GETTING TO KNOW FLOWERS

Chapter 3

Mention the word flower and the picture that leaps to one's mind is of roses, marigold, jasmine and lilies. All beautiful, colourful and fragrant. But is every flower attractive? There are many flowers that don't look like flowers. You may not even recognise them as flowers. Which of the following plants do you think bear flowers?

wheat, millet (*jowar*), maize, rice, teak (*sagaun*), *mahua, tulsi,* grass, *peepal,* banyan.

In this chapter, we shall study the structure of different types of flowers and make our own album of flowers.

Identifying the parts of a flower

Bring two flowers each of *besharam* (Ipomea), *dhatura* or brinjal to class. Choose one of these flowers to study its different parts. If you chose *besharam* or *dhatura* you will have to cut the flower open to see its internal parts. So first study its external parts carefully before you dissect it. The way to dissect a flower is shown in Figure 1. You will not face this problem if you choose a brinjal flower.

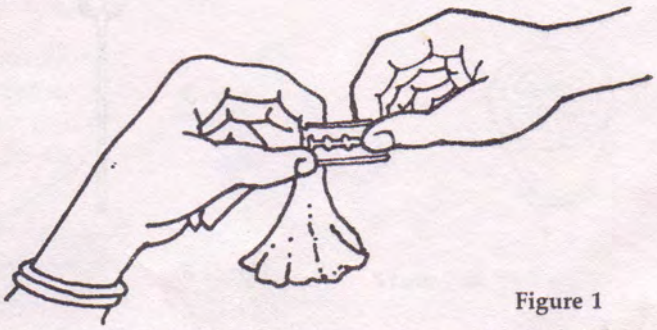


Figure 1
Dissecting a *besharam* flower with a blade

Draw a diagram of the flower you have dissected, showing all its internal parts. (1)

Observe the parts carefully and identify their names with the help of Figure 2.

If you cannot see the male reproductive parts **(androecium)** and female reproductive parts **(gynaecium)** clearly, pluck off the sepals and petals.

Could you locate all the parts shown in Figure 2? (2)

Label these parts in your diagram. (3)

The swollen end of the stalk where all these parts are joined is called the **thalamus**.

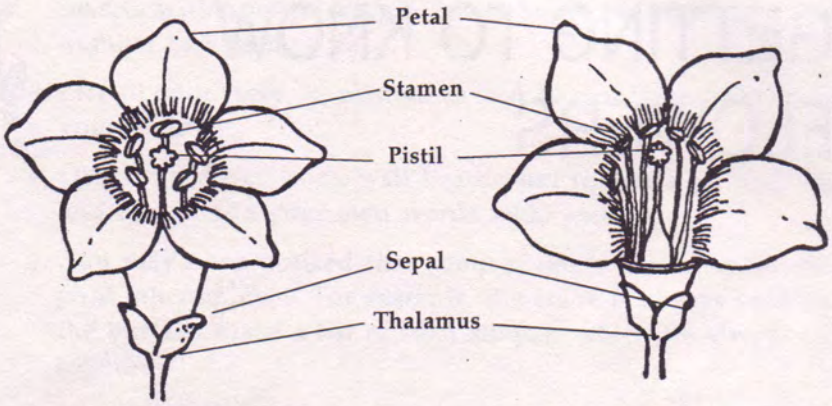


Figure 2 External and internal parts of a flower

Identify the thalamus in your flower and label it in your diagram.

Compare the **stamens** of your flower with the ones in Figure 3.

How many stamens are there in your flower? (4)
Draw a diagram of one stamen and label its different parts. (5)

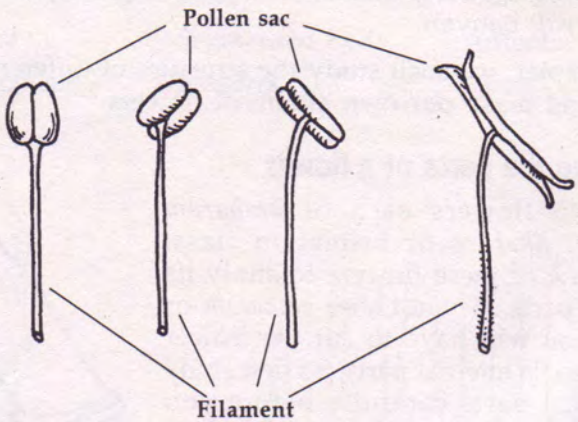


Figure 3

Look at pollen through a microscope

Pluck a stamen from your flower and tap it gently on a glass slide. Do you see some grains falling off?

From which part of the stamen did the grains fall? Write the name of this part. (6)

Observe these grains through a microscope. They are called **pollen grains**.

What is the importance of pollen grains in the life of plants? We shall study the answer to this question in the chapter "Reproduction in plants".

Let us now study the gynaecium or **pistil**. You will have to pluck off the other parts of the flower attached to the thalamus to see the pistil. Pluck off the sepals, petals and stamens one by one.

You will be left with only the pistil attached to the thalamus. Observe its outer structure carefully.

Can you see the different parts of the pistil? Identify their names with the help of Figure 4.

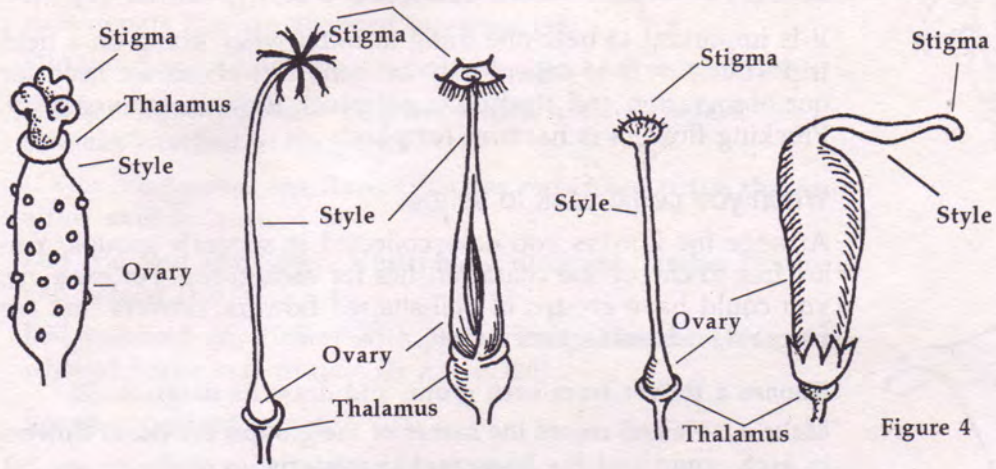


Figure 4

Draw a diagram of the pistil of your flower showing its different parts and label them. (7)

Look carefully at Figure 5. It shows how to cut a **transverse section** of the **ovary** of a flower. To get a good transverse section you should use a blade to cut through the swollen middle part of the ovary, as shown in the figure.

Cut a transverse section of the ovary of your flower and sprinkle a few drops of water on it to prevent it from drying up. The ovaries of brinjal and *dhatura* are fairly big. Their internal structure can be clearly seen in the sections.

Study the internal structure with the help of a magnifying glass. Ask your teacher to point out the **ovules** and **chambers** in the sections and draw a diagram of whatever you see.

Figure 5 Transverse Section

Going on a field trip

You have studied a flower and its internal parts. Do all flowers have similar structures or do different flowers have differences? To answer this question, you will need to go on a field trip to collect different types of flowers.

Preparing for the field trip

Each group will have to take a magnifying glass, some large envelopes or polythene bags and a wet cloth for the field trip.

Go with your teacher to farms, gardens and forests.

During the field trip try to collect flowers that you have not seen before, for example, flowers of grass, wheat, maize, *tulsi*, etc. Also, try to collect the following flowers: *besharam*, brinjal,

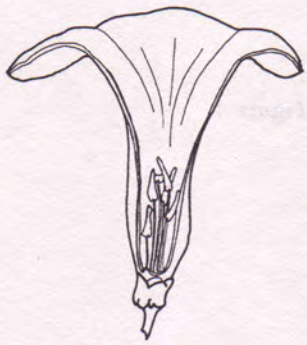
china rose, *bhindi*, *dhatura*, pumpkin, *gilki*, cow pea (*chaola* or *barbati*) and tomato.

Pluck the flowers with their stalks and cover them with the wet cloth, or place them inside the envelop or polythene bag. Ensure that the flowers are not crushed and that they do not dry up.

It is important to bear one thing in mind when going on a field trip - our aim is to collect only as many flowers as we need for our observation and study. Do not pluck flowers unnecessarily. Plucking flowers is harmful for plants.

When you come back to school

Arrange the flowers you have collected in separate groups. You are free to choose the characteristics for each group. For example, you could have groups of bell-shaped flowers, flowers that are fragrant, colourful, thorny, etc.



Choose a flower from each group and draw its diagram. (8)

Make a table and record the names of the groups, the list of flowers in each group and the important characteristics of the group. (9)

How the parts of a flower are arranged

Observe the brinjal, *besharam* or *dhatura* flower carefully.

Are the different parts of the flower arranged in circles or whorls? (10)

If they are arranged in whorls, then begin from the outermost whorl, the sepals, and see which parts are located in each whorl. In this manner, proceed right up to the innermost whorl. (11)

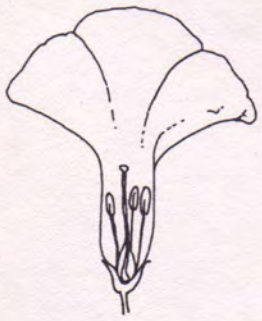
Study the structure of the other flowers you have collected. Note the order in which the different parts are arranged and see whether they are attached to each other.

Draw the following table in your exercise book to record your observations. (12)

Answer the following questions on the basis of your entries in Table 1.

Table 1

S.No	Name of flower	Stalk present or absent	Sepals		Petals		Stamens		Carpels
			No.	Attached to each other or separate	No.	Attached to each other or separate	No.	Attached to petals or separate	Present or absent
1									
2									
3									
4									
5									



Do all the flowers have their parts arranged in different whorls? (13)

Did you find any flower in which the parts were in the following order: sepals, stamens, petals, pistil? (14)

Do the flowers which have petals attached to each other also have sepals that are attached together? (15)

Did you come across any flower with colourful sepals? (16)

Did you come across any flower which has free petals, but has stamens attached to the petals? (17)

If you come across any flower that has sepals and petals that look alike, note its name. (18)

Did you find any flower which has a different number of sepals and petals? (19)

Did you find any flower with parts arranged in more than four whorls? Make sure to note its name. (20)

Some important terms

Before we proceed further it would be useful to learn some scientific terms. Once we are familiar with these terms it becomes easier to talk about flowers.

Complete flower: A flower that has four whorls - one each of sepals, petals, stamens and pistil - is called a complete flower.

Incomplete flower: A flower in which any of these four whorls is missing is an incomplete flower.

Unisexual flower: A flower that has either the androecium or the gynaecium, but not both, is called unisexual. Unisexual flowers are of two types:

a) Male – if it has an androecium, but no gynaecium.

b) Female - if it has a gynaecium, but no androecium.

Bisexual flower: A flower that has both an androecium and a gynaecium.

Asexual flower: A flower that does not have either an androecium or a gynaecium.

Draw Table 2 in your exercise book and fill it in on the basis of your entries in Table 1. (21)

Table 2

S.No	Name of the flower	Complete/ incomplete	Unisexual/ bisexual/asexual	If unisexual, male or female

Some students may have brought a sunflower or marigold (*genda*) to class. You may think the sunflower or marigold is a single flower but they are actually bunches of flowers. The flowers in the centre and those along the rim may not be alike. You will learn more about such special flowers in the higher classes.

Make an album of flowers

Press the flowers you have collected between the pages of old newspapers or magazines, put these pages between two cardboard sheets and place a brick on top. Turn the newspapers over every two to three days. Allow the flowers to become completely dry. Now paste or stitch them on to card sheets and your flower album is ready.

Questions for revision

1. **Which of the following flowers are complete and which are incomplete: *dhatura*, brinjal, *louki*, *gilki*?**

   Write their names in separate columns, giving reasons for your answers.

2. **Are the following statements true or false?**

   a) **All bisexual flowers are complete flowers.**

   b) **All complete flowers are bisexual.**

   c) **If the sepals of a flower are attached to each other, then the petals are also attached to each other.**

3. **Have you seen flowers of *peepal*, banyan or *goolar*? If not, look for them.**

4. **Different types of stamens and pistils are shown in Figures 3 and 4. Find one example of each type of stamen and pistil and show it to your classmates.**

New words

Stamen	Thalamus	Style
Transverse section	Gynaecium	Androecium
Filament	Stigma	Pollen sac
Labelled diagram	Ovule	Pollen grain
Chamber	Bisexual flower	Unisexual flower
Asexual flower	Complete flower	Incomplete flower
Ovary		