
Plant Immigrants

Activity Overview

Students identify non-native plants and research the introduction of these non-native plants to the New World.

Objectives

Students will:

- Identify plant species using observation skills and keys
- Conduct research, engage in inquiry and communicate findings
- Learn how historical events have changed the present day landscape

Subjects Covered

Science

Grades

3 through 12

Activity Time

Plant identification: 45 minutes

Research: 45 minutes

Create / display findings: 45 minutes

Season

Identification is best done in the fall; research can be done any time.

Materials

Resource books to identify non-native plants and to research the introduction of non-native plants in the New World, Blank world maps, Graph paper, Plant photos or drawings, Poster board

State Standards

Science:

Decide which collected data is pertinent to new problems (A.4.2)

Decide which data should be collected (A.4.3)

Decide on science themes (A.4.4)

Decide on changes that have occurred (A.4.5)

Background

Plant composition in the ecosystems of North America has changed since European settlement and the introduction of non-native plant species from other parts of the world. Once non-native plants are transplanted from their homeland and no longer constrained by naturally occurring disease and competition, they often spread aggressively, out-competing native plants. Consequently, the interrelationships in a naturally functioning ecosystem are thrown out-of-balance. Restorationists, land managers, and homeowners spend millions of hours and dollars removing many of these exotic plants. How and why did these plants come here in the first place?

Non-native weeds and seeds came to North America several different ways. Colonists brought seed from their homelands for their family garden plots. Puritan women brought plantain (*Plantago major*) to North America for treating bites, cuts, and other painful wounds. These plants escaped their well-tended gardens by birds, settlers' feet, or other animals, and quickly spread throughout North America. Native Americans called the plantain "white man's foot" because it would grow along well traveled trails.

Dandelion (*Taraxacum officinale*) originated in Asia Minor. It spread to Europe before written history. For centuries, its long taproot and leaves have been used for food and medicine. The leaves and flowers contain more vitamins C and A than most garden vegetables. Dutch, German, French, and English emigrants brought seed from the Old World. The parachuted dandelion seed spread west before settlers arrived to claim their homesteads. Apache Indians welcomed the new plant and sent groups in search of it for spring feasts.

Seeds or plants also reached North America in impure shipments of grain, as ornamental plants, or as a food for domestic animals. Crabgrass (*Digitaria sanguinalis*) was first brought over in 1849 by the U.S. Patent Office as forage food. Later, Eastern Europeans brought crabgrass for cereal and flour. Today, crabgrass has spread to every state in the nation and is considered the number one pest in lawns.

Honeysuckle (*Lonicera tartarica*, *L. morrowii*, *L. X bella*) was introduced as an ornamental in the colonies in 1752 and is still sold at garden centers today. It is a serious nuisance in natural areas around urban centers, eliminating native wildflowers and shrubs. The summer-ripening fruit is readily consumed by birds and dispersed in forests and fields.

Plant Immigrants (cont.)

Develop themes for questions (A.8.1)
Describe limits of science systems (A.8.2)
Collect and organize data that explains or critiques models (A.8.3)
Collect scientific evidence (A.8.4)
Show how models change based on evidence (A.8.5)
Use themes to predict future (A.8.8)
Apply themes to develop future visions (A.12.1)
Show effects of different opinions and decisions about themes (A.12.2)
Give examples of models for solutions (A.12.3)
Show use of science for decision-making (A.12.5)
Identify and replace inaccurate models (A.12.6)
Use scientific sources & resources (B.4.1)
Acquire info about people in science (B.4.2)
Describe changes in knowledge and concepts (B.8.1)
Describe changes in models (B.8.2)
Explain general rules of science (B.8.3)
Describe reasoning to make conclusions (B.8.4)
Explain uses & limitations of knowledge (B.8.6)
Show cultural & individual contributions to science (B.12.1)
Identify major scientific themes & progress (B.12.3)
Show contribution of research (B.12.4)
Explain assumptions about natural world and themes (B.12.5)
Use scientific vocabulary & themes (C.4.1)
Ask questions, plan investigations, make observations, predictions (C.4.2)
Communicate results (C.4.6)
Support conclusions with logic (C.4.7)
Ask new questions (C.4.8)

Activity Description

1. Identify non-native plants in your restoration plot, in your school yard, or in an old field using field guides.
2. Research the origins of these non-native plants and how and why they were brought to North America.
3. Indicate on a world map where the exotic species originated, their route to North America, and the extent of their spread, with approximate dates.
4. Create a display of your findings; include a world map, a description with a drawing or photograph of your plant, a summary of how your plant came to the new world, and its impact in natural ecosystems today.

What is a weed?

Eleanor Roosevelt said, “A weed is an unloved flower.” Often a weed is described as a plant that is unwanted and grows or spreads aggressively.

Extensions

- Compose a fictional essay about a seed’s journey to the New World from its native home.
- Construct a timeline or graph that shows the number of plants introduced through history. Determine historical events that may correlate with the introduction of non-native species.
- Discuss what the implications are for the modern world when plant-seed hitchhikers are carried all over the world.
- Research cases of exotic plant or animal introductions, both intentional, such as kudzu or water hyacinth in the southeast United States, or unintentional, such as sea lamprey in the Great Lakes. Consider the case history and biological results of these prolific pests.

Additional Resources

- Brown, Lauren. (1979). *Grasses and Identification Guide*. Boston, MS: Houghton Mifflin.
- Courtenay, Booth and James Zimmerman. (1992). *Wildflowers and Weeds*. New York: Simon & Schuster.
- Martin, Alexander C. (1987). *Golden Guide: Weeds*. Racine, Wis.: Golden Press, Western Publishing Company, Inc.

Plant Immigrants (cont.)

Identify questions using available resources (C.8.1)

Identify data and sources to answer questions (C.8.2)

Use knowledge, models, and theories to explain results (C.8.5)

State learning from investigations (C.8.6)

Explain data & conclusions (C.8.7)

Use computer software to organize data (C.8.8)

Evaluate questions, hypotheses, conclusions (C.8.9)

Discuss results (C.8.10)

Identify further questions (C.8.11)

Ask questions, build hypotheses, design investigations (C.12.1)

Use explanations & models to describe results (C.12.5)

Present results (C.12.6)

Evaluate articles & reports using scientific criteria (C.12.7)

Explain survival and population growth of species (F.8.9)

Project how human trends influence the environment (F.8.10)

- University of Wisconsin-Extension Publications: *Lawn Weeds and Their Control* (NCR0260, \$2; *Weeds of the North Central States* (A9NXP281), \$8; *Annual Broadleaf Weed Identification* (NCR090), \$0.65; *Annual Grass and Perennial Weed Identification* (NCR092), \$0.65. Order: <http://www.uwex.edu/ces/pubs>, and/or, in Wisconsin, through your county extension office.
- Gleason, Henry A. and Arthur Cronquist. (1991). *Manual of vascular plants of the Northeastern United States and adjacent Canada*. New York: D. Van Nostrand Co.
- Haughton, Claire Shaver. (1978). *Green immigrants*. San Diego, CA: Harcourt, Brace, ovanovich.
- Hobhouse, Henry. (1986). *Seeds of change: Five plants that transformed mankind*. New York: Harper & Row.
- Holm, LeRoy and Jerry Doll. (1997). *World weeds: Natural histories and distributions*. New York: John Wiley & Sons.
- Quinn, John R. (1994). *Wildlife survivors—The flora and fauna of tomorrow*. Blue Ridge Summit, PA: McGraw-Hill, Inc.

Assessments

- Students can create portfolios or flash cards of non-native plants with a few facts on their introduction.

Plant Immigrant Information Sheet

Plant name

General description

Where Did It Come From?

Where Is It Found Today?

What Are It's Medicinal Or Food Uses?

How Can We Control It?

Picture or Drawing

When and How
Did It Come Here?

Why Did
It Come Here?