

Flowers and Georgia O'Keefe Teacher Resource

Grade Level **K-12**

Objectives

1. Students will be able to dissect the anatomy of a flower.
2. Students will be able to label and identify the anatomy of a flower.
3. Students will be able to construct their own personal example of their flower by using the artistic influence of Georgia O'Keefe.
4. The student will be able to employ simple equipment and tools to gather data.
5. The student will be able to demonstrate the use of 21st century technology using a document camera.

National Standards

[NS.K-4.1](#); [NS.5-8.1](#); [NS.9-12.1](#)

Science as Inquiry

[NS.K-4.3](#); [NS.5-8.3](#); [NS.9-12.3](#)

Life Science

[NS.K-4.5](#); [NS.5-8.5](#); [NS.9-12.5](#)

Science & Technology

[NT.K-12.1](#)

Basic Operations and Concepts

[NT.K-12.3](#)

Technology Productivity Tools

[NT.K-12.6](#)

Technology Problem-Solving & Decision-Making Tools

[NA-VA.K-4.1](#); [NA-VA.5-8.1](#); [NA-VA9-12.1](#)

Understanding and applying media, techniques, and processes.

Teacher Background Information

In this experiment, students will be dissecting a flower to examine the male and female organs of the plant. The students will gain a greater understanding of the pollination process with flowers and the environment. The student will dissect the flower using a scalpel and will also record their data by taking pictures with a document camera. The best flowers to use will be lily, daffodil, or tulip. The student will be measuring the length of different parts of the flower to record as data and put into their data collection. Have the students construct charts and/or graphs showing the difference between a female organ (carpel) vs. a male organ

(stamen). Discuss with the students prior to the lab about pollinators and how they are part of the pollination process.

MATERIALS

Document Camera

Personal Computer

Interactive White Board/Projector

Lily, Daffodil, or Tulip

Dissecting Kit

Watercolor Paint

Paintbrushes

White Paper

PROCEDURE

Activity 1 *Flower Dissection*

1. Begin with an overview of a flower by having students fill out a generic diagram labeling the anatomy of the flower and its function. *Google “Flower Anatomy Diagram” and you will have many options to choose a flower diagram for your students to complete.*
2. Each student lab group must obtain a fresh flower.
3. Have each student carefully remove the following structures in the order they are listed.
4. Have them take a picture of each structure after it has been removed with the document camera.
5. Write in your science journal, what do you notice on the surface of each structure?
Color? Appearance?
 - a. Sepals
 - b. Petals
 - i. Carefully remove the petals from a simple flower leaving the inside stamens exposed.

- c. Stamen
 - i. Remove all the stamens, it consist of a filament (long tube) with a rounded anther (tip).
- d. Filament
- e. Anther
 - i. Find the Pollen Grains on the anther.
 - ii. Measure the length of one pollen grain in mm.
- f. Pistil
 - i. Remove the pistil, it consist of the style, stigma, and ovary.
- g. Style
- h. Stigma
- i. Ovary
 - i. Carefully split the ovary in half lengthwise.

DISCUSSION QUESTIONS

1. How many sepals are present on your flower?
2. How many petals are present on your flower?
3. How many pistils are present on your flower?
4. How many stamens are present on your flower?
5. What is the length of the one pollen grain you measured and took an image of?
6. What is inside the base of the ovary?

Activity 2 *Georgia O'Keefe Flowers*

1. Display examples of Georgia O'Keefe Flower paintings.

A Google search of "Georgia O'Keefe Flowers" will provide many options of her paintings to show the students. A great website is www.art.com in which micro-detail can be examined of Georgia O'Keefe's paintings.

2. Discuss with the students the history of the artist and the style of her paintings.
3. Have students each obtain watercolors and a piece of white paper.
4. Have each student paint their own interpretation of their specific flower using Georgia O'Keefe painting style.

PRESENTATION

Have students prepare a lab report including the data, images, and artwork they have collected.