

Who Are the Exotic Invaders?

Trip at a Glance

Sixth-grade students learn about exotic species and then instruct kindergarten students. Sixth-graders prepare games and a mural to use with the younger students. Although written as a cooperative lesson for kindergarten and sixth grade, any combination of primary and upper elementary could use this activity.

Destination

Students will be able to

- ✳ Identify at least five exotic species from classroom examples. (K)
- ✳ List pairs of opposites and identify some exotic species-related opposites. (K and 6th grade)
- ✳ Identify and label five exotic species. (6th grade)
- ✳ Research and prepare a presentation for one exotic species. (6th grade)

Adventure Levels

Kindergarten and Grade 5 or 6 cooperatively
This can be any primary and upper elementary combination.

Areas of Interest

Science and Art

Locale

Classroom

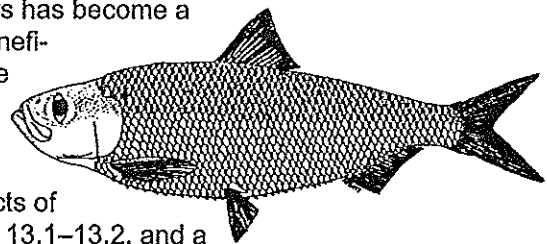
Length of Stay

Two weeks

Invader Background Check

The introduction of exotic species into our native waters has become a catastrophic problem. Although there may be some beneficial aspects of these species, they generally disrupt the ecosystem and have other detrimental effects.

The *ESCAPE* activity "Invader Species of the Great Lakes" (13) uses cards with positive and negative effects of some exotic species. They are listed on activity sheets 13.1–13.2, and a sample of information they contain is presented below, with the exotic species name in bold.



Sea lamprey larvae provide some feed for other fish. They can also be used as fishing bait for fishermen. Adult sea lampreys are food for birds, snakes, raccoons, and other fish. However, they are parasites living off of other fish, and they have eliminated most lake trout. Large predator fish feed on **alewives**. However, alewives compete with and reduce the numbers of native herring, shiners, and yellow perch. **Pacific salmon** eat alewives and that helps keep the alewife population under control. However, they eat smelt and other forage

(small) fish that native fish also need to eat. A few fish are able to eat the **spiny water flea** for food. However, they eat small plankton that other native species need to eat. Each **zebra mussel** filters about a liter of water per day for food. However, they also reduce the amount of plankton available for native species. **Purple loosestrife** is a very beautiful plant with lovely purple flowers. However, it competes complete with native wetland plants, taking over their habitat.

Foreign Language

Alewife
Ballast water
Environment
Exotic species
Indigenous species
Native species

Pacific salmon
Purple loosestrife
Sea lamprey
Spiny water flea
Zebra mussel

Things to Pack

Computer access to the Internet (optional but very useful)
Swimmy by Leo Lionni
Mural paper
Tape
Paint



Itinerary

1. Kindergarten teacher should read *Swimmy* by Leo Lionni to class; sixth-graders should read the same book. Please note that any primary grade can be substituted for kindergarten, and any upper elementary grade can be substituted for sixth grade.
2. Sixth-grade students act as leaders to discuss topics with the kindergarten class:
 - Variety of sea creatures
 - Food
 - Balance of food, plants
3. Research is conducted by sixth-graders on assigned exotic species to find the following:
 - Variety of creatures
 - Food
 - Balance of food and plants
 - Native area
 - Method of introduction
 - Native species affected
 - Problems caused by introduction
 - Positive and negative effects
 - Intervention
4. Sixth-graders prepare short presentations for kindergarten students (used at step 5) and games to reinforce species names (used at step 9). As a class, sixth-graders prepare a mural and word cards (used at step 8), or the teacher can prepare this in advance.
5. Sixth-grade peer tutors provide a picture and brief overview. They show photos or illustrations from books, magazines, newspapers, and from the Web.
6. Kindergarten teacher reviews the term "opposite" and makes a list that includes exotic species terms (e.g., light-dark, native-nonnative, predator-prey, and helpful species-harmful species).

7. Peer tutors return to reinforce the lesson on opposites by giving positive and negative effects of their species. For example, zebra mussels clear water and feed ducks, but they clog water pipes and motors on boats.
8. Kindergarten students and sixth-grade peers label exotic species on a mural in the classroom, using labels or index cards.
9. Peer tutors play games such as fish, a matching game, or tic-tac-toe to reinforce names of species.
10. Labels are removed from the exotic species mural, and children in kindergarten identify at least five exotic species to peer tutors.

Travel Tips

For a list of more exotic species, see Appendix A.

Debriefing

Kindergarten students can be evaluated on their ability to identify the exotic species in the mural. Sixth-grade students can be evaluated on their research, preparation, and presentation to kindergarten students.

Extending the Visit

A complement to this activity would be a field trip to a local aquarium, museum, or outdoor site where exotic species can be seen. Sixth-graders could prepare a worksheet with pictures and labels of exotic species.

Places to Go

Web Sites

Great Lakes Information Network (GLIN)

Main Web site: <http://www.great-lakes.net>

Exotic Species Web site: <http://www.great-lakes.net/envt/flora-fauna/invasive/invasive.html>

Sea Grant Nonindigenous Species (SGNIS) Web site: <http://www.sgnis.org>

Fact Sheets and Publications

Lionni, Leo. 1963. *Swimmy*. Pantheon



Travel Agents

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