

Lesson Plan:

Species that Cause Change in the Environment: Beneficial vs. Harmful

Questions to be Answered:

1. What are some native species that are beneficial to the environment?
2. What are some introduced species that are beneficial to the environment?
3. What are some native species that are harmful to the environment?
4. What are some introduced species that are harmful to the environment?

Presentation only:

- The main presentation consists of slides 1-13. It should take 30 minutes or so depending on the amount of discussion created by the discussion questions (should you incorporate them).
- The scripted presentation can be downloaded from www.protectingusnow.org.
 - Be sure to go over the text ahead of time, tweaking it as you need to for your audience. In addition, all 3 activities are included in the presentation, so be sure to remove the ones you do not wish to do.
 - You do not have to include the references slides in your presentation.
 - In addition, feel free to rearrange the slides, change the text on the slides, even use different regional examples.
- Standards Covered:
 - National Science Education Life Science Standards Grades K-4:
 - All organisms cause changes in the environment where they live. Some of these changes are detrimental to the organism or other organisms, whereas others are beneficial.
 - Sunshine state standards SC.4.L.17.4:
 - Recognize ways **plants and animals**, including humans, can impact the environment.
 - The focus of this presentation is how some species (native and introduced) are beneficial to the environment, while others (native and introduced) are actually detrimental (harmful) to the environment.
 - The text provided at the bottom of the slide is meant to aid the presenter. It is not meant to be read verbatim. Please feel free to go into more detail or less detail as needed.

Student Activities:

Activity #1 – Research Project:

- The presentation of activity #1 consists of slides 14 and 15 of the scripted presentation. It should take ten to fifteen minutes to go over.

- This introduces the activity and walks the students through handout “Research Project on Beneficial and Harmful Species”.
- This is a research project so times may vary depending on how much you want them to research the topic outside the class period. Suggestions for completing the assignment in class include:
 - Library time - three to four class periods

Teacher preparation for Activity #1:

- The scripted presentation can be downloaded from www.protectingusnow.org.
 - Be sure to go over the text ahead of time, tweaking it as you need to for your audience. In addition, all 3 activities are included in the presentation, so be sure to remove the ones you do not wish to do.
- Download student handout 1 from www.protectingusnow.org.
 - Make as many copies as you have students.
 - **The works cite format in the handout can be changed to whichever format you wish the students to use.**
- Be sure to reserve the computer lab (with internet) and library space. Listed below are several good websites for your students to use. Make sure your school does not have the sites blocked.
 - The Global Invasive Species Database -
 - <http://www.issg.org/database/welcome/>
 - This website discusses invasive species found around the world.
 - Invasive Plant Atlas of the United States
 - <http://www.invasiveplantatlas.org/index.html>
 - Information on invasive plants (trees, shrubs, aquatics, and even grasses) can be found here.
 - Pest Tracker
 - <http://pest.ceris.purdue.edu/index.php>
 - This is a database that allows the user to see where invasive species have been found and where they have been trapped for, but not found. They also maintain a pest watch list.
 - USDA Invasive and Noxious Weeds
 - <http://plants.usda.gov/java/noxiousDriver>
 - This website allows the user to find information on invasive plants by state.
 - Forest Pests of Maine
 - <http://maine.gov/doc/mfs/forestpestindex.htm>
 - This website lists many forest pests and diseases, some of which are native pests while others are invasive pests.
 - Forest pests
 - <http://www.forestpests.org/>
 - This website lists many forest pests and diseases, some of which are native pests while others are invasive pests and tells you where to find more information on them.

- Forest Pests of North Carolina
 - http://ncforests.service.gov/forest_health/forest_insects.htm
 - Information on several forest pests (both native and invasive) can be found here.
- University of Florida Featured Creatures
 - <http://entnemdept.ufl.edu/creatures/>
 - This is a great website to find information about native and introduced beneficial and harmful insects. It is searchable by name if you already have an organism chosen, or you can choose crop or habitat and scroll through those names.
- National Plant Diagnostic Network First Detector Newsletter
 - <http://www.sepdn.org/newsletter>
 - This newsletter has some great information on invasive pest detections. It covers invasive species detections that have occurred during the previous month. There is also an archive section.
- Protect U.S.
 - www.protectingusnow.org
 - This website has several topics on invasive species that affect plants. This may be a bit much for 4th grade, but the students can obtain information on pest identification and affects to the environment through the educator's scripted PowerPoint that can be downloaded from the website. The information is in the notes section of the slide.
- Hungry Pests
 - <http://www.hungrypests.com/>
 - This website provides information on many invasive species that affect crops as well as forests.

Materials for Activity #1:

- The students will need access to computers (with internet) and the library to complete this activity.
- Paper, pencils, etc. for writing the report.

Directions for Activity #1:

- Given the websites provided, this should be a good start to answer the questions given in the handout.
- Have the students complete the report in class or at home.

Additional Standards Covered:

- Language arts and Technology standards can be applied to this activity.

Activity #2 – Beneficial and Harmful Species Workbook:

- The presentation of activity #1 consists of slide 16. It will take about ten minutes to go over.

Teacher preparation for Activity #2:

- The scripted presentation can be downloaded from www.protectingusnow.org.
 - Be sure to go over the text ahead of time, tweaking it as you need to for your audience. In addition, all 3 activities are included in the presentation, so be sure to remove the ones you do not wish to do.
- Download the workbook from www.protectingusnow.org.
 - Make as many copies as you have students.

Materials for Activity #2:

- Colored pencils and crayons for coloring, regular pencils for completing the other activities.

Directions for Activity #2:

- Complete (in class or at home) all sections of the Harmful Species Workbook.
- Turn this in for a grade.

Activity #3 – Computer Lab:

- The presentation for activity #3 consists of slide 17. It will take about ten minutes to go over.
 - This activity should only take about 20 minutes or so in the school's computer lab.

Teacher preparation for Activity #3:

- The scripted presentation can be downloaded from www.protectingusnow.org.
 - Be sure to go over the text ahead of time, tweaking it as you need to for your audience. In addition, all 3 activities are included in the presentation, so be sure to remove the ones you do not wish to do.
- Download student handout 3 from www.protectingusnow.org.
 - Make as many copies as you have students.
- In addition, be sure to reserve the computer lab.
 - You will need to check that your school does not have the site blocked.
 - You will also need to make sure that the appropriate Flash plug-in is downloaded on the computers you intend to use. You may need to contact your IT person for help with this if it requires an administrator's password to download free software from the web.

- Create an account for accessing the module.
 - You can also access the log in page directly from [here](#).
 - You need to create a username and password. An email asking you to confirm the account will be sent within a few minutes. Be sure to confirm the account so that you and your students can complete the module.
- Normally, students would need to have their own email address so that they can create an account to take the module. However, because of the age group, we recommend that the students use the username and password that the teacher has created.
 - Multiple students can use the same username and password at the same time.

Materials for Activity #3:

- The students will need access to a computer (with internet) for this activity.
 - The link to the module can be found at www.protectingusnow.org, under K-12 Lesson Plans. Choose “Click to take the e-learning module”.
 - You can also access the log in page directly from [here](#).
 - The module title is “Beneficial and Harmful Species – grade 4”.
 - Have the students log in using your username and password.

Directions for Activity #3:

- Follow the directions given in the module. As the student goes through the module, have them fill out student handout “Beneficial and Harmful Species Exploration”.
 - This can be turned in for credit at the end of the module.