

Invasion Game



STANDARD COURSE OF STUDY CORRELATIONS:

Science, Grade 3, Goal 1: The learner will conduct investigations and build an understanding of plant growth and adaptations.

1.02 Observe and describe how environmental conditions determine how well plants survive and grow in a particular environment.

Science, Grade 4, Goal 1: The learner will make observations and conduct investigations to build an understanding of animal behavior and adaptation.

1.01 Observe and describe how all living and nonliving things affect the life of a particular animal.

1.03 Observe and discuss how behaviors and body structures help animals survive in a particular habitat.

1.04 Explain and discuss how humans and other animals can adapt their behavior to live in changing habitats.

Science, Grade 5, Goal 1: The learner will conduct investigations to build an understanding of the interdependence of plants and animals.

1.05 Determine the interaction of organisms within an ecosystem.

1.06 Explain and evaluate some ways humans affect ecosystems.

Science, Grade 6, Goal 4: The learner will investigate the cycling of matter.

4.05 Evaluate designated systems for ability to enable growth of certain plants and animals.

Science, Grade 6, Goal 7: The learner will conduct investigations and use technologies and information systems to build an understanding of population dynamics.

7.02 Investigate factors that determine the growth and survival of organisms.

7.03 Explain how changes in habitat may affect organisms.

Science, Grade 7, Goal 3: The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the atmosphere.

3.03 Conclude that the good health of environments and organisms requires stewardship.

Science, Grade 8, Goal 3: The learner will conduct investigations and utilize appropriate technologies and information systems to build an understanding of the hydrosphere.

3.07 Describe how humans affect the quality of water.

3.08 Recognize that the good health of environments and organisms requires stewardship.

INTRODUCTION TO LESSON: Groups of students will play a board game to learn more about invasive non-native species and how to prevent their spread.

BACKGROUND FOR TEACHER: Many species of non-native plants and animals are intentionally imported and introduced, while some of them have arrived unintentionally, dominating, displacing and/or disrupting native species. Everyone can take precautions to help prevent the spread of invasive non-native plants and animals. These include making sure no organisms are attached to one's clothing or personal belongings when leaving a natural area, abiding by rules and regulations concerning invasive species, and using native plants to landscape one's yard.

MATERIALS

- ✦ Game board and cards, one per group of three students
- ✦ Dice (one die per group)
- ✦ Index cards

PREPARATION

- ✦ Print copies of game board and cards. Cut and assemble.

engage ➤ Ask students if they can define the word *invader* or *invasive*. Have them discuss what it means when a plant or animal species becomes invasive. Tell students they will watch a video to learn about what makes a species invasive, what invasive species live in North Carolina, and how some of them arrived in this country. **Show Chapter 2 of the video.** Afterward, divide class into pairs and have partners share with each other what they have learned about invasive species.

explore ➤ Tell students they will be playing the game “Invasion” to learn how people can control the spread of invasive species. Divide the class into groups of three. Give a game board and die to each. Explain that the goal of the game is to reach the finish line before the other players.

Game Instructions:

1. Shuffle cards and place face down on game board.
2. Players roll the die to see who will go first. High roller starts.
3. The first player rolls the die and advances the number of spaces indicated.
4. If the player lands on a space marked “Invasive Patrol,” he or she must take a card from the stack and follow the directions. (If a player is instructed to move backward after drawing a card, play ends afterward, even if the player lands on another “Draw a Card” space.)
5. The player returns the card to the bottom of the stack, and play continues clockwise.
7. After the first person reaches the finish line, the other two players continue until each has crossed the finish line.

explain ➤ Have students volunteer what they learned from the game and discuss any questions they might have about the scenarios described. **Show Chapter 6 of the video.**

elaborate ➤ Students are to work in the same groups to write a Public Service Announcement (PSA) or news story explaining the hazards of invasive species and how people can prevent their spread. Each group is to present the PSA or news story, role-playing the part of reporter, announcer, director, camera person, etc.

evaluate ➤ **Show Chapter 6 of the video.** Have each student write on an index card a description of how he or she can personally help protect North Carolina’s ecological diversity.

Teacher’s Notes:



BEYOND THE CLASSROOM

- Visit a state park to learn about invasive species. Most state parks can offer a topic-specific program. The N.C. State Parks system (<http://www.ncparks.gov/>) offers free Environmental Education Learning Experiences (EELEs) for educators and students that may be used before, after, during and/or instead of field trips (download from <http://www.ncparks.gov/Education/eele.php>). Park staff will provide guided on-site activities with school groups (call ahead to make a reservation). The Parks system has a stewardship program focusing specifically on invasive species. Check out www.ncparks.gov/About/natural_resources_stewardship.php for more information.
- A nearby public garden may be able to provide a topic-specific program upon request. For a list of public gardens throughout North Carolina, visit <http://www.ces.ncsu.edu/depts/hort/consumer/pgpages.html>.

Additional Resources:

Invasive Exotic Plants of North Carolina • http://www.seeppc.org/northcarolina/NCDOT_Invasive_Exotic_Plants.pdf • This 189-page publication lists 74 species of invasive, non-native plants in North Carolina, including trees, shrubs, vines, herbaceous plants and aquatic plants. Each entry contains color photographs along with the following information: initial introduction and expansion of range, description and biology, susceptible habitats, prevention and control. Written by Cherri Smith, N.C. Department of Transportation, 2008.



You filled your backyard bird feeder with Canada thistle seeds. Birds have now dispersed them throughout the area. **Go back three spaces.**

You adopt a local roadside and work with a land manager to remove weeds. **Advance three spaces.**

The mimosa trees you purchased in Florida had fire ants in their root balls. After planting the trees, you now have an infestation of these destructive insects. **Skip a turn.**

After attending an agricultural education fair, you decide to go into the honey business. You have just set up and stocked your hives with European honeybees. **Advance three spaces.**

Ignoring strict warnings from park rangers, you decide to hike on non-designated trails and camp in a weed-infested area. Unwanted seeds hitchhike out on your clothing. **Skip a turn.**

Your friends want to improve their home's curb appeal with ornamental trees. They want to choose non-native species that won't be invasive. You recommend the ginkgo tree. **Advance two spaces.**

When your pet python outgrows its fifth aquarium, you decide to get rid of the snake. You turn it loose in south Florida while visiting relatives. **Skip next turn.**

You give a program to local 4-H and garden clubs about the problem of invasive plants. **Advance one space.**

You plant English ivy around the base of your large pines. After years of neglect, the ivy has not only climbed and killed some of your trees, but it has also invaded your neighbors' yard and killed their prized hickory tree. **Go back three spaces.**

After purchasing some mountain property, you stock your pond with rainbow trout. **Advance two spaces.**

more cards on next page...

The fragrant, beautiful wisteria planted many years ago on your property has now escaped into neighboring wild areas. **Go back three spaces.**

You plant a demonstration garden showcasing plants that are native to your community. **Advance two spaces.**

While on vacation in a National Forest, seeds become embedded in your tire treads. You inadvertently carry them to a new area. **Go back two spaces.**

You took a course sponsored by the local library on identifying problem weed species in your area. You later report an infestation you encounter. **Roll again.**

After a weeklong equestrian trip, you brush out the coat and tail of your horse but neglect to thoroughly clean its hooves. Unwanted seeds get carried 500 miles away. **Go back four spaces.**

You clean your gear, clothing and shoes before leaving a camping area to avoid taking seeds along to the next state. **Advance three spaces.**

To add color to your property, you purchase and plant a couple of mimosa trees from a nursery. **Go back two spaces.**

When kudzu overtakes a county park, you volunteer your goat herd to help control the problem by grazing. **Advance three spaces.**

Wanting a privacy screen between your property and a nearby road, you plant a stand of bamboo. For years, you have worked to trim it back, but the bamboo has spread out of control. It has now escaped into a neighboring state park. **Go back three spaces.**

After a day on the lake, you inspect your boat's propeller for invasive weeds before leaving. You find and remove several strands of hydrilla. **Advance two spaces.**

INVASION GAME

		Invasion Patrol! Draw a card.			Invasion Patrol! Draw a card.
Invasion Patrol! Draw a card.					Invasion Patrol! Draw a card.
	Invasion Patrol! Draw a card.			PLACE FACE DOWN	
Invasion Patrol! Draw a card.			Invasion Patrol! Draw a card.		
Invasion Patrol! Draw a card.			Invasion Patrol! Draw a card.	Invasion Patrol! Draw a card.	
		Invasion Patrol! Draw a card.			
STARTING LINE					

The board game layout consists of the following elements:

- Yellow Box (Top Left):** Labeled "CARDS HERE."
- FINISH LINE (Bottom Right):** A rectangular box labeled "FINISH LINE".
- Path of Action Boxes:** A series of boxes labeled "Invasion Patrol!" with the instruction "Draw a card." below them.
 - Box 1: Top left, above the yellow box.
 - Box 2: Top center, to the right of Box 1.
 - Box 3: Top right, to the right of Box 2.
 - Box 4: Middle left, below Box 1.
 - Box 5: Middle center, to the right of Box 4.
 - Box 6: Middle right, to the right of Box 5.
 - Box 7: Bottom left, below Box 4.
 - Box 8: Bottom center, to the right of Box 7.
 - Box 9: Bottom right, to the right of Box 8.