Flower Dissection Lab

Lesson Topic
Flower Parts and Function

RIEL Biology Element
Collaboration

Time Required
One 50-minute class period

Standards Addressed
SC.912.L.14.7: Relate the structure of each of the major plant organs and tissues to physiological processes.

Science and Engineering Practice
- Developing and using models.
- Constructing explanations.
- Obtaining, evaluating, and communicating information.

Content Learning Objectives
- Students should be able to correctly label the parts of a flower.
- Students should be able to write the proper function of each flower.

Lesson Summary
Students will work in groups to examine a real flower and identify the flower parts that are labeled and defined on the student handout. Students will rewrite the definition of each flower part in their own words. Students will be assessed on how well they label and define each flower part. Students will also complete self- and group-assessments where they will evaluate how well each member of their group performed their role and tasks within the group.

Materials
Group Materials
- Tiger lilies (one flower per group, check to be sure each flower still has its anthers)
- Scalpel
- Tape (optional)
- Forceps/tweezers
- Scissors
- Magnifying glass
- Cutting tray
- Flower lab instructions handout
- Flower lab vocabulary
- Resources for students to use to look up the function of the flower parts (e.g., textbook or internet access)

Individual Student Materials
- Student worksheet packet
- Group and self evaluation (each student will need enough copies to evaluate each member of their group and themselves)

Before the Activity
Prepare the lab stations by setting out a cutting tray, scalpel, one tiger lily, and the Flower Dissection Instructions and Vocabulary handouts at each station.

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You may also wish to place resources out for the students to use to research the function of the flower parts (e.g., textbook or laptop). Alternatively, you can instruct students to bring their own resources (e.g., smart device or textbook)

Lesson Activities

1. **Introduction:** Before beginning the lab, show students the flower dissection video and discuss the safety procedures that should be followed when using a scalpel, proper lab behavior, and go over the norms of working in a group. Place students in groups of 3-4 and pass out the student worksheets. Go over the flower lab instructions and Part 1 of the student worksheet, which instruct the students to dissect the flower and to find certain parts.

2. **During the lab:** The students will work on dissecting the flower themselves[1]. After they finish dissecting, have them place the flower parts on the flower image on the flower lab instructions page, near the name of the part. The teacher will go around and check for completion and errors. Students should answer the questions in Part 1 of the student worksheet. When most students have completed the dissection, instruct the group to use their resources to label and define the function of the parts of the flower in Part 2 of the student worksheet. Students who finish early can color-code the flower in Part 2; instruct students to choose a different color for each flower part.

3. **After the lab:** The students will discard the flower parts and turn in the student worksheet. Hand out the group and self evaluation worksheets and instruct the students to complete both pages.

Content Learning Objectives

- Students need to demonstrate understanding of the function and location of the flower parts.

Teacher Notes

[1]Students may struggle finding the style, as well differentiating between a sepal and petal.

Student Questions

The teacher should circulate the room with pre-planned questions including:

- Why do you think the stigma is sticky?
- Why do you think a flower needs to have leaves at its base? What are those leaves called?
- Why do you think the sepal looks like a petal?
- How does the pollen get to the stigma?
- Why do you think the anthers are situated above the stigma?
- What would happen if the flower was not pollinated by another plant?

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Student Questions

- Why do you think this type of plant has both male and female parts? Do you think all flowers are like that?

Assessment: Teacher will ask students questions during lab activity to assess student understanding of form and function of the flower. Students will complete the student worksheet where they will answer questions and label and define flower parts. Students will complete the group and self evaluation worksheets.

Flower Dissection Video URL:
https://www.youtube.com/watch?v=493WeySyf-8

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Flower Dissection

Background Information:

Flowers are the reproductive parts of many plants. It may surprise you to know that some flowers have both female and male parts. The female part of the plant is called the **pistil**. It includes the stigma, style, and ovary (which contains the eggs). The male part is called the **stamen**. It includes the anther and filament. The anther holds the pollen (sperm) of the plant. Using the flower provided by your teacher, take time to look for all the parts of the flower shown in the picture. If you are unsure of the parts, verify with your teacher before starting your dissection. After receiving your teacher's approval, you may start the dissection. You will be labeling the flower parts with the boxes as you examine them. As you find the parts, carefully cut them off and set them aside.

You may use the resources your teacher has provided or instructed you to bring to the lab to look up the functions of the different flower parts for Part 2 of this activity.

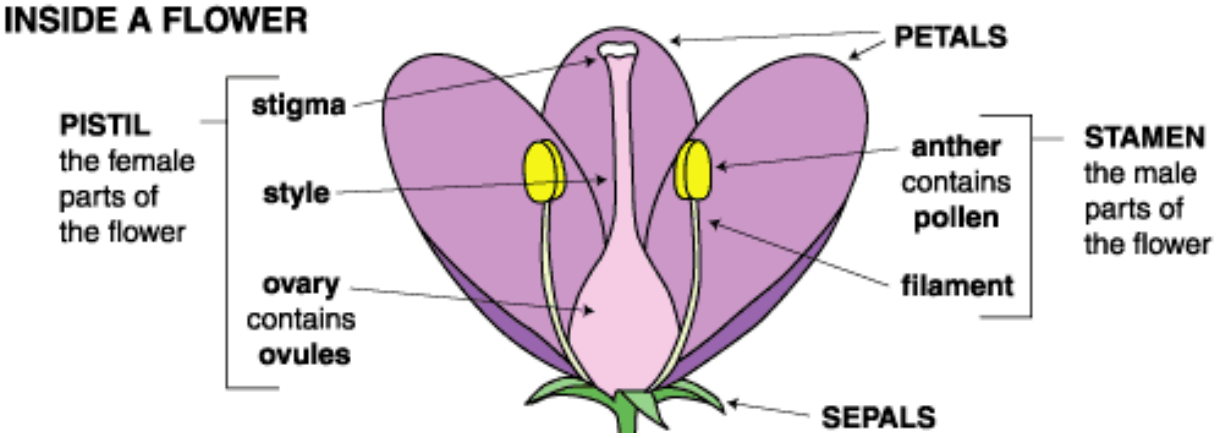

Figure 1: Parts of the Flower

Materials:

- Flowers
- Scissors
- Scalpel
- Magnifying Glass
- Resource Materials (textbook/internet)
- Tape(optional)
- Cutting Tray
- Forceps/tweezers

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Flower Dissection Part 1

Follow the directions and answer the questions.

1. Find and count the sepals at the base of your flower. Why is the sepal important to the development of the flower?

_____

_____

_____

_____

2. Find and count the petals of your flower. Why are petals usually brightly colored?

_____

_____

_____

_____

3. Find both parts of the stamen on your plant (the male part—anther and filament). Why is it important for the anthers to be towards the top of the flower?

_____

_____

_____

_____

4. Find all three parts of the pistil on your plant (the female part—stigma, style, and ovary). Cut open the ovary. How many eggs are inside the ovary?

_____

_____

_____

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Flower Dissection Part 2

Fill in each box with the name, how many, and the function of each part.

Name (s)	How many?
Sepals	
Function:	

Name (s)	How many?
Petals	
Function:	

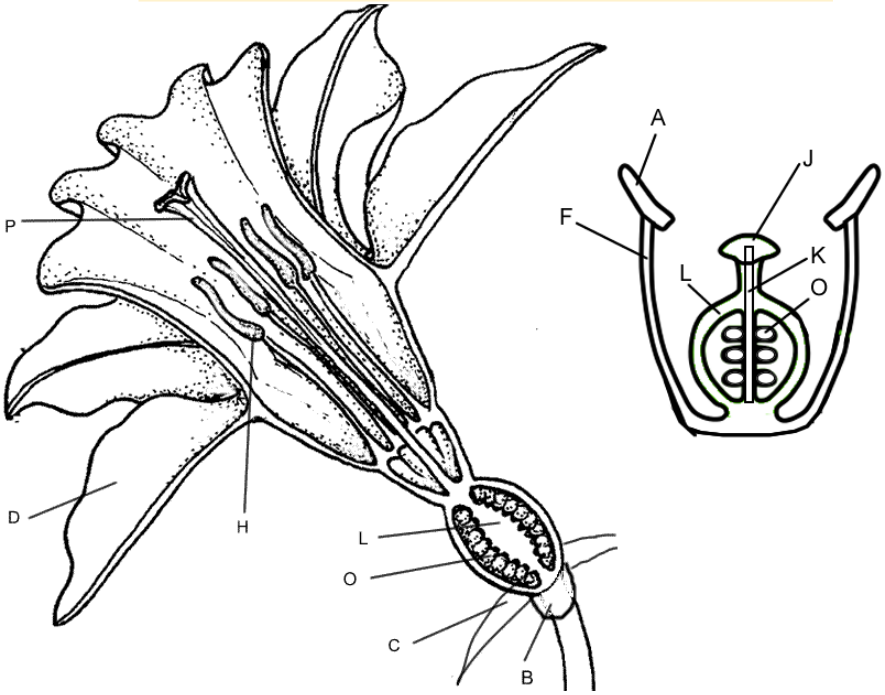
Name (s)	How many?
Anther (stamen)	
Function:	

Name (s)	How many?
Filaments (stamen)	
Function:	

Name (s)	How many?
Function:	

Name (s)	How many?
Function:	

Name (s)	How many?
Function:	



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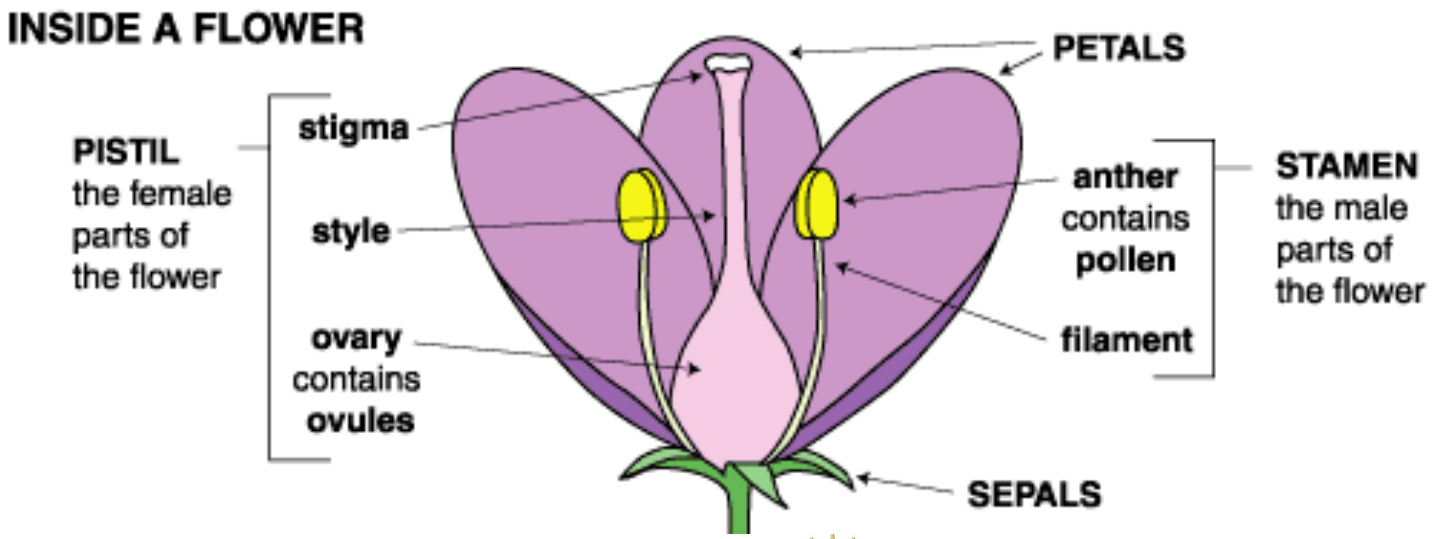
Flower Lab Instructions

1. Follow steps #1-4 on your student worksheet.
2. When you're done, place your flower parts on the back of your student worksheet, next to their box.
3. Fill in the function of each part.
4. Label the flower with all 7 parts.
5. Draw a box around the 3 FEMALE parts and label them Pistil (Carpel).
6. Draw a box around the 2 MALE parts and label them Stamen.
7. Color the box and the diagram the same color to illustrate EACH part. (use a different color for each part)



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Flower Lab Vocabulary

Read the definitions below to locate the FUNCTION of each flower part.

Anther: The anther is the tip of a flower's stamen (the male reproductive organs of the plant) - it contains the pollen.

Filament: The filament is the part of the flower that holds the anther (and part of the stamen, the male reproductive organs of the plant).

Petal: The petal is one of the leafy structures that comprise a flower. Petals are often brightly-colored, smell nice and have many different shapes. This helps them attract pollinators.

Ovary: The ovary is a female reproductive organ in plants that produces ovules. It is at the base of the pistil.

Sepal: The sepals are small leaves located directly under a flower - they are the outermost part of a flower. The sepals protect the developing flower.

Stigma: The stigma is the uppermost part of the pistil, which is the female reproductive tissue of a flower. The stigma is sticky so that it can receive the male pollen grains during fertilization.

Style: The style is part of the pistil, which is the female reproductive tissue of a flower. The style is a long tube on top of the ovary, and below the stigma. It is a passage way for the pollen (sperm) to travel to the ovary.

Stem (also called the peduncle): The stem supports the plant.

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Group and Self Evaluation

Evaluate your performance in the flower dissection lab:

Statement	Always	Sometimes	Rarely
Contributed ideas to the lab.			
Listened to and respected my partners.			
Acted appropriately according to my role in the lab.			
Cooperated with my group members on the activity.			
Cooperated with another group member on the report.			
Did my fair share of the work for this lab.			

1. What tasks did you specifically complete for this lab? _____

   _____

2. What do you think was your greatest strength from the list above?

   _____

3. What do you think was your weakness that you should work on in your next group activity? _____

4. If you need to defend any of your answers, write comments here:

   _____

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Group and Self Evaluation

Evaluate each group member's performance in the flower dissection lab:
Group member's name: _____

Statement	Always	Sometimes	Rarely
Contributed ideas to the lab.			
Listened to and respected my partners.			
Acted appropriately according to my role in the lab.			
Cooperated with my group members on the activity.			
Cooperated with another group member on the report.			
Did my fair share of the work for this lab.			

1. What tasks did the group member specifically complete for this lab?

   _____

2. What do you think was the group member's greatest strength from the list above? _____
3. What do you think was your group member's weakness?

   _____

4. If you need to defend any of your answers, write comments here:

   _____

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