



Frankenfish (Learning Experience #1) Lesson Plan



Overview

Students will research the physical and behavioral characteristics of the Northern Snakehead, a large carnivorous fish native to China, Russia and Korea. Students will discover the impact of this introduced species on the rivers and ponds of the Chesapeake Bay watershed and design a control mechanism for this which has a low impact on existing living community. Teams will present their plans to the class.

Lesson Essential Question: Why is the introduction of a non-native species a problem for established living communities?

Objectives

The students will:

- work productively as a part of a project team.
 - use a variety of resources to investigate the background information necessary for this project.
 - research and summarize information about the life and habits of the northern snakehead, an invasive fish species in the tributaries of the Chesapeake Bay.
 - design a control strategy and present the strategy to the class.
 - keep accurate, complete records in a journal.
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Materials for *Frankenfish* (Learning Experience #1)

- One packet containing a copy of each of the following documents per group:
 - *What's a Northern Snakehead and Why Should I Care?* (Student Sheet #1)
 - *Fishzilla Control* (Student Sheet #2)
 - Map of northern snakehead range in the Chesapeake Bay watershed (<http://nas.er.usgs.gov/queries/FactSheet.aspx?SpeciesID=2265>); click on "point map"
- Notebooks or small binders or folders to be used as journals, one per student
- Chart paper and markers
- Computer with internet access for each group





Grade Level 8-12

Subject Areas

Environmental science, biology, government, economics

Timeline

Teacher preparation: 30 minutes

Learning Experience: 90 minutes

Setting

Classroom, library or computer lab

Skills

Research in print materials and on websites; organize information; problem solve as part of a team; communicate to team and classmates; present project plan to class.

Vocabulary

Abiotic, biotic, exotic species, habitat, invasive, invasivore, natural community, niche, non-native, predator, species

Advance Preparation Required

Make copies of the student sheets listed, one for each project team. Provide chart paper and markers or access to technology that will allow students to present their ideas to their classmates.



Procedure

1. Post the essential questions for the northern snakehead scenario and for *Frankenfish* (LE #1) at the top of a sheet of chart paper. You will add the class answers for *Frankenfish* at the end of this activity.
2. Introduce the learning experience by sharing the scenario news articles with the class, using an appropriate amount of alarm. Some suggestions include:
 - a. set up a classroom high drama with several students sharing the horrible news about northern snakeheads being found in Delaware. . . Oh no!!
 - b. locate copies of sci-fi movies titled *Snakehead Terror* and *Snakehead Swamp*, and introduce the scenario with several clips from the video. Keep it for a follow-up discussion about the difference between science and sci-fi.
3. Follow up with by asking students following questions:
 - a. *What is a snakehead?* (Is it a rock band? Something dropped from outer space? A new species created by crossing a snake and a fish?)
 - b. *Why should we care about its presence in Delaware?*

Instruct students to write their answers in their science journals and to include ideas about where additional information could be located.

4. Assign students to project teams of three or four. Each team member should have a task: researcher (may have two of these), recorder, communicator. Grouping students with a variety of abilities will promote peer teaching and differentiation of instruction.
5. Have students share their answers with their group and complete the graphic organizer and questions on *What is a Snakehead and Why Should I Care* (Student Sheet #1). Remind teams to list all of their sources of information.
6. Ask a representative from each group to share at least one northern snakehead characteristic with the rest of the class, pointing out how that characteristic makes snakeheads ideally suited to live and reproduce in streams and ponds of the Chesapeake Bay watershed, or how that characteristic explains why snakeheads are so unwelcome in their new home.

7. Challenge the project teams to devise a plan to control or eradicate the northern snakehead population of the Chesapeake Bay watershed. They must choose a method or combination of methods that will cause as little harm as possible to other species, including humans, and will not degrade stream and pond habitats. Team plans will be described on Student Sheet #2, *Fishzilla Control*.



8. Ask each team to present its plan to the class. This may be done in a variety of ways, including as a power point presentation, as a report before the class votes on its preferred control method, as a debate, or as a dramatization.