# Pre-Lab Information

Purpose Conduct an investigation to explore the anatomy of a flower.

Time Approximately 45 minutes

Question How can dissection be used to investigate the anatomy of a flower?

Summary Most flowers are able to reproduce sexually. Some flowers contain only male or female structures and need the help of pollinators, such as bees and butterflies, to reproduce. Other flowers can self-pollinate because they contain both male and female structures in the same flower. In this lab, you will dissect a flower to study its reproductive structures. You will make sketches and describe the role each structure has in reproduction.

# Safety

* Always wear a lab coat and safety goggles when performing an experiment.
* Behavior in the lab needs to be purposeful.
* Use caution when cutting with the scalpel. Cut in a sideways direction so the scalpel blade is not aimed at your body. Keep fingers away from the blade.
* Report all accidents—no matter how big or small—to your teacher.

# Lab Procedure

1. **Gather Materials**

|  |  |  |
| --- | --- | --- |
| * Flowers
* Scalpel
* Dissecting needle
* Dissecting tray
 | * Forceps
* Metric ruler
* Hand lens
 |  |

1. **Observe the flower.**
	1. Remove all the petals.
	2. Sketch a petal in Table A.
	3. Record the number of petals in Table A.
	4. Measure the length of a petal and record it in Table A.
2. **Observe the stamens.**
	1. Remove all the stamens.
	2. Sketch a stamen in Table B.
	3. Record the number of stamens in Table B.
	4. Measure the length of a stamen and record it in Table B.
	5. Sketch and measure the length of a filament and an anther. Record these in Table B.
	6. Use the hand lens to observe the pollen on the anthers. Tap the anthers on the dissecting tray so that some pollen falls off. Record your observations and make a sketch of any pollen you see in Table D.
3. **Observe the pistils.**
	1. Remove all the pistils.
	2. Sketch a pistil in Table C.
	3. Record the number of pistils in Table C.
	4. Measure the length of a pistil and record it in Table C.
	5. Sketch and measure the length of the stigma, style, and ovary. Record these in Table C.
	6. Use the hand lens to observe the stigma. Record any observations of the stigma in Table C.
4. **Observe the ovary.**
	1. Use the scalpel to gently cut lengthwise along the ovary.
	2. Use the forceps and dissecting needle to open the ovary.
	3. Use the hand lens to observe the inside of the ovary. Record your observations and make a sketch of the ovules you see in Table D.
5. **Clean up the lab.**
	1. Make sure the scalpel is properly stored so that others do not cut themselves with it.
	2. Dispose of all materials according to your teacher’s directions.

# Data

Record your data either in your lab notebook or in the space below.

**Table A**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Part** | **Drawing and Observations** | **Number of Parts** | **Length****(cm)** | **Reproductive Function** |
| Petals |  |  |  |  |

**Table B**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Part** | **Drawing and Observations** | **Number of Parts** | **Length****(cm)** | **Reproductive Function** |
| Stamens |  |  |  |  |
| Anthers |  |  |  |  |
| Filaments |  |  |  |  |

**Table C**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Part** | **Drawing and Observations** | **Number of Parts** | **Length****(cm)** | **Reproductive Function** |
| Pistils |  |  |  |  |
| Stigmas |  |  |  |  |
| Styles |  |  |  |  |
| Ovaries |  |  |  |  |

**Table D**

|  |  |  |
| --- | --- | --- |
| **Part** | **Drawing and Observations** | **Reproductive Function** |
| Pollen |  |  |
| Ovules |  |  |

# Follow-Up Questions

Answer the following questions:

1. Consider the flower that was dissected in this lab. Can this flower self-pollinate? Use your observations to support your answer.

1. Does the flower produce more pollen or more ovules? Why is this important?
2. How is the stigma designed to capture and hold pollen?