

Ariana Chavez, Jared Copher, Nicole Becker, and Noor Alsaeis  
1/25/11  
Lesson Plan For Dangers of Plastics  
Period: 1/2

*Title of Lesson Plan: Dangers of Plastics*

*Subject Area: Environmental*

*Time Required: 30mins*

*Grade Level: 9-10<sup>th</sup> Grade*

*Classroom Size: about 30*

**State standards:**

California standards for life sciences, grades 9-12, High school, ecology and biology

**6. Stability in an ecosystem is a balance between competing effects.**

As a basis for understanding this concept, students know:

- a. biodiversity is the sum total of different kinds of organisms, and is affected by alterations of habitats.
- b. how to analyze changes in an ecosystem resulting from changes in climate, human activity, introduction of non-native species, or changes in population size.
- c. how fluctuations in population size in an ecosystem are determined by the relative rates of birth, immigration, emigration, and death.

***Content***

- Start with students collecting plastic around the room
  - Students will have about 1-2 minutes to collect plastic from around the room.
- petroleum product

- Oil
  - Discuss that plastic is a petroleum product.
  - In 2006, about 331 million barrels of oil and gas were used to make plastic products in the plastic materials and resins industry in the United States, equal to about 4.6% of total U.S. petroleum consumption. That's a lot of oil, and that doesn't even take shipping into account and a lot of plastic products come here from China.
- Non-biodegradable
- Photodegradation
  - Plastic does not biodegrade, but it does photodegrade. Meaning that as light, especially sunlight hits plastic over time it will break down, but only physically. It will only turn into plastic dust.
- Plasticizers
  - BPA
    - Plastic can also absorb certain things, almost like a sponge. When certain chemicals are absorbed by plastic it can change the quality of the plastic. The chemicals that plastic manufacturers put into plastic are called plasticizers. Unfortunately most of these

plasticizers are toxic. Plastic is usually pretty good about keeping in its plasticizers, but you still want to avoid them. The best way is to remember that plastic type 3 and type 7 are usually the worst when it comes to harmful plasticizers. You can find the number type of the plastic usually in the recycling symbol.

- impact on biosphere (pictures)
  - Plastic is harmful to nature because animals can't tell what it is, or that it's bad for them. Animals, especially in the ocean will eat plastic thinking its food, or they will swim right into it and get stuck. Plastic isn't natural, so when it enters nature it's very disruptive.
    - Soda six pack ring
    - Albatross
- Garbage patch
  - There is a lot of plastic in the ocean too. There are about 5 garbage patches in the world's oceans. The largest of which is known as the great pacific garbage patch. This is estimated to be about twice the size of Texas.
- long term affect of unattended plastic

• ***Prerequisites***

They must be able to identify plastics.

• ***Background***

Basic understanding of what plastic is and how big the industry is.

• ***Objective/Goal***

After the lesson the students should be about to identify the different types of plastics, know the dangers of what plastic is doing to our environment and that plastic never goes away.

• ***Materials/ Resources***

- Plastic
- Dry erase board
- Pictures
- Vocabulary words: Non-biodegradable, Petroleum Products, Photodegradation, Plasticizers and, The Great Pacific Garbage Patch.

Technical equipment (if no technical equipment can be used handouts of pictures can be made)

- Projector (if no projector handouts can be made with pictures)
- Flash drive
- Computer connected to projector

• ***Preparation***

Teacher needs to have plastic, maybe tell kids a day before to bring a couple pieces of plastic.

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• ***Procedures***

Were going to be interactive with the plastic the students give us, and educate them on the plastic and what it can do to the environment. Pictures of plastic invading ecosystems will be shown to support lesson. The white board will be used to write key information and vocabulary. Questions will be asked

• ***Evaluation***

Have them take notes, and have them answer questions at the end if they say right answer they will receive a prize.

• ***Follow-up Activities***

The question session will reinforce this lesson because we will see how well the students grasp the content and this session will refresh key points in the presentation.

• ***Self-Assessment (to be completed after the lesson is presented)***