

Invasive Species in the Great Lakes

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Topic: Research on invasive species in the Great Lakes

Target Grade: 10th grade Biology students

Lesson Overview: In this lesson 10th grade biology students will be working in groups to research one of the many invasive species that can be found in the waterways of the Great Lakes. The groups will be required to put their research findings into a power point presentation and make a poster which they will present to the class. This will promote a greater understanding of many invasive species. A rubric will be provided to the students to make sure that the proper goals are met.

Objectives:

- Student will be able to research information on invasive species in the Great Lakes using books, articles, and the internet.
- Students will work cooperatively in groups to create a power point presentation which will be presented to the class.
- Students will identify several species that have been relocated by human intervention into the Great Lakes and the reasons for that intervention.
- Students will identify how the environment and human society has been affected by the relocation of invasive species.
- At the end of this lesson, students will have a greater understanding and knowledge of invasive species.

State Content Standards:

Science:

L3.p2B Describe common ecological relationships between and among species and their environments.

L3p3D Predict how changes in one population might affect other populations based upon their relationships in the food web.

L3p4A Recognize that, and describe how, human beings are part of Earth's ecosystems. Note that human activities can deliberately or inadvertently alter the equilibrium in ecosystems.

Technology:

Technology research tools: 1. compare, evaluate, and select appropriate search engines to locate information.

Technology communications tools: 4. collaborate in content-related projects that integrate a variety of media with presentation, word processing, publishing, database, graphic design, or spreadsheet applications.

Materials: Rubric (teacher created), computer lab with internet access and power point, books and magazines on invasive species and/or the Great Lakes, biology textbook, whiteboard, poster board (one per group), markers, glue, scissors, TV with connections to computer for presentations, bananas. There will also be a quiz that is made up after the group presentations. Questions on the quiz will be based on what was presented to the class during the group presentations.

Room Arrangement: Schedule use of media center and/or computer lab. Classroom should be setup so that students will be able to see their classmates' presentations. TV should be in the front of room, computer near TV.

New vocabulary words:

Invasive species- includes both *native* and *non-native* species that heavily colonize a particular habitat.

Indigenous species- an organism which is native to a given region or ecosystem.

Introduced species- (also known as naturalized species or exotic species) is an organism that is not indigenous to a given place or area and instead has been accidentally or deliberately transported to this new location by human activity.

Background Information:

A good place to start for background information is the use of a biology textbook. This is a good resource not only for the students but for teachers as well. A second resource for background information would be the use of the various online encyclopedias, including wikipedia.com.

Pre-Assessment:

For a pre-assessment I would have a class discussion on what the students know about invasive species. We would start by talking about what "invasive species" means to them prior to doing any research on the topic. We would then brainstorm using the whiteboard to write our ideas into a modified web. The ideas that they came up with would give me a feel for the type of knowledge they already have on invasive species, both right and wrong.

Focus Questions:

What are invasive species?

What is considered to be part of the Great Lakes waterways?

How do invasive species affect our native species?

What type of effect do invasive species have on our environment?

How do invasive species get into our waterways?

Are all invasive species considered to be "bad"?

Attention-getter: I would start the lesson by asking the students how many of them would like a banana? I would then pass out the bananas to the class. While they were enjoying them, I would ask if anyone thought that growing bananas in the U.S. was a bad thing. I would then start a discussion on how some places in the U.S. do grow bananas even though they are not an indigenous species. This would be a great lead into our lesson on invasive species in the Great Lakes.

Describe Classroom, internet and/or field activity:

The students will be in groups of 3. They will start by doing research on invasive species. Once they have started their research, they will come to me with the name of the invasive species they would like to present to the class. After picking their species, the groups will start to gather information about that specific organism. They will follow their rubrics to create a power point presentation and poster which they will present to the class. During the presentations, the students will take notes on all of the groups presented information.

Safety Considerations: The only potential hazard that could arise is if there is a student who is allergic to bananas. If that were the case, a new example of exotic species may have to be used in the “Attention-getter” section.

Assessment: The students will be assessed in a variety of ways throughout this lesson. 1) They will be evaluated based on their participation in their groups, i.e.- participated in group discussion and research; did they do their “fair share” of the work; asked question when necessary.

2) How well did they follow the rubric for the power point presentation and poster board? Points will be given based on their completion of all tasks listed in the rubric.

3) The students will take a quiz that evaluates how well they paid attention to the other groups’ presentations as well as on their note-taking abilities. They will be allowed to use their notes on the quiz.

Extensions/Enhancements: An extension of this lesson could be a field trip to the Detroit Zoo. They have numerous exhibits there that show some of the differences between native species to Michigan and the Great Lakes and the invasive or exotic species.

Resources:

www.wikipedia.com

www.michigan.gov

<http://www.detroitzoo.org/>

www.nationalgeographic.com

Campbell, Neil A. Biology 7th edition. New York: Benjamin/Cummings Publishing Company, Inc., 2007

Invasive Species in the Great Lake Rubric- 200points Group Project (3 per group)

Research Requirements: 50 points

Find information on invasive species in the Great Lakes using books, magazines, and the internet to help you pick your group's organism.

Take notes on your research which will be turned in the day of your presentation.

Find 5 sources that correspond to your invasive species. These will be cited in your power point on a works cited slide.

Power point presentation must include: 100points

Group member names and the name of your invasive species on a cover slide.

Scientific name and common name of species

Information on your invasive species

At least 10 slides not including your cover slide or works cited slide

Include a worked cited slide at the end

Pictures of your invasive species

Species origin (where did it come from?)

Type of consequences this organism is having on the ecology of the Great Lakes (can be both positive and/or negative)

How did your species get into the Great Lakes?

Use of grammar and spell check

Slide transitions and sounds

Poster Board: 50 points

The more colorful and exciting the better!

Include the name of your invasive species

Color photos

Diagrams showing the effect of your species on other species and/or the Great Lakes as a whole.

Anything else that you think may help out your grade!!

Total Points: 200

Your group grade will be based on how well you follow the rubric and complete all assigned portions. Remember, everyone will be taking a quiz on your presentations. Don't let yourself or your class down by waiting until the last minute to work on your projects!!