Alien Invasion

level 2 pre-visit activity for spring

Overview:	Students are introduced to the idea of invasive plants using a comparison of human health to ecosystem health, with stewardship activities serving as the "medicine" for ailing ecosystems.
Location:	Classroom
Skills:	Comparing/contrasting, relating, interpreting, communicating/composing
Objectives:	Students will be able to list at least two species that pose a threat to their community, be able to describe how and/or why they are a threat, and will be able to list three land-management practices used to restore native communities.
State Goals:	12.B.2a, 23.A.1, 23.A.2, 23.B.1, 23.B.2, 26.B.1d, 26.B.2d
Materials:	Drawing supplies (paper or poster board, markers or crayons), "Pictures of Invasive Non-Native Plants," pictures of aliens that invade the human system, such as bacteria or viruses—optional.
Time:	One to three 45-minute class periods, depending on time allowed for alien artwork and discussions.
Vocabulary:	alien, ecosystem, native, invasive/invasion, bacteria, virus
Copy Pages	"Pictures of Invasive Non-Native Plants"

Background

See Stewardship section of manual for information about invasive species and associated management practices.

Preparation

Copy the pictures of alien species for students or enlarge into poster form and display in classroom.

Procedure

1. Begin the lesson by reviewing the students' stewardship activity for fall. If it was seed collecting, as is usually the case, can they explain why this is important? This was just the first of their three stewardship activities, and the next two may seem harder to explain. In order to prepare for the restoration activities ahead they will begin with a look at systems, including those in their bodies.
2. Review as appropriate the body systems they may be familiar with—circulatory, nervous, digestive, or immune.
3. Introduce the word "alien" and work with the class to develop a definition and understanding of the word. Review the term "invasion" and relate this to the word "alien."
4. Instruct students to create on paper a fierce alien that could invade their bodies. Their alien can be any size, shape, or color they wish. Use the amount of time you wish to dedicate to this as a guideline for the amount of detail you ask the students to provide, such as their alien's name, home world, tools for invading, system it will target, etc.
5. After all the aliens have been created (and posted around the room if desired) have the students discuss, as a whole group or in small groups, what will happen to their bodies once they are invaded by one of these fierce aliens. Try to keep the discussion focused on actual potential impact rather than imaginary

disasters (although imaginary happenings will likely lead to the same conclusion: devastating, hazardous effects on the body). Discussion prompts might include: What resources might the alien start taking away from their own bodies? (Water, food, space, etc.) What systems might be attacked? What might happen to their bodies? How will they feel? How might they look? Make a whole-class list of all the possible effects.

6. Once the list seems complete, direct the discussion toward the idea that real aliens do invade our bodies. What could they change the names of their imaginary aliens to? Can they name any bacteria or viruses? Show them any illustrations you've gathered. How do we fight these invaders?

7. Once your discussion of actual human invaders and the way we fight them is complete, move the focus to native communities. Is it possible for ecosystems to be invaded? If so, by what? Return to the definition of alien, if necessary. Introduce some of the invasive aliens using the pictures provided or other illustrations.

8. Discuss how these invaders might impact the natural community. What resources will they take? How will the community look or change as a result? How do the ways humans fight invaders in their bodies compare to the ways we fight ecosystem invaders? Is leaving it alone or the equivalent of "rest" going to work? Not with most invasions. That's the difference between an alien that can't really invade a system and will come into a balance and the invasives that outcompete and totally change a system. So what can be done to fight the invasives? Removing them, reintroducing fire, and replanting native species are all the equivalent of the "medicine" needed by ecosystems with invasive aliens like garlic mustard, buckthorn, purple loosestrife, or white sweet clover. Help the students understand that their stewardship activities are the "medicine" and that they will help their community to recover from its invasion. Fire is much like the ecosystem's immune system, which people have weakened over the last century by preventing fire. Some of the students' work will allow fire to do its job again, restoring the immune system that fights the aliens.

Assessment

Have students name the "aliens" commonly found in their natural areas and describe why they are "aliens."

Extensions

Students can research how these aliens came to be in our ecosystems and what adaptations they have that contributed to their success in invading ecosystems. How did our native ecosystems become vulnerable to these attacks?

Pictures of invasive and non-invasive plants