



# SCHOOL WASTE AUDIT

## A VISUAL INVESTIGATION OF SCHOOL WASTE (Q 3.12)

**TIP:** Analyzing both garbage and recycling from various areas across the school is recommend for a level 4 (aim for a minimum of 5 bags or five areas of the school).

### Waste is defined as:

- the **garbage** we send to landfill and
- the **recycling** we re-process into useful materials

### Steps to conducting an audit

This waste audit offers both elementary and secondary students an opportunity to investigate the waste generated in the school and create strategies to minimize waste:

**1 STEP** Conduct a Visual Garbage Audit of the contents of all the garbage cans

**2 STEP** Conduct a Visual Recycling Audit of the contents of all the recycling bins

**Optional:** If your school collects organic waste, you can also complete a visual audit of the contents of all the organic/green bins.

### What's next?

Communicate the results of your audit to your school community through a blog post, a poster, a long term plan or on social media.

### Safety First!

#### Health and Safety tips while conducting the visual waste audit

- Do not open bags of garbage or recycling!  
This is a visual audit using clear bags and visual estimation.
- Have some extra bags on hand in case of a tear in collection bags.
- Do not eat or drink while conducting the waste audit.
- Have some hand sanitizer available.

### Waste Audit Tips

#### Start off your school year with a waste audit

- Do both Step 1: Visual Garbage Audit and Step 2: Visual Recycling Audit on the same day. This will save set up time.
- Choose a 'typical' school day for your audit—not one that has any special events.
- Don't tell people about the audit. You'll get more accurate data.
- Complete a second audit in the spring and compare the results.

\*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.



## 1 STEP Visual Garbage Audit

In order to assess your school's garbage, you will need to gather all the garbage for a 24 hour period, then:

- a. Weigh the garbage (do not empty liquids)
- b. Perform a visual audit of the contents of the bags of garbage

### MATERIALS NEEDED

- **Clear plastic garbage bags** to hold the entire school's garbage for a day. Make sure you have enough bags so that the bags will be only half-full. This makes it easier to weigh and estimate the contents.
- **Garbage** - It may be easiest to schedule your audit the day after your school's garbage pickup so only one day's worth of garbage has accumulated. For example, if the garbage pickup takes place on Tuesday morning, designate Tuesday's garbage as your audit material and begin your audit Wednesday morning.
- **Hanging spring/digital scale** - Your board's waste coordinator, the custodian, or the science department may have one.
- **Reference sheet** of what is recyclable in your board or region. Ask your custodian or principal for the official list/poster.
- **Worksheet** - *Garbage Audit Worksheet(s)*
- **Clipboard**
- **School enrollment data** - Number of full time equivalent students in the school (ask the principal)
- **Pen**
- **Camera** to record your audit (optional)

### INSTRUCTIONS

1. Gather your school's garbage for a 24 hour period. Make sure the garbage is put into clear plastic garbage bags. The bags should only be half-filled because this will make it easier to assess the contents of the bags.
2. Weigh each bag and record the mass on the worksheet.
3. Complete a visual audit by examining the contents of each bag. You are looking for five categories of waste (see *Estimating percentages* for instructions). Carefully roll the bag around, talk with your fellow auditors about the contents, and estimate the percentages of the contents!
4. For each bag, estimate the volume in percent of each of the different waste categories. Record your estimates and observations.
5. When you have assessed all of the bags, calculate the average volume for each of the five categories.
6. Calculate the amount of garbage per student per school year using the worksheet.
7. When you have completed the audit make sure the garbage gets put where it will be picked up.
8. Communicate your results and reduction strategies with the whole school community. Consider sharing your audit results at an assembly, through announcements, or with posters in the front foyer of the school.

### MODIFIED SAMPLE AUDIT FOR SCHOOLS WITH 500+ STUDENTS

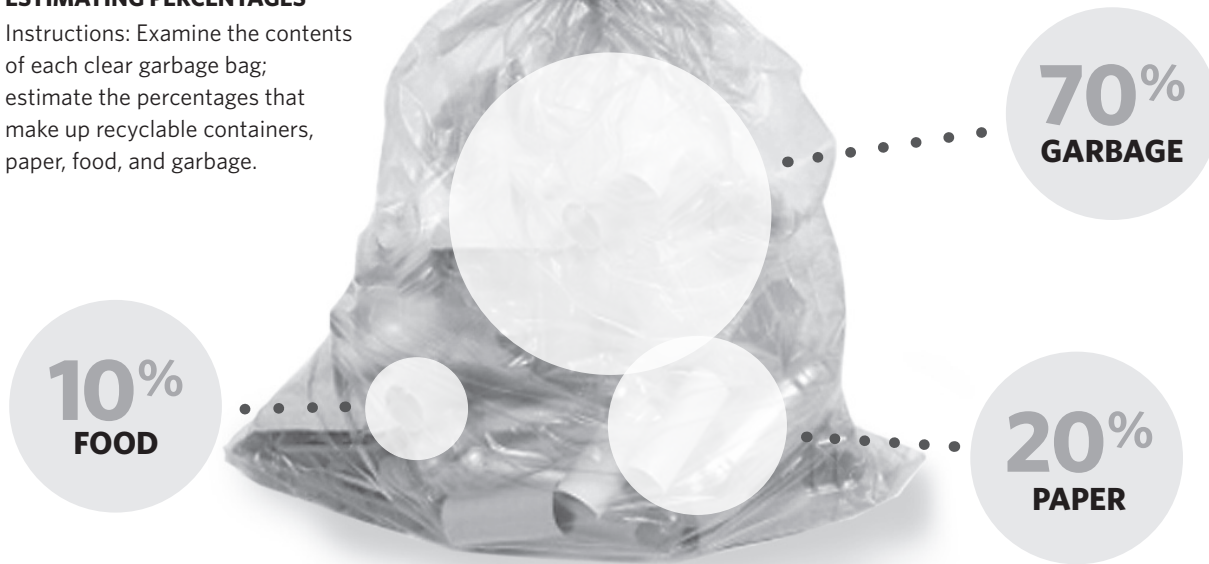
Collect a day's worth of garbage per above. Count the total number of bags collected, then select a minimum of seven bags to be audited. Try to select bags from different areas of the school (e.g., different departments, cafeteria, office, library, computer lab). Use the same selection process for both 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. Use the total garbage results to calculate kg/student/year. Ex: the sample = 20% of total garbage produced in a 24hr period;  $20\% \times 5 = 100\%$ ; multiply sample garbage audit results by 5 to calculate total garbage results.



## SCHOOL WASTE AUDIT

### ESTIMATING PERCENTAGES

Instructions: Examine the contents of each clear garbage bag; estimate the percentages that make up recyclable containers, paper, food, and garbage.



## 2 STEP

### Visual Recycling Audit

Repeat the Visual Garbage Audit instructions using all the recycling collected over a 24 hour period and the *Recycling Audit Worksheet(s)*.

### What's next?

Based on your data and observations from the Garbage Audit Worksheet and Recycling Audit Worksheet, consider sharing your results with your school community by:

- writing a blog post
- creating a poster
- writing a long-term plan
- sharing the data on your social media

### What's Important?

*Reduction! Doing a waste audit can help identify what your school can target to reduce its overall waste. Finding out what contaminates your recycling stream can also help to improve the efficiency and effectiveness of your recycling efforts.*

# GARBAGE AUDIT WORKSHEET

SCHOOL \_\_\_\_\_

BOARD \_\_\_\_\_ DATE \_\_\_\_\_



## Weight of Garbage

STUDENT NAMES (REQUIRED) \_\_\_\_\_

	<i>Example</i>	BAG 1	BAG 2	BAG 3	BAG 4	BAG 5	BAG 6	BAG 7	BAG 8	BAG 9	TOTAL "A" KG
<b>Weight of bag</b> (do not empty any liquids)	<b>7.3 kg</b>										

## Visual Audit

WASTE CATEGORY	<i>Example</i>	BAG 1 VOL. %	BAG 2 VOL. %	BAG 3 VOL. %	BAG 4 VOL. %	BAG 5 VOL. %	BAG 6 VOL. %	BAG 7 VOL. %	BAG 8 VOL. %	BAG 9 VOL. %	AVERAGE % FOR ALL BAGS
<b>Recyclable Containers</b> (plastic, metal, glass)	<b>10%</b>										
<b>Recyclable Paper</b> (paper, cardboard, newsprint)	<b>25%</b>										
<b>Other recyclables</b> (E-waste; printer/toner cartridges, batteries)	<b>5%</b>										
<b>Food Waste/Organics</b>	<b>40%</b>										
<b>Garbage</b>	<b>20%</b>										

Observations:

Calculate the amount of garbage per student per school year

Total weight of 1 day's garbage:

TOTAL "A"  
KG

X

**194**  
school days in a year

divided by \_\_\_\_\_ number of students in the school

= \_\_\_\_\_ kg/student/year

Example of Calculation

Total weight of 1 day's garbage:

TOTAL "A"  
KG

**29.5**

X

**194**  
school days in a year

divided by **481** number of students in the school

= **11.9** kg/student/year

# RECYCLING AUDIT WORKSHEET

SCHOOL \_\_\_\_\_

BOARD \_\_\_\_\_ DATE \_\_\_\_\_



## Weight of recycling

STUDENT NAMES (REQUIRED) \_\_\_\_\_

	<i>Example</i>	BAG 1	BAG 2	BAG 3	BAG 4	BAG 5	BAG 6	BAG 7	BAG 8	BAG 9	TOTAL "B"
<b>Weight of bag</b> (do not empty any liquids)	<b>10 kg</b>										

## Visual Audit

WASTE CATEGORY	<i>Example</i>	BAG 1 VOL. %	BAG 2 VOL. %	BAG 3 VOL. %	BAG 4 VOL. %	BAG 5 VOL. %	BAG 6 VOL. %	BAG 7 VOL. %	BAG 8 VOL. %	BAG 9 VOL. %	AVERAGE VOLUME %
<b>Recyclable Containers</b> (plastic, metal, glass)	<b>80%</b>										
<b>Recyclable Paper</b> (paper, cardboard, newsprint)	<b>10%</b>										
<b>Other recyclables</b> (E-waste; printer/toner cartridges, batteries)	<b>0%</b>										
<b>Food Waste/Organics</b>	<b>0%</b>										
<b>Garbage</b>	<b>10%</b>										

Observations:

Calculate the amount of recycling per student per year

Total weight of 1 day's recycling: **TOTAL KG "B"** **X** **194** school days in a year

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divided by \_\_\_\_\_ number of students in the school

**=** \_\_\_\_\_ kg/student/year

Example of Calculation

Total weight of 1 day's recycling: **TOTAL KG "B"** **X** **194** school days in a year

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divided by **481** number of students in the school

**=** **5.7** kg/student/year



# CALCULATE YOUR SCHOOL'S DIVERSION RATE

Waste diversion rate: The rate or percentage of recyclable material that has been diverted out of the waste disposal stream and therefore not put into landfills.

## EXAMPLE OF CALCULATION

1  
STEP

$$\begin{array}{l}
 \text{Total weight} \\
 \text{of 1 day's} \\
 \text{garbage:}
 \end{array}
 \begin{array}{c}
 \text{TOTAL} \\
 \text{KG} \\
 \text{A} \\
 \hline
 29.5
 \end{array}
 +
 \begin{array}{l}
 \text{Total weight} \\
 \text{of 1 day's} \\
 \text{recycling:}
 \end{array}
 \begin{array}{c}
 \text{TOTAL} \\
 \text{KG} \\
 \text{B} \\
 \hline
 14
 \end{array}
 =
 \begin{array}{l}
 \text{Total} \\
 \text{kg of} \\
 \text{waste:}
 \end{array}
 \begin{array}{c}
 \text{TOTAL} \\
 \text{KG} \\
 \text{C} \\
 \hline
 43.5
 \end{array}$$

(Total "A" from Garbage Audit Worksheet)      (Total "B" from Recycling Audit Worksheet)

2  
STEP

$$\begin{array}{l}
 \text{Total weight} \\
 \text{of 1 day's} \\
 \text{recycling:}
 \end{array}
 \begin{array}{c}
 \text{TOTAL} \\
 \text{KG} \\
 \text{B} \\
 \hline
 14
 \end{array}
 \div
 \begin{array}{l}
 \text{Total kg} \\
 \text{of waste:}
 \end{array}
 \begin{array}{c}
 \text{TOTAL} \\
 \text{KG} \\
 \text{C} \\
 \hline
 43.5
 \end{array}
 \times 100\% = 32\%$$

(Total "B" from Recycling Audit Worksheet)      **Diversion Rate**

## CALCULATE YOUR SCHOOL'S DIVERSION RATE

Use your data from the Garbage Audit Worksheet and Recycling Audit Worksheet to complete the calculation below:

1  
STEP

$$\begin{array}{l}
 \text{Total weight} \\
 \text{of 1 day's} \\
 \text{garbage:}
 \end{array}
 \begin{array}{c}
 \text{TOTAL} \\
 \text{KG} \\
 \text{A} \\
 \hline
 \phantom{000}
 \end{array}
 +
 \begin{array}{l}
 \text{Total weight} \\
 \text{of 1 day's} \\
 \text{recycling:}
 \end{array}
 \begin{array}{c}
 \text{TOTAL} \\
 \text{KG} \\
 \text{B} \\
 \hline
 \phantom{000}
 \end{array}
 =
 \begin{array}{l}
 \text{Total} \\
 \text{kg of} \\
 \text{waste:}
 \end{array}
 \begin{array}{c}
 \text{TOTAL} \\
 \text{KG} \\
 \text{C} \\
 \hline
 \phantom{000}
 \end{array}$$

(Total "A" from Garbage Audit Worksheet)      (Total "B" from Recycling Audit Worksheet)

2  
STEP

$$\begin{array}{l}
 \text{Total weight} \\
 \text{of 1 day's} \\
 \text{recycling:}
 \end{array}
 \begin{array}{c}
 \text{TOTAL} \\
 \text{KG} \\
 \text{B} \\
 \hline
 \phantom{000}
 \end{array}
 \div
 \begin{array}{l}
 \text{Total kg} \\
 \text{of waste:}
 \end{array}
 \begin{array}{c}
 \text{TOTAL} \\
 \text{KG} \\
 \text{C} \\
 \hline
 \phantom{000}
 \end{array}
 \times 100\% = \text{Our school's}$$

(Total "B" from Recycling Audit Worksheet)      **diversion rate**  
is \_\_\_\_\_%