

# Invasive Plants

**Essential Guiding Question: How do invasive species effect the surrounding ecosystem, what can be done to prevent and/or manage invasives?**

This lesson is intended for indoor and outdoor learning.

In this lesson, students will help demonstrate invasives' ability to overtake an ecosystem through a musical chairs activity. Following the activity, an optional introduction to a few plant cuttings, and the discussion, students will be led on a hike to identify native and non-native plants. A list should be kept by one student or the teacher.

To conclude the lesson, explain a few measures taken to eradicate invasives, and some ways to prevent the spread of invasive species.

Props can be used here, such as felt-bottom wader boots, boat / boot washes, backpack sprayers, etc.

**Total Estimated time: 1—1.5 hours      Ages: 12-18**

## Materials:

- Poster board or Large paper notepad, markers
- Post it notes colored red and green
- Plant ID books or quick guides
- Clipboard and paper, pencil
- Invasive plant cuttings (optional)
- Music—boom box and CD or pre-loaded on a phone

## Learning Objectives

- 1) Students will understand what invasive species are, learn a few commonly shared adaptations, and realize their impact in our ecosystems
- 2) Students will identify and record their invasive finds on a hike
- 3) Students will use deductive reasoning to conclude how the species migrated to the effected area
- 4) Students will share ideas on how to prevent the spread of invasive species

## Set Up:

- 1) Arrange chairs in an arch, straight line, or wave (to mimic a stream, if focusing on aquatic invasives.)
- 2) If you plan on including invasive cuttings, wrap in a damp paper towel and aluminum foil. Set aside at the front of the room.
- 3) Make a graph for your first activity. Label the X-axis "Rounds / Growing Seasons" and write the number of rounds. Number the rounds you will complete with students 1, 2, 3, 4, etc. Label the Y-axis, "Invasive Species," and section accordingly depending upon the total number of students that will be playing. Each round, mark the graph with a red marker, showing the total number of invasives, and use a green marker to show natives. Use a simple symbol such as a circle or star to mark the totals at the end of each round. At the end of the game, connect all red and green marks across the graph to show the population shifts.
- 4) Optional: plant various props on the trail for discussion / interpretation

## Intro—What are Invasive Species? (10-15 minutes)

Open by asking the students if they know what an invasive specie is, and if they know of any examples. Afterword, pictures can be shown of a variety of invasives, including the Emerald Ash Borer beetle, Lanternfly, Didymo (Rock Snot), Asian Carp, etc. If specimens / cuttings are available, use them, but discuss that they should always be disposed of properly if living. Explain how invasives take over habitat.



Left, an great example of the Emerald Ash borer and it's damage

Right, Rock Snot (Didymo)



## Activity 1—Invasive versus Native Musical Chairs (20-30 minutes)

As mentioned, chairs should be arranged prior to students arriving. To start, the total number of chairs should match the number of students. In each round, use the following rules to mimic population shifts caused by an invasive:

**Round 1**—Practice Round. Set ground rules such as no running, shoving, etc. Explain that three students of your choosing will start as invasives. From the very beginning, these students will carry 3-4 red ( or red-marked) post it notes, signifying their role as an invasive species. The teacher should mark three chairs with a red post it, signifying habitat taken over by the invasives. These chairs are unavailable to other students. All post its will remain where they are placed through out the entire game.

**Round 2**—Ask the invasive students to place another red post it note on a new chair.

**Round 3**—Instruct Invasive students to place another post it on a new chair. In this round, native students can be also “tagged” by one of the invasive students, by receiving the last post it from invasive students. This signifies a new invasive generation created.

**Round 4**—One last round in which you take away three or four unmarked chairs (native habitat)

## Activity 2—Interpretive Hike (45-60 minutes)

Outdoor Interpretation is successful when digestible pieces of information is transmitted between the Interpreter/teacher and the audience. One way to facilitate this is discussing a specific topic by pre-planting props or planning stops to discuss a specific plant. Although Invasive Plants are the theme of the lesson, be sure to point out most (if not all) notable insects, birds, plants, wildlife, human impacts, etc.

### A few potential topics to include could be:

Wetlands, Forest Types, Succession

History of the area, Logging, mining, over hunting, etc.

Invasives Management, Spraying, Cutting, Native Plantings, etc.

Beneficial vegetation to wildlife and/or pollinators

On the hike, keep a running list of what you and the students see. Be sure to ask students to point out what interests them. Even if they find interest in something that might be seen as “off-topic” - their curiosity should be acknowledged and celebrated by you.

## Conclusion (10-15 minutes)

The conclusion of any lesson is crucial to an educator’s success. This short time facilitates synthesis of the ideas you worked to convey in the last hour or more. Refer to the **Teaching Toolkit Assessment Guide** for ideas on how to create your successful conclusion!

For many lessons, it’s very appropriate to introduce ways students can make a difference. A simple way to do this could be asking what types of activities the group likes to partake in at home, and how they might accidentally contribute to the spread of invasives. For examples of activities and potential effects on native populations, refer to DCNR’s Invasives “Prevent the Spread” fact sheets. Following your discussion, ask the students to share how they might prevent spreading of invasives. Use the Lesson Syntesis Guide for an idea of how to complete the discussion—Think, Pair, Share; Fishbowl Discussion; etc.