaves, vegetable waste, newspaper pieces etc. in the second pit and bury them with mud. After a few days, remove the mud and examine both pits. What difference is seen?

The objects dumped in the first pit remain without decomposing in the soil. The objects will not undergo any change even if they remain like this for years together. Think of the possible harm if such objects accumulate in soil.

However, none of the objects dumped in the second pit can be seen. They have decomposed in the soil as manure. This helps agriculture and the growth of plants. What we can do is to reduce the use of objects like plastic which do not decompose in the soil and prevent depositing them in the soil.

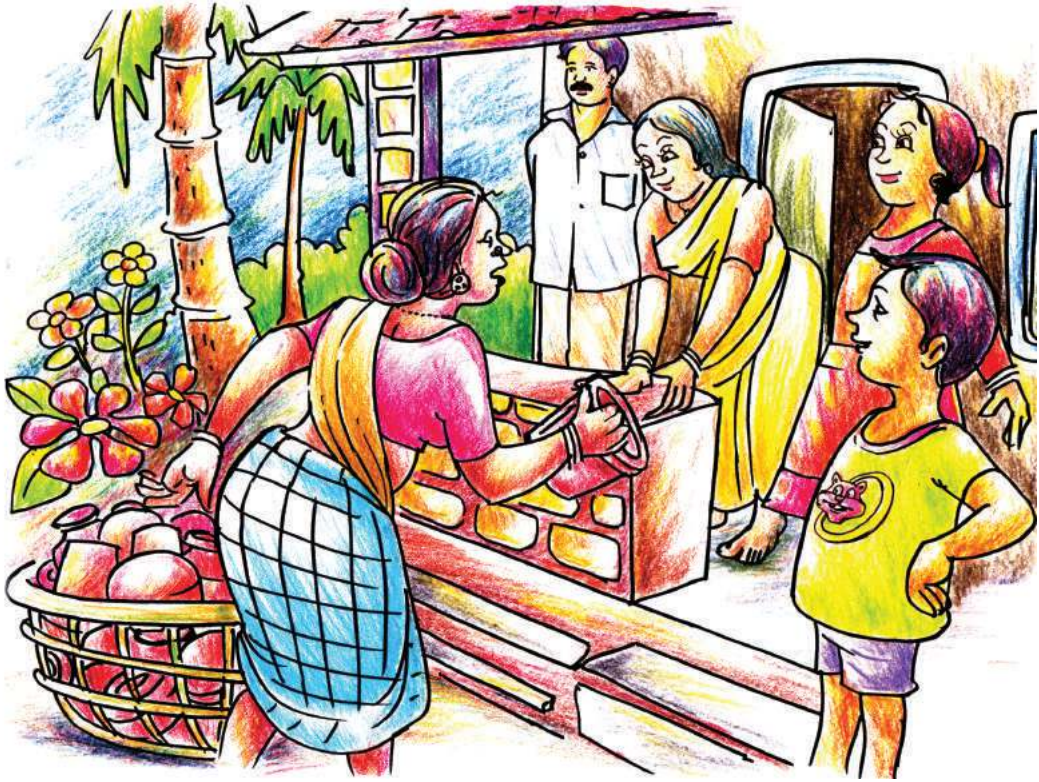


I will
never pollute
this soil



What the Pen Says:

Friends, all of you know me. I am made of plastic. Most of the people use me, and after use, I am usually thrown away. Suppose every school child in Kerala discards one plastic pen every month. That is, twelve in a year. Just imagine our number discarded in a year by 40 lakh children.... Oh.....terrible!



The flower pot vendor came at the doorstep. There were pots of different kinds in her basket.

“Want a mud pan to make fish curry,” mother came to the yard.

“I need a flower pot to plant a rose” Manikutty also came there.

“I too need a small flowerpot,” Unnikuttan joined them.

“What is the price of a flower pot?” Father asked.

“It’s only seventy rupees sir.”

“Oh... that’s too much!”

“Sir, mud is not available now. You know how difficult it is to make these with mud.”

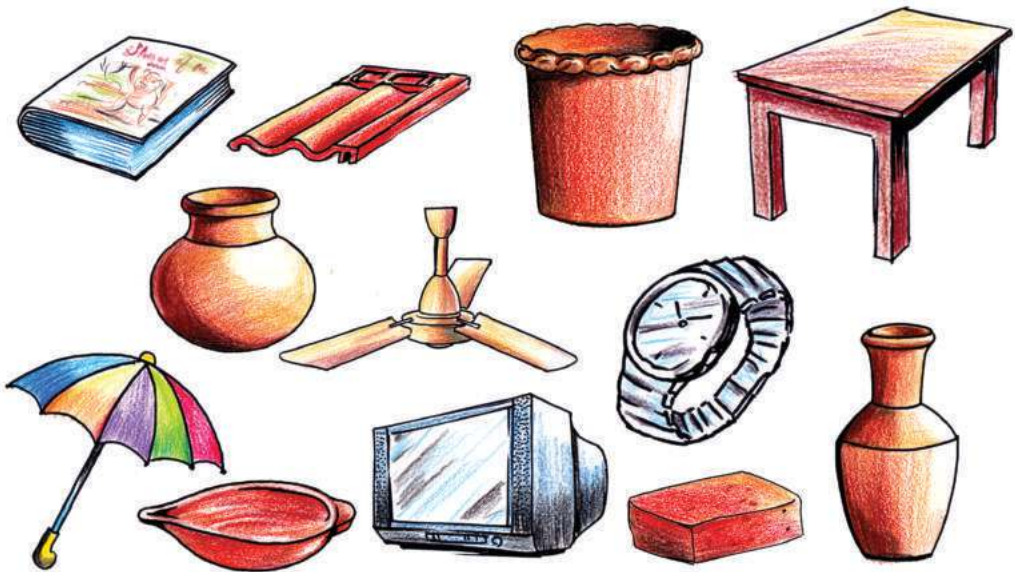
After buying the required number of pots, Unnikuttan stood there with another doubt.

“Are these pots made of mud?”

Mud in different forms

What are the products made of mud?

Tabulate the objects shown in the picture below into those made of mud and those made of other substances.



Objects made of mud	Objects made of other substances
<ul style="list-style-type: none"> • Pot • • • • • 	<ul style="list-style-type: none"> • Umbrella • • • • •

What other objects made of mud have you seen?

Several products like *bharani*, fire stove, floor tile, curios and toys are made of mud.

All kinds of mud are not used for making such objects. Sticky, hard clay is used for this.

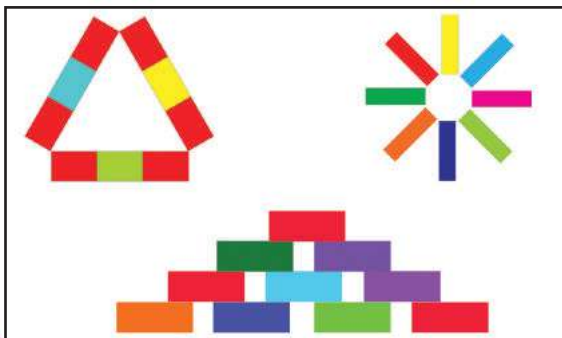
Objects of different shapes are made out of clay, thoroughly mixed with sufficient water. Then they are dried and baked in fire. Is there a pottery unit in your locality? If there is one, try to visit it and find out how pottery is made. Record your observation in the environment diary.



Making structures with mud

Dear friends, try to make different shapes and toys you like by collecting sticky mud from the field. Let us familiarize ourselves with an interesting construction method using mud.

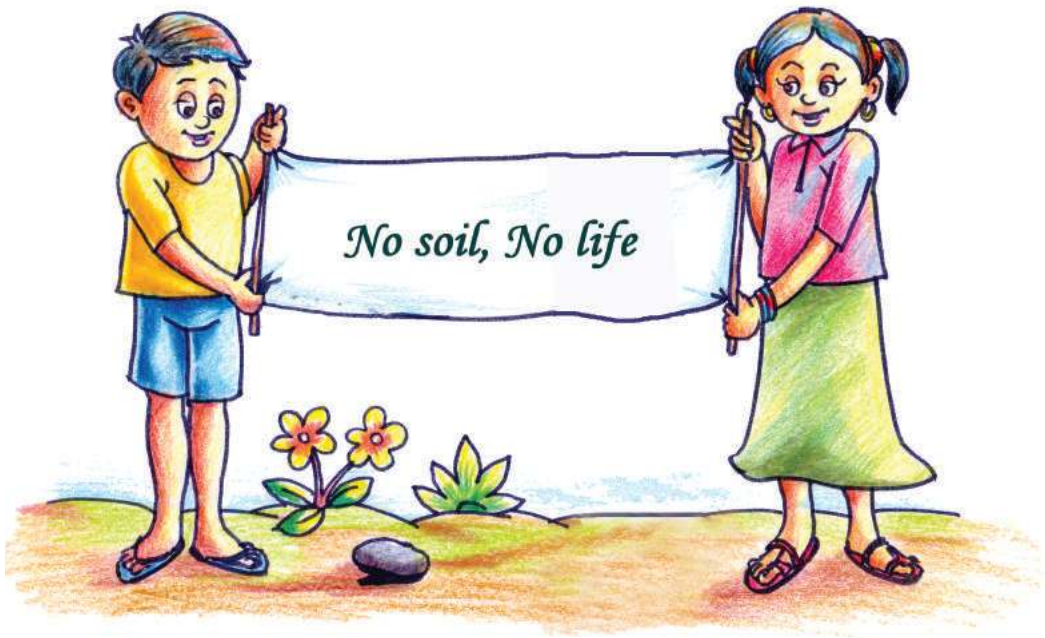
Collect empty match boxes. Fill these match boxes with mud made into fine paste. Now take out the mud forms from the match boxes and dry them well in the sun. You get small mud blocks. Give different colours to the mud blocks using water colour. You can make many interesting structures using these mud blocks!



If there is no soil...

Plants from grass to huge trees and animals from microorganisms to giant creatures depend on soil for existence. Whereas, humans depend on animals and plants for their livelihood.

So, if there is no soil, the existence of all organisms including humans will be in danger. It is our responsibility to protect our soil.



Significant learning outcomes

The learner can

- identify the presence of a lot of minute organisms and plants in soil.
- explain the concept that soil is formed by the breaking of stones and rocks.
- compare different types of soil like sandy soil, clay soil and red soil and find out their similarities and differences.

- identify and explain the colour of soil and its capacity to hold water.
- carry out precisely and accurately experiments related to the components of soil, its capacity to hold water and presence of air in soil.
- identify the reasons for soil erosion and suggest remedies.
- identify some situations that pollute soil, suggest remedies and execute them.
- make different structures using clay soil.



Let us assess

1. Which among the following is a place possible for soil erosion?
 - a) place with grass and trees
 - b) hill slopes cut into different levels
 - c) sloping land without any plants
 - d) plane land
2. Which is the most appropriate soil for plants?
 - a) powdered rocks
 - b) sandy soil
 - c) the top soil of a place with plants
 - d) soil taken out from a deep pit.
3. Which of the objects mentioned below pollute soil?
Ball pen, polyester cloth, plastic packets, cotton cloth, leaves, bottles, newspaper, decayed fruits.



Extended activities

1. Prepare posters suggesting instructions to avoid depositing plastic packets in soil and exhibit them in the school premises.
2. Prepare a note after observing ants.
3. Collect stones of different colours in separate groups, and grind stones of the same colour separately. Draw pictures of flowers on chart paper and fill the pictures with powdered soil using gum.

9

Safe Journey



Friends, did you read today's newspaper? What are the main news of the day? Hope you have read the news given along with the pictures above.

How many such news appear everyday! What may be the reasons for so many road accidents? Try to write them down.

Did you identify the same reasons as those given below?

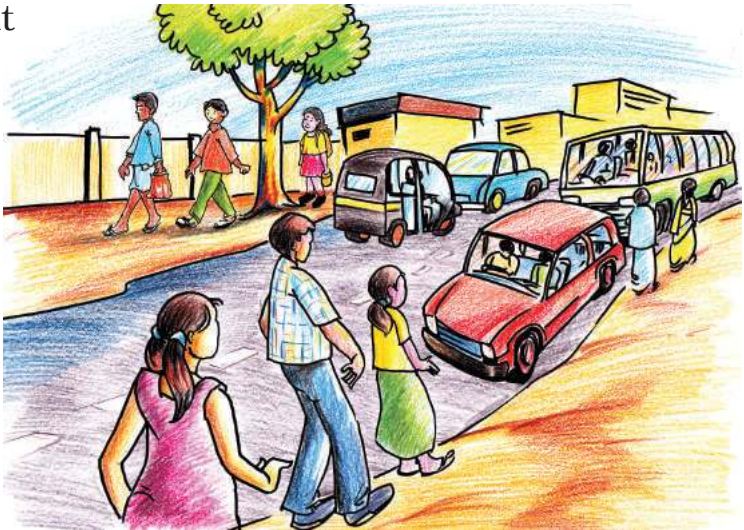
- Over speed
- Carelessness
- Increase in the number of vehicles
- Driving vehicles after consuming liquor
- Unsafe roads
- Unsafe vehicles
- Inexperience of driver
- Not obeying traffic rules.

Thus it can be seen that there are many reasons for road accidents. Shouldn't we see to it that accidents do not occur? The best way for this is to obey traffic rules.

If vehicles are driven observing the traffic rules, many accidents can be avoided. Should people who drive vehicles alone observe traffic rules? Pedestrians, passengers in buses and bicycle riders etc. should also follow traffic rules. Only then will our journey and our life be safe.

Do you come to school walking? Why is it said that pedestrians must walk along the right side of the road?

- When we walk along the right side of the road, we can see vehicles coming from the opposite direction.
- Vehicles coming from behind will move along our left side.



- If there is a footpath, walk only on it.

There are footpaths for pedestrians in crowded places and towns.



You might have seen certain signs on roads like those in the picture. This is where pedestrians should cross the road. It is called zebra line. You must cross the road only along the zebra line.



Are there signs like this on the roads in your locality?

Look at the picture of pedestrians crossing the road. Do you also cross the road along the zebra line?



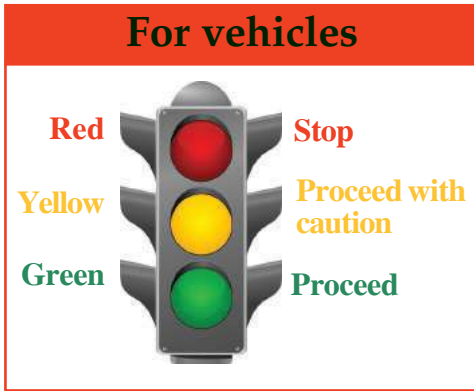
How should you cross the road at places where there is no zebra line?

Cross the road only after making sure that vehicles are not coming either from the right side or from the left side of the road.

Signal lights

Haven't you seen signal lights at crowded junctions for vehicles and pedestrians?






Look at the pictures shown above. Write down what each colour of the signal light indicates.

You must observe these signals while travelling. There are many more traffic signals like these. So next time when you travel, won't you pay attention to the sign boards put up on the road side? Find out what each of them indicates.

Rules are to be followed not just by vehicle drivers and pedestrians. Passengers in buses and other vehicles must also pay attention to certain things. What are they?

- Do not keep your hand or head outside while travelling in a vehicle.
- Do not try to board a running vehicle.
- Alight only after the vehicle halts.
- Do not spit out from a running vehicle.
- Sit safely in the vehicle by holding on.
- Wear seat belt.
-
-



Little hands, Great service

Minimol is on her way to school. Vehicles are rushing along the road. She walked carefully along the side of the road. She saw a blind old man struggling to cross the road. He looked just like her grandfather. Minimol felt sad seeing the plight of the blind old man. She went near the old man. Holding his hand, she helped him cross the road along the zebra line. The old man felt happy.

He said : "May good things fall on you, daughter."

Walking to school she thought :

"Let no accident happen to that grandpa"



Friends what Minimol did was right, wasn't it?

What would you do if you were in her place?

Have you experienced such situations?

Just imagine what relief your helping hands would be to them!

**It is our duty to help people finding
it difficult to cross the road.**

Is there a railway cross on the way to your school?

You must be very careful while crossing a railway track. Do not ever walk along the railway track. Do not try to cross a railway track when you



see the signal light. Have you ever thought of the great danger if you do not pay attention?

Let us drive vehicles

Shall we play a game of driving vehicles? Are you ready, friends?

Draw a road in your school ground. Take care that you draw some roads to the right and some to the left. Draw zebra lines at two or three places. Let five or six children act as vehicles. Hang boards on the neck showing the name of the vehicle.

Let two or three children be bicycle riders.

Who are to be the pedestrians? You may decide.

There must be a traffic police officer too.

Three of you must stand holding boards indicating the red, yellow and green signal lights.

Are you all ready? Now let's start the game.

How was the journey?

Were there any accidents?

Where are the problems encountered?

Now, what all must be taken care of?

Didn't you all enjoy the game?

Read the statements given below. Put a tick mark (✓) against those that should be done and a cross mark (×) against those that should not be done.

- Walk along the right side of the road.
- Board a running vehicle.
- Look on both sides and then cross the road.
- Play with friends on the road.
- Do not talk on the mobile phone while driving.
- Walk along the railway track.
- Cross the road along the zebra line.
- Walk in groups on the road.
- Passengers should not keep hand or head outside the vehicle.
- Two-wheeler riders must wear helmet.





Significant learning outcomes

The learner can

- mention the reasons for road accidents.
- mention the rules to be observed by pedestrians and passengers in vehicles.
- identify traffic signals and say what the colours indicate.
- mention traffic rules which should be followed strictly.
- suggest the things to be taken care of in order to avoid road accidents and ensure safe journey.



Let us assess

1. In the signal lights for vehicles, the colours red, yellow and green are seen in the order from top to bottom. What are the indications given by each of them for drivers?
 - (a) Stop, go ahead, caution
 - (b) Caution, stop, go ahead
 - (c) Go ahead, stop, caution
 - (d) Stop, caution, go ahead
2. Which among those mentioned below should be followed by pedestrians?
 - (a) Fasten seat belt.
 - (b) Walk along the right side of the road.
 - (c) Wear helmet while travelling.
 - (d) Walk along the left side of the road.

3. What instructions will you give to the children returning home from school for safe journey?



Extended activities

1. Prepare and exhibit posters related to Road Safety.
2. Draw Traffic Signal Lights in your environment diary. Note down what each of them indicates.

10

A Journey Through Kerala



Examinations are over.

Manu is very happy.

His father promised an excursion during the holidays.

Manu is waiting for a trip through the fourteen districts of Kerala.

He often takes a look at his picture album.

Here are a few pictures from Manu's album.



Thekkady



Kovalam



Bekal Fort



Idukki Dam



Thunjanparambu



Athirappally

These are some of the beautiful sights in Kerala. There are many more... We should be proud of being born in such a beautiful land.

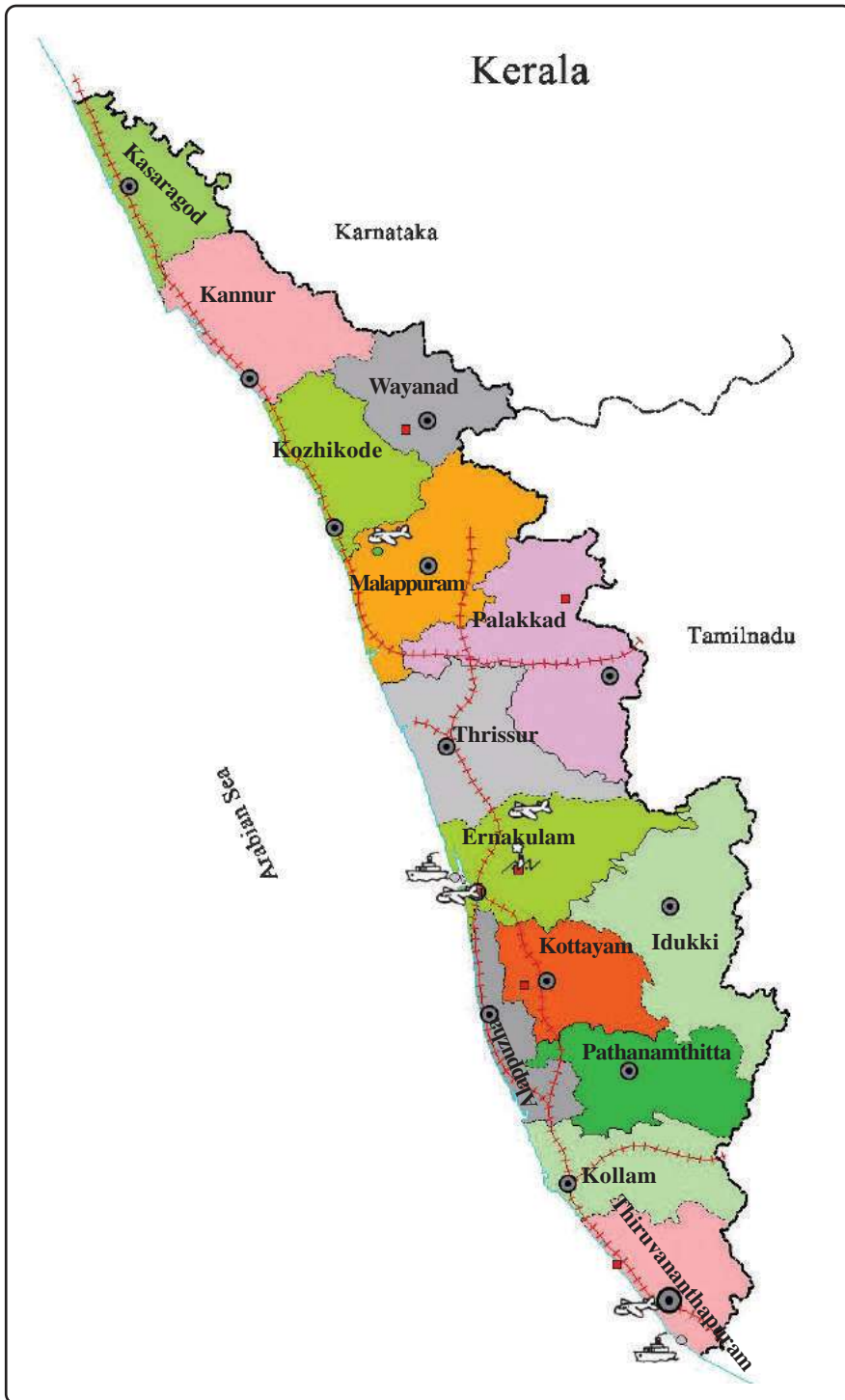
Kerala is our state.

There are fourteen districts in Kerala

Thiruvananthapuram is the capital of Kerala.



Manu and his family have started preparations for the trip. Manu is sitting in front of the map brought by his father. He is writing down the names of each district in Kerala.



Examine the map of Kerala, identify the fourteen districts and write down their names.

Districts	
1.	8.
2.	9.
3.	10.
4.	11.
5.	12.
6.	13.
7.	14.

Which is your district?

Do you know the names of places in your district?

Write them down.

-
-
-

Which of these places have you visited?

There are numerous places like these in other districts also. Manu has written a few details of each district he has visited.

Look at the details he wrote about Wayanad district.

District	: Wayanad
District Headquarters	: Kalpatta
The year the district was formed	:
District Collector	:
Neighbouring districts	: Kannur, Kozhikode, Malappuram
Important places	: Edackal Caves, Pazhassi Memorial, Muthanga Wild Life Sanctuary, Thirunelli, Kuruva island, Pukkode lake.

In the same way try to collect the details of your district.

Picture gallery

A land of beautiful nature,

The sweet land of Malayalam,

Our little land Kerala.

They had taken several photographs during the trip. Look at some of them. Write their names.



*Lion tailed macaque
(Simhavalan Kurangu)*



.....



.....



.....



.....



.....



*Great Indian Hornbill
(Malamuzhakki
Vezhambal)*



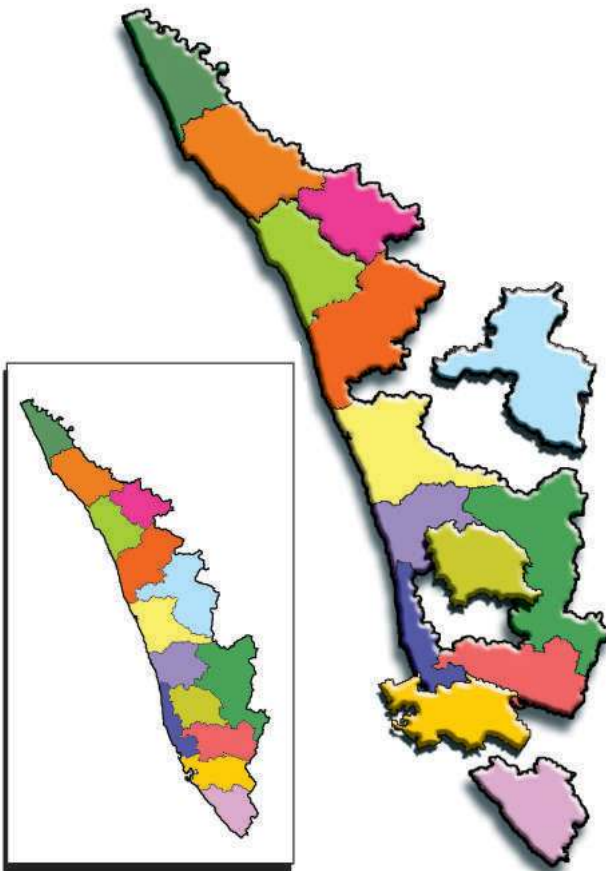
.....



*Green Chromide
(Karimeen)*

Some of these pictures are symbols of our state too.
Can you identify them?

- Our state animal :
- Our state bird :
- Our state fish :
- Our state flower :
- Our state tree :



Let us make a jigsaw and play

Cut a cardboard or a thick sheet of paper in A4 size. Paste a same sized photocopy of an outline map of Kerala on it. When it dries, cut out each district carefully. Do it with the help of elders.

Now place each district appropriately and complete the map of Kerala. Award points to those who complete it in a fixed time and continue the game.

Birthday sweet

Manu was excited that his birthday was going to be celebrated in Munnar.

His father bought him his favourite dress as birthday gift. Manu immediately thought of Babu, his classmate-his dear friend who could not buy even study materials.

“Father.... I need one more pair of dress” – he revealed the matter to his father. His father was very happy about it. He bought another pair of dress for him.

I must reach Babu’s house at the earliest. I must give this gift to my dear friend. This was the only thought of Manu. Aren’t there many friends around us who face difficulties like Babu?

What can you do to help them?

When is your birthday?

•

When is the anniversary of your school?

•

Dear friends, don’t you wish to know when the birthday of our state is?

My Kerala

Kerala was formed on November 1, 1956. Ours is one of those states in India which were formed on the basis of language, a state of Malayalam speaking people.

We observe the State formation day of Kerala on November 1 every year.

- How do you celebrate the State formation day of Kerala in your school?
-
-

The Iravikulam National Park



The Iravikulam National Park is situated in the Idukki district. The Nilgiri Tahr, a species under the threat of extinction, is being protected here. Several rivers originate from this National Park. Visitors are allowed only at Rajamala the tourist area inside the park. A wide variety of animals dwell safe here.



Manu and his family are now in Thiruvananthapuram, the capital of Kerala. They are enjoying the sights there. The next day they will return to Kasaragod. The return trip is by train. Manu is very fond of train journey.

- They reached Kasaragod by a train that passes through Kottayam. Can you name all the districts through which Manu's train would have passed?
- Are there districts through which trains do not pass? Name them.

Beautiful Kerala

Lush green paddy fields... the high hills... the flowing rivers.... the huge shady trees... flowers... butterflies.... peacocks.... Herds of deer... How many beautiful sights!

All this beauty belongs to my little Kerala.

How beautiful my Kerala is!

Let us try to know more about the great land of Kerala.

To learn about our forests

Several bioreserves function under the Forest Department. Camps are conducted for students in such areas. Food and accommodation are provided free of cost. Make use of such camps to learn more about our forests.





Significant learning outcomes

The learner can

- realise that Kerala is very beautiful.
- identify the 14 districts of Kerala.
- explain details about his/her own district
- identify the official symbols of the state and mention them.



Let us assess

1. Which among the following districts do not have a sea-shore?
 - a. Kannur, Malappuram
 - b. Thiruvananthapuram, Kozhikode
 - c. Wayanad, Idukki
 - d. Alappuzha, Thrissur
2. Identify the official symbols of Kerala from the following, and circle them.

Snake, Malamuzhakki Vezhambal, Tortoise, Elephant, Buffalo, Thettipoovu, Shark, Karimeen, Coconut tree, Banyan tree, Kanikonna.
3. What will be the order of the districts you and your family would pass through if you travel by train from Kozhikode to Ernakulam?
 - A. Kozhikode, Thrissur, Malappuram, Palakkad, Ernakulam
 - B. Kozhikode, Malappuram, Thrissur, Palakkad, Ernakulam
 - C. Kozhikode, Malappuram, Palakkad, Thrissur, Ernakulam
 - D. Kozhikode, Palakkad, Malappuram, Thrissur, Ernakulam



Extended activities

1. Draw the map of Kerala and label the districts.
2. Collect pictures of the official symbols of Kerala.
3. Complete the following information about Kerala:-

My Kerala

Number of districts :

Capital :

Kerala formation day :

Our language :

My district :

My neighbouring districts :

11

The Earth we inhabit



Years ago, there was a captain named Magellan. He left his country on a yacht to travel all over the world. They did not have many facilities as we have today. Days, months and years passed. He went ahead. After travelling for several years, the captain and his friends found themselves on their own land. What a surprise!

On reaching his country, he told his people: “I discovered that the earth is round. It is because the earth is round that I could come back here.”

Is he right, friends?

Identifying shape

Can you draw the shape of your school building sitting in your classroom? Try.

If not, come out to the verandah and have a look.....

Can you now see the shape of the entire school building?

How is it when you give a look at your school from the school ground?

Don't you now get a view of the whole building?

Similarly, we cannot identify the shape of the earth if we are on it.

Then how could we identify the shape of the earth?

Friends, haven't you seen the picture of the earth?

The picture of the earth photographed from the distant sky is given below.

We identified the real shape of the earth with the help of this picture.



We made a model, as seen in the picture, to study the earth.

And, that is the globe.



Look at the globe on the table. Haven't you identified the shape of the earth?

The earth is round, almost like an orange. Like the earth, the sun and the moon are also round in shape.



What are the objects around us that have the shape of the earth? Try to recollect.

Which among those shown below have the shape similar to that of the earth? Put a (✓) against them.



Draw the picture of the earth in your environment diary. Beautify it observing the globe.

Darkness and light

The teacher gave Meenu a torch. “Aditya, shut all the doors and windows,” the teacher said.

“Haven’t you seen the globe on the table?”

“Now light the torch on to it”.



“Can you see all parts of the globe clearly?”

“Can’t see the other side of the globe, teacher,” Mustafa said.

“Why is it not seen?”

“Because the light does not fall there,” Shifa replied.

“Look, it is bright on one side of the globe and dark on the other side”.

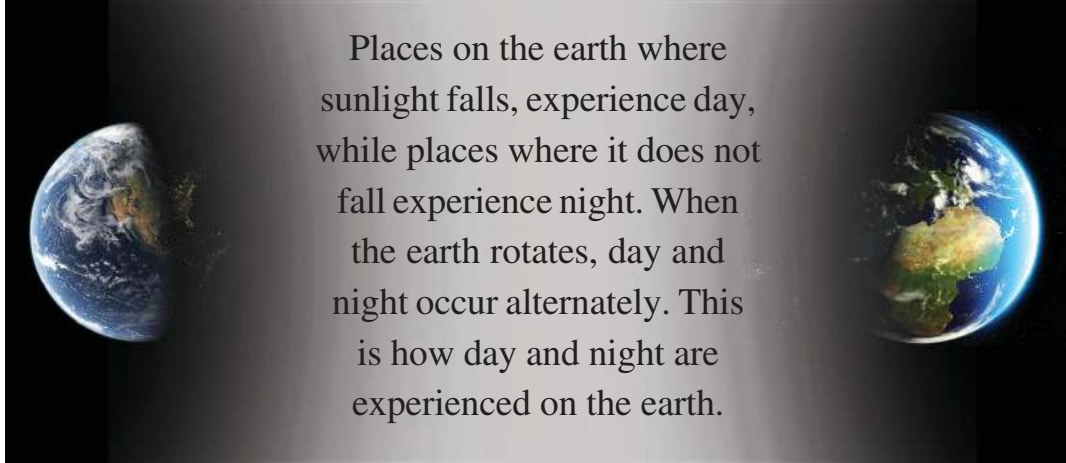
“Shall we turn the globe and see?”

“How is it now?”

“It is dark where it was bright and bright where it was dark”, Shaji answered quickly.

“Now open the doors and windows.”

Imagine the globe as the earth and the torch as the sun. Can you now say how night and day occur on the earth?



Places on the earth where sunlight falls, experience day, while places where it does not fall experience night. When the earth rotates, day and night occur alternately. This is how day and night are experienced on the earth.

Try to do this experiment using a ball and a torch. Record the observations in your environment dairy.

Did you see our country on the picture of the earth?



Examine the globe and find the position of India.

“Shall we watch a video now?” The children were happy and excited at the suggestion. The teacher took them to the smart classroom and showed them a video on how day and night are experienced on the earth.

Eduubuntu-School Resources - K Star
See ‘Bhramanam Parikramanam.’



Colourful and bright

All the children returned to the class. Kumar and Rafeeq became curious as they turned the globe on the table.



Kumar : There are so many colours on this.
Yellow, red, green, blue....
Something is written above each colour.

Rafeeq : You are right. So beautiful! But most of it is blue in colour.

They decided to ask the teacher their doubt. As soon as the teacher came, they asked her about it.

The teacher asked them a few questions in return:

“Haven’t you seen the sea? What is the colour of the sea?”

The children answered: “Blue”

“Now tell me... what could be shown in blue on the globe?”

“The Sea,” they answered unanimously.



A globe is a model of the earth. The blue colour on the globe indicates sea. The other colours indicate land. The land is only half the portion of the sea on the earth.

After reading this, Rafeeq had another doubt. He rotated the globe. He couldn’t believe that sea is double the area of land, and that land forms only half the area of sea.....

He approached the teacher with the doubt.

The teacher gave everyone a piece of paper.

“Now try to do as I do.”

The teacher folded the paper in her hand into three equal parts.

“Now unfold the paper. How many parts are there?”

“Three parts” all of them said.



“Don’t you all like colouring? Colour blue on two parts of the paper and any other colour on one part.”

“Now imagine that the paper in your hand is the total size of the earth. The two blue coloured parts are sea and the one part with a different colour is land.”

“Oh! How big the sea is!” Rafeeq expressed his wonder.

You can go on talking about the earth. Our earth is a sphere of innumerable wonders. Let us wait for the higher classes to learn other interesting things about the earth.



Significant learning outcomes

The learner can

- identify the shape of the earth.
- identify and explain that the sun and the moon are also round in shape.
- carry out experiments using ball, torch etc.
- explain how day and night occur on the earth.
- identify and explain that the area of the sea on the earth is greater than that of the land.



Let us assess

1. The model we made, similar to the shape of the earth, to study about the earth is
A. Globe B. Torch C. Map D. Wheel
2. Day and night appear alternately on the earth
A. Because the earth revolves around the sun
B. Because a major part of the earth is the sea
C. Because there are many nations on the earth
D. Because the earth rotates on its own
3. Why does the picture of the earth taken from space appear blue in colour?
A. Because a major part of the earth is water
B. Because there is atmospheric air around the earth
C. Because the colour of the sky is blue
D. Due to the peculiarity of the camera
4. We can take pictures of the earth only from the distant sky. Why?



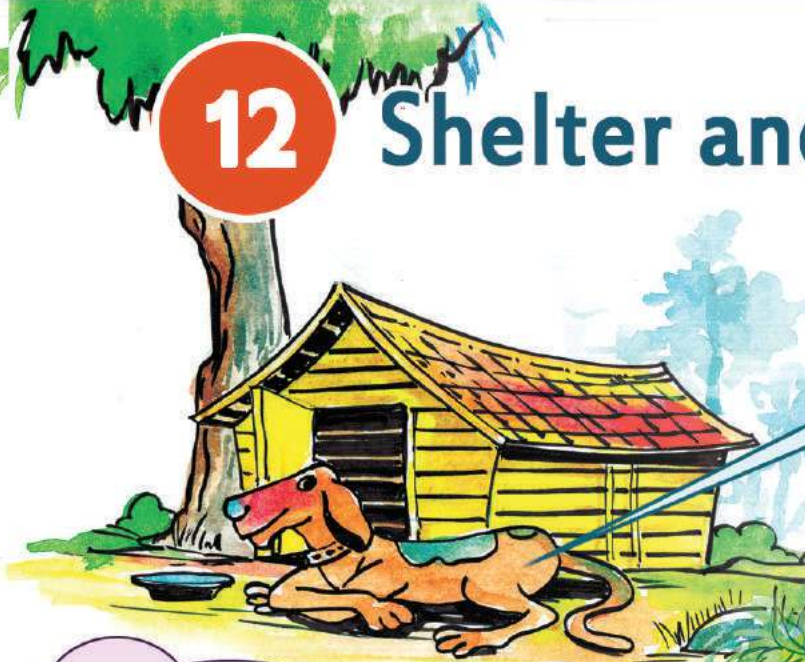
Extended activities

1. Observe the sky during day and night. What are the peculiarities seen?
2. Let us make a globe, the model of the earth.

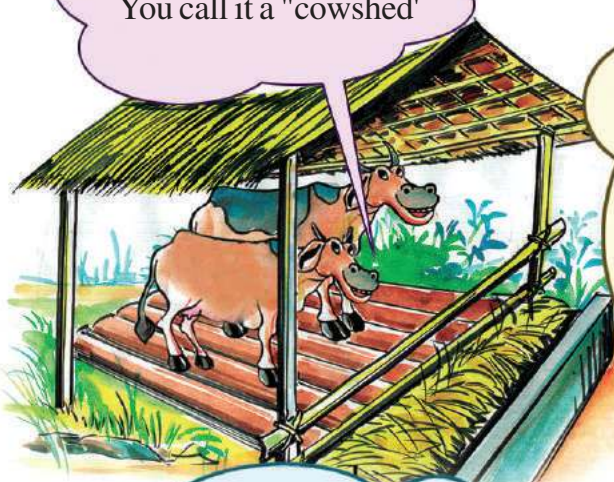
After inflating a balloon, fix wet newspaper on the balloon in five layers, one over the other. Then dry it well in the sun. After this, paste white paper on it and make it a globe with required colours.

12

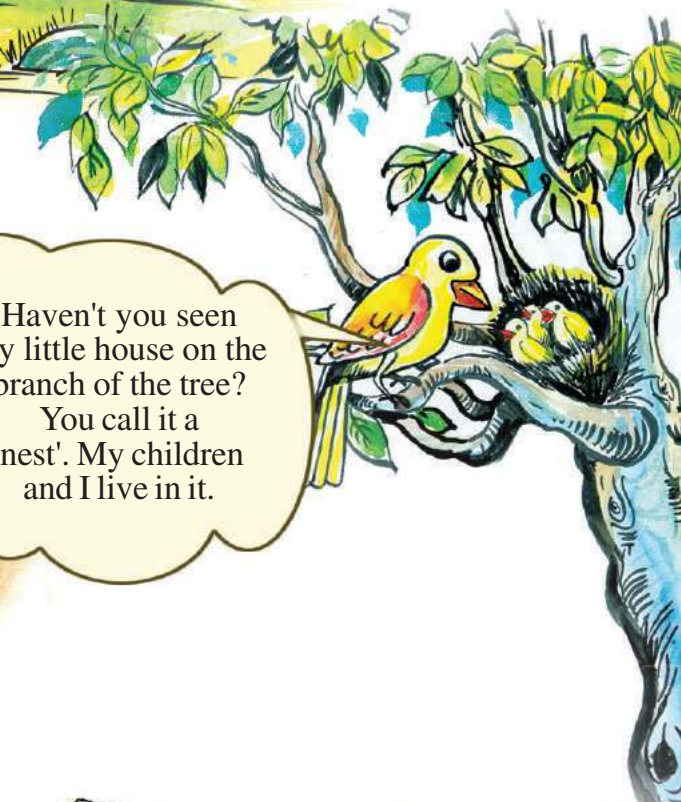
Shelter and Clothing




I am Kaiser.
This is my house. My
master made it for me. I
live comfortably in this
house which is called a
'kennel'



We, cows, too have
a house to live in.
You call it a "cowshed"



Haven't you seen
my little house on the
branch of the tree?
You call it a
'nest'. My children
and I live in it.



I too have a
small house
like you all have.
My father, mother,
sister and I live
here happily.

All of us need a house to live in safely.
We too have houses. There are so many houses around us, big and small.
Why do we build a house?
What are the uses of a house?

- To live safely
- To protect ourselves from heat and rain.
- To protect ourselves from harmful creatures.
-
-



Aren't there houses as shown in the figure in your locality?
What are the materials used to build the roofs of these houses?

Grass	

What are the other materials used to build roofs?

Nowadays, many changes have come about in the construction of roofs.

Houses with thatched roofs are now a rare sight in our villages.

Houses with thatched roofs made of grass, coconut leaves etc are cooler inside. The cost of the construction of such houses is also less. However they are not so strong and do not last long. Houses with tiled and concrete roofs are constructed in larger numbers now. Of late, different types of sheets are used for roofing. A variety of materials is used for the construction of the floor, wall etc. What could they be?

Examine the table prepared by Anoop and friends after visiting the houses in their locality.

Name of house owner	Material used for floor construction	Material used for wall construction	Material used for roof construction
Leela	Black stone	Redstone	Concrete
Seena	Mud	Mud block	Grass
Shyja	Red stone	Cane	Coconut leaf
Naseeba	Red stone	Brick	Aluminium sheet
Aneesh	Black stone	Cement brick	Tiles

A variety of materials is used for the construction of the floor, wall and roof of houses and buildings.

What are the materials used for constructing the floor, wall and roof of your house? And of your school?

	School	House
Floor		
Wall		
Roof		

How many classrooms are there in your school? Aren't there other facilities like the office, library, kitchen etc.?

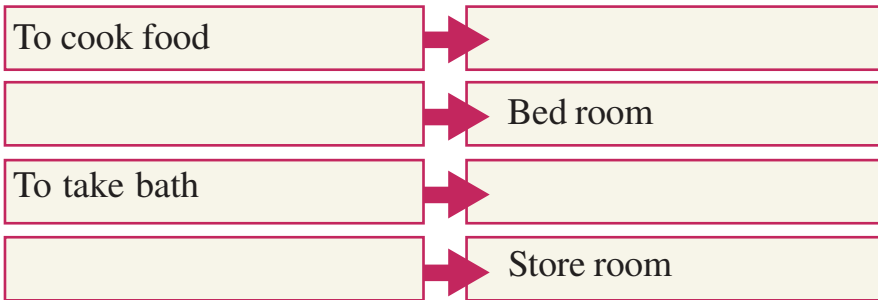
Similarly, we take care to ensure necessary facilities while constructing houses too.

Do we use all rooms in our house, for the same purpose?

In which room do we cook food?

Each room of the house is used for different purposes.

Complete the table given below.



Construction of Houses

Have you seen the construction of a house? There are mainly three stages in the construction of houses.

They are the construction of the floor, the wall and the roof. There are more things to be done in relation to the construction of a house. What are they?

Wiring , plumbing, plastering, flooring, painting, carpentry....

Each type of work requires the service of different labourers.

Visit a house that is under construction and find out the different types of work related to its construction. Note down the details in the environment diary.



House in tree too

Tree houses (*yerumadangal*) are houses made of dry stick, bamboo, grass and coconut leaves on branches of trees. These help us to escape from wild animals.



Huddles of houses

Houses known as flats are seen more in cities. Many families live separately in the same building. Many houses... many families...

Ice Houses too

These houses are made of iceblocks. Such houses are built in places covered with ice throughout the year. Walls and roofs of these temporary houses are all made of ice blocks. These ice-houses are called 'igloos'.



Stilt house

Such houses are built in places where floods are likely. These houses are usually built at a height of approximately 10-12 feet. The pillars are made of either bamboo or wood. Walls are also built of bamboo.



Houses are not built the same way everywhere. Besides convenience and safety, they are constructed by considering peculiarities and climate of the place as well.

I bought two air-conditioners. Can't bear the heat. But the power charges are high. However, I can't manage without the AC



I don't need an air-conditioner as there are trees around my house.



We must construct houses that suit the environment. What are the things we must take care of while constructing such houses?

- Plants and trees must be grown in the house premises
- More windows should be included for the passage of air and light.
- Planting grass and plants in the yard is better than concreting or fixing cement blocks.
- Keep the house and premises clean.

Let's make a house

Let us try to make the model of a house.

Cardboard, chart paper, thermocol, gum, scissors, paper and water colour are required for this.

Now construct a little house of your imagination.

A helping hand



How nice it would be if every one has a house of his/her own! There are several government schemes that help the homeless to build houses. Besides this, there are organisations and individuals who help in this regard. Can't we also participate in such activities?



Did you notice the pictures? These people live in great difficulty. Is it possible for us to ignore their suffering?

A colourful garment

Like home, dress is another thing we need.

How beautiful is the peacock!

How many such beautiful birds with colourful feathers are there around us!

Why do they have these feathers?

Is it just for beauty?

Feathers help them to fly and escape the cold.



Examine the pictures. They live in very cool places. Thick skin and hair protect such animals from cold.



Have you ever worn woollen clothes?

Clothes protect us from the cold and sunlight. Clothes protect the body from the attack of insects. Besides, clothes cover our body protecting it from dust and dirt.

Nature's boon

How splendid are the clothes we weave from substances taken from nature!



Woollen clothes are made from the fur of sheep.



Cotton clothes are made from the fibre of cotton plant.

You may have seen silk garments.

The silkworm is a kind of worm that grows on mulberry plants. Silk fibre is made from its cocoon. Silk garments are made out of silk fibre.

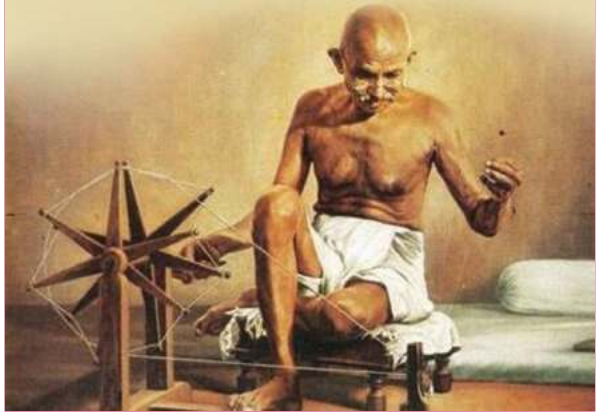


You have now learnt about garments made of cotton, wool, silk etc. Besides these, there are garments made of artificial fibres like polyester and artificial silk.

Many of us wear expensive garments every day. However, we should realise that there are also people among us who do not even have another set of dress to change, and therefore wear torn and dirty clothes.

Shouldn't we help them?

In the past, cotton dresses were used more commonly in our country. There was no stitching machine at that time. Woven cloth was worn without stitching. Leafs, flowers and tree sap were used to provide colours to the clothes. Mahatma Gandhi, the father of our nation, used to spin spun thread on the 'Charkha' and wear dress woven out of the thread.





Significant learning outcomes

The learner can

- state how a house is beneficial to us
- list the materials used to construct the floor, wall and roof of a house.
- mention the stages involved in the construction of a house.
- suggest the facilities required for a house.
- identify the relation between the construction of houses and the climate.
- provide suggestions to construct houses suitable to the environment.
- talk about the problems faced by people who do not have a house.
- talk about the physical peculiarities of certain creatures to escape severe cold and snow.
- say how clothes are beneficial to us.
- record how fibres are obtained for weaving clothes.



Let us assess

1. Which among the following houses suits the environment? Why?
 - a) House without trees and plants around.
 - b) House with an erected compound wall and beautifully cemented courtyard.
 - c) House with trees and plants around, and clean premises.
 - d) House with many rooms.

2. The woollen cloth we wear to escape from cold is made of?
 - a) Fur of sheep.
 - b) Cotton fibre.
 - c) Artificial fibre.
 - d) Cocoon
3. A poor family living on the street got a new house from the Government Housing Scheme. They are moving to the house today. What difficulties are solved by this?



Extended activities

1. Prepare an album collecting pictures of different types of houses.
2. Animals too build their houses, don't they? Which are the creatures whose houses you have seen?
What are the materials they use to build them? Tabulate.
3. Identify the materials used in your friend's houses to construct the floor, wall and roof. Enlist them.
4. Make dresses of different shapes with pieces of cloth of different types and colours.