## 23–1 What Are the Parts of a Flower?

Many common plants you are familiar with form flowers at sometime during the year. The flower is the sexually reproductive part of a flowering plant. Certain flower parts are male, while other parts are female. Certain flower parts are neither male nor female. Which flower parts are male, female, or neither? How exactly do these parts help with sexual reproduction?

EXPLORATION

### OBJECTIVES

In this exercise, you will:

a. dissect and examine the parts of a flower.
b. learn which parts are male, female, or neither male nor female.
c. find out how each flower part helps in reproduction.

### KEYWORDS

Define the following keywords:

ovule _____

pistil _____

pollen _____

stamen _____

### MATERIALS

razor blade
microscope
1 coverslip
glass slide
colored pencils: red, blue, yellow, green, and purple
flower
water

### PROCEDURE

**Part A. Flower Parts That Are Neither Male nor Female**

1. Examine the flower provided by your teacher.
2. Use Figure 1 to help locate the following two flower parts:
   a. sepals—small, green petallike parts forming the outside layer of the flower.

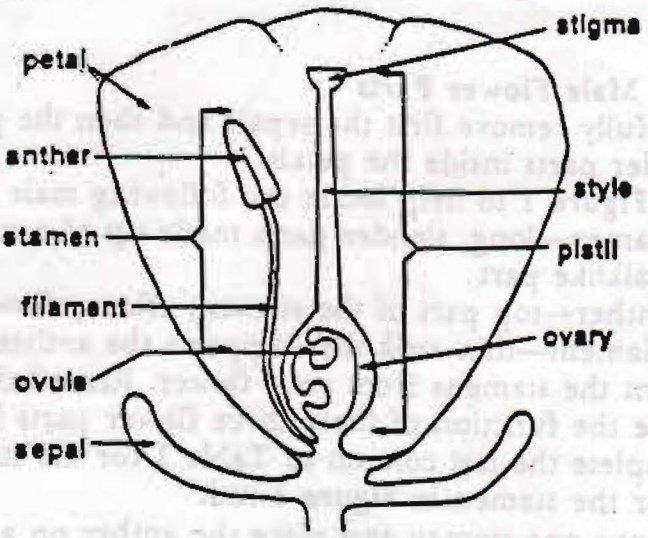


FIGURE 1. Parts of a flower

b. petals—large, brightly colored flower parts forming the layer inside the sepals.

. Count the number of sepals and the number of petals present in your flower. Record these numbers in Table 1.

. Write the functions of these two flower parts in Table 1.

. Complete the last column of Table 1 for sepals and petals. (HINT: Read the title of this part of the activity.)

i. Color the sepals green and the petals yellow in Figure 1.

**Table 1. The Functions of the Parts of a Flower**

| Flower Part | Number of Parts | Function | Male, Female, or Neither |
|---|---|---|---|
| Sepals | | | |
| Petals | | | |
| Stamens | | | |
| Anthers | | | |
| Filaments | | | |
| Pollen Grains | Approximately Thousands | | |
| Pistil | | | |
| Stigma | | | |
| Style | | | |
| Ovary | | | |
| Ovules | Approximately 1 to 100 | | |

**'art B. Male Flower Parts**

1. Carefully remove first the sepals and then the petals. Try not to remove any smaller parts inside the petals.
2. Use Figure 1 to help locate the following male flower parts:
   a. stamen—long, slender parts made up of a top, often yellow, part and a lower stalklike part
   b. anther—top part of the stamen, often yellow in color
   c. filament—thin stalk that supports the anther
3. Count the stamens from your flower. Record this number in Table 1.
4. Write the function of these three flower parts in Table 1.*
5. Complete the last column of Table 1 for the stamen, anther, and filament.
6. Color the stamen in Figure 1 red.
7. Remove one stamen and place the anther on a glass slide.

8. Crush the anther with the eraser end of a pencil. Add two drops of water and a cover slip.
9. Examine the slide under low power, then high power, of your microscope.
10. The small round parts you see are pollen grains. Using high power, draw one or two pollen grains in the circular area provided here.
11. Complete Table 1 for pollen cells.

Pollen

**Part C. Female Flower Parts**

1. Use Figure 1 to help locate the following female flower parts:
   a. pistil—long, slender stalk with a round base in the center of the flower
   b. stigma—tip of the pistil
   c. style—slender stalk part of the pistil
   d. ovary—rounded, swollen bottom part of the pistil.
2. Count the number of each of the flower parts examined in step 1. Record these numbers in Table 1.
3. Write the function of each of these parts in Table 1.
4. Complete the last column of Table 1 for these four parts.
5. Color the pistil blue in Figure 1.
6. Remove the pistil from the flower. Use a razor blade to cut down through the length of the ovary as shown in Figure 2. CAUTION: *Always use extreme care with the razor blade.*
7. Note the small, round seedlike parts inside the ovary. These are the ovules.
8. Complete Table 1 for the ovules. Color the ovules in Figure 1 purple.

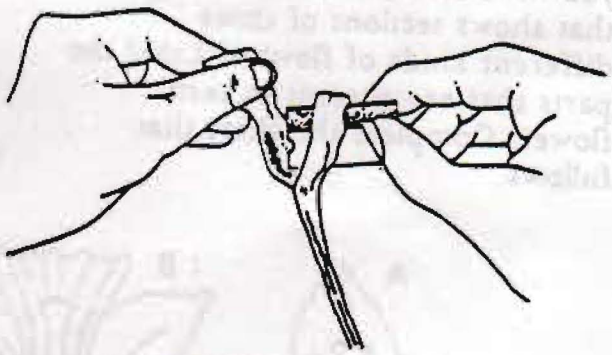

FIGURE 2. Cutting through the ovary

**QUESTIONS**

1. Group these flower parts—filament, ovary, ovule, petal, pollen grain, anther, stamen, pistil, stigma, sepal, style—under the following three headings:

| Male Parts | Female Parts | Neither Male nor Female |
|---|---|---|
| | | |

. a. What happens to pollen grains during pollination?_____

_____

b. How might their small size help them for this job?_____

_____

c. How might the fact that there are so many pollen cells help pollination occur?

_____

3. a. What flower part contains egg cells?_____

b. How do pollen grains on a stigma cause the fertilization of egg cells?_____

_____

_____

4. Look at Figure 3 and label the flower parts that are listed in question 1. Included in this diagram are close up views of the inside of an anther and an ovary. Locate and label a pollen grain and an egg cell.
5. Not all flowers have all the parts you have studied. Examine Figure 4 that shows sections of three different kinds of flowers. Label the parts that are present in each flower. Complete the chart that follows.

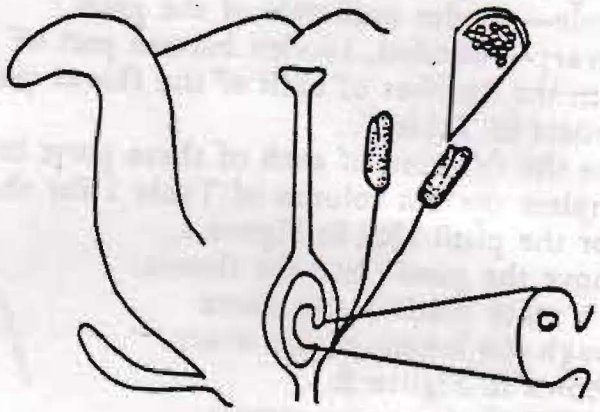

FIGURE 3. Reproductive parts of a flower

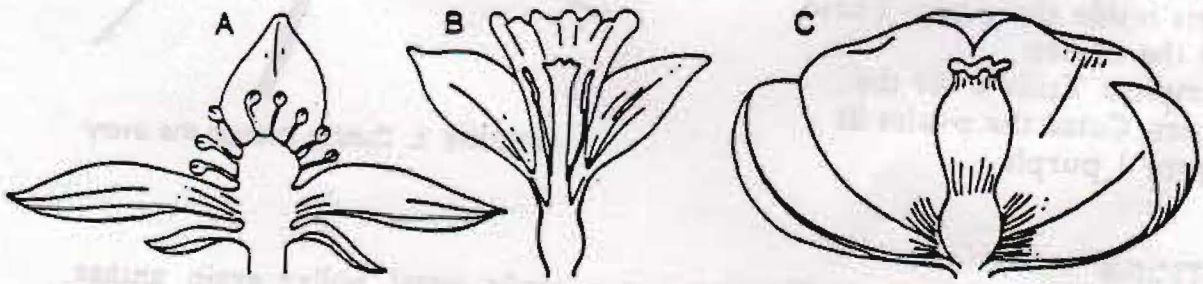


FIGURE 4. Parts of three different flowers

| | Flower A | Flower B | Flower C |
|---|---|---|---|
| a. What are the missing flower parts? | | | |
| b. Can flower make pollen? Why or why not? | | | |
| c. Can flower make eggs? Why or why not? | | | |
| d. Can flower self-pollinate? Why or why not? | | | |