Flower Dissection

Although their reproductive organs differ as do the environments in which they live and reproduce, the basic principles of sexual reproduction are the same in a moss, a flower, a bee and a human. In this investigation, you will learn how the structures of a flower serve the reproductive function. Answer the questions and draw the diagrams on the data sheet. Be sure to follow the rules for scientific diagrams.

MATERIALS:
slide and cover slip
razor blade
dissecting needle (one per table)
microscope (one per pair)
one fresh flower (Daffodil or other)

PROCEDURE:

Part A. Sepals and Petals

Examine the outside parts of the flower. The outermost whorl of floral parts may be green or brown and leaf-like. These sepals protected the flower bud when it was young. In some flowers the sepals look like an outer whorl of petals. Petals are usually large and coloured and lie inside the sepals. Both sepals and petals are attached to the enlarged end of a branch. These parts of the flower are not directly involved in sexual reproduction.

B. Stamen and Pollen

Carefully strip away the sepals and petals with the probe or blade to examine the reproductive structures. Around a central stalklike body are 5 to 10 delicate stalks, each ending in a small sac, or anther. These are the male reproductive organs, or stamens. Thousands of pollen grains are produced in the anther. The number of stamens varies according to the type of flower. Shake some of the pollen into a drop of water on a clean slide, add a cover slip and examine with a microscope.

C. Pistil and Ovary

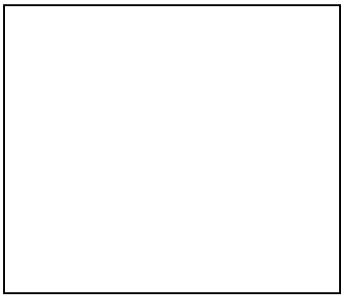
The central stalk surrounded by the stamens is the female reproductive organ, known as a carpel or pistil. It is composed of an enlarged basal (bottom) part, the ovary, above which is an elongated part, the style, ending in a stigma. Use a probe or blade to cut into the ovary lengthwise. Gently open the ovary. Inside are one or more ovules. Each ovule contains an egg. If available, examine the ***demonstration ovary*** under the dissecting microscope at the back of the lab. The union of egg and sperm causes extensive changes in the female reproductive parts. Fertilization of the egg stimulates the growth of the ovary and enclosed ovules.

Name _____ Date _____
Class Period _____

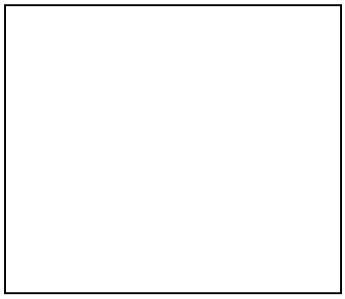
Flower Dissection
Data Sheet

Part A. Sepals and Petals

1. What functions might petals have?



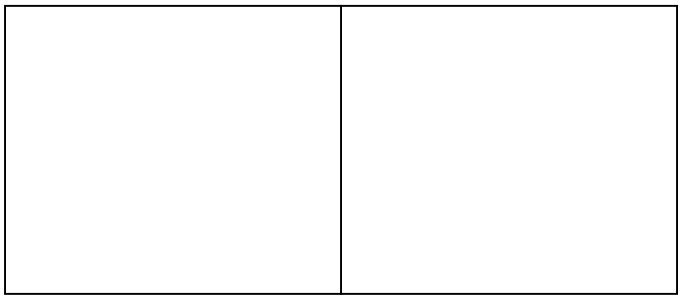
Sepals



Petals

Part B. Stamen and Pollen

2. How many stamens are present in your flower? _____
3. Therefore is your flower a monocot or dicot? _____. How can you tell?

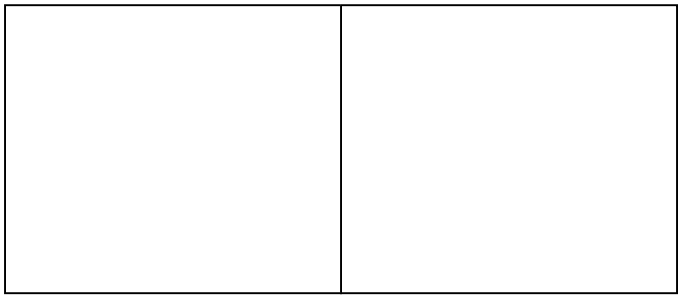


Stamen Pollen

4. How might pollen be carried from the anther to the female part of the flower?

Part C. Pistil and Ovary

5. How do you think the stigma is adapted to trap the pollen grains and to provide a place for them to grow?



Pistil Ovary & Ovule

6. Approximately how many ovules do you see? _____ (Note: Use dissecting scope to see them clearly.)
7. How close to the egg can the pollen grain get?
8. How do the sperm reach the egg?
9. The ovary develops into the _____.
10. The ovule develops into the _____.

Directions: Arrange the parts of your flower in concentric circles. Glue them down in the appropriate circle.

- Outermost circle: sepal
- 2nd circle: petals
- 3rd circle: stamen
- 4th circle: carpel/pistil