Marine Debris

Photos by Monte Costa

Grades:	3 – 6
Focus Question	What characteristics of trash affect the likelihood that it will become marine debris?
Lesson at a Glance:	Students will perform experiments to examine if debris will float, or blow in the wind. The effects of these characteristics on the marine debris are then discussed.
Key Concepts:	Debris that floats or is easily blown around is more likely to become marine debris. The choices we make effect the environment.
Objectives:	Students will be able to: 1. Define marine debris. 2. Categorize different types of debris. 3. Determine how a material can influence what becomes marine debris.
Time:	One class period. An extension beach clean-up

Materials: Notebook or journal to record observations
marine debris, deep pan or sink, fan, water

Teacher Background

Marine debris is trash that is found in or by the sea. Any object foreign to the marine ecosystem can be considered marine debris but the term is usually reserved for human-created trash.
Two major factors that effect if an item will enter the marine environment are buoyancy and the ability to be blown by the wind. As a rule of thumb, if the item can fly and float it is more likely to enter the marine environment and end up on our beaches. Plastics readily fly and float, and decompose very slowly. Not surprisingly, plastics are one of the most frequently collected type of marine debris.
Negligence in disposal (from land and sea) is a large cause of the problem. In 1991 the Center Marine Conservation (CMC) listed the 12 most frequently collected marine debris items as being; 1) cigarette butts, 2) plastic pieces, 3) foam plastic pieces, 4) plastic food bags and wrappers, 5) paper pieces, 6) glass pieces, 7) plastic caps and lids, 8) metal beverage cans, 9) glass beverage bottles, 10) plastic straws, 11) plastic beverage bottles, and 12) foamed plastic cups.

Preparation and Procedure

1. A variety of marine debris items should be collected from local beaches. Glass bottles or worn beach glass(smooth edges) should be included for the discussion but should not be gathered by the students to prevent accidents in transportation and collection.
2. Have the students separate the trash into different piles (plastic, glass, rubber, metal, paper, wood, and cloth).
3. Have the students address the following questions;
   Will the item float or sink?
   How do you think that this item ended up in the ocean?
   What plants or animals could be effected by the presence of this item?
4. Test each of the items for buoyancy in the pan. Record the results.
5. Have the students address the following questions;
   Which items do they think will be blown around easily?
   Is there a group of items that behaves similarly, (glass or metal, etc.)?
   How far do they think the item can travel?
6. Discuss the impact humans have on their surrounding environment. Brainstorm ideas about how people can help reduce the amount debris in our oceans. Every one of us makes daily choices about products we buy, where to discard

trash, and if we want to help clean up a mess that someone else left. The debris that is in the marine environment effects different animals and plants depending on the different material, shape and size on the item.

Extensions

Make arrangements for the class to visit a local beach and conduct a clean-up.

Students can log-on to the NWHI website for journals and picture updates for more information on marine debris. Do you think that there will be more debris on the NWHI because so few people live there or will there be more debris because fewer people are there maintain the area?