



Gaia's Teacher Guide: Waste Audit

Grade level: Grade 3-12

Objective: Identify the types and quantity of garbage produced in your school. Brainstorm with students to improve the waste footprint of your school based off of the data they collected.

Length: 1-5 days (group, or independent project-based)

Planning:

1. Choose an area of study (i.e. classroom, whole school or other section of the school).
2. You will need to develop a schedule during which the audit will be conducted (gathering of waste and audit day). The custodian will need notice in advance of the day that they have to collect and store the garbage. These will be used as the sample for the audit. Normally, one day worth of waste (typically the day before the audit day) is enough since garbage cans are generally emptied daily.

Important: Keep the dates of your audit confidential as to not influence the behaviour of students and teachers the day the waste sample will be collected for the audit.

3. Ensure you have the cooperation of the necessary people before starting. For example, you do not want the custodian to take all the refundables out if you haven't had a chance to look at them yet!
4. The week of the audit, remind the custodian to gather the garbage from the day before the audit and keep it in a designated place for you to use the next day (using adhesive labels).





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5. You can use the following categories to separate the garbage or change them if desired: recyclable plastic, paper/cardboard, compostable, refundables, milk cartons, garbage.
6. Choose a location to sort the garbage which can be used for the duration of the audit.
7. Assign roles to your students:
 - **Sorters** who will separate the garbage into the predetermined categories.
 - **Weighers** who will weigh each category after every sorted garbage bag.
 - **Data reporters** who will write down the weight for each category in a table prepared for that.

Pre-activity: Have a discussion with students on what garbage is, on the 3 Rs+V (Reduce, Reuse, Recycle, Extract Value) and their importance (information in appendix), and why do we throw things out?

Equipment:

If you do not have access to all of these resources, please contact The Gaia Project for availability to borrow.

- Gloves (nitrile/polyvinyl, latex-free)
- Scale (luggage scales work well). If a scale is unavailable, waste could be quantified by volume (i.e. plastic - ½ a bucket, paper/cardboard - 1 bucket).
- Tarps (lay underneath all buckets and bins in the sorting area and protect the floor).
- Garbage bags for buckets (~20-25 litres).
- Plastic buckets and bin (1 bucket for each category and 1 large bin to pour garbage in before sorting).
- Adhesive labels (to identify the source of each garbage bag collected in the school when gathering the sample for the audit).
- Sorting data table (worksheet to print from appendix).





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Procedure for day of audit:

1. Before the beginning of the class, setup the sorting stations (i.e. one tarp per station with 1 bucket for each waste category and a bin in the middle to pour the garbage in - See Figure 1).
2. Students from the "Sorter" group (or anyone else who wants to help) can start sorting the waste into the predetermined categories.
3. If possible, each bag will be labeled with their source location in the school (i.e. Classroom, Cafeteria, Library, etc.) This will need to be done by the custodian or any other person responsible for collecting the waste that will be used as sample for the audit. Keep track of that information in a table like Table 1 from the appendix at the end of this document.
4. Once the sorting of a bag is completed, the "weighers" and "data reporters" can start weighing and recording their results into their table (see Table 1).
5. After weighing is completed, put all the garbage into large bags and dispose of as instructed by custodian.



Figure 1. Example of how to set up buckets, bins and tarps for sorting stations.





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Possible improvements:

The waste reduction plan will be different at every school depending on the students findings. Here are some examples...

1. Get more recycling bins
2. Start and maintain a composting program
3. Make better signs for recycling bins and other waste bins
4. Share your results with the rest of the school
5. Create a game/song about adequate sorting of waste
6. Encourage a "Litterless Lunch"
7. Ban single use plastics (i.e. ziploc type bags, plastic water bottles, straws, individual packaging)

Share your findings with us and any sustainable improvements you make at your school!

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#GaiaWasteAudit #GaiaSchools

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APPENDIX

The hierarchy of waste management strategies - reduce, reuse, recycle, extract value (3R+V):

- 1. Reduce:** The most important of all strategies. This represents eliminating the purchase or use of certain products. As an example, purchase durable goods instead of single-use products (i.e. reusable containers to replace Ziploc type bags) or avoid excess packaging of products.
- 2. Reuse:** The second most important strategy. Many of the products we need and use are simply thrown away too early in their life cycle. If we keep them around, this decreases the amount of energy and resources used to make new goods. Some examples are: organizing/participating in garage sales and bazaars or lending to/borrowing from your relatives/friends/neighbours or shop in second-hand stores.
- 3. Recycle:** Many products that can not be reused at the end of their life cycle can be recycled into new ones. In this way, we can create new products by using less energy or fewer resources per unit than using natural resources extracted from the environment. However, recycling takes a lot more resources than the previous strategies (recycling trucks use a lot of fuel and recycling facilities use a lot of energy sometimes generated by fossil fuels). Therefore, this should be the next strategy when we are unable to reduce our consumption or reuse the item.
- 4. Extract Value:** This strategy is the last resource before disposal of waste in landfills. It means turning waste into valuable resources or recover energy from it. The best example of this is composting. This biological process transforms the kitchen and garden organic waste (like fruits and vegetables) into rich soil amendments, commonly known as compost.

Here are a few resources to help you initiate the conversation with your students:

- Recycle NB (waste reduction at school) - <https://recyclenb.com/waste-reduction-at-school>
- Waste Reduction Week in Canada - <https://wrwcanada.com/en/get-involved/resources/tool-kits/schools>
- Services and information about waste management in Canada - <https://www.canada.ca/en/environment-climate-change/services/managing-reducing-waste.html>
- Teacher Vision (waste management videos & activities) - <https://www.teachervision.com/recycling/recycling-waste-management-educational-videos-activities>
- US Environmental Protection Agency 3Rs Resources for Students and Educators - <https://www.epa.gov/recycle/reduce-reuse-recycle-resources-students-and-educators>

