

Wildflower, Weed, or Botanical Bully?

Method

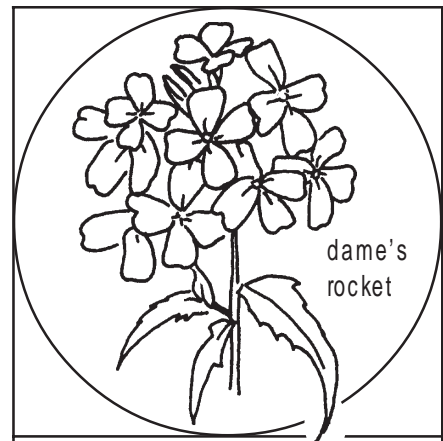
Students will visit a “weedy” area near their school. They will find and observe plants and their surroundings. Back in the classroom, they will identify the plants and determine if they are native, non-native, non-native invasive, or native invasive.

Getting Ready

1. **Optional:** Using the Internet or other resources, find pictures of the plants referred to in the introduction below. See *Finding Out More!* for Web sites that feature plant photos.
2. Find a “weedy” place where students can observe plants closely. Depending on your location, this might be a vacant lot or a forgotten corner of the playground. While highway and railroad right-of-ways are excellent places to find non-native plants, these locations are not safe. If using school property, check with the maintenance staff to be sure the area hasn’t been recently sprayed. If the area is not on school property, obtain permission to collect a limited number of plants. Be sure the site you choose doesn’t have poison ivy, wild parsnip, stinging nettle, or other hazardous plants.

Introducing the Activity

It isn’t easy to tell by just looking at a plant whether it is “good” or “bad.” A dandelion growing on a golf course would be considered a weed. A dandelion given as a gift to a mom would be a wildflower. Some people kill all the dandelions in their yards; others enjoy the yellow flowers as a welcome sign of spring. Poison ivy in a woods provides valuable food for wildlife. Poison ivy in your backyard would be a weed that needs to be controlled! Dame’s rocket cultivated in a garden would be considered a wildflower, but when dame’s rocket invades a wooded area, it is a botanical bully that pushes out native species. Woodland sunflower is a beautiful, native forest wildflower, but given the chance, it can be a botanical bully. If it were growing in a crop field, the farmer would consider it a weed.



Objectives

- Become familiar with plants of weedy areas.
- Understand that many of the plants found in weedy areas are non-native species.
- Identify one plant and determine its ecological status.

Grades

4 – adult

Group Size

Small groups of 3 students

Activity Time

Two or three 50-minute periods

Setting

Weedy area during spring, summer, or fall; preferably when plants are in bloom

Materials

- Pictures of plants (i.e., poison ivy, dandelion, dame’s rocket, woodland sunflower)
- Copies of *Plant Characteristics* (page 18)
- Notebooks and pencils
- Trowels, pruners, or scissors for collecting plants
- Plastic shopping bags
- Plant identification books (See list on page 139.)
- Access to Internet
- **Invasive Plants of the Upper Midwest**

Connections

See next page.

Academic Standards

Grade 4

- Science: C.4.2, C.4.5

Grades 5 – 8

- Science: C.8.2

Grades 9 – 12

- Science: F.12.5

Scout Connections

- Boy Scouts: Plants
- Junior Girl Scouts: Earth Connections, Plants and Animals

Doing the Activity

For students in grades 7 – adult.

1. **Define terms.** Talk about the differences between wildflowers and weeds. Name some plants such as Queen Anne’s lace or goldenrod and ask if students would call these plants wildflowers or weeds. On what do we base our definitions? While terms such as wildflower and weed can be very subjective, native and non-native are more scientific. See definitions on page 17.
2. **Introduce the task.** The best way to learn about plants is to become more familiar with the plants that we see each day. Explain that the students are going to investigate a “weedy” area near the school. In the area, they are going to find and collect plants. Back in the classroom, they will identify the plants and determine if they are native or non-native.
3. **Visit the area.** Set boundaries for the activity. Divide students into teams of three. Instruct students to walk around the area and look for “wildflowers” and “weeds.” Remind them to also look at trees and shrubs, because we often refer to woody plants as “weedy” or “desirable.” Ask if students know the names of any of these plants. Check if all the students agree on the same name. **Note:** Since common names can vary greatly, this would be a good time to point out the advantages of scientific names!
4. **Find unknown plants.** Each team should find an unknown plant. **Note:** Choosing plants that are in flower will make identification much easier, since many identification keys are based on the number of flower petals. If there are no plants in bloom, students should select trees and shrubs for identification.
5. **Study the plants.** Working in teams, students should look at their plant’s leaves, stems, flowers, and seeds. After a few minutes, team members should complete individual tasks.
 - One person sketches the plant.
 - One person makes written notes about the plant.
 - One person counts the number of identical plants within the designated study area.
6. **Collect one specimen of each unknown plant.** Students can either dig up entire plants, cut plants off at ground level, or prune representative twigs from trees and shrubs. Instruct students to place the plants in a bag for transport back to school.
7. **Return to the classroom.**
8. **Identify the plants.** Using plant identification books, Internet sites, or resource specialists, students should identify the plants they collected.

9. **Determine each plant's origin.** Once students know the common and scientific names of the plants, they should determine if the plants are native or non-native (introduced) by visiting the **Wisconsin State Herbarium** Web site. See *Finding Out More!* on page 16.
10. **Determine each plant's ecological status.** Students should determine if their plants could be invasive in natural areas by checking the charts on pages 195 – 204 of **Invasive Plants of the Upper Midwest**.
11. **Graph the occurrence of each type of plant.** Tally the plants in each group (e.g., native, non-native, invasive native, and invasive non-native). Compare the different categories of plants. How many of the plants growing in the “weedy” area were non-native plants? (There were probably many non-native plants in the area. However, only a small number of these non-native plants are invasive in natural areas.) Were there any native plants?
12. **Recheck definitions.** Discuss these questions to clarify definitions:
 - Did any of the plants that you initially called “wildflowers” end up being invasive non-native plants?
 - Were there any “weeds” that turned out to be native plants?
 - How do the definitions used by scientists help us define and discuss plants objectively?

For students in grades 4 – 6.

Follow the steps in this lesson, but choose only one plant at a time to investigate. Keep these things in mind when selecting plants to investigate:

- Choose plants that are abundant enough so that each student or small group of students can gather around a specimen.
- Use a simple plant identification guide (e.g., **Weeds: A Golden Guide** by Alexander Martin) with the students. Be sure that the plants you choose are in the guide. Common “weeds” found in this guide include crabgrass, pigweed, ragweed, chicory, burdock, thistle, and Queen Anne’s lace.

Before heading outside, review plant characteristics that are important to identification. See the chart on page 18. Outdoors, ask each student to complete a sketch of the plant. Collect several specimens to press. If possible, laminate the pressed and identified plants and create a bulletin board or class binder that features “Plants of Our Playground.”

Assessing the Learning

Assess students’ ability to work in a small group while describing, sketching, or locating an unknown plant. Check accuracy of identification and determination of ecological status.



Extending the Learning

Start a herbarium. Use the plants students collected and the information from the activity, *The Plant Hunters* to begin a herbarium collection of local plants. See page 39.

Frame it. Use picture mats or picture frames to look at an area from a new perspective. In an outdoor area, set up a few frames to highlight natural objects or scenes. Take a tour of nature's art gallery by visiting each frame. Ham it up! You might use this as your introduction to the gallery:

Welcome to Nature's Art Gallery! In this beautiful gallery, you will find works of art in all stages of completion. Some works are only on display a few days each year; other works have taken hundreds of years to be formed and will remain relatively unchanged for years to come. This gallery is always changing. We have little control over the lighting in the gallery, so the artworks can change right before your eyes and throughout the day. We also encourage you to visit in different seasons because the works do reflect amazing seasonal variations. Due to the size of the gallery, you will find small works displayed within much larger works. Attention to detail will enhance your experience in the gallery. Watch for repeating patterns and subtle changes in color.

Give students frames and ask them to find interesting plants or scenes to "capture." Allow each student to act as curator for the masterpiece that he or she found. Visit several locations. Compare an area with invasive plants to an area without invasive plants. Which area is the most interesting from artistic point of view?

This activity is adapted from "Nature's Art Gallery" developed by teacher Mural Adams. A more complete description of the activity can be found in "Freeze Frame." **Non-Native Invasive Species Learning Kit — Get a Grip on Biodiversity.** United States Forest Service. 2005.

Finding Out More!

Invasive Species: Plants. Wisconsin Department of Natural Resources. 2005. Online photo gallery of invasive non-native and aggressive native plants. <www.dnr.wi.gov/invasives/plants.htm>

PLANTS Database. United States Department of Agriculture. 2005. Fully searchable online database with photos. <<http://plants.usda.gov/index.html>>

Missouri Weeds. University of Missouri. 2004. Online listing and photos of weeds of field crops, pastures, ornamentals, and turfgrass. Includes keys. <www.psu.missouri.edu/fishel/Default.htm>

WISFLORA: Wisconsin State Herbarium. University of Wisconsin – Madison. 2005. Fully searchable online database with photos. Type in common or scientific name to find ecological status, distribution maps, and herbarium records. <www.botany.wisc.edu/wisflora>

Wildflower or Weed?

When we talk about wildflowers and weeds in daily conversation, our words really don't say much about the plant. They say more about where the plant is growing and how we view it. This guide will usually refer to the terms used by scientists to describe plants. Since these terms are based on criteria, they will help us define and discuss the origin and ecological status of individual plants.

Terms used in everyday conversation

Weeds are very different things to different people. Weeds grow in crop fields, gardens, and landscaping. They are usually defined as plants growing where they are not wanted. However, some people refer to wildflowers as weeds, while others refer to the plants invading natural areas as weeds.

Wildflowers are also very different things to different people. They are usually defined as plants growing freely with no need of cultivation. However, many people cultivate wildflowers in their gardens!

Terms used by scientists to describe plants

Native species have been present in a region for a long time. Most ecologists consider a plant native to North America if it was here before European settlement. *Synonym:* indigenous

Non-native species are not native or naturally occurring within a defined geographic area. Many non-native species are important food crops. Others are considered weeds of gardens, croplands, and pastures. Some are invasive in natural areas. *Synonyms:* nonindigenous, exotic, alien

Non-native invasive species are non-native plants that invade natural communities. Invasive species spread rapidly by producing many seeds and/or reproducing vegetatively. They usually lack natural controls on their populations such as herbivores and diseases. They outcompete and displace native species and disrupt ecological processes.

Invasive native species are aggressive plants that are native to the area, but they are adapted to colonize disturbed sites. They can become dominant and troublesome on a site.

Weeds are plants that are well-adapted to live in disturbed areas such as croplands, pastures, and gardens. Weeds usually have many strategies for survival (e.g., ability to thrive in poor soil conditions and numerous seeds that can disperse long distances). All invasive plants are weeds, but only a small number of weeds are invasive in natural areas.

Terms used by the legal system

Noxious weeds are plants that cannot be sold, traded, or planted. Noxious weeds must be contained. Some plants are on a federal noxious weed list; others are on state, county, or municipal lists. Noxious weeds in Wisconsin include: Canada thistle, leafy spurge, field bindweed, and any other weeds that a particular county or municipality may deem "noxious."

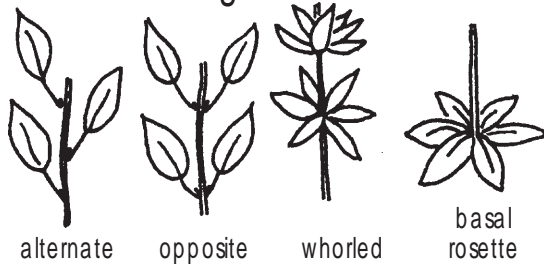
Nuisance weeds are plants that may not be sold, offered for sale, distributed, planted, or cultivated. Wisconsin lists purple loosestrife and multiflora rose as nuisance weeds.

Note: For a more complete glossary, see pages 189 - 194 of **Invasive Plants of the Upper Midwest**.

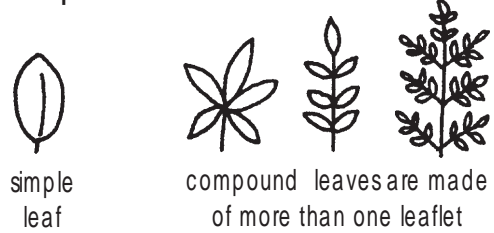
Plant Characteristics

Take a close look at your plant. Ask yourself these questions to help you focus on the things that make your plant unique. Then try to sketch or identify your plant.

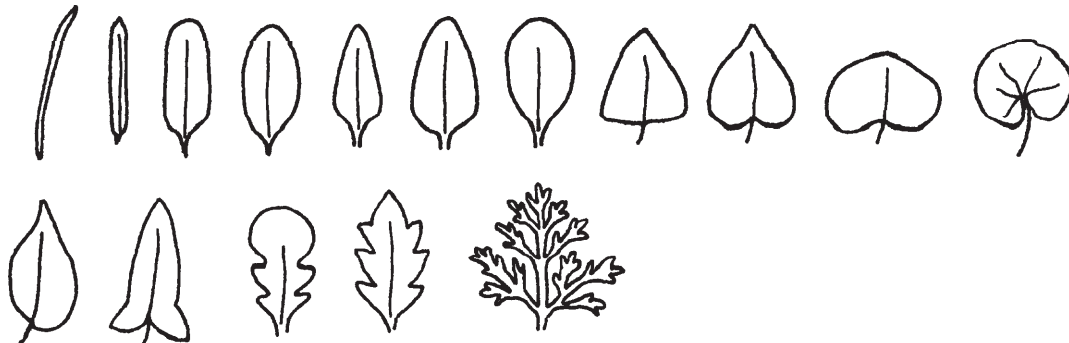
How are the leaves arranged on the stem or twig?



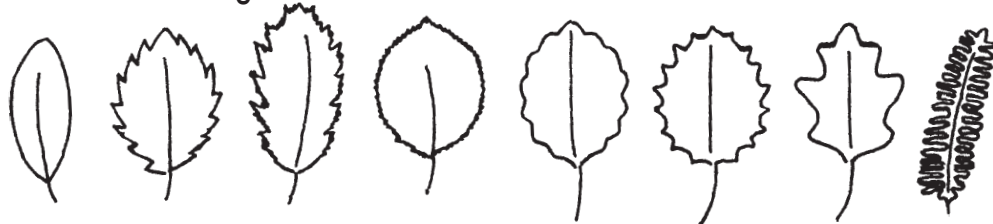
Are the leaves simple or compound?



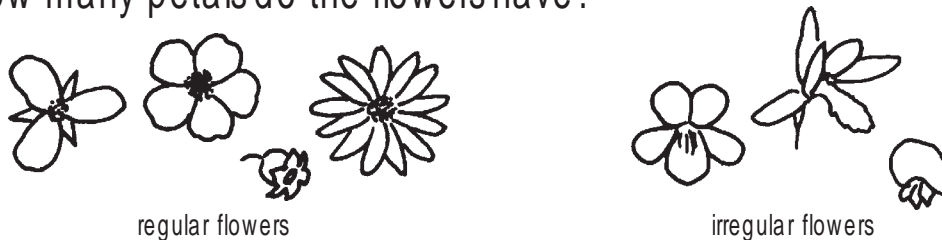
What shape are the leaves?



What do the edges of the leaves look like?



How many petals do the flowers have?



How are the flowers arranged?

