

Legacy Ecology Lesson Plans(Grades 3-5)

WHAT A WASTE

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SUBJECT: Science

TIME: Two class periods, time lapse of about two days

MATERIALS:

vinyl tablecloth

one garbage bag per student

[student handout](#)

OBJECTIVES

The student will be able to:

1. Analyze the components of garbage.
2. Collect and sort a few days' worth of garbage.
3. Chart the results of an investigation.

BACKGROUND

Solid wastes are generated from activities in the home and in commercial establishments, industries, agriculture, and mining. The wastes include food scraps, containers, plastics, textiles, abandoned cars, dead animals, construction scrap materials, waste treatment sludge, and individual items. In the United States, we throw away about 21 tons of garbage each year for every person living in the country. That amounts to about 115 pounds per person per day! Our total solid waste comes from agricultural(51%), mining(38%), industrial(8%), and municipal solid waste(3%) sources. Solid waste is composed of the following components: paper(37%), yard waste(17%), metals(8%), glass(7%), plastics(8%), wood(6%), and miscellaneous(8%). According to the Environmental Protection Agency(EPA), Americans will be generating 222 million tons of municipal solid waste by the year 2000. Over 67 percent of all solid waste goes into landfills. About 16 percent is incinerated, and only 17 percent is recycled or composted.

VOCABULARY

composting- collecting and layering organic material, such as lawn

clippings, leaves, kitchen scraps, and manure, in order to decompose into fertile humus

incinerate- to burn to ashes

landfill- an area set aside for burying waste under layers of dirt

municipal solid waste- garbage produced in homes and in the work place

recycling- the collection and reprocessing of manufactured materials for reuse either in the same form or as part of a different product

sludge- a heavy, slimy deposit of mud and mire covering the ground or forming a deposit at the bottom of bodies of water

ADVANCE PREPARATION

1. Reproduce the attached Pie Graph onto a vinyl tablecloth.

- Use an opaque projector for accuracy
- Use permanent markers for durability

2. Collect a sample of garbage from a kitchen wastebasket the night before this activity.

PROCEDURE

(Setting the stage)

1. Discuss solid waste using the Background Information.
2. Describe the contents of the United State's solid waste.
3. Brainstorm problems that exist about managing solid waste.

(Activities)

1. Analyze the contents from a day's worth of kitchen garbage.
 - Place the tablecloth on the floor and organize the students around its perimeter.
 - Display the contents from the garbage can.
 - Sort the trash and place it on the tablecloth in the appropriate spot.
2. Collect the garbage each student uses for a predetermined amount of time(two days is suggested).
 - Provide each student with a plastic garbage bag.
 - Instruct students to place all of the garbage they would throw away into the bag. Discuss any guidelines you wish to impose. Consider asking them to carry the bag with them wherever they go.
 - Complete the [Student Activity Page](#).
 - Provide scales to weigh the garbage.

(Follow-up)

1. Discuss the results of the activity.
 - Share the completed student handouts.
 - Develop a class chart displaying totals.
2. Compare individual results with the Pie Graph.

EXTENSIONS

1. Remove the garbage cans in the classroom. do not allow anything to be thrown away for a few days! Discuss the effects. Remind students that where to put garbage is an important issue that many communities face.
2. Construct a bar graph using the data collected by students.
3. Classify collected garbage according to how it could be disposed(incineration, landfill, recycle, reuse).

RESOURCES

Cooperative Extension Service.(1989). Lessons In Solid Waste Managment: 3-R's. Manhattan, KS: Kansas State University
Kraft General Foods.(1993). Solid Thinking About Solid Waste.
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