



## Classroom Collection

### Goal:

To have students calculate the amount and types of trash thrown out by their class at school and investigate where it is taken.

### Subjects:

Mathematics, social studies, science, environmental education, health.

### Materials:

- trash generated by your class on a typical day or over a week-long period
- containers to hold the sorted trash (boxes, pails, etc.)

### Note to teacher:

Older students will need to be familiar with the concepts of weight, volume and numbers in order to do the following activity and understand their implications. Consider using this activity as part of a mathematics lesson that addresses these concepts.

### Procedure:

1. List the items you throw in the classroom and lunchroom wastebaskets on a typical day. Now categorize them according to what material they're made of (e.g., food, paper, plastic, aluminum, glass). Predict what four types of materials make up the greatest portion of the waste by: weight, volume and/or number of items. Record your predictions.
2. Collect and save the trash your class generates (in the classroom, art room, shop, lunchroom, etc.) on a typical day or week (wash jars and cans, place food trash in a sealed container). This will enable you to calculate the average amount generated by your class each day. If collecting for one week, you may wish to weigh and record each day's garbage and add it up at the end of the week rather than keep the material in your classroom.
3. Dump the trash on the floor. Sort items into piles according to the type of material of which the items are made.
4. Count the number of different items of each type (e.g., 47 pieces of paper, 3 aluminum soda cans, 8 juice boxes, 11 plastic bags, 1 broken pencil). What types of items comprise most of the trash by number? Place the trash by type in separate containers.
5. Select the four types of items you estimate make up most of the trash by weight. Use one of the following methods to determine the exact or approximate weight of each type:
  - a) If you have a grocery scale in your classroom, weigh the items.
  - b) If you have a bathroom scale: example
    - Stand on the scale.

What is your weight? ..... 100 lbs.

- Pick up a bag.
- Now what is your weight? ..... 102 lbs.
- How much does the bag weigh? ..... 2 lbs.

c. If you don't have a scale, find objects in the classroom that are of a known weight. Compare the weights of your object and the trash (use a balance if you have one). Estimate the weight of the trash.

6. **Older students:** Calculate the volume of the trash in each bag by measuring the width, length and depth of items in it. How might volume differ if the glass, cans or boxes are crushed? Does weight change if volume changes?

7. **Older students:** Draw a bar graph, tables or charts to illustrate the data collected in steps 4-6.

8. How do your calculations compare with the predictions you made in step 1?

9. How much trash does your class throw out in a day, week, month and school year by weight, volume and number? Calculate the average amount each student throws out in one day.

10. How much space will one school year's-worth of your class's garbage fill if the garbage is not compressed? Calculate the volume of your classroom. If you didn't remove any of your class's trash from the classroom, how much of the room would be filled with trash by the end of the year? How much room would be left for you?

11. If the number of students in your class is average for your school, calculate how much trash your school generates each school year. Discuss:

- Do you think your class makes a lot of trash? Not so much? Explain reasons for your response.
- When the trash from each class in the school is added together, do you end up with a lot of trash? Explain reasons for your response.

12. Investigate where your school's trash is taken. Is there a recycling program at your school? How much of the school's trash can be recycled, reused, or reduced? How can your class reduce the amount of trash they generate (e.g. set up a scrap box for semi-used paper, set up a "recycling center" in a corner of your classroom, create a compost pile outside your building or a worm box inside your classroom)?

### Pre- and Post-Activity Questions:

- How much trash do you think your class throws away each day?
  - What types of trash do you think your class throws away on a typical day?
  - What happens to your school's trash?
  - How can your class reduce the amount of trash they generate?



Adapted from: Recycling Study Guide, "Out of Sight, out of Mind-Part 1."  
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