

Lesson 13 - Exploring Solutions for the Burmese Python Problem

Learning Goals

- Students will learn about a variety of ways that people are attempting to manage the Burmese python in the Everglades.
- Students will evaluate these solutions, weighing the successes and challenges of each.
- Students will consider different perspectives on the management of invasive species.

Equity Spotlight

- This lesson prepares students to compare and evaluate solution strategies. Encourage students to consider different perspectives as they think about why people may have differing opinions on how to approach the problem and what makes a solution successful.
- This lesson invites students to think about their own connections to the Burmese python or the Everglades, and to reflect on their own assumptions, interest, and beliefs about the situation. Providing opportunities for students to make personal connections is an important element of Culturally Responsive Pedagogy (CRP).

Preparation

- [Burmese Pythons Taking Over the Everglades](#) video: Watch the highlighted segment of the video ahead of time and be sure you can access and share it in your classroom.
- [Solving the Problem of the Burmese Python](#): Decide whether you want students to complete this handout on paper or digitally, and prepare accordingly. Review the [Teacher Guide](#).
- [Parts, Perspectives, Me](#): Familiarize yourself with this routine. The Main Activity includes a guided discussion that draws from this protocol.
- The STEM Teaching Tool [Why it is crucial to make cultural diversity visible in STEM Education](#) provides information and suggestions that may help you plan for and facilitate this lesson.
- Review the options for the Wrap-Up activity and select one to use with your class.
- [Home Link Choice Board](#): Review the home links for this collection and identify any that you might want to encourage students to do. Consider establishing a routine that allows students to share what they have done at home throughout the collection and module.

Links

For teachers:

- [Burmese Pythons Taking Over the Everglades](#) (video)
- [Solving the Problem of the Burmese Python](#)
- [Teacher Guide](#)
- [Parts, Perspectives, Me](#)
- [Video #5: PBL Step 1](#) - PD resource
- [Video #12: PBL Step 8](#) - PD resource

For students:

- [Home Link Choice Board](#)

Vocabulary

No vocabulary needs to be explicitly taught in this lesson, but the words listed below are included in the video and might be unfamiliar to students:

- **Bioaccumulation** - The process by which chemicals build up in the body of an organism
- **Biocontrol** - Releasing another organism that will harm a pest or invasive species to help reduce the population of the invasive species
- **Conservation biologist** - A scientist who studies nature and Earth's organisms to help protect species, habitats, and ecosystems
- **Endangered species** - A species that is very likely to become extinct (die out) in the near future, either worldwide or in a particular place
- **Euthanize** - To put an animal to death in a painless way
- **Import** - To bring items from one country into another
- **Radio transmitter** - A small device that transmits radio signals and can be used to track the location of animals

Teaching Guide

Warm Up (10 minutes)

Equitable Teacher Practices



1.CRP.b Listen to and value all students' ideas.

1.CRP.d Ask students what they know about the topic.

- Ask students to reflect on what they have learned so far about how living things can get moved to new places (humans move them, either accidentally or on purpose; natural events like storms move them). Have students discuss with a partner or small group, then share some ideas with the whole class.
- Referring to the [Driving Questions](#) and Need to Know charts, remind students that in order to help solve the problem of invasive species, one of the things they said they need to know is how people deal with invasive species.
- Ask students to think about what they have observed when a community has a problem. Ask: *What are some of the ways a community might solve a problem?*
- Ask: *Do you have any ideas about how people or communities are trying to solve the problem of invasive species?*
 - At this point, accept all responses as possibilities.
 - As appropriate, point out that some solutions attempt to slow the spread of invasive species to new locations, while other solutions are responses to organisms that are already in new locations.

Main Activity (25 minutes)

Equitable Teacher Practices



8.CRP.a Help students express their knowledge and understanding through their product.

- Tell students that they will be watching a video that tells about what different people or groups have done to protect native species in the Florida Everglades from the invasive Burmese python.
- Tell students that they will discuss and record information about the ideas they see and hear in the video. Distribute copies of the [Solving the Problem of the Burmese Python](#) handout.
 - Point out that there are three columns on the worksheet: What is being done, Who is doing it, and Successes or Challenges with this approach.
- Play the [Burmese Pythons Taking Over the Everglades](#) video from 6:53–13:17. Pause occasionally to allow time for students to discuss with a partner the ideas they hear, to ask questions, and to record their ideas. The timestamps recorded on the [Teacher Guide](#) for Solving the Problem of the Burmese Python may help you determine times to pause.
- Note that much of the information about who is using these different approaches is missing from the video. Tell students that it's fine to record an educated guess or to leave that space blank for now.

Teacher Note: As an alternative to whole-group instruction, share a link to the video with students and have them watch it individually or in pairs, pausing it as needed to discuss and record the ideas they hear.

- After the video, have students work in small groups to share what they learned about efforts to control and remove Burmese pythons from the Everglades. From this conversation, each group should create a list of three or four important things they learned.
- As students share, remind them to think about what is being done, who is doing it, and any successes or challenges with the approach. The details of these solutions can be very interesting, and students may look

to you to either add to the explanations or to help them gather more information. Keep in mind that students don't need to know or remember every detail. Some big ideas that students learn may include:

- There is not one correct approach to an invasive species problem.
- Different individuals or groups are involved with different solution efforts.
- Some solutions aim to prevent invasive species, some to reduce population size, and others to eradicate the species.
- Attempted solutions have pros and cons. These may include financial, environmental, or ethical concerns, or they may involve how effective or efficient the solution is.
- Lead a class discussion using the following questions, drawn from the [Parts, Perspectives, Me routine](#):
 - *What are the different parts of the system that is working to manage the Burmese python problem in the Everglades?*
 - *What perspectives can you look at this system from?*
 - *Who are the different people who are impacted by the Burmese python?*
 - *Whose perspectives were included in the video? Were any perspectives missing?*
 - *What living things are impacted by the Burmese python?*
 - *What non-living things are impacted by the Burmese python?*
 - *How are you involved in the problem of the Burmese python in the Everglades?*
 - *Do you have any connections to the Everglades? To Burmese pythons?*
 - *What assumptions do you have about the problem?*
 - *What interests you about the problem?*
 - *What do you believe about the problem?*
- Provide time for each student to record a response to the following questions: *What do you think is the most promising solution for the problem of the Burmese python in the Everglades? What conditions are needed for this solution to work?*
 - Have students share their ideas with a partner.

Wrap Up - Option A (15 minutes)

Equitable Teacher Practices



8.CRP.a Help students express their knowledge and understanding through their product.

- Have students write down two words—one that relates to something they are *thinking* about from today's lesson, and one that relates to something they are *feeling* about today's lesson. Students should also take time to write down some reasons that they chose each word.
- In groups of three or four, students should share their ideas using this protocol:
 - One student shares one of their words (either the *thinking* or *feeling* word).
 - Each of the other students shares why they think that student chose that word.
 - The student who shared the word explains why they chose it.
 - Take turns until everyone has had a chance to share.
- Remind students that they are going to make a project on Code.org that is about an invasive species of their choice. In the next lesson, they will do some research about how people are responding to the invasive species. Provide some time for students to select an invasive species to research further if they have not already settled on one.

Wrap Up - Option B (15 minutes)

- Ask the class: *What might our class be able to do to help with the problem of an invasive species—either the Burmese python in the Everglades or a local invasive species?*
- Provide a sticky note (or notes) to each student, and have them record ideas they have.
- As students share, have them post their notes on a chart, grouping similar ideas together.

Teacher Note: *If your class is particularly passionate about an idea, use your discretion about the best way to help them pursue it. They might want to write a letter to a government official to voice support for certain legislation, they might want to raise money to support a group doing important work, or they might find another way to help fight an invasive species.*

- Remind students they will make a project on Code.org about an invasive species of their choice. In the next lesson, they will research how people are responding to the invasive species. Provide some time for students to select an invasive species to research further, if they have not already settled on one.

[Give anonymous feedback on this lesson.](#) (optional)