The Great No-Trash Lunch Experiment

Overview: In this activity, held during the lunch break, students separate their lunch garbage for recycling and determine what natural resources are in their lunch. Then theywill prepare for packing a no-trash lunch for their field trip.
Content Standards Correlations: Science, p. 289

Grades: K-6

Key Concepts: Every product or package associated with lunch originally came from a natural resource. By practicing the 3 Rs (reducing, reusing, and recycling) you can decrease your consumption of natural resources and reduce the amount of garbage that goes to landfills (old salt marshes) around the bay.

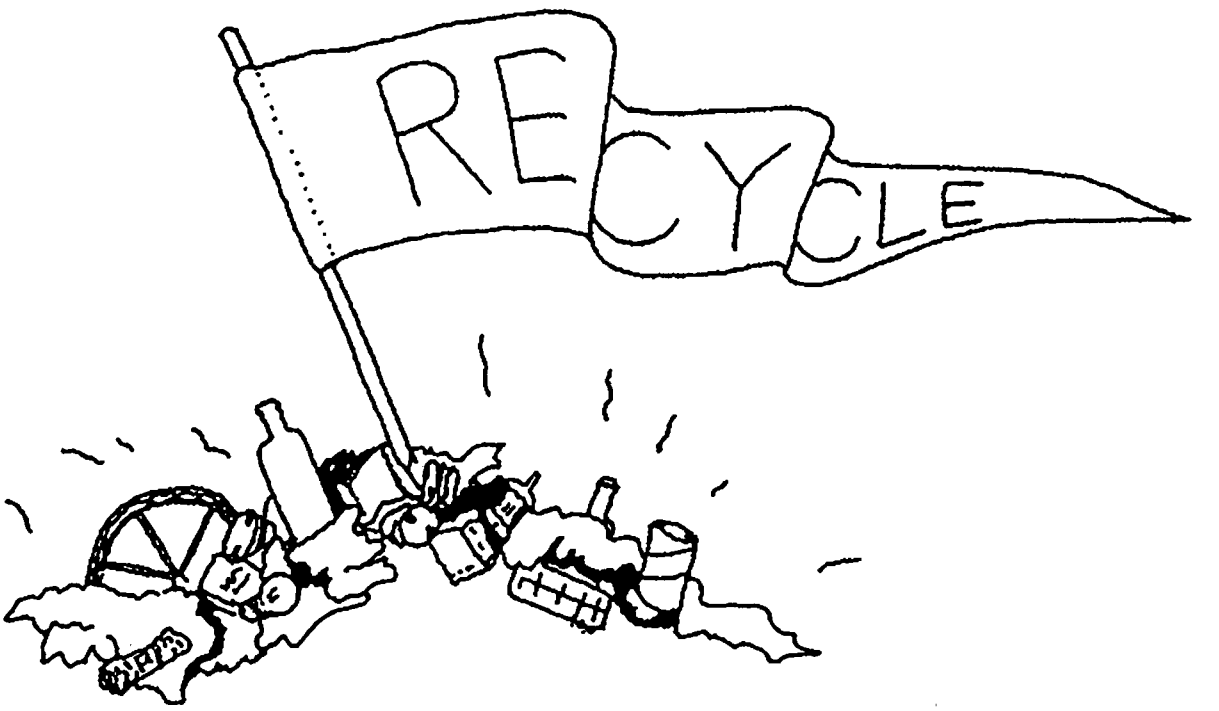
Objectives:
Students will be able to:
- divide their lunch garbage into appropriate categories for recycling
- name the natural resources that waste materials are made from
- State the importance of recycling and waste reduction
- describe ways to produce almost no garbage with their lunch
- pack a no-trash lunch for the field trip

Materials:
- containers/bins to sort lunch garbage
- reusable containers to pack lunch for the field trip

Supporting Information For This Activity

- The products and packaging associated with lunch were produced from natural resources.
  - For example, glass bottles are produced from sand and paper bags come from trees.
  - Resources can be classified as renewable or nonrenewable.
    - Renewable resources can be replaced. For example, trees cut down for paper products are replanted over and over again.
    - Nonrenewable resources are available in limited quantities, such as oil. Once they are used up, they cannot be replaced.
- There is a connection between how much waste is produced and how little salt marsh remains around the bay.
- Many of the salt marshes that once surrounded the bay have been filled in to build landfills. Less than 20% of the salt marshes around the San Francisco Bay remain.
- There are continued pressures to develop what remains due to the demands created by growing populations.
- The United States is currently the highest consumer of nonrenewable resources.
- At the current rate of consumption of nonrenewable resources, global supplies of many resources, such as oil, aluminum, lead, tin, and natural gas, may be depleted within the next 100 years.

- Individuals can make a difference in extending the life of natural resources. A few ideas:
  - Consumers can reduce their consumption of natural resources;
  - Consumers can recycle the products they do purchase;
  - Many products can be made from recycled products, instead of a natural resource. Consumers can purchase recycled products.
- The products and packaging in a lunch, along with consuming natural resources, end up in landfills if thrown away. There are more than 33 disposal sites for garbage around the bay.
- Historically, landfills were built on top of salt marshes around the Bay. Loss of salt marsh habitat to many forms of development, including landfills, is the main reason the California clapper rail and salt marsh harvest mouse are endangered.
- Landfills are running out of room. Landfills are becoming "landfulls". Each day, Americans throw away 400 million pounds of food, junk, 20,000 cars and discard 18,000 TV's. The United States has 5% of the world's population, but produces 30% of the world's garbage (The No Waste Anthology).
- The average person in the U.S. generates approximately 3 to 4 pounds of garbage every day and each student produces about a half pound of waste per school day.
- Practicing the 3 Rs (reducing, reusing, and recycling) reduces the amount of garbage you produce and reduces the need for landfills. It also allows students to help protect refuge habitats, endangered species, and migratory birds.
  - *Reduce:* Foods and drinks are packaged in different ways. Packaging that is minimal, or that can be reused or recycled produces the least amount of garbage.
  - *Reuse:* There are many ways to reuse packaging in order to produce less garbage, such as packing food and drinks in reusable plasticware containers or packing in lunch boxes.
  - *Recycle:* There are many food and drink packaging items that can be recycled. To produce less garbage, buy items that are actually recyclable and recycle them.



Teaching Method

Part 1: Classroom

Separate Lunch Trash (5 minutes)

** Note: This activity is a great activity for a rainy day or you can have the students bring their trash back to the classroom after lunch.

Do

After students finishing eating their lunches, have them separate their waste materials into the appropriate bins: food, glass, aluminum, paper, and plastic.

Discussion (5 minutes)

Ask

? **Did anyone have a tree in their lunch?** (Paper products are made from trees.)

? **Did anyone have plankton in their lunch?** (The remains of aquatic microorganisms were buried deep under ground for thousands of years until these remains became oil. We now use oil to make plastic products.)

? **What are natural resources?** (Resources that come from the environment.)

? **Every product or package is made from a natural resource. What are alternatives to using natural resources?** (Reducing, reusing, and recycling!)

? **Where does garbage go if we don't recycle?** (Garbage goes to landfills. Landfills were histori cally built on top of wetlands. The less garbage we create, the less of a need there is for new landfills.)

Do

Stand by the bin that is holding the product you are describing. Hold up a product, such as an aluminum can, as you talk about it.

Ask

? **Aluminum comes from bauxite, a mineral that has to be mined from the Earth. How do we use aluminum in our lunch and what are some ways to reduce the need for mining bauxite?** (We use aluminum in cans and in aluminum foil. We could use reusable containers to carry our lunch or our sandwich and we can recycle aluminum.)

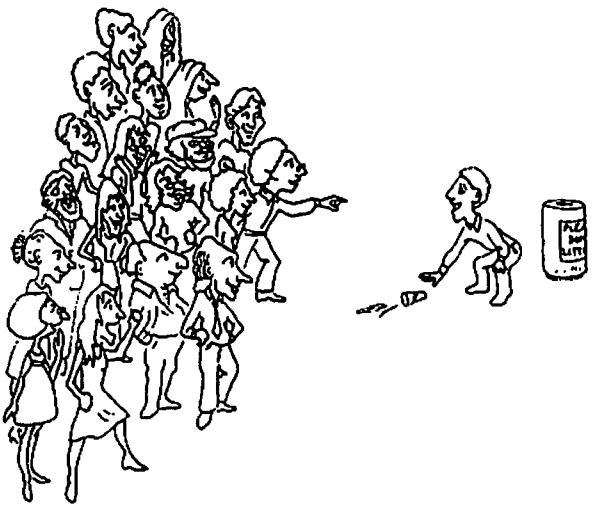
? **Where does the paper used to make our lunch bags come from?** (Paper comes from trees that are logged.) **How can we reduce our need for paper in our lunches?** (We could reduce the need for logging by packing our lunches in lunch boxes, reusing bags, and recycling the paper we do use.)

? **Plastic, such as a plastic sandwich bag, is made from oil . How could we reduce the use of plastic in our lunch?** (Using reusable containers, such as Tupperware®.)

? **Glass is made mainly from sand. How could we reduce the need for new glass?** (Using reusable containers for our drinks and by recycling the glass we do use.)

? **Where does food come from?** (Food comes from farms.) **How can we reduce the amount of food that goes to landfills?** (We can compost our leftovers, creating rich soil for our gardens. Become a responsible buyer. Look for products packaged in reusable and recyclable containers.)

? **How does reducing, reusing, and recycling help the refuge?** (By reducing the need for landfills around the Bay, you can help protect Bay habitat and the plants and animals that depend upon those habitats.)



Part 2: Preparation for the Field Trip

Ask

? On our field trip on *date of field trip* we will try to pack No-Trash Lunches. By using reusable and recyclable containers, we will not throw anything into the garbage except for leftover food. Why is it important that we try to produce no garbage on our field trip to the San Francisco Bay National Wildlife Refuge? (By having no trash in our lunches, we know that no garbage will be left behind after our field trip. Also, in the past many salt marshes were filled with garbage and turned into landfills. The less garbage we produce, the less need there is for landfills and more habitat can be saved for wildlife.)

Read

"In order to not produce garbage during our field trip, we need to think of some ways to carry our lunches that do not need throwaway containers."

Ask

? What are some ways that you can think of? (Cloth lunch bags, lunch buckets or boxes, reusable plastic sandwich boxes, refillable juice containers, food that does not need wrapping such as fruit or vegetables, reusable ziplock bags, old yogurt containers, etc. You can also use containers that can be recycled.)

? What items can easily be recycled? (Glass, aluminum, plastics #1 and #2, newspaper - these may vary depending on where you live. At the refuge, only glass and aluminum will be recycled by refuge staff, but other recyclable items can be separated from garbage and taken back to school.)

Read

"We will write down all of these great ideas for packing a no-trash lunch so we can take them home to put up in our kitchens. That way, we will be reminded of different ways that we can carry our lunch that produce little or no garbage."

Do

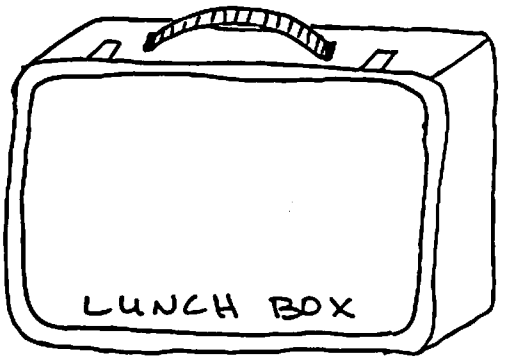
Have class write all of the brainstormed ideas either individually or you write them on one page to photocopy for the whole class.

Read

"On date of the field trip, don't forget only glass and aluminum will be recycled. Anything else that is not reused will be thrown away and will go to a landfill. We need to pack lunches that will produce no garbage. That means reducing, reusing, and recycling, the 3 Rs."

Do

Send home a reminder to pack a no trash lunch on the field trip.



Extensions for Classroom Projects

- Have students find out what waste reduction and recycling facilities (i.e. paper, cardboard, compost, aluminum, glass, etc.) are available in their school and if recycled items are used in school operations (i.e., recycled paper in the office, composting of cafeteria or yard wastes, etc.)
- Set up bins/boxes in the classroom for items that can be reused or recycled. Have the students be responsible for monitoring and teaching about, if necessary, any misplaced items in the bins (contamination can prevent a whole bin from being recycled).
- Conduct a waste prevention poster contest. Specify that posters must be made from used materials.
- Have a contest for the most creatively packaged no-trash lunch with a prize such as a decorated water bottle, etc. (reusable of course!)

"Did You Know" Extensions

1. List 5 to 10 items that can be recycled from one of the following: plastic, paper, glass, aluminum. Take one of these recycled items and research the process it took to make it. Example: plastic bottle to paintbrush bristles.

Plastic: fiber-filling jackets & pillows, flowerpots, lumber for decks/fences, strapping for boxes.
Paper: game boards, egg cartons, 50% grocery store food boxes, book covers, gift boxes, jigsaw puzzles, paper matches, game/show tickets.
Glass: 90% made into new bottles, "glasphalt" made into street paving, in bricks, in tile, in reflective paint.
Aluminum: 100% made into new aluminum cans, lawn chairs, window frames and castings for car parts.)

2. Recycling saves energy. Make a graph of energy reduction by recycling aluminum, paper and glass from the following information.
- Recycling aluminum reduces energy by 95%.
- Recycling paper reduces energy by 70%.
- Recycling glass reduces energy by 40%.

Discuss what items you use daily that are made from recycled aluminum, paper and glass. Name other items you can buy from recycled materials.

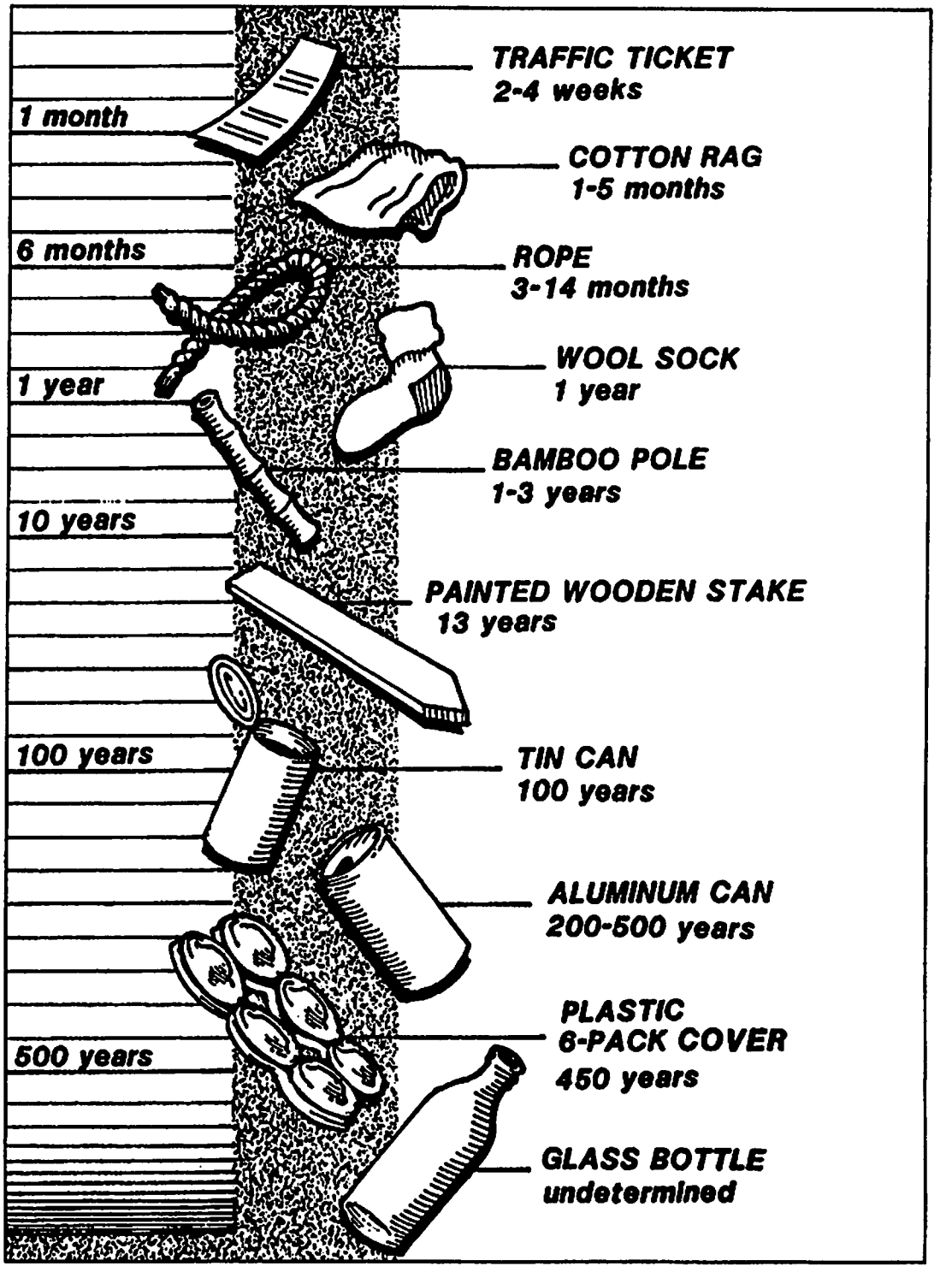
3. Take the following items and make a chart with these titles (see example below):
- Solid Waste Item
- Main Resource Base - Fossil Fuel, Metals, Plants/Trees; Sand
- Recyclable
- Reuseable

Add these items to the chart: cardboard container, carrots, lunch bag, milk/juice cartons, plastic container. Add to the chart items from the "Enduring Litter" drawing on p. 107.

Solid Waste Item	Main Resource Base Fossil Fuel, Metals, Plants/Trees, Sand				Recyclable	Reusable
Bread			X		compost into soil	make bread crumbs

ENDURING LITTER

Litter at the roadside is ugly. How long it will stay before decaying may be an ugly surprise.



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