

One-Day Lunchroom Waste Audit

How much waste do we create each day at school? How much do we recycle or reuse? What do we bring from home that adds to the school's lunch trash? What might we do to reduce the amount and type of trash in our lunchroom? This can be done for a single classroom's waste or for an entire school.

Level

Grades 3 and up. One or two adults to help with sorting, weighing, recording and the food waste data.

Learning Outcomes

Students will understand the composition of the waste they generate at lunch each day. Sorting waste items by type, quantifying amounts and analyzing results helps students to see the impact of individual actions such as recycling, composting and reusing items. Student will contextualize math skills of base ten numbers, measurement and data representation.

Materials

- ✓ One day's lunch waste
- ✓ Bathroom scale
- ✓ Aprons and gloves for sorters
- ✓ Tubs, bags and buckets to hold sorted waste (uniform size for the non-organic items)
- ✓ Worksheets to keep track of results and paper to make wall display for bar graph

Procedure

Prepare the students to sort their lunch waste after they have eaten. Show them the receptacles and examples of what type of items belong in each category: paper, plastic, metal, glass and organic waste.

Discuss the sub-categories for each:

1. Paper and cardboard
 - Recyclable
 - Compostable in Love Food Not Waste (has food waste on it or wax coating, napkins)
 - Special recyclable (rinsed milk cartons) Currently, no local recyclers can take them.
 - Non-recyclable ("paper" coffee cups—have plastic lining)
2. Plastic
 - Recyclable containers (clean)
 - Non-Recyclable (wrappers, plastic films, etc)
 - Special recyclables (clean bags)
3. Metal
 - Recyclable (tin foil, cans)
 - Non-recyclable/reusable (metal items, "foil" lids—have plastic lining)
4. Glass
 - Recyclable (jars)
5. Food scraps

Collect the waste: Label the bags/bins/boxes with signs and pictures. Have an adult or two on hand to help the students sort their trash.

Weigh the waste and estimate the volumes: In class after lunch, weigh each container and estimate the volume in gallons. Record the data for each category. A sample data sheet has been included below.

Analyze: Create a bar graph of the information large enough to display. A sample bar graph blank is included below. It may need to be modified. Consider color-coding with 3 different colors, the items that are compostable, recyclable, or trash. Younger grades may wish to make post-it note bar graphs by having each student add a post-it note square to represent one unit in the appropriate columns. Discuss which items could have been recycled (see **Recycling it Right**), ways items could have been reused and which items go to the landfill. Discuss what choices families can make to bring less waste to school.

Background for Teacher

Students will need help sorting and weighing. For weighing, determine the tare weight of the tub or container and have an adult say only the resulting weight for recording.

Content Standard

Subject Area: Math

Measurement and Data

I. Represent and interpret data.

2.MD.I Represent and interpret data.

2.MD.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put together, take-apart, and compare problems using information presented in a bar graph.

Number and Operations in Base Ten 2.NBT

D. Understand place value.

2.NBT.3 Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

2.NBT.4 Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits, using $>$, $=$, and $<$ symbols to record the results of comparisons.

Subject Area: Science

Earth and Space Science

K-ESS3-3 Communicate solutions that will reduce the impact on the land, water, air and or other living things in the local environment.

Physical Science

2-PS1 Matter and its Interaction

Students who demonstrate understanding can:

2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.

Subject Area: Social Sciences

Social Science Analysis

Design and implement strategies to research for reliable information, analyze issues, explain perspectives, and resolve issues using the social sciences.

2.21. Evaluate information relating to an issue or problem.

Data Sheet and Bar Graph worksheets attached below:

Waste Sort Data Sheet

Category	Sub-category	Weight in pounds	Volume in gallons
Paper & Cardboard			
	Recyclable paper		
	Compostable paper		
	Milk Cartons		
	Non-recyclable paper		
Plastics			
	Recyclable containers		
	Non-recyclable plastics		
	Special recyclable (clean bags)		
Metals			
	Recyclable metals		
	Non-recyclable metals		
Glass-recyclable			
Food Scraps-compostable			
Totals			

Waste Bar Graph Title _____

Units: _____

32											
31											
30											
29											
28											
27											
26											
25											
24											
23											
22											
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12											
11											
10											
9											
8											
7											
6											
5											
4											
3											
2											
1											
0	Recyclable paper	Compostable paper	Milk Cartons	Non-recyclable paper	Recyclable plastic containers	Non-recyclable plastic	Special recyclable (clean bags)	Recyclable metals	Non-recyclable metals	Glass jars (recyclable)	Food Scraps (compostable)

Sorted categories of waste