

Preventing the Spread of Invasive Species in Michigan

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Lesson Overview: This lesson focuses on the topic of how to manage/control invasive plants, a topic not often covered. The plants highlighted in the linked Google Slides can be used for anywhere in Michigan, which makes delivery of instruction much easier. This lesson can be entirely student led or guided, which gives the teacher a choice between a flipped classroom or traditional teacher guided format.

Target Grade/Subject: Gr. 9-12, biology or environmental science

Time: one class period.

Learning Objectives:

At the end of this lesson students will be able:

1. Define best management practices.
2. Identify best management practices for the management of local invasive plants.

Michigan Science and/or Social Studies Standard Addressed:

HS-LS2-7 - Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity (allows for local, regional, or Michigan-specific contexts or examples in teaching)

List Materials & Quantities Needed:

- Internet connection and device (accessible either in groups or individually)
- Sample best management practice tools (e.g. respirator and gloves, gloves and trash bags, hand-saw, leaf beetles, etc.)
- Field guide or internet resource website to invasive plants found in your area

New Vocabulary

Best management practice(s): practices capable of protecting the environment while considering economic factors, availability, technical feasibility, ability to implement, and effectiveness.

(<https://www.mda.state.mn.us/protecting/bmps.aspx>)

Invasive species: an organism that is not native to an ecosystem and causes harm.

(<https://www.nwf.org/Educational-Resources/Wildlife-Guide/Threats-to-Wildlife/Invasive-Species>)

Focus Question(s): Begin by asking the following questions and have students offer their answers and reasons in a discussion format. This activity can also be done with students working in groups and writing/drawing on dry-erase boards to share with the class.

- What is an invasive species?
- What makes an invasive species invasive?
- What do we do about invasive species/how do we control them?
- Who/what is harmed by invasive species?
- Where do we find invasive species?
- What does “best management practice” mean?

Classroom Activities:

After gauging students' level of understanding about invasive species with the previous activity (formative assessment, [optional digital option for formative assessment found here](#), join code is CEGBTR), identify and present a few invasive plant species found in your area ([Sample Google Slideshow for reference](#)). The key here is to feature at least one plant for each of the tools you have displayed for their control, using best management practices. After presenting the invasive plants, focus on the last question they answered: what does "best management practice" mean? It's OK to start out broad and apply that concept to a business, a school, a building, or whatever; but be sure to bring it back to the management of invasive species.

Ask students what factors are used to determine which management method(s) are best when working to control invasive plants. Then explain what factors are actually considered (impact on ecosystem of removal/control method, effectiveness in eradicating invasive, etc.). [Guide for developing best management practice found on page three of the MDNR Best Control Practices sheet for Giant Knotweed](#). As you explain the best management practices used to control the invasive species in the presentation, be sure to show the tools in the classroom that match each practice.

Assessment of Student Learning: To assess learning, have one or two invasive plants for which students design best management practices. It will need to be specific, so a good way to do this would be to identify a spot on school property where one can take students for the assessment. Have student gather observational evidence of the area where invasives are found, and maybe even gather density data of natives vs. invasives, distance to water sources, and provide a budget. In teams, have students write a one page recommendation on the best method to control the invasive plants.