

Solid Waste in Your Lunch

Are you aware of how much waste you produce during one meal? Various government and private agencies study the amount and types of food waste we produce and are continuously working to solve the problems of waste disposal. In this lab activity, you will determine how much solid waste you produce during a typical lunch. You will also predict through calculations how much solid waste your school population produces during lunch.

OBJECTIVES

Recognize various categories and amounts of solid waste produced.

Compute percentages of waste, by category, produced per person in a single meal.

Generalize data from a small sample for a large population using calculations.

Infer from small data samples the impact that waste production has on a large population.

Evaluate how waste data can be used to communicate results and offer solutions.

MATERIALS

- balance, triple beam or electronic calculator
- paper towels
- plastic bags
- ruler



Procedure

1. Collect all your lunch waste on the day of the lab activity or the day before the lab activity depending on whether your class meets before or after lunch. Put all of your lunch waste in a plastic bag, including leftover food items, wrappers, napkins, straws, unopened containers of condiments, and disposable trays.
2. Each lab group member should place his or her plastic bag of waste on the worktable. Each member should separate his or her waste on a paper towel into the following categories: paper and cardboard, plastic, metal, glass, wood, and food.
3. Determine the mass of the waste in grams produced for each category for each person in the group. Record the masses in the table on the next page.
4. Determine the total mass for each category for the lab group. Then, determine the average mass of solid waste per student for each category. Finally, determine the overall total amount of solid waste produced for each student.

Solid Waste in Your Lunch *continued*

Waste category	Student 1	Student 2	Student 3	Total mass of lab group	Average mass/student	Percentage of total waste—individual	Percentage of total waste—group
Paper and cardboard							
Plastic							
Metal							
Glass							
Wood							
Food							
Total							

Analysis

1. Organizing Data Use the equation below to determine the percentage for each waste category that makes up your total waste as an individual. Record this information in the table.

$$\frac{\text{Mass (in grams) of waste category}}{\text{Mass (in grams) of total waste}} \times 100 = \text{waste category's percentage of total waste}$$

Solid Waste in Your Lunch *continued*

2. Organizing Data Use the equation on the previous page to determine the percentage for each waste category that makes up the total waste for your lab group. Divide the total waste for each category from the table on the previous page by the grand total and multiply by 100. Add another column to your data table to record these values.

3. Examining Data Compare your averages for each category and the total with other groups in the class. How and why are the data different or similar?

4. Examining Data Which category of waste makes up the greatest percentage of the total waste? Explain your answer.

Conclusions

5. Making Predictions How can you calculate the lunch waste produced in each category and overall by your entire school's student body in a day? Use your equation to make this calculation.
