

# Loteria Game

**Grade**

4th–8th grade

**Length**

30–60 minutes

**Subjects/strands**

Invasive species, biology, ecology

**Topics**

Invasive species, watersheds, community partnerships

**INTRODUCTION**

This fun game, adapted from a traditional Mexican game called Loteria and similar to Bingo, is an excellent introduction to invasive species concepts and issues. You can play this game with little to no background knowledge of invasive species; students and teachers will learn all about invasives as the game unfolds! In the game, student teams match clues read by the teacher with the correct pictures in their game board. The clues include descriptions of characteristics, impacts, pathways, and methods of control and prevention for invasive species. The first team to match all the clues on their board wins.

**LEARNING OBJECTIVES**

Students apply their current knowledge of invasive species and water quality to match the descriptions in the clues to the pictures in their game boards.

**BACKGROUND**

Invasive species are organisms that are introduced from somewhere else and take over the environment. They cause problems for other plants, animals, and people. Invasive species often have physical traits that enable them to reproduce and spread rapidly and outcompete native species for resources. And invasive species often have physical traits that make them difficult to control.

**MATERIALS NEEDED**

All materials can be downloaded and printed from [MenaceToTheWest.org](http://MenaceToTheWest.org)

- Game boards
- Deck of clues
- Game markers (bean, button or chip, etc.)
- Prizes (optional)

**VOCABULARY**

Watershed, ballast water, biological control, ecosystem, marine debris

**PREPARATION**

Game materials are located in the physical AIS Toolkit, or you can download and print them from [MenaceToTheWest.org](http://MenaceToTheWest.org). Perhaps a student helper can help cut out the clue cards. You may want to familiarize yourself with invasive species issues by observing our introductory PowerPoint or reading our introductory materials on [MenaceToTheWest.org](http://MenaceToTheWest.org).

**PROCEDURE**

Divide your class into 10 groups, then pass out the game boards to each group. The teacher reads each clue out loud to your students. Students listen carefully and apply their knowledge to match that clue to the answers on their board. Once they find the correct match to the clue, they mark off that square with a bean, button, or other fun object. Once the student fills a certain area of the board (like a row or the whole board, depending on how much time you have), he or she “wins.” Keep playing until you have announced all the clues in the whole deck, since they each cover different concepts. Teams can get prizes for finishing first, second, third, etc.

While playing the game, students will need to consider:

- What are the characteristics of these species?
- What are the possible pathways to spread invasive species?
- What impacts do invasive species have on other plants and animals?
- What impacts do invasive species have on the economy?
- What impacts do invasive species have on natural resources (e.g., water) and communities?

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- What are some things we can do to stop the spread of invasive species?

### CONCLUSION AND EVALUATION

Assess student knowledge of biology, ecology, and invasive species concepts. You can read these questions out loud for a classroom discussion or assign for group discussion or homework.

**1 What is an invasive species?**

*An organism that is introduced by humans outside their native range and that negatively impacts the economy, human health, and ecosystems.*

**2 What happens when invasive species are introduced to a new area?**

*Invasive species can reproduce rapidly and push other species out, outcompete native species for food and habitat, and interfere with human activity by, for example, blocking access to land or clogging water intake pipes.*

**3 How do nutria ruin stream banks?**

*By digging and burrowing in the banks and causing erosion.*

**4 What are some of the characteristics that allow Japanese knotweed to be invasive?**

*Its fast growth and tall size quickly shade an area, allowing it to outcompete other species for light. It also spreads very quickly through its massive root system.*

**5 What is one reason that the bullfrog was introduced?**

*As a delicacy (rog legs).*

**6 What role do biological controls play in controlling invasive species?**

*Biological control is when a predator, such as an insect or disease, that preys on the invasive species in its native range is introduced into the invasive range in order to help control the invasive. For example, the cinnabar moth was introduced to control tansy ragwort. It often takes 10 years of testing to ensure a possible biological control agent.*

**7 What should gardeners do to help prevent invasive species?**

*Always research whether or not a plant is invasive be-*

*fore purchasing it. Keep noxious weeds such as English ivy and blackberry from spreading. Do not give away plants from your garden if you know they are invasive. Throw noxious weeds into the trash rather than the city composting service.*

**8 Why do New Zealand mudsnails spread so easily?**

*Because they are very small and can go undetected attached to a boot. In addition, they can survive out of water, thanks to their trapdoor operculum, which holds moisture in.*

**9 Why is it important to detect small populations of invasive species early?**

*Cities and states can save a lot of money and prevent major impacts to our environment by finding and controlling small populations of invasive species before they get too abundant.*

**10 What role do humans play in the introduction of invasive species around the world?**

*Humans spread invasive species as they move around the globe. For example, invasive species can be hitchhikers in your suitcase or catch a ride to a new place stuck to your boot or your car or boat. Humans can also help prevent their spread by always cleaning their boots and equipment, and identifying and controlling invasive species on their property.*

**11 What are the characteristics that allow zebra mussels to cause problems for ecosystems and the economy?**

*Zebra mussels can filter-feed large volumes of water, outcompeting other species for the free-floating plankton that is the base of the food web. They can also colonize every surface under the water, clogging pipes and encrusting boats.*

**12 What can individual people do to help prevent the spread of invasive species?**

*Many things! Keep your clothing, cars, boats, and equipment free from invasive species, learn what species are invasive in your area, report invasive species, volunteer to help control invasive species from your watershed, and finally, tell a friend about invaders and what we can all do to prevent the spread.*

## RESOURCES

### **Oregon Public Broadcasting Documentary: Silent Invasion**

*Silent Invasion is an OPB documentary about invasive species in Oregon. The website includes many short video segments about specific invasive species or case studies.*

<http://www.opb.org/programs/ofg/episodes/view/403>

### **National Invasive Species Information Center**

<http://www.invasivespeciesinfo.gov/aquatics/education.shtml>

### **Nab the Aquatic Invader**

<http://www.iisgcp.org/NabInvader/>

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