



A Weedy Scavenger Hunt

Grade: K to 2

Length: one hour

Subjects: life science

Topics: weed identification

Objectives

Exercises in this lesson help students achieve the following objectives:

- Identify weeds in a field setting
- Observe weed adaptations in a field setting
- Learn about some of the problems associated with weed invasion in local habitats
- Begin to understand some of the relationships, between plants and animals and living and non-living components, that exist within a community

Introduction

By observing plants in a natural setting, students will learn important concepts about **invasive** plants. The **weed** scavenger hunt provides an opportunity for teachers to introduce and discuss the following concepts: **native** and **non-native** plants; **adaptations**, including seed dispersal mechanisms, defenses against herbivores, water conservation and drought tolerance, **allelopathy**, and adaptations for attracting pollinators; **food chain; ecosystem**; and **mono-culture**. Before teaching this lesson, read the entire lesson and make sure all materials are available.

Background

Before conducting the *Activity*, read the *Weedy Scavenger Hunt Discussion Points* teacher page later in this lesson. Take this material with you when

students go into the field, and use it after the scavenger hunt.

Preparation

1 Tell students they are going on a scavenger hunt. Review with students what a scavenger hunt is and allow students to share the kinds of things they have had to find in past scavenger hunts. Ask students the following questions:

- What things were easy and difficult to find?
- Was it possible to find everything?
- Did anyone win a prize for finding the most items?

2 Explain that during this scavenger hunt, students will look outdoors for things specifically related to plants that are weeds.

Instead of collecting items, students will simply check off items on a list or draw things. To motivate students, show them a prize, such as a weed poster, in advance (optional).

Activity

Materials

- area on or near the school grounds with a diversity of native and invasive plants
- live examples of the native and invasive plants that students are likely to find on or near the school grounds
- copies of *Weedy Scavenger Hunt Student Checklist* worksheet – Have available one copy for each student.
- one copy of *Weedy Scavenger Hunt Discussion Points* teacher page
- pencils
- weed field guides for your area
- student Weed Journals

- 1 Discuss the rules and boundaries for the scavenger hunt. Make sure all students understand the rules and boundaries.
 - 2 Bring students to the area you have selected for this exercise and review the rules and boundaries.
 - 3 Have students search alone, or in small groups, for items on the worksheet.
 - 4 After students have had a chance to find most of the items on the worksheet, end the scavenger hunt, gather students, and discuss the items they found.
- Incorporate information from *Weedy Scavenger Hunt Discussion Points* into the discussion.
- 5 As a group, visit locations of special interest in the field.

Conclusion and Evaluation

- Conclude the lesson by showing students the live examples of native and invasive plants collected earlier. Identify the plants for students. Discuss the beneficial and harmful effects of each plant on the area where the plant was collected. For example, students may think some plants are beautiful; other plants could hurt if you touched them.
- Evaluate students on their participation in the discussions and items they found during the scavenger hunt.

Independent Practice and Related Activities

- In their Weed Journals, have students list other places in the community where they have observed the weed species introduced during the *Activity*.

- Repeat the scavenger hunt in new locations or habitats and compare the results.
- Have students make up their own scavenger hunt checklists for classmates to follow in the same or a different habitat.

Vocabulary

adaptations, allelopathy, biological control, ecosystem, food chain, habitats, invasive, mono-culture, native, non-native, pollination, succession, weed

Resources

Sheley, Roger L., and Janet K. Petroff, eds. *Biology and Management of Noxious Rangeland Weeds*. Corvallis: Oregon State University Press, 1999.

Whitson, Tom, ed., Larry C. Burrill, Steven A. Dewey, David W. Cudney, B.E. Nelson, Richard D. Lee, and Robert Parker. *Weeds of the West*. 5th ed., Jackson: Pioneer of Jackson Hole, 1999.

National Science Education Standards

As a result of their activities in grades K to 4, students should develop abilities in and an understanding of the following areas:

Life Science – Content Standard C: characteristics of organisms, life cycles of organisms, organisms and environments

Science in Personal and Social Perspectives – Content Standard F: characteristics and changes in populations, changes in environments

History and Nature of Science – Content Standard G: science as a human endeavor

Weedy Scavenger Hunt Discussion Points Page 1 of 2

Five different shades of green

Ask students the following questions:

- Where did you find the different shades of green?
- Are different kinds of plants different shades of green?
- Are different parts of the same plant different shades of green?
- How many different kinds of plants do you think grow here?
- Why do you think different kinds of plants grow here? Explain that seeds disperse to many locations and weeds have the ability to grow in conditions that might not be suitable for desirable plants.
- Do you think the kinds of plants growing here might change over time? Why or why not?

Introduce the following concepts:

Succession - The plants and animals in an area change over time through a process known as **succession**.

Invasive plants - Invasive plants take over an area and push out plants that normally live in that area. Many invasive plants in the United States came to our country from other countries.

Habitat alteration by humans - Farming, industry, and construction all disturb the land and open the way for invasive plants.

A plant with sharp spines or thorns

Ask students why some plants have spines or thorns. Spines or thorns might prevent animals from eating the plant. Physiologically, spines are

modified leaves. Needle-like leaves help plants conserve water in dry climates. Many invasive plant species have spines or thorns. Some of these species are native to the United States, and some are not. Use a field guide to identify the species in your area. The following weeds have spines:

- Sunflower family - Thistles are members of the sunflower family. There are approximately 160 species of thistles native to North America. A relatively small number of non-native thistles have become a problem. Problem thistles include artichoke thistle, bull thistle, Canada thistle, Italian thistle, musk thistle, plumeless thistle, Scotch thistle, yellow starthistle, and purple starthistle.
- Goosefoot family - Russian thistle
- Pea family - camelthorn, gorse
- Caltrop family - puncturevine
- Nightshade family - buffalobur, horsenettle

A plant that smells pleasant and a plant that smells unpleasant

Students' opinions of pleasant and unpleasant odors will vary. Discuss generalizations about the adaptive advantages of plant scent. Flowers that smell sweet are likely to attract **pollinators** such as bees. Flowers that smell unpleasant may attract pollinators such as flies. When insects search for food, they pollinate plants in the process. Insects that feed on the leaves, stems, and roots of a plant are probably attracted by the plant's odor.

Weedy Scavenger Hunt Discussion Points Page 2 of 2

A plant with a chewed leaf and an insect on a plant

Discuss how chewing can harm a plant. Leaves transport water from the roots through the process of evapotranspiration. With fewer leaves, the plant will have less food and water. Some insects chew into stems and seed heads to lay their eggs. The larvae then feed on the seeds, which reduces the reproductive capacity of the plant. Larvae that feed on the stems cause wilting. Many insects are host specific; the insect is attracted to only one species of plant. **Biological** control is sometimes an option with a host-specific relationship.

Some non-native plants are able to establish themselves in a new environment because the natural **controls**, such as insect pests, that exist in their country of origin are not present. Insects control plants by feeding on the plants and laying their eggs in the plants. One method of controlling problem weed species involves releasing insects that feed or lay eggs in the leaves, roots, stems, or seed heads of a plant, which harms the plant in some way.

A plant growing in a dry, sandy, or rocky area

Many weeds are highly adaptable; they are able to grow in many different **habitats**. Weeds that grow in dry or sandy areas are puncture vine, Dalmatian toadflax, St. Johnswort, diffuse knapweed, and squarrose knapweed. Weeds that grow well in wet areas include purple loosestrife, teasel, western water hemlock, and poison hemlock.

A plant with no other plants growing near it

This phenomenon may occur for several reasons. Some weed species produce chemicals that inhibit plant growth around them. This characteristic is called **allelopathy**. Spotted knapweed is one example of an allelopathic plant.

A seed that sticks to your sock

Weeds with seeds that stick to things include houndstongue, burdock, buffalobur, puncturevine, and a variety of sharp-seeded, non-native grasses.

A plant that might be blown by the wind

Plants that are blown by the wind have plume-topped seeds. Examples of these types of plants are dandelion, thistle, and knapweed. Tumbleweeds, such as Russian thistle and Mediterranean sage, are also blown by the wind.

A seed that might be eaten by an animal

Animals can spread seeds effectively by eating a fruit then depositing the fruit's seed in its droppings. Animals also spread seeds by carrying the seed in their mouth to a new location to eat or store.

A plant you think is a weed and a plant you think is not a weed

Review the definition of a weed and the subjective nature of this definition. Review the main weed species observed during the *Activity* and the effect these species have on this environment.

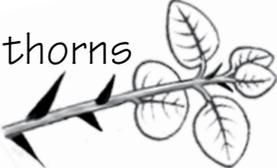
Weed Warrior Worksheet

Weedy Scavenger Hunt Student Checklist Page 1 of 2

Do not pick any plants. When you are finished, return to your teacher.

5 kinds of GREEN

Spines or thorns



Chewed leaf



Seed on sock



Bug



Weed



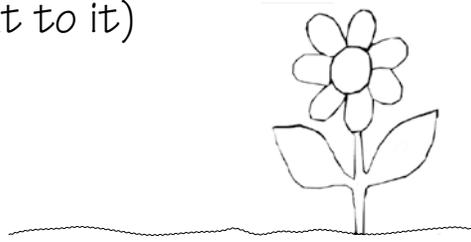
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Smells good 

Smells bad 



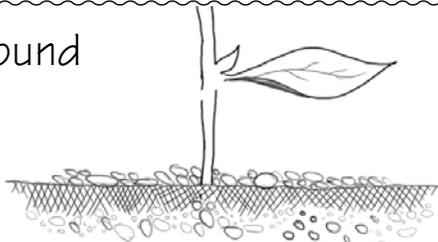
Alone (no other plants next to it)



Blow in the wind



Rocky ground



Not a weed



Plant animal may eat

