

Water Trash

NOAA is very strict about waste disposal on board its vessels. Here's a lesson that helps teach students why it is so important to be vigilant with wastes.

Obj: Students will 1) be able to explain the ways plastic waste can affect the marine environment; 2) be able to describe things they can do to can down on plastic waste entering the marine environment.

Age: K-4

Time Allowance: one period (two, if you choose to do the art project extension)

Materials: Plastic waste from home; 1 5 gallon bucket for every 2 students; tiny plastic beads (as small as you can find), most of which are clear; plastic resealable sandwich bags 1 per child; pieces of paper; pencils; tweezers (1 per child); stopwatch

Instruction:

1. Instruct students to save every piece of plastic waste produced in their homes over a certain time period (1, 2, 3 days, a weekend – what works for you). Make sure all items have been washed and dried and are completely clean. Have the students get help from adults in cleaning containers that held potentially dangerous substances like bleach or other cleaners.
2. Have the students, in groups, talk about the items they brought in, in relation to how they would affect wildlife if they got into a marine environment. Could these items be seen as food? What happens if an animal eats plastic? (It stays in the stomach and the stomach thinks it's full and the animal could starve to death.) Could they pose a danger of the animal becoming entangled in them? (six pack rings around the neck, fishing line, etc.).
3. Discuss with the class the plastic pollution that they have seen near aquatic habitats. Have they seen plastics in the water where animals live and visit? How can it affect the environment?
4. Give each student a sandwich bag, and each pair a generous portion of mixed colored plastic beads. Explain to them that the beads are representing the plastic waste we see in our marine habitats sometimes. Have the students separate the plastic beads and record on the paper how many they have of each color as a pair.
5. Have the 5-gallon containers $\frac{3}{4}$ of the way filled with water outside since this could get splashy. Pair up the students two to a container. Have them bring their tweezers and beads outside in the plastic bags.
6. Have the students put the beads into the container of water and then turn around with their backs to the buckets so they can't focus in on the beads until you give the signal. Upon your signal, they will turn around and with their tweezers representing bird beaks or fish jaws, pick out as many beads as they can in the time you give them (30 or 45 seconds). When they pick them out, have them put them in their plastic bags. Stop them when time is up. Have them again count how many of each color they

were able to retrieve and go inside and record on the paper. (You may want to create a sheet on which the students may easily record the before and after count.)

NOTE: Students may also be able to create a bar graph of these results. If you feel yours are able to, have them list the colors along the bottom of the graph (x-axis) and the number of beads up the left side (y-axis). Make two bars for each color: the original number of beads and the number of recovered beads.

7. Discuss with the students what they discovered. Did they retrieve all the beads? Why or why not? Which colors did they mostly retrieve? Which did they retrieve the least? Why do they think that is? What correlation does this have to plastics in the water and animals in real life?
8. Have the students brainstorm how we can keep plastic waste out of the aquatic environment. What specifically can they do? What can their parents do? What can the government do?
9. Have students fish the rest of the plastic beads out of the water and put them all in the plastic bags for you. Please check the water for beads before pouring it on plants to water them around the campus.

EXTENSION: Do an art project with the plastics brought in from home (free form, or create an original aquatic animal, an aquatic landscape, etc.). Put on display in the classroom, library, media tech room, etc.

Evaluation/Assessment:

Ask students orally or in written form to give three examples of ways that plastics could enter an aquatic food chain, to describe the effects of plastic waste on aquatic animals, and to list two things they could do to prevent harm to marine wildlife from plastic litter.