

Sec: _____ Name: _____

The Flowers Role in Reproduction
(B. Science 10-P-47)

Purpose: To identify the parts of the flower, to examine floral parts microscopically, & to understand the reproductive function of flower parts.

Materials: daffodil (or tulip or lily)
dissecting kit microscope
prepared slide of cross section of Lily anther
cover slip dissecting scope
dropper forceps

Methods: **Part A: Parts of A Flower**

1. Label the parts printed in bold. Be ready for a 5 point quiz on the flower. Examine a complete flower and note that it has four kinds of floral parts. These parts are arranged in circles or whorls. The parts are supported on a stalk, the **pedicel**. The parts are attached to the swollen tip of the pedicel known

as the **receptacle**. The outer most circle of parts is the **sepals** which may be green. In some species, the sepals appear as petals. Collectively the sepals make up the **calyx** which serves to protect young flower parts in the bud stage. Describe the sepals and their numbers.

2. The **petals** are within the calyx and collectively known as the **corolla**. Describe the number and appearance of the petals.

3. The male and female organs make up the remaining circles of flower parts. Why are they known as essential parts?

4. The male parts are the **stamens**. Each stamen consists of a slender stalk, the **filament**, and a knob like mass, the **anther**. How does the number of stamens compare with the parts already observed?

5. What seems to be the number plan of the flower?

6. Of what group of flowering plants is this characteristic?

7. The female organ, the **pistil**, occupies the center of the flower. Examine it closely and you will see that it is composed of 3 parts. The top portion is the **stigma** on which pollen lands. Why is it necessary that it be sticky?

8. The stalk supporting the stigma is the **style**. At the base is a swollen green portion known as the **ovary**. What is produced within the ovary?

Part B: The Stamen

1. Remove the stamen with forceps and examine it under a dissecting scope. Describe what you observe.

2. Gently brush off some of the pollen grains from the anther of the stamen while looking through the dissecting scope. Now examine them under high power. Describe the surface of the pollen grains.

3. Look at the picture of the cross section of the anther in the results section. How many cavities or pollen sacs are seen?

4. When the anther matures, how is pollen released?

5. What becomes of the pollen as it is released?

6. The pollen grains contain the male sex cells produced as a result of meiosis from special cells within the anther. On the cross section of the anther, label: **wall of anther, pollen sac, pollen grains**.

Part C: Structure and Function of the Pistil

1. In relation to pollination, suggest a reason for the stigma being supported as it is by the style.

2. Look at the prepared slide of the cross section of the ovary of a Lilly plant using the low power of the compound light microscope. Notice the ovary is divided into sections known as locules. Each locule contains several ovules. How do the ovules appear?

3. These ovules extend into a cavity known as a locule. How many cavities or locules make up the ovary?

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4. Explain the significance of the number.
5. Each ovule contains an egg which is not visible. Observe that an ovule is attached to the ovary wall through a tiny stalk. Why must the ovules be attached as they are?
6. On the cross section of the ovary, label: **ovary wall, locule wall, ovule, locule.**

Results: Part A:

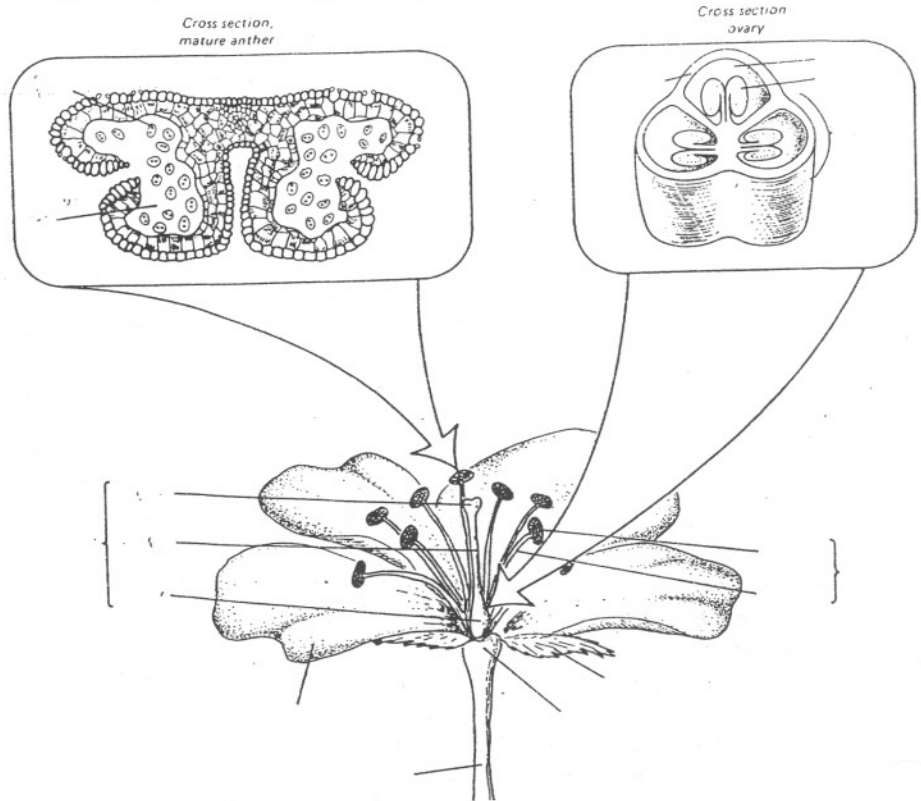
1. sepals: _____
2. petals: _____
3. essential: _____
4. compare: _____
5. plan: _____
6. group: _____
7. sticky: _____
8. produced: _____

Part B:

1. Observation: _____
2. surface: _____
3. sacs: _____
4. released: _____
5. happens: _____

Part C:

1. reason: _____
2. appear: _____
3. number: _____
4. significance: _____
5. attached: _____



Conclusions:

1. Briefly relate how each flower part contributes to the function of plant reproduction.

floral part	function	floral part	function
sepal	_____	petal	_____
filament	_____	anther	_____
stigma	_____	style	_____
ovary	_____		

Discussions:

1. Distinguish between complete and incomplete flowers.
 complete _____ incomplete _____
2. List the flower parts of a plant that is referred to as a male plant.
3. Read the parable of the sower and the seed in Mark 4:3-8. For each location where the seed landed record what happened to it. Then read verses 14-20 to explain the spiritual meaning of each.
 beside the road - _____
 rocky ground - _____
 thorny places - _____
 good soil - _____