



Best Practices for Waste Management

A guide for school communities in Canada

Prepared for Environment and Climate Change Canada

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Overview

This best practices guide is derived from an EcoSchools Canada study commissioned by Environment and Climate Change Canada. For this study, waste audit data from key material categories including plastic and paper packaging and containers, food waste, and other organics was analyzed alongside information on waste management practices collected via survey responses from schools across Canada. Additional input was provided by regional, provincial, and national organizations supporting schools in waste management. Below is an overview of key highlights and identified best practices from the waste study, to help guide school boards/districts and schools in achieving their waste diversion and reduction goals.

50% of what is sent to the landfill could have been recycled or composted.



Waste Management

From classroom materials, to cafeteria waste, to snacks and lunches, schools generate a lot of waste. Results from self-reported visual waste audits conducted by over 40 schools in Ontario during the 2019-20 school year (Figure 1) showed that almost 50% of what was being sent to the landfill could have been recycled or composted.

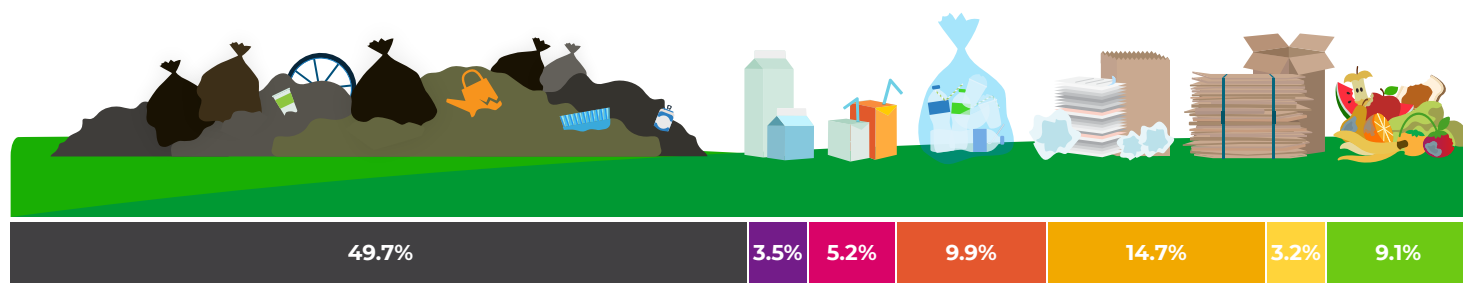


Figure 1: Composition of landfill streams from visual waste audits conducted by over 40 schools in Ontario during the 2019-20 school year.

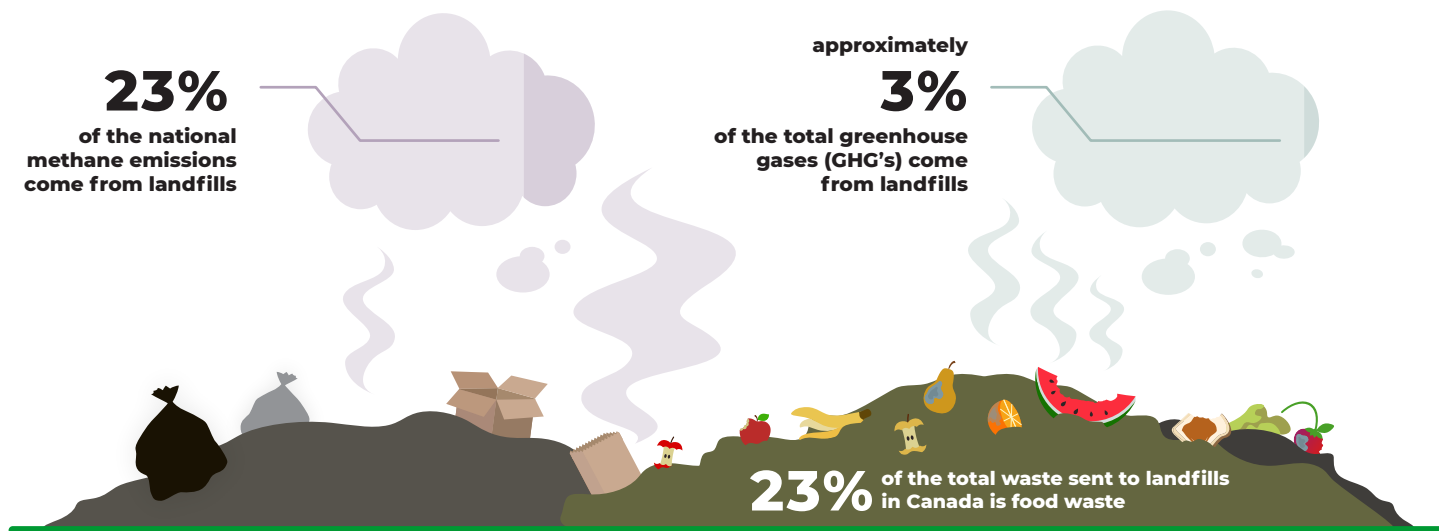
When paper, food, and other organic waste is disposed of in the garbage and landfilled, rather than diverted through a recycling or composting stream, otherwise avoidable methane is produced. Methane is a powerful greenhouse gas and the second largest contributor to anthropogenic climate change after carbon dioxide.



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A 2020 study by Environment and Climate Change Canada (ECCC) found that food waste makes up about 23% of the total waste sent to landfills in Canada.¹ Emissions from municipal solid waste landfills represent approximately 3% of Canada's total greenhouse gas (GHG) production and 23% of the national methane emissions.²



The good news is that school communities can take steps to help reduce the amount of waste that ends up in landfills. Schools and school boards/districts can do their part to reduce waste within their institutions by establishing policies and investing in infrastructure to support such efforts.

Best Practices for Generating Whole-School Engagement



Schools are a great place to learn about proper waste disposal practices. A significant amount of waste is generated in schools daily, providing numerous opportunities for hands-on learning that can be integrated into curriculum. Through increased awareness and modification to behaviour, waste is an area where students can have a noticeable impact. Developing a culture of waste management at all levels of the school community is key to establishing successful practices that are implemented and monitored consistently. Here are some best practices that support whole-school engagement.

1. Environment and Climate Change Canada. 2020. National Waste Characterization Report: The Composition of Canadian Residual Municipal Solid Waste. https://publications.gc.ca/collections/collection_2020/eccc/en14/En14-405-2020-eng.pdf

2. Environment and Climate Change Canada. 2021. Draft Federal Sustainable Development Strategy 2022 to 2026. https://www.fsds-sfdd.ca/downloads/2022-2026_DRAFT_FSDS.pdf



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Important note

It is important that the following best practices are adapted to meet the specific requirements of the school based on location and access to services. Surveyed school boards found that offering flexible options towards a common waste management goal was more effective, as it allows for schools to have a sense of ownership over their waste practices, which ultimately leads to greater success.



Implementing tailored communication strategies in schools is crucial for informing correct disposal decisions that lead to less contamination in waste streams and maximize diversion opportunities.

Placing signage and images near bin areas, school-wide announcements, video demonstrations, and digital hand-outs for students and staff can all help to encourage proper diversion.

Incentivizing programs can be an effective strategy for getting students involved with waste management.

This could mean offering a prize or reward for proper management practices in the classroom or recognizing whole-school achievement through a certification program.



Education and training provide interactive and engaging learning opportunities on proper waste management practices for all members of the school community.

Education and training can be provided by schools, school boards/regions or by utilizing third party complementary waste programming, for example through national or regional sustainability programs.

Administrative engagement helps to ensure programs and policies are embedded into school culture.

Survey responses showed that schools with strong administrative support were more likely to set waste related goals (71%) and have established cultures of waste reduction and diversion (69%).

Examples of ways administrators can support their schools include providing opportunities for student and staff workshops, presentations, and field trips to waste facilities.



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Important note

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Integrating waste education into curriculum-based learning limits the net increase in workload for both staff and students. This also creates more resilient programming that will remain in the event that a teacher champion moves on to another school. In addition, it is beneficial to communicate with custodial staff when implementing waste initiatives. This promotes opportunities for collaboration, while acknowledging limitations and issues with contractual obligations.



The presence of three-stream waste management with proper bins and liners, strategic bin placement, and regular curbside pick-up is important to support the long-term success of waste diversion efforts in schools.

Without this key infrastructure, schools are limited to educational programming and sending waste home via “boomerang” or waste-free lunch programs.



A dedicated sustainability department or staff member means that schools have access to a primary waste management contact, who can provide resources and data to inform school decision making.

Typically, these roles are also key to developing board-level strategic plans and goals around sustainability.

Regional alignment and consistency in messaging between school and home life for staff and students, can allow for greater buy-in from schools, and brings forward new collaborative opportunities between boards and municipalities.



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Conducting School Waste Audits

Waste audits are a useful education tool to help students understand how much waste is generated in a day and what types of recyclable materials end up in the garbage due to improper sorting. During a waste audit, waste is collected, visually assessed and/or weighed. Ideally, waste audits will cover all waste streams serviced, including garbage, recycling, and organics. Waste audit data is not only beneficial for individual schools, but also for the greater school community. School boards can use waste audit findings to inform strategic initiatives and programs for schools, measure progress towards goals, and help motivate and involve administrators, custodians, school staff, and students. In the study, goal setting was determined to be an important factor contributing to waste programming and waste management in schools.



60% of schools surveyed

had completed a waste audit prior to 2020, with COVID-19 significantly impacting this practice.

Tip

Student-led waste audits can help prompt further environmental action and learning. Consider integrating waste audits into classroom assignments and various curriculum areas such as science, mathematics, or social sciences and humanities. For example, students can formulate a research question about waste generation and disposal at their school and then use a student-led waste audit to investigate their topic.

Schools with waste related goals in place are:



35%

more likely to offer complementary waste programming such as boomerang lunches, on-site composting, or extended lunch programs



27%

more likely to actively ensure that their recycling is properly sorted



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Results from self-reported visual waste audits of the recycling stream conducted by over 40 schools in Ontario during the 2019-20 school year showed discrepancies between elementary and secondary schools. While elementary schools produce a greater proportion of milk cartons, drink boxes, plastics, and mixed paper, secondary schools generate a greater proportion of cans, glass, and cardboard. Therefore, waste audit data can help school boards specifically tailor waste initiatives, programs, and goals for elementary schools and secondary schools.

Recycling Stream Composition Elementary Schools

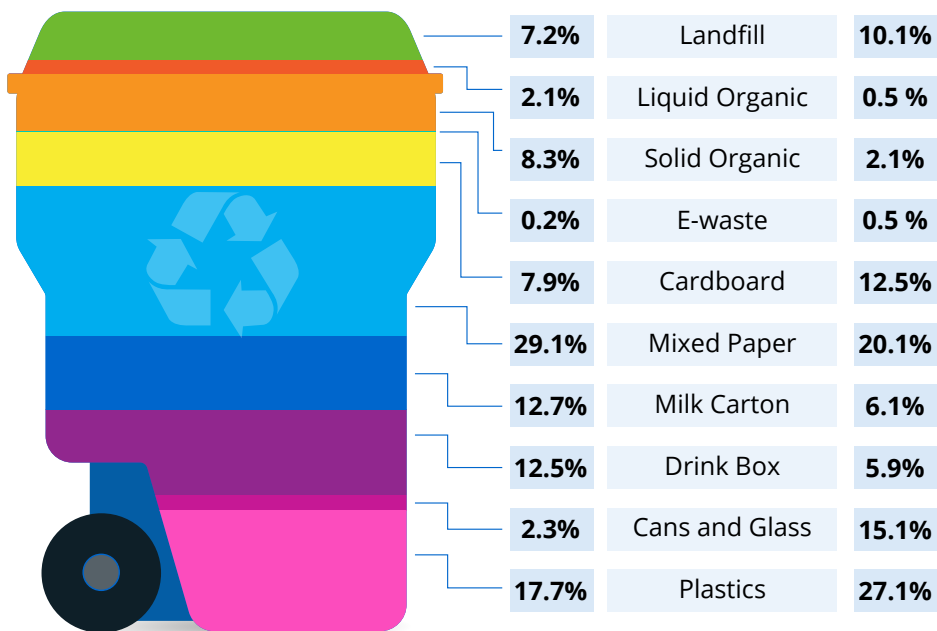


Figure 2: Composition of **elementary schools' recycling streams** from visual waste audits conducted by over 40 schools in Ontario during the 2019-20 school year.

Recycling Stream Composition Secondary Schools

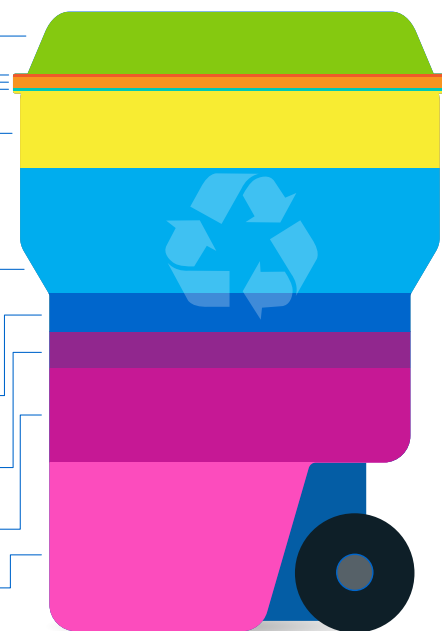


Figure 3: Composition of **secondary schools' recycling streams** from visual waste audits conducted by over 40 schools in Ontario during the 2019-20 school year.

Many sustainability programs and waste organizations across Canada provide resources such as in-person workshops, presentations, guides and resources to support schools to safely conduct waste audits.

[Click here to access EcoSchools waste audit worksheet and guide](#)



Track trends over time

Having schools conduct waste audits at different times in the year (such as beginning and end) or year after year can allow schools to track the impacts of their waste minimization efforts.



Common Barriers and Best Practices for Waste Diversion

Surveyed schools shared insights into barriers that impact their ability to properly divert or reduce waste. Outside of COVID-19, a lack of participation from members of the school community was the most commonly mentioned barrier to improving waste management in schools. Additionally, key infrastructure, such as access to regular collection services and board level supports, is critical to high quality waste management in schools. Here are some best practices that can be implemented at the school level to overcome these common barriers.

Common Barrier	Best Practice
<p>Student and Teacher Led Initiatives</p>	<p>Solution: Form a team of school staff and students to act as leaders of waste management activities.</p> <p>A group of champions (teachers and students) who are active with school waste management initiatives can be found at the core of many schools with successful waste programming.</p> <p>Solution: Get involved with environmental education programs for external resources and programming.</p> <p>National, regional, or local sustainability programming can be leveraged to provide educational resources (often in the form of classroom activities that are linked to curriculum topics) and tools for waste reduction activities and other sustainability initiatives.</p>
<p>On-site composting options</p>	<p>Solution: Implement small-scale composting</p> <p>Schools can implement on-site indoor (vermicomposting), indoor electric composters, or outdoor composting as a small-scale alternative to organics collection. While on-site composting is unlikely to manage all organic waste produced by a school, it can provide hands-on educational activities and serves as an alternative for schools without organic waste services. 21% of surveyed schools had onsite composting, with one third of these schools not having access to curbside organics pickup.</p> <p>This practice still requires proper equipment, bin placement, and regular pickup, along with the requirement of an area on the school grounds where the compost material can be effectively used.</p>



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Common Barrier

Waste Reduction Education

Best Practice

Solution: Collect and drop-off special items at a local recycling centre

Schools also reported collecting specific waste types, including shredded paper, light bulbs, e-waste, ink cartridges, and scrap metal as part of alternative collection/recycling programs.

94% of schools surveyed had access to recycling collection services and 44% of schools surveyed had access to organic waste services. Schools without access to waste pickup services can run awareness campaigns focused on reducing waste.

Additionally, if recycling or organics collection is not provided at school but offered to households within the region, consider promoting waste-free or “boomerang” lunches. “Boomerang” lunches, where students bring home their waste at the end of each day, can be educational for parents and guardians to learn more about their child’s eating habits, in an effort to reduce food waste.

Motivating Older Students

Solution: Use waste audits as a tool to extend the learning around beneficial waste management practices.

The study found that younger students are more likely to be enthusiastic and involved with waste practices in schools - 51% of elementary school respondents had a comprehensive or implemented culture of waste management, reduction, and diversion in comparison to 38% of secondary schools.

Elementary students are also more likely to eat their lunch in classroom settings where proper waste diversion and management can be controlled and implemented more easily than in a typical cafeteria environment, as seen often in secondary schools.

However, it was also found that secondary schools had a greater proportion of waste audits completed (67%) than waste programs engaged in (34%). This suggests that a takeaway for secondary schools could be to expand learning around waste audits by implementing complementary waste programming alongside this practice.



Common Barrier

Reducing contamination and increasing diversion

Best Practice

Solution: Establish waste stations around the school with informative signage.

Consider integrating some or all of the following components into your waste station:



Bin pairing - place recycling, garbage, and compost bins (if applicable) together to increase the likelihood that waste will be put in the right place.



Create a dump station to remove any leftover liquids from recyclable beverage containers. This can be constructed with a 5-gallon bucket with a strainer or mesh netting on top to capture any food, straws, or wrappers.



Place colourful and informative signage at all waste stations to show students what goes where. Images of where to dispose of materials commonly found in schools are great supplementary communication practices to ensure accessibility.



Have student volunteers at waste stations to help facilitate recycling and dumping of excess liquids during lunch or nutrition breaks.



Consider placing organics bins in washrooms to collect paper towels, if possible.

NOTE: While it is great to have more comprehensive central waste stations with larger bins in communal areas of the school (like busy hallways or cafeterias), it is equally important to have waste stations or bins and signage in every room of the school when possible. The easier it is for students to dispose of waste, the more likely it will be sorted properly.

Further information, resources and guides to help schools establish proper waste sorting can be found [here](#).



Common Barrier

Recycling refundable containers

Best Practice

Solution: Set up a system to recycle refundable containers.

Contact your closest recycling depot to determine the possibility of the depot picking up the containers on a regular basis (generally a cost is associated, that is deducted from the value of the deposit) or coordinate with volunteer teachers or parents who can take the containers to the depot. There are also several provincial organizations with dedicated beverage container recycling school programs that provide free bins and other support.

Beverage container recycling school programs offering free bins and other support to K-12 schools:

- ReturnIt School (British Columbia) <https://www.returnitschool.ca>
- Alberta Depot School Recycling Program (Alberta) <https://albertadepot.ca/programs/school-recycling-program>
- SARCAN Schools (Saskatchewan) <https://www.sarcanschool.ca>
- Recycle Everywhere 101 (Manitoba) <https://recycleeverywhere.ca/programs/school>
- Divert NS (Nova Scotia) <https://divertns.ca/sorting-signage>
- Multi-Materials Stewardship Board (Newfoundland and Labrador) <https://mmsb.nl.ca/funding-programs/get-matched>

Further information, resources and guides to help schools establish successful recycling programs can be found [here](#).