



## WASTE AUDIT

### School Garbage Sort

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#### Overview

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The purpose of this audit is to determine what is in your school waste, and to help you calculate greenhouse gas emission reductions from a campaign you run to reduce waste.

Collect all the school waste from one day. Include lunchroom and classroom waste, but do not include the garbage from the bathrooms. Decide how many bags of waste to sort, and where they come from and mark that down on your Garbage Audit worksheet. Sort garbage from the same sources for your post audit, and any monitoring you may do during your campaign. Use the Garbage Audit worksheet to keep track of the results of each audit.

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#### Additional Materials:

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- Garbage Audit worksheet
- Pencil
- Weigh scale
- Plastic garbage bags
- Disposable gloves (enough for at least one glove per student)
- Two ice cream pails to collect liquids and compostable food waste

For younger students, the teacher or SES can do the calculations for your audits.

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#### Pre Campaign Audit

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1. Weigh all the bags of garbage and mark the total weight on your worksheet. If you are not sorting all of it, mark down the weight of the garbage you will be sorting. An easy way to weigh the garbage is to have a student stand on the scale and weigh him/her. Hand them the bag of garbage and record the new weight.

$$\text{(student + garbage weight)} - \text{student weight} = \text{garbage weight}$$

2. Working in small groups, spread each bag of waste on a large table and sort it into the categories on your worksheet. The easiest way to do this is to pick areas of the table for paper, plastics, edible food, etc. and place the items you sort into these piles. You may need to discuss where certain items belong:
  - Damp paper can be recycled, but not if it is very soiled.
  - Meat and cheese is garbage and cannot be composted.
  - Pencil shavings and coffee grounds *can* be composted.
  - Empty liquids into the liquids pail.
  - Wrappers from snacks that are a combination of foil and plastic are garbage.



3. Once you have all the materials sorted, gather similar items at one central table. For example, have everyone bring all the edible food to the central table. Photograph the food, and then place it in a bag and weigh it all. Record that weight on the Garbage Audit worksheet.
  - For the refundable items, add up the value of the containers. See [www.sarcan.ca](http://www.sarcan.ca) for refund amounts.
  - You could choose to count all the plastic bags, or any other specific item.
4. Repeat this with each category of sorted waste. Collect, photograph, and record the weight of each category.
5. Record the weight of all remaining actual garbage.
6. Check your worksheet. The total weight of garbage you had before the garbage sort should approximately equal the combined weight of each category.

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### Discussion and Campaign Decision-Making

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1. What was the largest category at your table?
2. Were you surprised by any of the items at the table?
3. Review your photographs of sorted waste. When you talk about each category, think about the things that could be done with that material instead of throwing it into the garbage. Think about ways to reduce the use of it, reuse it, or recycle it.
4. In general, where are recycling, compost, and garbage bins in your school? Could they be moved to more convenient locations to improve recycling or increase the amount of material that is diverted from the garbage?

#### Categories:

- a) **Return for refund:** How much money do the containers represent? Calculate how much money that would amount to over one week, one month, and one year. What could your class do with that money?
- b) **Paper and cardboard:** Is any of the paper reusable as scrap? Where is paper and cardboard recycled in your school?
- c) **Metal:** If rinsed and free of food, where can it be recycled in your school? How could this item be reduced? What are alternatives to these items?
- d) **Plastic:** If rinsed and free of food, where can it be recycled in your school? Soft plastics need to be gathered in one larger bag before recycling. How could this item be reduced? What are alternatives to these items?



- e) **Glass:** If rinsed and free of food, where can it be recycled in your school? SPS schools can only recycle glass drink containers. Other glass containers cannot be recycled at SPS schools. GSCS schools can include glass in their recycling.
- f) **Edible food:** Before it went into the garbage, what could be done with this food? Does your school allow food sharing? Could there be a tray with “Food for Sharing” on it? Take your leftover edible food home and choose the amount and types of food you bring to school.
- g) **Compost:** Does your school have a school or community garden with an outdoor composter? If so, could your food waste be placed there? Could you keep a vermi-composter (worms) in your classroom?
- h) **Useable items/lost and found:** What can be done with items that are still useful like pencils, clothing, etc.?
- i) **Liquids:** The mess these make often turns paper and other recyclable materials into garbage. How can leftover liquids be kept separate?
- j) **Remaining garbage:** This is the actual garbage that is left once all the other items have been removed. How will you make sure this amount of actual garbage stays small?

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### Mid Campaign Audit

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This is optional, and helps to see how things are going. Repeat the garbage sort, and add the information to your Garbage Audit worksheet. Subtract the weight of unsorted garbage from the mid campaign audit from the weight of unsorted garbage from the pre-audit to see how well your waste diversion campaign is working. Look at categories of sorted waste to see where you may still need to make changes to reduce, reuse, or recycling practices.

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### Post Campaign Audit

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1. Repeat the garbage sort, and add the information to your Garbage Audit worksheet.
2. Subtract the weight of unsorted garbage from the post-audit with the weight of unsorted garbage from the pre-audit to see how well your waste diversion campaign has worked. How much waste have you reduced in each category? Again, look at each category to see how your campaign has helped to keep recyclable materials out of the garbage.



### Calculate Greenhouse Gas Reduction

Using the weights of waste reduced from your post audit campaign, fill in the following chart:

	kg of waste reduced	kg CO <sub>2</sub> / kg material	Number of school days / year	kg CO <sub>2</sub> reduced / school year
Refundables		x 7.6	x 200	=
Paper and cardboard		x 1.6	x 200	=
Metal		x 5.4	x 200	=
Plastic		x 1.5	x 200	=
Glass		x 0.24	x 200	=
Edible food		x 0.95	x 200	=
Compost		x 0.95	x 200	=
Remaining garbage		x 1.15	x 200	=
<b>Total</b>				=



## Curriculum Connections

**Grade 4 Science: Outcome: RM4.2** Assess how human uses of rocks and minerals impact self, society, and the environment.

**Grade 4 Mathematics: Outcomes: N4.1** Demonstrate an understanding of whole numbers to 10,000 by:

- Representing
- Describing
- Comparing two numbers
- Ordering three or more numbers.

**N4.2** Demonstrate an understanding of addition of whole numbers with answers to 10,000 and their corresponding subtractions. **P4.1** Demonstrate an understanding of patterns and relations.

**Grade 5 Science: Outcome: MC5.3** Assess how the production, use, and disposal of raw materials and manufactured products affects self, society, and the environment.

**Grade 5 Social Studies: Outcome: RW5.1** Explain the importance of sustainable management of the environment to Canada's future.

**Grade 5 Health Education: Outcome: AP5.1** Design and implement, with guidance, two five-day action plans that embrace health opportunities or address health challenges related to personal eating practices, changes of puberty, impact of illness/disease, identity and well-being, violence, peer pressure, and self-regulation.

**Grade 5 Mathematics: Outcomes: SP5.1** Differentiate between first-hand and second-hand data. **SP5.2** Construct and interpret double bar graphs to draw conclusions.

**Grade 6 Social Studies: Outcome: RW6.2** Contribute to initiating and guiding change in local and global communities regarding environmental, social, and economic sustainability.

**Grade 6 Mathematics: Outcomes: P6.1** Extend understanding of patterns and relationships in tables of values and graphs. **SP6.1** Extend understanding of data analysis to include:

- Line graphs
- Graphs of discrete data
- Data collection through questionnaires, experiments, databases, and electronic media interpolation and extrapolation.

**Grade 7 Science: Outcomes: IE7.4** Analyze how ecosystems change in response to natural and human influences, and propose actions to reduce the impact of human behaviour on a specific ecosystem. **MS7.2** Investigate methods of separating the components of mechanical mixtures and solutions, and analyze the impact of industrial and agricultural applications of those methods. **EC7.2** Identify locations and processes used to extract Earth's geological resources and examine the impacts of those locations and processes on society and the environment.

**Grade 7 Mathematics: Outcomes: SP7.1** Demonstrate an understanding of the measures of central tendency and range for sets of data. **SP7.2** Demonstrate an understanding of circle graphs.

**Grade 8 Health Education: Outcome: USC8.6** Examine and assess the concept of sustainability from many perspectives, and develop an understanding of its implications for the well-being of self, others, and the environment.

# GARBAGE AUDIT

Name(s):

Sorted waste from 1 day/whole school:  YES  NO

Sorted waste from \_\_\_\_\_ classrooms

Sorted waste from \_\_\_\_\_ lunchrooms

Include # of bags / weight (kg) in **EACH** category

Date of Audit	Total Waste	Return for Refund	Recyclable				Organics		Other		Remaining Garbage
	# of bags and weight (kg)	Glass, milk containers, aluminum, and juice boxes	Paper and cardboard	Metal	Plastic	Glass	Edible food	Compost	Useable items / Lost and Found		