



Environmental Changes: Plastic Pollution in the Pacific

Concepts

7th Grade Focus on Life Sciences

Evolution

3. Biological evolution accounts for the diversity of species developed through gradual processes over many generations. As a basis for understanding this concept:

e. Students know that extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient for its survival.

7th Grade Investigation and Experimentation

7. a. Select and use appropriate tools and technology (including calculators, computers, balances, spring scales, microscopes, and binoculars) to perform tests, collect data, and display data.
b. Use a variety of print and electronic resources (including the World Wide Web) to collect information and evidence as part of a research project.

d. Construct scale models, maps, and appropriately labeled diagrams to communicate scientific knowledge (e.g., motion of Earth's plates and cell structure).

Vocabulary

- Marine Organism
- Plastic Debris
- Oceanographic Research Vessel
- Adaptation

Grade Level - 7

Summary

Using geographically linked observations made by the crew aboard Oceanographic Research Vessel Algalita, students learn about plastic pollution in the Pacific Ocean and how plastic contamination is linked to the water cycle and their daily choices. Students record observations of marine organisms and plastic debris, and then develop a spatial diagram showing the distance the observations were made from shore. Using this information and a map generated from the data collected by the research team over a 10 year period, students address how plastic pollution may be changing the marine environment.

Materials

- “Environmental Changes: Plastic Pollution in the Pacific Ocean” activity sheet for each student or group:
<http://algalita.org/MappingPlasticPollution.htm>
- Computers with Google Earth software installed and access to the internet
- Any Voyage.kml file: <http://algalita.org/MappingPlasticPollution.htm>
- Pencil or pen (if activity sheets are printed).

Procedure

1. Discuss oceanographic research and the topic of plastic marine debris with your students. Provide students with some background on the research voyage they will be viewing. Much of this information is contained within the text of the voyage - more detail can be found at <http://algalita.org/>
2. Students can work individually or in groups. The worksheet provides detailed directions that assume Google Earth is already open and the .kml file of the voyage is already loaded for the students use.
3. The amount of text and the vocabulary provided under each vessel communication may be challenging for the seventh grade level. If this is the case, encourage students to skim the text and use the images provided by the crew to find the plastic debris and marine organisms they are looking for.
4. Discuss questions 4, 5 and 6. These questions address new areas of research and many of the answers are still unknown. Reading through the observations made by the research crew will give the students an introduction to this field of study and should provide them with ideas to include in their answers. Remind students of the difference between these sorts of inferences and actual observations and tests. Discuss what types of studies the students could design to test their hypothesis. Discuss the observations students made in question 2. What types of plastic debris were observed? Where might it have come from? This is a good opportunity to discuss the distance of your school from the ocean and the student's connections to the ocean through the watershed.