

GETTING TO KNOW LEAVES

3

We see greenery all around us. What gives us this greenery? It is the trees and plants which make the world so green. And the greenery comes from their leaves.

Many of these trees and plants are familiar to us and we can easily recognise them. But if they have no leaves it becomes a little more difficult. That's because the leaves of each tree or plant have some specific characteristics.

But is there something common between the leaves of different trees and plants? Let us learn something more about leaves. For this, we will go on a field trip.

A field trip means going out of the classroom and observing



things and studying them. We will go on field trips several times to study insects, animals, plants and trees, stones, rocks, soil etc.

Today's field trip is to study the leaves of trees and plants.

PREPARATION FOR A FIELD TRIP

Go on the field trip in groups of four along with your teacher. But before the field trip, each group should collect the following things :




- (a) Blade, exercise book, pencil.
- (b) A leaf chart to recognise the arrangement of leaves. You will find this chart in your kit copy.

Carefully observe the trees and plants you see. If there is a field or a garden nearby, go there too. Be careful that you do not harm or damage any plant or tree or standing crops.

THE ARRANGEMENT OF LEAVES

During the field trip, also observe the arrangement of leaves. You will find leaves on the stem or branches. We shall try and see whether the leaves in each plant are arranged in a specific way or whether they grow without any order or pattern.

TABLE 1

Leaf arrangement	Name of plants
	
	
	

Leaves can be found arranged on the branch in three ways.

In some plants they grow singly. That is, only one leaf grows from one point on the branch. Such a leaf is called a single leaf.

In some plants, the leaves are arranged in pairs. This arrangement is called a pair arrangement.

In some plants, the leaves grow in bunches from a point. This is called a whorled arrangement of leaves.

These arrangements are shown in the pictures in Table 1. The same table is given in the kit copy. This is the chart which you are supposed to take along with you on the field trip. Now look for at least five plants with each leaf arrangement and write their names in the table.

Paste the completed table in your exercise book. (1)

In plants with single leaves, observe carefully how the single leaf emerges. Do all these leaves grow on one side of the branch or on different sides? In case you find a plant in which the leaves grow only on one side of the branch, show this plant to the whole class.

COLLECT LEAVES

In order to get to know leaves more closely you will have to bring some leaves back to school. Each group should collect leaves of different types to bring back to school. Do not pluck more than one or two leaves from any plant. Keep the leaves in a wet handkerchief or napkin as soon as you pluck them. Or else, place the leaf flat on a magazine or newspaper and press it with your hands. By doing so the shape of the leaf is maintained.



Pluck the leaf with its stalk.

Write the name of the plant whose leaf you pluck. Also, record the leaf arrangement. It is possible that you may not know the name of some plant. You could ask a friend or someone else the name and write it down. If no one knows the name of a plant, then make up a new name or give the leaf a number.

Pluck the leaves of thorny plants by cutting them carefully with a blade.

We will do the rest of our study in school.

ON REACHING SCHOOL

Arrange the leaves you have collected in front of your group. We shall now study them. To study them means to consider their properties one by one.

Copy Table 2 in your exercise book. Observe the leaves carefully and look for the properties given in the table.

If a leaf has a particular property, write its name in the table in front of the matching property.



TABLE 2

No.	Property	Examples of leaves
1.	With a petiole or stalk.	
2.	Without a petiole or stalk.	
3.	With serrated edges.	
4.	With a pointed tip or leaf apex.	

All the possible properties of leaves are not given in the table. You may find many more properties. For example, you may

find a triangular leaf or one with a tip or apex which is divided in two.

In order to understand the properties of leaves, try and observe them in different ways. Observe the surface, tip or apex and colour. Try and identify more and more properties in each leaf. Enter all such properties in your table and note down the names of all the leaves that have that property. If another group in your class has a leaf with a new property, then observe that leaf and note its name in your exercise book.



Some properties can also be shown in drawings. As an example, pictures of leaves with serrated edges and leaves with pointed tips or apices have been given here.

Try and draw any two properties you have chosen. (3)



ONE MORE PROPERTY OF LEAVES

We have seen many properties of leaves. Let us study another property of leaves. You will observe veins on the surface of the leaf. In case you find a leaf with no veins show it to the whole class.



In order to see the veins clearly, hold the leaf against the light.

Look at the spread of the veins in different leaves.

Can you see any differences between them? (4)

Venation is the term used to describe the pattern made by the veins.

In Picture 1, you can see a thick vein in the centre of the leaf. This is called the mid rib. On both sides of the main vein, you can see a web of veins. This kind of venation is called reticulate. Such a leaf is called a _____ leaf.

In Pictures 2 and 3, all the veins run parallel to each other. This kind of venation is called parallel or striped venation.

TABLE 3

Arrangement of veins (Venation)	Names of leaves
Meshlike Reticulate Venation	
Striped Parallel Venation	

Now, from the leaves you have collected, sort out the reticulate and striped leaves and write their names in Table 3. Copy this table in your exercise book. (5)

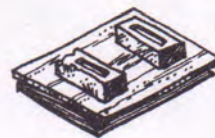
You are now well acquainted with different kinds of leaves. To find out how well you have understood leaves, we shall now play a game.

HIDE AND SEEK WITH LEAVES

In this game, you have to recognise leaves by touching or smelling them. The game will be played between two groups. Before starting the game, both groups should see all the leaves. After this, all the children of one group are blindfolded. The other group gives them a leaf which they can feel with their hand and smell. They have to guess the name of the leaf.

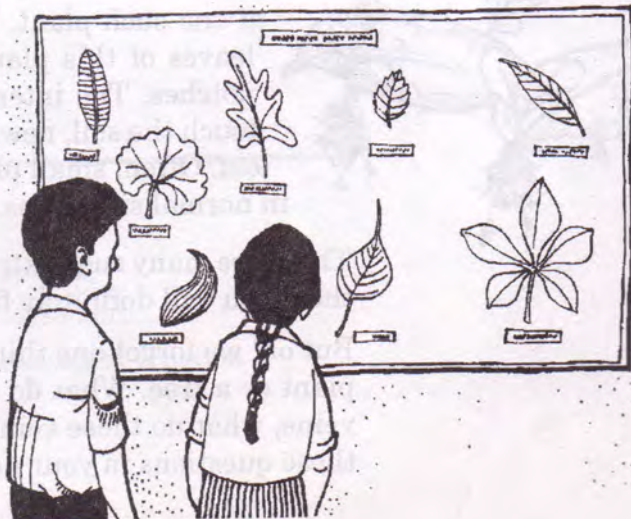
When one group has finished identifying all the leaves given to it, the other group should be blindfolded and asked to recognise the leaves. The group which is able to recognise a larger number of leaves is the winner.

One should select the leaves for this game carefully. The leaves selected should be such that they can be identified by smell or by feeling them. If you choose leaves that are not very different from one another, then the other group will not be able to identify them. In that case, the game would not be any fun.



MAKE A LEAF EXHIBITION

When you have completed studying the leaves, spread them out between sheets of newspapers or magazines and press them. Write the name of each leaf on a tag and tie this tag on the stalk. Write the name in pencil. If the name is written in ink, it may spread due to the moisture and become unreadable. Now place the newspapers or magazines in which you have spread the leaves in a pile one on top of the other and put a heavy weight on top of the pile. But before placing this heavy object, if

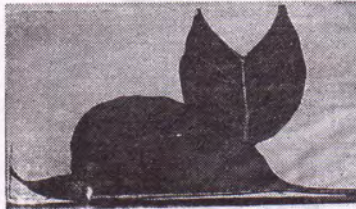




possible place a flat wooden board on the pile. This way, the pressure would be evenly applied all over. Take out the leaves every two or three days and put them in fresh newspapers. Keep changing the newspapers till the leaves are completely dry.

PUTTING UP THE EXHIBITION

Prepare an exhibition of the dried leaves. For this, take a piece of cardboard. Either paste or stitch the leaves with thread to the cardboard. Write the name below each leaf. To make the exhibition more attractive, place the leaves in groups. On the left margin of the cardboard write the names of the groups. Paste leaves belonging to that group in front of the group name.



DO AT HOME: MAKE PICTURES WITH LEAVES

By arranging leaves, you can make beautiful pictures. A famous artist of Madhya Pradesh, Shri Vishnu Chinchalkar (*Guruji*), has made many beautiful and interesting pictures using leaves, flowers etc. According to him, art is present in everything around us.

LEAF FROM WHICH A NEW PLANT CAN GROW

You have already seen that leaves have many different properties. Now read about a leaf which has some unusual properties. After reading the passage, try and think whether there are other leaves, too, which are unusual or special in some way.



Ajuba, Patharchatta, Khatumaa (Bryophyllum) are names of one such plant. You may have seen this plant. The leaves of this plant are fleshy and their edges have notches. The interesting thing is that if these leaves touch the soil, new plants grow from the notches of the leaf. Often, small plants grow on the notches of the leaf in normal situations.

There are many such extraordinary leaves. If you search for them you will definitely find several.

But oh! we forgot one thing. There are so many leaves on a plant or a tree. What do they do after all? All leaves have veins, what do these veins do? You will look for answers to these questions in your next class.

QUESTIONS FOR REVISION

1. Take two leaves from two different families. Find five properties that are common to both. Look for five properties in which the two leaves differ.
2. In the diagram shown below you are given the shapes of some leaves. Draw these in your exercise book and, for each shape, write the names of three plants with leaves of a similar shape.



3. The names of some leaves are given below. You may have seen most of them. If you have not noticed earlier look at them carefully now and say whether they have reticulate venation or parallel venation or are they mesh-like or are they striped?

Spinach, Coriander, Grass, Fenugreek, Radish, Mint, Mango, Pipal, Tulsi, Cabbage, Sugarcane

4. We give below a list of properties. Find one example of a leaf for each of these properties and write the name of the plant or tree to which each belongs.

Leaves with a smooth surface

Hairy leaves

Leaves with wavy edges

Thorny leaves

Leaves with special smell

Spotted leaves

Fleshy leaves

DO LEAVES SLEEP ?

Have you noticed that the leaves of some plants fold after sunset? That is, the leaves facing each other come together. If you haven't noticed this till now, try and find at least five plants in which the leaves fold. When leaves fold in this way, it appears as if they have gone to sleep.

NEW WORDS

field trip	exhibition	species
single leaf	leaf pair	leaf whorl
midrib	venation	reticulate venation
succulent	parallel venation	