



Lab

Solid Waste Collection

PURPOSE

- Quantify and analyze household solid waste
- Propose general strategies for reduction and recycling of solid waste

INTRODUCTION

We live in a throwaway society. Many of the things we buy are designed to be used once and then discarded—everything from beverage bottles to disposable lighters to cameras. More and more products of convenience are on the market. Many come wrapped in multiple layers of wax paper, Styrofoam, cardboard, aluminum foil, paper, or plastic. Available space for landfills is declining, and our society must look for alternatives.

Fig. 30-1

Small amounts add up. More than half the 6,000 municipal sanitary landfills in the U.S. are full and closed.



As our population grows, we consume ever more resources. At the same time, the population finds itself more densely packed as it becomes more urban and suburban, making it more and more difficult to dispose of all the solid waste. About 46 million tons of trash is produced in California alone. That is enough trash to fill a landfill 100 feet wide by 50 feet high and 800 miles long. Per capita, Americans generate more than twice as much trash as people in other developed countries such as Germany and Japan. This investigation looks at the amount of waste you or your family accumulates in a week.

Procedure

Step 1 For one week sort and identify all the trash your family produces. Daily, measure the volume of all:

- paper
- plastic
- metal
- cardboard
- clothes and textiles
- yard waste
- glass
- kitchen/food waste
- any other disposed materials

Record this information in a table. (**CAUTION:** Wear rubber gloves. Take health precautions recording products such as diapers, which can be measured *before* use.)

Step 2 Approximate large volumes by using buckets or pails of known volume, 1–5 gallons for example. A smaller container can be used for food stuffs.

Step 3 Bottles, cans, and other containers should be placed loosely in the measuring container to simulate how they would settle in a landfill.

1. Which materials had the greatest volume? List them in decreasing order by volume.

2. Estimate what percentage of your waste is from redundant packaging.

3. What percent of your waste could be recycled? How much of your family's refuse gets recycled on a regular basis?

4. How can you reduce the amount of waste that cannot be recycled?

5. Assume that your percents of trash types are typical of all families in your locale, and that 50% of the families reduced their trash by recycling all that could be recycled. What would be the volume saved from going into the landfill? Show your math.

6. Describe three effects of landfill on the environment. Are these all harmful? Explain.

7. How does the Tragedy of the Commons exemplify the problem of household waste disposal?

Questions

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8. Outline two economic incentives from government to encourage recycling waste.

9. We do not have the luxury of creating ever-more landfills. Outline three viable alternatives to sanitary landfills to solve the problem of disposing of household waste.

10. How can the three “Rs” of Reduce, Reuse, and Recycle be applied to the problem of your household trash?

11. One way of reducing any type of pollution is to turn the waste into a saleable, profit-making product. Describe one method for a trash-collecting agency to make a profit by turning the household waste into a commodity.
