

MEANS AND MODES

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Description: Most invasive species are incredibly adaptable and can take advantage of opportunities for invasion. However, they rarely swim across oceans, walk over mountain ranges, or hop continents without help from people! A box full of ‘teasers’ will help students figure out ways that people knowingly and unknowingly assist invasive plants and animals.

Getting Ready: Look through the items in the Means & Modes box and choose the ones appropriate to your audience, topic, and personal knowledge level.

Introduction: Have you ever been arrested for picking up a hitchhiker, smuggling an alien through customs, or purchasing an illegal substance? Assuming not, you’re lucky! No doubt at some point in your life you have, either knowingly or unknowingly, helped a potentially invasive species enter new territory. Let’s find out how invasive species get around and how we might stop giving them a hand.

Objectives:

- List everyday activities that can contribute to the spread of invasive species.
- Realize that people spread invasive species both knowingly and unknowingly.
- Analyze personal actions related to the introduction and spread of invasive species.

Means and Modes Items

Aquatics

- Bait container – What do you do with leftover bait? Have you ever dumped store-bought worms on the ground?
- Boat – How do you think a boat could move plants and animals from one body of water to another? Bilge water? Propellor?
- Ballast water?
- Aquarium fish – What happens to fish when their owners have to move and can’t take their fish with them? Can fish survive a toilet flush? Is it more humane to destroy a sick pet fish or “give it a chance” in the local pond?
- Aquarium plant - What happens to these aquatic plants when someone empties an aquarium into a pond or lake?
- Rubber crayfish lure - Have you ever thrown store-bought minnows or crayfish in the water? Did you know that it is illegal in some states to be in possession of live crayfish and fishing equipment at the same time?
- Live frog habitat – What do you think might happen to these frogs when the novelty wears off?
- Bobber – Could fishing equipment transport invasive species? What are fishhook waterfleas?

Terrestrial

- Shoestring from hiking boot – How could shoestrings spread invasives? Have you ever gotten seeds stuck in your shoestrings? What did you do with them? What do you do with the mud that gets stuck in your boot tread?
- Butterfly release envelope – Where do you buy butterflies for release at weddings and other events? What happens to the butterflies after the release?

Doing the Activity

- 1.** Select items from the box. Let students select items from the Means & Modes box. If you have more students than items, ask students to work in pairs.
- 2.** Brainstorm connections. Ask students to think about their items and brainstorm how they might be connected to the spread of invasive species. The items in the box simply serve as springboards for ideas. There are no right or wrong answers. Encourage them to think creatively!
- 3.** Share ideas. Allow students to share how they think their items contribute to the spread of invasives. Note: Refrain from telling everything you know about each item. Keep the activity moving! Wrap up the activity.

Ask some of these questions on page 2 of the activity.

Activity Questions

- Certified “weed free” hay for pack animals – How could the diet of a pack animal be related to the spread of invasive species? When would you have to start feeding special hay to your pack animal before taking a trip into a restricted area?
- Dirt bike tread – How could vehicles like 4X4s, dirt bikes, and SUVs transport invasive plants? How might an “off road” or “off trail” vehicle damage the landscape? How could this damage increase the number of invasive plants?
- Landscape tag - Does this tree’s name indicate that it is a native tree? Why do you think nurseries sell plants that are known invasives?
- Mailable seed packet – What are some problems with picking up seeds on vacation and mailing them to your friends? How can seeds native to one state/country be a problem in another?
- Dog – Do seeds ever get stuck in pet fur? What do you do with the seeds?
- Birdseed bag – What kinds of seeds are in birdseed? Do birds completely digest all the seeds they eat? What problems could undigested seeds cause?
- Tent stake – Have you ever had seeds or soil stuck on your camping equipment? What have you done with the seeds? What kinds of seeds do you think invasive plants might have?
- Military equipment – Military equipment is used all over the world. What kind of species could military equipment transport?
- Plane – How could the inside or outside of a plane transport invasive species?
- Luggage with bananas – People travel all over the world. What could happen if they decide to carry food items, plant specimens, seeds, or wild animals from place to place?
- Firewood – What kinds of invasive species could firewood transport?
- Livestock – How could cattle, sheep, pigs, or other livestock transport invasive species? Think about what happens to the food they ate before they were transported.
- Construction equipment – How does development add to the problem of invasive species? Besides moving invasives on tires, can you think of ways the disturbance caused by construction adds to the problems with invasives?
- Big cat – In what ways could zoos, circuses, private organizations, and individuals contribute to the problem? What kinds of animals can you purchase? How has the Internet influenced the international pet trade?
- Wooden crate – How could wood used for containers harbor invasive species?
- Carabiner – What precautions should people take when they venture into wilderness areas to participate in extreme sports?
- Tractor – How could raising crops encourage invasive species?
- Blaze orange cloth – Could hunters transport invasive species to new areas? How could hunters be sure they don’t move invasives?

Wrap Up

Did this activity help you think of a time when you might have transported an invasive species? Would you share the circumstances with the group?

Now that you know more about how potential invasive species move from place to place, what will you do about it?

Can any of these pathways of invasion be controlled or stopped? How?

Do you think it is the job of the government or individuals to control the spread of potentially invasive species? Why?

Assessing Student Learning

Observe student participation in the discussion. Ask students to choose an item from the box, find out which invasive species might be spread by that item, and suggest ways to prevent the spread. For example, if you wear hiking boots in an area infested with garlic mustard, you are likely to pick up garlic mustard seeds. Thoroughly cleaning the mud off boots before leaving the infested area helps to prevent the accidental spread of seeds into new areas.

Grade: 9 to Adult

Length: *Varies from a few minutes to an entire class period, depending on purpose*

Prep: minimal

