

School Waste Audit

An investigation of school waste



WHY COMPLETE A SCHOOL WASTE AUDIT?

Be a waste detective! To help your school reduce waste production, the first step is to get to know what is happening in the waste streams at your school, and how much is going to the landfill.

A waste audit lets students investigate waste diversion practices and identify the gaps and opportunities in your school revealed through your school's waste streams.

Waste is collected, weighed, and **visually assessed** by students, teachers and other helpers. The data collected will give your school community an overview of the types of waste produced at your school and highlight target items, such as coffee cups or single-use water bottles. These results can provide important learning for further environmental action and learning.



TIP: Consider carrying out a waste audit early in the school year and then again after waste minimization campaigns have taken place.

GETTING STARTED

A visual waste audit engages student EcoTeam members in every step. The whole school community can take the data from the audit to develop waste minimization strategies for the school. The data can then be incorporated into many curriculum areas, such as data management, and across multiple grade levels through an environmental learning lens.



TIP: Schools with administrative support for waste minimization activities are much more successful at reducing waste generated per student and diverting waste from landfills. Talk to your administration to explore how they might get involved!

It's highly recommended to involve your principal and custodial staff in the planning and implementation of the Waste Audit. Your school board's facilities department may also be able to provide the tools, support, and guidance.

SAFETY TIPS

Health and Safety are key considerations while conducting the visual waste audit

- Do not open bags of garbage or recycling! Use clear bags and provide a visual estimation.
- Have some extra bags on hand in case of a tear.
- Do not eat or drink while conducting the waste audit.
- Have some hand sanitizer available.
- Following the waste audit, ensure all waste returns to the proper stream for disposal.

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SAFETY TIPS

Kick off your EcoSchools journey and school year with a waste audit

- Do both a Garbage Audit and Recycling Audit on the same day. This will save setup time and paint a more complete picture of your school's waste.
- Choose a 'typical' school day for your audit—not one that has any special events.
- Don't announce the audit in advance. You'll get more accurate data.
- Complete a second audit after a few months of waste minimization efforts and compare the results.

MATERIALS NEEDED

- Worksheets and Clipboard
 - **Part 1: Garbage Audit** and **Part 2: Recycling Audit**
- Clear plastic garbage bags to hold the entire school's garbage and recycling for a day.
 - *Try to have enough bags so that the bags will be only half full. This makes it easier to weigh and estimate the contents.*
- 24 hours of Garbage & Recycling
 - *If possible, schedule your audit the day after your school's garbage pickup so only one day's worth of garbage has accumulated.*
- Hanging spring or digital scale
 - *Your board's waste coordinator, the custodian, or the science department may have one.*
- Reference sheets of what is recyclable and compostable (organics) in your region.
 - *Ask your custodian/caretaker, board representative, or municipality for the official poster from your local region.*
- School enrollment data
 - *Number of full time equivalent students in the school.*
- Camera to record your audit (optional)

WHAT IS WASTE?

Waste - All discarded items including **garbage**, **recycling**, and **organics**.

- **Garbage** - Items that are not usable and cannot be converted to usable materials. These items typically go to landfill.
- **Recycling** - Items that can be converted back to usable materials.
- **Organics** - Items that can be composted (e.g., apple cores, banana peels, etc.)

Please make sure to consult your custodian, board or municipality for a list of what items go where.

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STEPS TO COMPLETE A WASTE AUDIT

1. Get ready for the Audit.
 - a. Assemble your Waste Team.
 - b. Choose a location for your waste audit that is suitable for storing 24 hours of school waste, has enough room for students to move around, and provides an opportunity for other students and staff to see the audit in progress. You will want to get approval from your principal and custodian/caretaker for an appropriate space.
 - c. Label the bags of waste with the location (room number, office, etc) and the stream (garbage, recycling, organics).
 2. Complete the **Part 1: Garbage Audit** worksheet.
 - a. Weigh each bag from the **Garbage** stream, recording the mass on the **Part 1: Garbage Audit** worksheet.
 - b. Complete a visual audit by examining the contents of each bag. You are looking for the categories of waste outlined in the worksheet table. Roll the bag around, and talk with your fellow auditors about the contents to estimate the percentage for each category.
 - c. Record your estimates and observations for each bag on the **Part 1: Garbage Audit** worksheet.
 - d. When you have assessed all of the bags, calculate the average volume (%) for each of the categories across all bags.
 3. Complete the **Part 2: Recycling Audit** worksheet.
 - a. Repeat the process in steps **2a) - 2d)** using the bags from the **recycling** stream and the **Part 2: Recycling Audit** worksheet.
- OPTIONAL:** Complete the **Organics Audit** worksheet.

 - a. Weigh an empty organics/green bin container used by your school and record the weight on the **Organics Audit** worksheet.
 - b. Weigh the full organics/green bin containers and subtract the weight of an empty container to determine the weight of compostable material.
 - c. Record the data on the **Organics Audit** worksheet.
4. Complete the final **Calculations** worksheet to determine your diversion rate (if completing the *optional Organics Audit*, complete the associated calculations).
 - a. Calculations: Garbage and Recycling
or
 - b. Calculations: Garbage, Recycling, and Organics

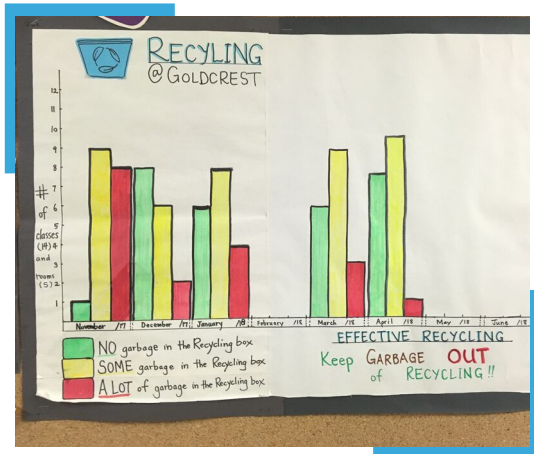
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STEPS TO COMPLETE A WASTE AUDIT

5. Share with your school! Show the results of your audit with your school community through a blog post, announcements, poster board, long-term plan and on your school's website and social media.



Waste audit results from Goldcrest ES, PDSB.



A waste info station from Seneca Trail PS, DDSB.

6. Brainstorm Waste Minimization strategies for your school based on the results.

- Encourage EcoTeam members to brainstorm Waste Minimization strategies for your school based on the results of the audit.

7. Use your results to complete the EcoSchools online certification application.



TIP: Share the waste audit data and results at a staff meeting so that other teachers can use it for classroom assignments in many curriculum areas.

MODIFICATIONS FOR VERY LARGE OR VERY SMALL SCHOOLS

For large schools (greater than 1000 students): Collect a day's worth of garbage as per above. Count the total number of bags collected, then select a minimum of seven bags from different areas of the school (e.g., classrooms, cafeteria, office, library, computer lab). Use the same selection process for both the garbage and recycling samples. Once you have conducted the Garbage and Recycling Audits on the sample, multiply the sample results by the % it represents to get the total waste results.

For small schools (less than 200 students): If your school produces less than 7 bags of garbage or recycling a day, use the full amount of garbage and recycling, ensuring that your selection covers all areas of the school (e.g., classrooms, cafeteria, office, library, computer lab).

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EXAMPLES OF CONTAMINATION



Example of 70% contamination of garbage in a recycling bin



Example of 50% contamination of garbage in a recycling bin



Example of 10% contamination of garbage in a recycling bin

WHAT'S NEXT?

- Create an engaging display with the data and results of the waste audit and post in a visible place for all students, staff, and the wider school community (e.g. main entrance, high-traffic hallway).
- Encourage students to brainstorm ways that specific, target waste items can be minimized. Every school is different, and the results of the audit can guide your school's waste minimization efforts.
- Begin working with student leaders, custodial staff, teachers, administration, and community partners to plan and implement waste reduction strategies and environmental action campaigns. See the [EcoSchools website](#) for campaign ideas and strategies.

***Please note:** in accordance with O.Reg 103/94, the Ministry of Environment requires that all schools with more than 350 students complete an annual waste audit and implement a waste minimization action plan. This School Waste Audit protocol does not comply with the O.Reg 103/94 at this time. Please contact your board's waste management staff for more information.

Thank you to Richard Prager, Toronto District School Board, and Cedric Pepelea, Limestone District School Board, for contributing to this document.

BEFORE YOU BEGIN

These calculations are for schools that are tracking Garbage and Recycling waste **only**. If your school is also tracking Organic waste, **do not complete these calculations**, and instead skip to the *Organics Audit (Part 4)* and *Garbage, Recycling, and Organics Calculations (Part 5)* sheets.

CALCULATE THE AMOUNT OF WASTE MATERIAL (Garbage and Recycling) PER WEEK/MONTH/YEAR

$$\text{Total weight of 1 day's garbage (G)} + \text{Total weight of 1 day's recycling (R)} = \mathbf{A}$$

$$\mathbf{A} \times 5 \text{ school days a week} = \text{[] kg}$$

$$\mathbf{A} \times 20 \text{ school days a month} = \text{[] kg}$$

$$\mathbf{A} \times 194 \text{ school days a year} = \text{[] kg}$$

Example of Calculation

$$\text{Total weight of 1 day's garbage (G)} \quad \mathbf{32.6 \text{ kg}} + \text{Total weight of 1 day's recycling (R)} \quad \mathbf{11 \text{ kg}} = \mathbf{43.6 \text{ kg}}$$

$$\mathbf{43.6} \times 5 \text{ school days a week} = \mathbf{218 \text{ kg}}$$

$$\mathbf{43.6} \times 20 \text{ school days a month} = \mathbf{872 \text{ kg}}$$

$$\mathbf{43.6} \times 194 \text{ school days a year} = \mathbf{8458.4 \text{ kg}}$$

CALCULATE THE AMOUNT OF WASTE MATERIAL (Garbage and Recycling) PER STUDENT PER SCHOOL YEAR

$$\text{Total weight of 1 day's garbage (G)} + \text{Total weight of 1 day's recycling (R)} = \mathbf{A}$$

$$\mathbf{A} \times 194 \text{ school days a year}$$

$$\frac{\text{[]}}{\text{divided by [] number of students in the school}} = \text{[] kg/student/year}$$

Example of Calculation

$$\text{Total weight of 1 day's garbage (G)} \quad \mathbf{32.6 \text{ kg}} + \text{Total weight of 1 day's recycling (R)} \quad \mathbf{11 \text{ kg}} = \mathbf{43.6 \text{ kg}}$$

$$\mathbf{43.6} \times 194 \text{ school days a year}$$

$$\frac{\text{[]}}{\text{divided by } \mathbf{528} \text{ number of students in the school}} = \mathbf{16 \text{ kg/student/year}}$$

BEFORE YOU BEGIN

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CALCULATE THE DIVERSION RATE

Refers to the percentage of recyclable material that has been diverted away from disposal (e.g. landfills).

$$\text{Total weight of 1 day's garbage (G)} + \text{Total weight of 1 day's recycling (R)} = \mathbf{A}$$

$$\frac{\text{Total weight of 1 day's recycling (R)}}{\text{divided by } \mathbf{A}} = \mathbf{B}$$

$$\mathbf{B} \times 100\% = \text{Daily diversion rate} \%$$

Example of Calculation

$$\text{Total weight of 1 day's garbage (G)} \quad \mathbf{32.6 \text{ kg}} + \text{Total weight of 1 day's recycling (R)} \quad \mathbf{11 \text{ kg}} = \mathbf{43.6 \text{ kg}}$$

$$\frac{\mathbf{11}}{\text{divided by } \mathbf{43.6}} = \mathbf{0.25}$$

$$\mathbf{0.25} \times 100\% = \mathbf{25 \text{ \%}}$$

Daily diversion rate

OBSERVATIONS

Successes	
Areas for improvement	
Major contaminants	

BEFORE YOU BEGIN

These calculations are for schools that are tracking Garbage, Recycling, **and Organic** waste. If your school is only tracking Garbage and Recycling waste, **do not complete these calculations**, and instead use the *Garbage and Recycling Calculations (Part 3)* sheet.

CALCULATE THE AMOUNT OF WASTE MATERIAL (Garbage, Recycling, and Organics) PER WEEK/MONTH/YEAR

$$\text{Total weight of 1 day's garbage (G)} + \text{Total weight of 1 day's recycling (R)} + \text{Total weight of 1 day's organics (O)} = \mathbf{A}$$

"A" x 5 school days a week = kg

"A" x 20 school days a month = kg

"A" x 194 school days a year = kg

Example of Calculation

$$G \ 32.6 \text{ kg} + R \ 11 \text{ kg} + O \ 17 \text{ kg} = \mathbf{60.6} \text{ kg}$$

$$60.6 \times 5 \text{ school days a week} = \mathbf{303} \text{ kg}$$

$$60.6 \times 20 \text{ school days a month} = \mathbf{1212} \text{ kg}$$

$$60.6 \times 194 \text{ school days a year} = \mathbf{11756.4} \text{ kg}$$

CALCULATE THE AMOUNT OF WASTE MATERIAL (Garbage, Recycling, and Organics) PER STUDENT PER SCHOOL YEAR

$$\text{Total weight of 1 day's garbage (G)} + \text{Total weight of 1 day's recycling (R)} + \text{Total weight of 1 day's organics (O)} = \mathbf{A}$$

"A" x 194 school days a year

$$\frac{\text{divided by } \text{number of students in the school}}{\text{kg/student/year}} = \text{kg/student/year}$$

Example of Calculation

$$G \ 32.6 \text{ kg} + R \ 11 \text{ kg} + O \ 17 \text{ kg} = \mathbf{60.6} \text{ kg}$$

$$60.6 \times 194 \text{ school days a year}$$

$$\frac{\text{divided by } \mathbf{528} \text{ number of students in the school}}{\text{kg/student/year}} = \mathbf{22.3} \text{ kg/student/year}$$

BEFORE YOU BEGIN

These calculations are for schools that are tracking Garbage, Recycling, **and Organic** waste. If your school is only tracking Garbage and Recycling waste, **do not complete these calculations**, and instead use the *Garbage and Recycling Calculations* sheet.

CALCULATE THE DIVERSION RATE

Refers to the percentage of compostable and recyclable material that has been diverted away from disposal (e.g. landfills).

$$\text{Total weight of 1 day's garbage (G)} + \text{Total weight of 1 day's recycling (R)} + \text{Total weight of 1 day's organics (O)} = A$$

$$\frac{\text{Total weight of 1 day's recycling (R)} + \text{Total weight of 1 day's organics (O)}}{\text{divided by } A} = B$$

$$B \times 100\% = \text{Daily diversion rate} \%$$

Example of Calculation

$$G \text{ 32.6 kg} + R \text{ 11 kg} + O \text{ 17 kg} = 60.6 \text{ kg}$$

$$\frac{11 + 17}{\text{divided by } 60.6} = 0.46$$

$$0.46 \times 100\% = 46\% \text{ Daily diversion rate}$$

OBSERVATIONS

Successes	
Areas for improvement	
Target items	