

Spotted Knapweed

This activity is directly tied to the fifth spread, pages 9 and 10, in the *What's In Your World?* publication located inside the back pocket of the activity tool kit.

Background

A single spotted knapweed plant can produce up to 36,000 seeds each growing season, each about the size of the letter “e” at the end of the this sentence. The seeds can travel long distances and may live in the soil 10 years or more before sprouting. Even when the flowers are eaten by deer or other animals, some seeds will survive their trip through the digestive tract.

In a little more than 100 years, spotted knapweed has spread across most of the United States and Canada. Today, it is found growing in every state except Alaska, Georgia, Mississippi, Oklahoma, and Texas. In the West, the weed infests more than 7.4 million acres--that’s an area the size of Connecticut and Massachusetts combined.

Scientists tracked the spread of spotted knapweed in the United States and noticed an interesting pattern. Knapweed usually first appears along roads, railroads, and power lines. They realized that the seeds--sometimes even stems and whole chunks of a plant--are hitchhiking on cars, trucks, and trains. From these road and rail corridors, the plants then spread out, catching rides on peoples’ clothes, cars and other vehicles, livestock and wildlife.

Knapweed seeds can stick in the tread of car tires and travel 40 miles or more before falling out and sprouting into a new plant. The roots release chemicals into the soil that are then sucked up by the roots of grasses and other plants. The chemicals act like a computer virus, telling the plants’ roots to stop growing or signaling cells to die off. The knapweed’s chemicals make some plants self-destruct.

How do noxious weeds spread?

Investigate seeds and the special adaptations that seeds have to spread and grow into new plants. Students will observe a variety of seeds and examine the techniques that plants use to spread their seeds. Students will also participate in a journaling activity on Spotted Knapweed to learn the tricks this plant uses to spread quickly across a landscape.

Levels
Grades 4-8

Subjects
Language Arts, Science, Mathematics

Skills
Discussing, Analyzing, Investigating, Observing, Describing

Concepts
Structure, behaviors, functions, life cycles and energy needs of living things;
experimental investigation using tools, measurement and data collection;
classification;
interactions of living things and environments

Objectives

Students will understand the function of a seed.

Students will explore seeds to discover different seed dispersal techniques of plants.

Students will understand the spreading of one noxious weed.

Students will examine the rate of spreading for noxious weeds.

Materials
(20 student class-size)
Samples of different seeds with different dispersal techniques (wind--goat’s Beard, prairie smoke or cottonwood; water--cranberries, fruits: cherries, raspberries or strawberries; hitchhiker--burdock, spotted knapweed, houndstongue)



What’s in Your World? booklets (pp. 9-10) - 1 per student
journals or notebook - 1 per student
pre-collected spotted knapweed seed heads (if none nearby to collect with students)
seed collection containers, hand lens, and tweezers from the *What’s In Your World?* activity tool kit
gloves - 1 pair per student
trays or paper plates

Time Considerations

Preparation - 30 minutes

Activity - 2 hours

Lesson Overview

- Seed Dispersal Investigation (50 minutes)
- Ode to Spotted Knapweed Poem (20 minutes)
- Spotted Knapweed Seed Collection and Dissection (40 minutes)