

LESSON FIVE

Waste Inventory

Grade Level:

Grades 3 – 9 (older students can also do the charting and graphing portion of this lesson)

Subjects:

Language Arts, Mathematics, Science, Social Studies

Overview:

This lesson is designed to increase students' awareness of the waste they and their family produce. Over the span of a week, students keep a log of the types and amounts of trash they generate, and how they dispose of that trash. Students also learn which items were (or could/should have been) recycled, and which items could become marine debris.

Objective:

To understand how our own behavior and activities can contribute to the marine debris problem, and how proper waste disposal methods and recycling can help prevent the problem.

Vocabulary:

disposal, recycling, waste generation

Materials:

Enough copies of the "Waste Inventory Log" handout for each student in the class. (Note: Students may need extra paper to complete the log.)

Learning Skills:

Analyzing, Calculating, Classifying, Collecting Data, Comparing and Contrasting, Hypothesizing, Observing

Duration:

40 minutes for discussion; 20 minutes a day for a week for students to keep their logs.

SAFETY & REGULATIONS

Instruct students to ask their parents to help with the home inventory of waste.

Activity

1. On a Friday afternoon, pass out copies of the "Waste Inventory Log" handout. Explain to the students that from Monday through Friday of the next week they will write down everything they throw away in the "Waste Inventory Log." Also explain what kind of information to record in the columns of the log. In the "Item" column, they should list every item they discard. In the "Number" column they should put a mark every time they throw away that type of item.
2. Ask students to predict how many items the entire class will throw away in one week. Write down the predictions and save them until the logs are completed.
3. Every morning, give the students 10 minutes to write down the items they disposed of that morning and the night before. Also give them five minutes after lunch and five minutes at the end of the day to write down the items they disposed of during the day.
4. At the end of the week, discuss the contents of the "Waste Inventory Logs." Have a few students read their list of items to the class. Point out to the students which items are recyclable. Ask how recycling could

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affect the marine debris problem.

5. Tell the students to add the number of items they discarded each day, and then add the total number of items they threw away over the five-day period. List these totals on the board. Have students calculate a grand total for the class. Compare this total with the estimates the students made at the beginning of the week. Discuss the differences between the estimates and the actual total.

6. Another option that can demonstrate the large quantities of trash people generate is to have the students carry around their trash with them. Ask each student to bring in a medium-sized trash bag from home. Tell the students to use their bags to dispose of their trash. (Note: Tell students not to put food waste, glass, or sharp objects in their bags.) Have the students carry their bags around with them everywhere they go. Continue the

experiment for a week. At the end of the experiment, compare and discuss the quantities of trash each student has generated.

7. Finally, discuss the types of items that were discarded that could become marine debris. Ask students the following questions:

- What types of items can become marine debris? (Note that all items can become marine debris if disposed of improperly.)
- How could they become marine debris?
- How could you prevent these items from becoming marine debris?
- How could you produce less waste?

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Other Resources on Marine Debris

- NOAA's Marine Debris website:
www.marinedebris.noaa.gov
- EPA's Marine Debris site:
<http://water.epa.gov/type/oceb/marinedebris/index.cfm>

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EXTENSIONS

Have students research recycling programs in their community by contacting municipal or county employees and officials. Learn what kinds of materials are recycled, how much material is recycled, who participates in the program, and what the material is used for after it is recycled. Also have students think of ways to increase community involvement in recycling.

If your school is not recycling, students can work with school officials to set up a recycling program for paper, cardboard, plastic bottles, aluminum cans or other materials. First, determine which types of items will be collected for recycling by contacting a local recycling company. Learn how the materials should be separated, and any other requirements that should be followed. Designate a collection center and be sure to obtain appropriate containers and other facilities. Then, arrange to have the items picked up and delivered to the recycler. The school may receive payments for the material you deliver to the recycler. This money can be used to fund the recycling project or other educational initiatives in your school.

Recycling Electronic Waste

Students and their schools can organize a day for everyone in the community to recycle old cell phones, computers, batteries, and other household electronic waste. Hazardous materials including lead, mercury, cadmium, and chromium are all present in electronic devices and lead to pollution when not disposed of properly. Computer monitors and television screens using cathode ray tubes are of significant concern as they contain an average of four pounds of lead. A major source of mercury



Electronic waste on beach

in municipal waste systems comes from electronics. Many of these metals can be recovered and recycled. Contact the employees of your county or municipality to learn if they know of a company that accepts old electronics for recycling. If not, research and find one yourself. Once a recycling company has committed to help with a recycling event, you may have to raise some funding, as there usually are fees involved in recycling computer monitors and TVs. Local sponsors can pay these fees, or everyone dropping off a monitor or TV could be charged the appropriate amount. In addition to scheduling the recycling company and raising money, you will need to reserve a large parking lot for the event, recruit volunteers to run the event, and plan a promotional campaign to include newspapers, radio, and posters. After the event, write an article for the local newspaper letting the community know how many pounds of waste were saved from the landfill.

Waste Inventory Log

| Item Thrown Away | Number of Items (Tally) |
|------------------|--|
| 1. | |
| 2. | |
| 3. | |
| 4. | |
| 5. | |
| 6. | |
| 7. | |
| 8. | |
| 9. | |
| 10. | |
| 11. | |
| 12. | |
| 13. | |
| 14. | |
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| 24. | |
| 25. | |