

Invasive Species Multimedia Educational Outreach Project

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Lesson Overview.

Students will investigate and communicate the impacts of invasive species on Michigan ecosystems by creating a **multimedia educational outreach project**. This can either be: a poster, a PowerPoint, a video, a book, etc. that will inform others about the impacts of invasive species. Outreach projects will be displayed at the Family Science Night to raise awareness and incorporate parent involvement.

Background

The class will already have learned about ecosystems and food chains from classroom activities and their field trip to the Belle Isle Aquarium. While at the Aquarium, the students will have seen the invasive species tank and physically observed the speed at which the carp and gold fish ate the food. The students already have some background knowledge of the harm that invasive species can cause to native species in Michigan. This activity applies their knowledge. Students already know they are scientists based on the many activities and experiences they have participated in class so far. In this activity, they use their scientific skills to raise awareness amongst their families and community about invasive species. Prior to teaching this lesson, it is important that the teacher be familiar with invasive species that affect aquatic or terrestrial ecosystems around their school and in the community.

Target Grade & Subject: 5th grade, Science

Duration: 1-2 class periods (50-minute periods)

Instructional Setting: classroom, with optional computer lab for research time.

Advance Preparation: make copies of worksheet; set up LCD projector to show invasive species PowerPoint

Learning Objectives

At the end of this lesson, students will be able to:

1. Describe what an invasive species is.
2. Articulate why they are harmful to the native plants and animals.
3. List examples of invasive species in Michigan.
4. Explain how people can reduce the spread of invasive species.

Michigan Science (or Social Studies) Performance Expectation Addressed

<http://ngss.nsta.org/Professional-Learning.aspx>

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

SEP: Science & Engineering Developing and using models

DCI: Disciplinary Core Ideas Practices Interdependent relationships in ecosystems

CCC: Cross-Cutting Concepts Systems and system models.

Social Studies Standards

https://www.michigan.gov/documents/.../SS_COMBINED_August_2015_496557_7.pdf

P3.3 Persuasive Communication About a Public Issue

Communicate a reasoned position on a public issue.

5 – P3.3.1 Compose a short essay expressing a position on a contemporary public policy issue related to the Constitution and justify the position with a reasoned argument.

P4.2 Citizen Involvement

Act constructively to further the public good.

5 – P4.2.1 Develop and implement an action plan and know how, when, and where to address or inform others about a public issue.

5 – P4.2.2 Participate in projects to help or inform others.

List Materials & Quantities Needed

Per class

LCD projector

Articles

TED-Ed video The Threat of Invasive Species https://www.youtube.com/watch?v=spTWwqVP_2s

Poster board

Per Student

Note-taking worksheet

Rubric for multimedia educational outreach project: a poster, a PowerPoint, a video, a book, etc.

Rubric for presentation of multimedia educational outreach project.

Guiding Question(s): *What are some aquatic or terrestrial invasive species found in Michigan? What can you do to help increase the awareness of invasive species in your community? How can people help to reduce the spread of invasive species?*

5E Model

ENGAGE:

Start by having the students share out what they already know about invasive species. Write their ideas on the white board.

Show the students the TED-Ed video The Threat of Invasive Species

https://www.youtube.com/watch?v=spTWwqVP_2s. Stop the video around 3:10 and discuss the food web and how an invasive species can threaten the balance. At the very end of the video, they ask: “are humans invasive species?” Point out this question to the students and tell them we are going to come back to it at the end of the lesson. Have students add ideas to the invasive species discussion on the white board that they learned from the video.

Explain to the students that today we will be scientists and our mission is to raise awareness of invasive species in Michigan. Students will work in groups of 3 to create a multimedia educational outreach project. This can either be: a poster, a PowerPoint, a video, a book, etc. These will be hung up or shown at the Family Science Night to raise awareness of parents. Each group will choose one invasive species in Michigan and will

research what it is, where it has been found, how it got here, what the state is doing to help, and how we can help prevent the spread of invasive species?

Put up a PowerPoint of the invasive species in Michigan, have students get into their groups and choose one species.

Expected prior knowledge: *students should know that a healthy ecosystem has a balanced food chain where animals and plants needs are met. (what do you mean by 'balance'?) Students should have an understanding of what an invasive species is.*

EXPLORE:

Students will receive a note-taking worksheet with all the questions they must answer about their invasive species. They are to use the computers, articles, magazines, etc. to collaboratively research their species and take notes. As students are conducting their research, I will walk around and assist students if they need it. I will provide articles for the species that were chosen as well as give out reliable websites for students to use. Websites such as:

National Agricultural Library: <https://www.invasivespeciesinfo.gov/resources/pubs.shtml>

Michigan Invasive Species government site: <https://www.michigan.gov/invasives/0,5664,7-324-68002---00.html>

MISIN Michigan: <https://www.misin.msu.edu/states/michigan/>

Supporting students during exploration: *What is your invasive species? How did your invasive species get to Michigan? Did it get moved naturally or by humans? What are we doing to prevent the spread of this species to more places? What is the state and government doing to help? Why do you think invasive species cost the government so much money?*

EXPLAIN:

Students will write down all their research on the note worksheet provided. Each student must complete their own note-taking sheet. From there students need to decide what type of project their group wants to create. As a group, the students then need to create their multimedia educational outreach project. If students choose to create a poster or book they must include artwork showing what the invasive species looks like. Remind students that their work will be viewed by others and its purpose is to spread awareness, therefore it must be legible and pleasing to the eye!

ELABORATE:

As students are working on their projects, I will walk around and ask clarifying questions to students to ensure that their projects contain clear and concise information. If there are groups that seem to be stuck with designing their project, the class can have a short group discussion where students share out helpful ideas.

Supporting students during elaboration: *How does that species pose a threat? How would that species affect the food chain? Is there something that the public could do to help prevent the spread of this species? How do you think other countries get invasive species?*

EVALUATE:

Students will present their outreach projects to the class prior to Family Science Night. During this presentation, I will be evaluating students on the information and the look of the project. They must address each question from the note-taking worksheet in their project. I will be using a rubric to guide my grading. If there is a project that needs more work before it goes to the Family Night, students will get a chance to make up some lost points and improve their project.

Lastly, the day will end with the exit ticket question: *How do you think humans are invasive species? If you don't, explain why.*

Supporting students during evaluation: *Do you think humans are invasive species? Explain your answer. Ask questions from the note-taking worksheet if students did not include them in their projects. Allow other students to ask presenters questions about their invasive species.*

New Vocabulary: Invasive species, native, non-native, threat

Safety Considerations

Sources

STEM: Invasive Species. Retrieved July 22, 2018, from <https://www.plt.org/stem-strategies/invasive-species/>

Appendix

Supporting Materials: <https://www.plt.org/stem-strategies/invasive-species/>

Illustration of "Water Quality and Invasions" <https://learninglab.si.edu/collections/student-activity-investigating-invasive-species/PrUdLV267w9XLOB6#r/17859>

Name: _____ Date: _____

Invasive Species in Michigan Outreach Project Note-Taking Worksheet

- The invasive species my group is researching is _____.
- We will present our information in the form of a _____.

Research Notes (Your notes can be bullet points)

<p>1. What is your invasive species? Give details about its appearance and the type of plant/animal it is.</p>	<p>2. Where has your invasive species been found? Give specific parts of Michigan.</p>
<p>3. How did your invasive species get to Michigan? Was it transported on accident or on purpose? Naturally or by humans?</p>	<p>4. What is the state doing to help stop the spread of your invasive species?</p>

5. How can we help prevent the spread of your invasive species, as well as all invasive species?

Name: _____ Date: _____

Invasive Species Presentations

Scoring Rubric

1. Student accurately described their Michigan invasive species.	____/5
2. Student articulated reasons why their invasive species is harmful to native plants and animals.	____/5
3. Student explained how their invasive species arrived in Michigan. Accidental or on purpose.	____/5
4. Students give at least one way members of their community can reduce the spread of invasive species.	____/5
5. Information was presented clearly, accurately, and engaging to the audience.	____/5
Total	____/25

Group Members: _____

The background features a series of concentric circles in light gray, some solid and some dashed, creating a ripple effect. A large blue speech bubble shape is centered on the page, containing the title and subtitle text.

Michigan's Invasive Species

Threats to Michigan's natural ecosystems

Invasive Plant Species

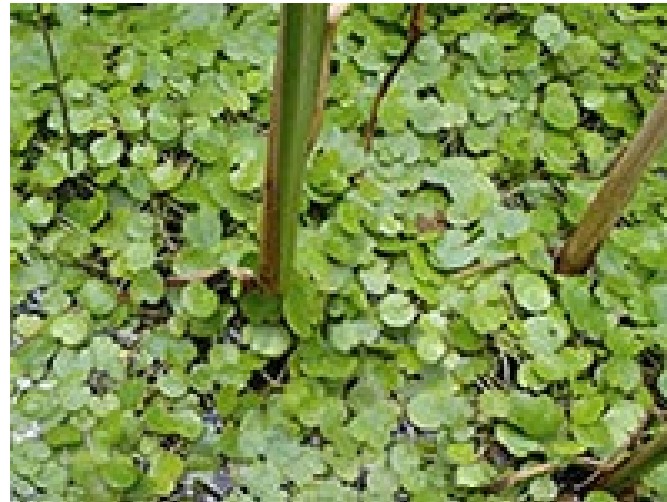
- **Purple Loosestrife**



- **Butterbur**

Invasive Plant Species

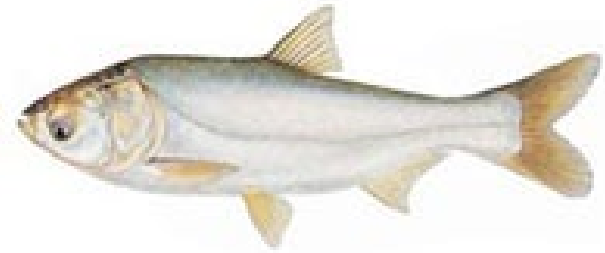
- **Flowering Rush**



- **European Frogbit**

Invasive Fish Species

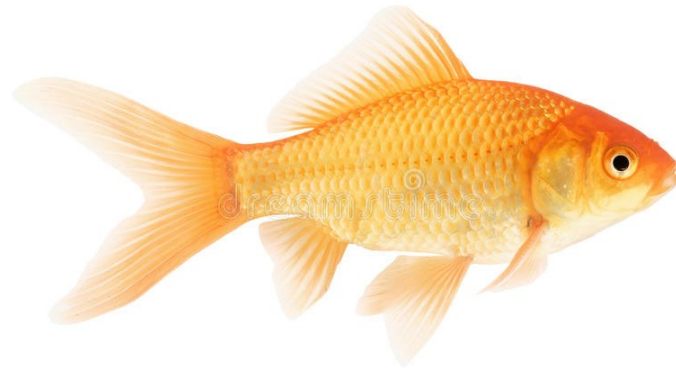
- **Silver-Carp**



- **Northern Snakehead**

Invasive Fish Species

- **Sea Lamprey**



- **Gold Fish**

Invasive Insect Species

- **Emerald Ash Borer**



- **Brown Marmorated Stink Bug**

Invasive Mollusk Species

- **Quagga Mussel**



- **Zebra Mussel**

Invasive Mammal Species

- **Feral Swine**



- **Nutria**