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Lesson 1: Flower Dissection

[To prepare, read Background Information](#)

Objectives

Students will:

- Learn the difference between angiosperms and gymnosperms
- Learn the purpose of flowers
- Investigate and identify the parts of a flower using live specimens

Central Concepts

- Flowers vary in appearance, but all possess similar structures.
- The purpose of a flower is to produce seed.

Standards addressed: [click here](#)

Materials

- Chart or model illustrating the parts of a flower
- Flowers, conifer cones
- Paper towels
- Tweezers and hand lenses

Discussion Questions

1. What is the difference between angiosperms and gymnosperms? (*Gymnosperms produce seeds in cones and angiosperms produce seeds in flowers.*)
2. Do all flowers look the same? (*No*) What makes a flower a flower? (*Flowers are made up of petals, sepals, pistils, and stamens.*)
3. What is the purpose of a flower? (*To make seeds.*)

In-Class Activity: Flower Dissection

1. Using the background information, inform students about the differences between gymnosperms and angiosperms. Live specimens of both can help you point out the differences.
2. Create a chart or build a model of a flower to show students the various parts. Explain that the parts are different in number, size, shape, and color for each flower, and this helps us tell one species from another in the field.
3. Dissect a couple of flowers in front of the class as examples. If you can, harvest blossoms from outside; you can also obtain flowers from a local florist. Demonstrate to the students how to carefully separate and identify the different parts.
4. Give the students a paper towel and one or more flowers to dissect on their own. Bring in a number of different types of flowers to demonstrate the diversity. Larger flowers with obvious pistils and stamens, such as lilies and alstromeria, are best for younger students, and are easy to dissect by hand.

As students dissect the flowers, have them spread the different parts — petals, sepals, pistil, and stamens — out on their paper towel and label them. They may need help with ID. Have students tape the parts to the paper towel to preserve them for later use.

For older students, in addition to some of the traditional flowers, introduce blooms with different adaptations. For instance, begonias and squash have separate male flowers and female flowers. By dissecting both, students can see and understand the differences. You could also use hibiscus flowers, which have stamens fused onto pistils so that it looks like the two are the same structure. Try introducing something unusual, such as an oak tree flower; most students don't think about oaks and other trees as flowering plants.

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Students will need to use tweezers and a hand lens to get a closer look at the structures of smaller flowers.

Extensions

Science - Explore the process of pollination and the role of pollinators. You'll find background information on pollination in the "Seed to Seed 101" article on page 7 of [Seeds: The Promise of Life](#). Look for background information on pollinators in our article, [Flower Courtship](#).

Take your class outside to observe pollinators in action. Instruct them to keep notes on their observations and later write conclusions from their notes.

Math - Count the number of petals, sepals, pistils, and stamens of each flower dissected. Create a chart to compile findings and display the results. Do all the flowers of the same variety have the same number of each of the parts?

English - Flowers are frequently mentioned in poetry. Locate a handful of age-appropriate poems mentioning flowers. Read the poems aloud in class and then instruct students to write one of their own. See [Growing Poems](#) for ideas and resources.

Social Studies - The western prairie fringed orchid found in tall grass prairies is adapted so that it can be pollinated only by a long-tongued hawk moth. This special relationship is very fragile, and the loss of the hawk moth would eventually lead to the disappearance of the orchid, or vice versa. Tall grass prairies once covered the midwestern United States, but over time they have decreased in size due to increasing farm land and development.

Print the [U.S. Fish and Wildlife Service article](#) on the orchid-moth relationship and the [Minnesota's Department of Natural Resources fact sheet](#) about the orchid. Give students time to read these publications and then lead the class in a discussion of the issues brought up by this situation (loss of habitat, influence of herbicides/insecticides on the environment, loss of diversity, and so on). Assign students to write an editorial on their thoughts and opinions related to this issue.

Nutrition - *This lesson is only appropriate for students who are mature enough to understand that eating unknown plants can be dangerous; students need to research first and feast later.

A number of common plants, such as violas, nasturtiums, calendulas, and dandelions, have edible flowers. This is fascinating for students; adding flowers to a healthy salad or sandwich makes it much more fun to eat! Use the Internet to search for information on edible flowers to share with your class. Be sure to read this article from Iowa State University on [precautions to follow when eating flowers](#). It's important to emphasize that not all plants are edible and some can harm you. Also check out this [list of poisonous plants from Cornell University](#).

If students are interested, plant an edible flower container; one design is [described here](#).