

Ecosystem Protection Proposal



Image by Mike Baird, Flickr.

Specific Learning Outcomes

7-1-01: Use appropriate vocabulary related to their investigations of interactions within ecosystems.

7-1-05: Identify and describe positive and negative examples of human interventions that have an impact on ecological succession or the makeup of ecosystems.

7-0-06: Identify environmental, social and economic factors that should be considered in the management and preservation of ecosystems.

General Learning Outcomes

7-0-1a: Formulate specific questions that lead to investigations.

7-0-1c: Identify practical problems to solve.

7-0-2a: Access information using a variety of sources.

7-0-4c: Work cooperatively with team members to carry out a plan, and troubleshoot problems as they arise.

7-0-7g: Communicate methods, results, conclusions, and new knowledge in a variety of ways.

7-0-9e: Be sensitive and responsible in maintaining a balance between the needs of humans and a sustainable environment.

Vocabulary

wetland, ecosystem, positive human interventions, negative human interventions, environmental factors, social factors, economic factors

Summary

Students will explore some of the positive and negative impacts humans have on the environment, focusing on wetland ecosystems. They will research an issue affecting their local ecosystem, and propose possible solutions to the problem, taking into consideration the social, economic, and environmental factors that affect the problem.

Materials

- Projector and computer to present slideshow
- Student access to a library and the internet
- You may choose how students present their findings (written report, oral report, video, Power Point, Prezi, etc.)

Procedure

Warm Up

Begin by reminding students of their recent visit to Oak Hammock Marsh, and ask them what kind of ecosystem it was. Present the included slideshow, which will provide an overview of wetland ecosystems and look at some of the positive and negative impacts humans have on wetlands.

A wetland is an area of land that holds shallow water, with a maximum depth of two metres. The water makes the soil very moist, so plants who need moist soils will grow in and around the water; this is why a wetland can not be deeper than two metres, because otherwise these kinds of plants drown and do not receive enough sunlight. The water moves slowly because there are so many plants that slow the water down, absorbing some of the water like a sponge and filtering it as it moves through.

Human interventions are actions that can have positive and negative affects on an ecosystem.

Sustainable development is an approach to daily decisions that integrates probable consequences to the environment, the economy, and human health and well-being. It is a way of making decisions that balances the needs of today without sacrificing the ability of future generations to meet their own needs.

Activity

The slideshow introduces students to the activity, in which they will research an issue affecting their local wetland ecosystem, investigating possible solutions to the problem and considering the various social, economic, and environmental factors that affect the issue. You may choose to have students work individually or in small groups. This activity may take several classes of research time to complete, or could be assigned as homework.

Students will research their local wetlands, and identify issues present in the ecosystem. This could include: invasive species, pollution/littering, habitat degradation, habitat loss, etc.

Once they have chosen their issue, students will research and brainstorm possible solutions, being sure to address the following factors:

Social: Who is impacted by the problem? Are these impacts positive or negative? Who will be impacted by the solution? Will those impacts be positive or negative?

Economic: Does the problem have an economic impact? Who is paying? How much would a solution cost? Would it save money or cost money long term?

Environmental: What impact does your problem have on the ecosystem? What species are affected? What species would be affected by your solution? Would all species benefit? How would your solution alter the ecosystem?

Wrap Up

Students can present their findings - ecosystem problem, possible solution, and factors affected by the solution to the class or in a research essay. Students should decide, based on their findings, whether or not their solution is a good one.

Conclude by reflecting on how a real ecosystem such as Oak Hammock Marsh may have been changed or may change in the future through human interventions both positive and negative.

Extensions:

- When students present their solutions to the class, lead a class discussion on the environmental, social, and economic factors that should be considered. Then, have the class vote on whether that solution should be implemented, or if a better solution is possible.

- Ducks Unlimited Canada runs two programs that encourages students to engage in wetland conservation: Wetland Centres of Excellence and Wetland Heroes. Check out their website: <https://www.ducks.ca/initiatives/>

-The Caring for our Watersheds program provides funding to turn these environmental solutions into reality. For more information on how students can participate, or to book a free workshop in your classroom, see our website: <https://www.oakhammockmarsh.ca/learn/caring-for-our-watersheds/>