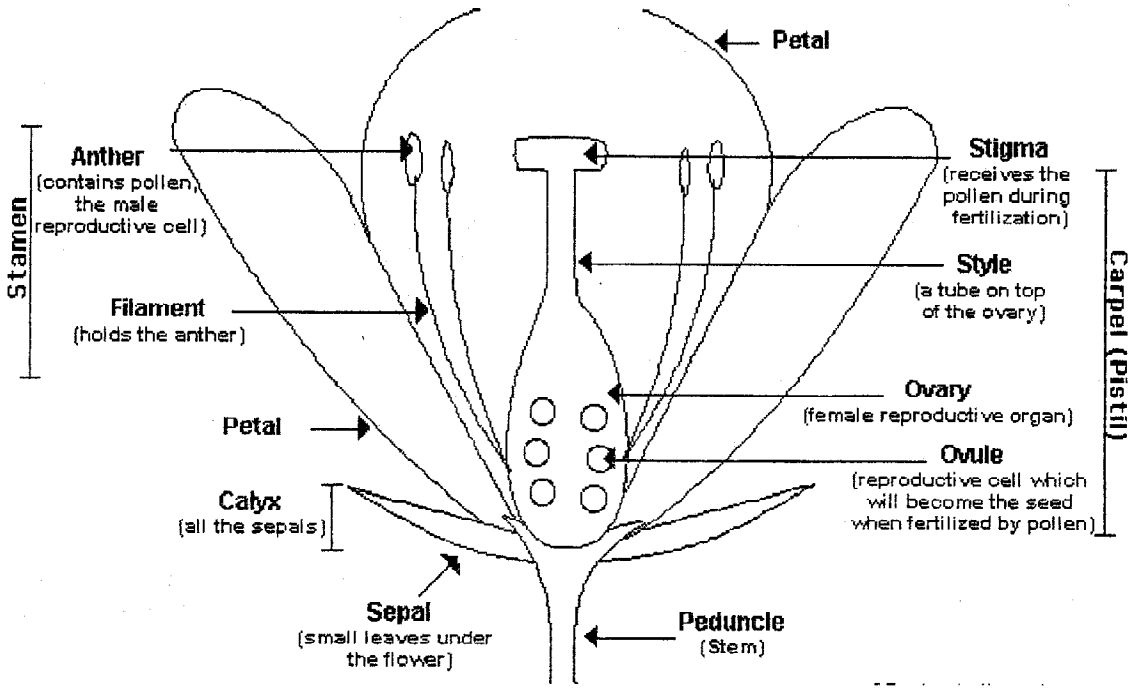
Flower Dissection Name:

Purpose

1. To study the structure of a typical flower.
2. To study the male and female reproductive organs needed for sexual reproduction in flowering plants.

Materials

- fresh flower(s), dissecting needle, forceps, scalpel or razor blade, microscopes



Procedure

1. Obtain a single flower and observe its parts carefully. Flower parts are arranged in a circular pattern. Each circle is called a **whorl**. The whorls are attached at the enlarged **receptacle** located at the base of the flower.

Please read this overview before you begin your flower dissection:

As you examine your flower, you will be carefully removing parts beginning with the outer whorl and working your way in towards the pistil.

2. The **sepals** form the outermost whorl of the flower. The sepals are leaf-like structures that are usually green in color. Sometimes, the sepals are the same color as the petals, or appear to be another set of petals of a different color. The function of the sepals is to protect the inner part of the flower before it blossoms.

Gently remove the sepals draw and label them.

a) How many sepals does your flower have?

b) Describe the appearance of the sepals (color, markings, etc.)

The petals are found directly under the sepals. The color and odour of the petals help to attract birds and insects to the flower for pollination

Gently remove the petals, draw and label them.

a) How many petals does your flower have?

b) Describe the appearance of the petals (color, markings, etc.)

The stalk-like structures inside the petals are the **stamens**, the male reproductive organs. Depending on the species, the stamens may be attached to the receptacle, to the petals, or to the pistil. The enlarged portion at the top of the stamen is the **anther**. Inside the anther are the **pollen sacs** which produce pollen grains. When the **pollen grains** mature, the pollen sacs split open, releasing the dust like pollen grains. **The filament** is the thin structure that supports the anther.

Gently remove the stamens, draw and label them.

a) How many stamens does your flower have?

b) To which structure(s) were the filaments attached?

c) Have the pollen sacs opened? How can you tell?

d) If the pollen grains are visible, describe their appearance.

The central structure of the flower is the female reproductive organ, the **pistil.** The top of the pistil is the **stigma**. When the stigma is enlarged, its surface is moist and sticky. The **style** is the middle portion of the pistil. It supports the stigma. Some flowers lack a style. The **ovary** is the enlarged structure at the bottom of the pistil. The ovary contains one or more hollow compartments known as **locules.** The locules contain the **ovules,** which in turn, contain the **egg nuclei.**

Carefully remove the pistil by cutting it from the stem just under the ovary. Using the dissecting needle, carefully **pick the ovules out of one of the locules. Try to estimate how many ovules** are contained in one locule.

a) What color is the pistil?

b) Describe the appearance of the stigma. Is the stigma mature? How can you tell?

c) Describe the appearance of the ovary.

d) How many locules does the ovary contain?

e) Approximately how many ovules are contained in one locule?

Discussion Please write the answers to the following questions using complete sentences.

1. Which does your flower produce in greater numbers: ovules or pollen grains? Explain why this would be important in terms of reproductive success.

2. What are some adaptations of flower petals to help attract pollinators?

3. How is the stigma of your flower adapted to capture and hold pollen?

4. Describe where pollination and fertilization occur.

5. Explain the differences between pollination and fertilization

6. A) In which part of the male reproductive organ are the pollen grains made?

   b) In which part of the female reproductive organ are the egg cells made?

7. How do the sperm nuclei in a pollen grain reach the egg nucleus in an ovule?

8. A) Which part of the flower becomes the seed?

   b) Which part becomes the fruit?

   c) Which part of the fruit contains the embryo?