

Project BudBurst



Classroom Activity
www.budburst.org

Classroom Activity: Investigating Invasives

Time: Two to three 45-minute class periods

Level: Grades 9-12

Overview: Students will learn about invasive plants, how they travel, and their impact on the environment. Then they will study invasive species from their local area.

Materials:

- Blank 3x5 index cards
- A computer, LCD projector, and screen
- Resources (print and web) with information about invasive species

Education Standards: Available in the *Teacher Implementation Guide (Grades 9-12)*

Preparation

- Download *Dangerous Travelers*, a short video from the U.S. Forest Service (<http://www.fs.fed.us/invasivespecies/prevention/dangeroustravelers.shtml>)
- Gather additional resources (print and web) for students to use in their research.

Activity

1. Ask students who have moved to describe the process. Note their descriptions of carrying their things to a new place. How many different ways have they moved and how far? Then ask students to share what they know about how plants and animals move from one location to another. Last, ask students how disease outbreaks travel. Record the class's answers to reference later.
2. Distribute blank file cards to students; have them record their names on these cards and then write for two minutes everything they know about invasive plants and animals.
3. Collect the cards and show the first five minutes of *Dangerous Travelers*, which introduces the major ideas involving invasives. The cards can be referenced later to assess student learning.
4. After the video, refer the class back to the list the class developed of how plants and animals move, and ask for more possibilities to add to the list. Discuss what was learned about invasive species from the video, and ask whether students know of any invasives in the immediate area. If possible, bring samples or photos of plants or animals in the immediate area that are invasive.
5. Have students record at least one question they have about invasives.
6. Divide students in groups. Each group should use resources available to them to identify:
 - What it means for a plant to be invasive
 - An invasive species in the local area that is of interest to them
 - An answer to the question they recorded after the video
7. Once the group has identified a local invasive species to study, they should create an information sheet with details regarding the organism, including when it was first discovered or introduced, how it reproduces, and the impact of the organism on the local environment.
8. Schedule time that allows students access to computers or print resources so students can learn more about how an organism is classified as invasive, how the invasive travels, the extent

Project BudBurst



Classroom Activity
www.budburst.org

of the damage an invasive species can have on an ecosystem, why the invasive might become established in an area, and the techniques used to eradicate each invasive.

9. Have each group present their findings to the class and note additional questions that students raise about invasives during the presentations. Ask students to consider which invasives they learned about seem to have a large impact in the local community.

Suggested Extension Activities

- Invite a quest speaker who works to eradicate invasive species or who are studying invasive species in the local community or state.
- Students can perform a census of local populations of invasive species and compare the results to maps of infestations in the local area, state, or region.
- Investigate an invasive's impact on the economy and environment and explore workable solutions.
- Organize public-awareness campaigns about invasives and raise interest in the community.

Background Information

Invasive species are nonnative plants, animals, and microbes that completely take over and change an established ecosystem. They can invade forests, meadows, or freshwater lakes and streams; they hitchhike and travel along roadways and waterways. Invasive species can be aquatic (e.g. the zebra or quagga mussel) or terrestrial (e.g. the emerald ash borer or gypsy moth). They can be vertebrates (e.g. the European starling) or pathogens (e.g. white pine blister rust). Most common are plants (e.g. Canada thistle, Japanese honeysuckle, Kudzu, Purple loosestrife, Russian olive, or Spotted knapweed). For more on these and other species, visit the following web sites:

- USDA National Invasive Species Information Center
<http://www.invasivespeciesinfo.gov/index.shtml>
- USDA Forest service Invasive Species Program - <http://www.fs.fed.us/invasivespecies/index.shtml>
- National Environmental Coalition on Invasive Species - <http://www.necis.net/>

The transport of invasive species is most often associated with human activity. They pose a serious treat to biological diversity, because in most cases they are introduced into environments in which few or no natural predators exist, and no other controls have yet evolved to limit their reproduction and spread. The invasives may be harmless or beneficial in their natural surroundings, but when transplanted to new areas they become invaders and threaten biodiversity.

Invasives are quick to take advantage of available openings in an environmental niche, such as ones created by the loss of native species or through a disturbance. In a short time, invasives can crowd out native species, thereby disrupting ecosystem function, reducing biodiversity in the area, and degrading natural areas. Today, thousands of invasive plants, animals, and pathogens have infested millions of acres of U.S. lands and waters.

Source: Adapted from Lightbody, M. 2008. Investigating Invasives. *The Science Teacher* 75(8): 56-60.

This teacher resource was made possible, in part, by support from the National Geographic Education Foundation.

