

## GRADE 6 LEARNING EXPERIENCE

# Garbage Collectors

### Summary

Students learn about the amount of waste generated and recycled in Canada. After a week of collecting their classroom waste, students sort it properly to determine what per cent of the waste is recyclable. **Note:** *This activity takes one week to complete.*

### Objective

Students will measure the waste generated in their classroom in one week, and determine the percentage of classroom waste that is paper, organics, recyclables, refundables, and garbage.

### Pre-Activity

## WASTE STATS AND FACTS

#### DIRECTIONS

Break the class into small groups and ask them to predict what countries generate the most garbage. Have the groups share their predictions.

*Canada generates an average of 777 kg of waste per person each year—the highest in the world!*

In small groups, have students go to [www.atlas.d-waste.com/](http://www.atlas.d-waste.com/) to explore per capita waste generation and the percentage of waste recycled.

Using the **Waste Generation and Recycling Rates worksheet (Appendix 1)**, ask the students to record which countries recycle the most AND which generate the most waste.

Discuss which countries recycle the most and which countries generate the least waste. Are they the same countries? Which country recycles the most? (*Note: Like Canada, Germany has high waste generation, but higher recycling rates*)

Ask the students if they know what percentage of waste can be recycled.

*In Canada, approximately 75% of waste CAN be recycled.  
Canada recycles 27% of its waste.*

#### MATERIALS

Internet and computer or tablets

#### Appendix 1

Waste Generation and Recycling Rates worksheet

#### DURATION

15 mins

#### MAIN LEARNING OUTCOME

GRADE:

6

SUBJECT:

Math



#### Outcome 6

Students will be expected to demonstrate an understanding of per cent (limited to whole numbers) concretely, pictorially, and symbolically.

#### Indicators

Identify and describe per cent from real-life contexts, and record them symbolically.

#### CROSS-CURRICULAR LINKS

#### Social Studies



Learners will implement age appropriate actions that demonstrate responsibility as global citizens.

#### SKILLS

##### Select

Locate several relevant and dependable details to support an answer

##### Plan

Identify steps to solve the problem. Execute the steps, modifying as necessary.

##### Evaluate

Review steps and results from an investigation or problem solving. Reflect on varying perspectives and alternative solutions or findings. Identify potential new problems and/or issues.

##### Apply

Carry out or complete a procedure/technique

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## WASTE STATS AND FACTS (cont'd)

### DIRECTIONS

### CLASS ACTIVITY

Students will collect data to determine the classroom's overall waste generation and the per cent of that waste that is paper, organics, recyclables, refundables, and garbage.

- Students to collect all waste generated in their classroom for one week.
- Collect organics in a plastic bin that is weighed and emptied daily. Fill out the **Classroom Organics Daily Recording Sheet**.
- Collect the other waste streams—paper, recyclables, refundables and garbage—in a separate area of the classroom.

### MATERIALS

Plastic bin for organic waste

Scale

**Appendix 2**  
Classroom Organics Daily Recording Sheet

### DURATION

5 mins

## Activity

### CLASSROOM COLLECTION

### DIRECTIONS

### ONE WEEK LATER

Review the five waste categories in Nova Scotia—paper, organics, recyclables, refundables, and garbage. As the organics category was weighed the previous week, have the students predict what percentage of their total classroom waste for one week will fall into each of the remaining four waste categories.

Divide students into groups. Provide each group with a portion of the classroom's waste and ask them to sort the waste into the four remaining categories.

Once each group has correctly sorted the waste (teacher verifies each group's sorting), each group weighs each category and records it on the **Classroom Waste Data Worksheet**.

Once all of the groups have weighed the waste, students write their group totals on the board to determine a class total.

**TEACHER SUPPORT:** [divertns.ca/recycling/sorting-guide](http://divertns.ca/recycling/sorting-guide)

### MATERIALS

Scale

Classroom waste from the previous week

**Appendix 3**  
Classroom Waste Data Worksheet

### DURATION

15 min

### FRACTIONS & PERCENTAGES

Demonstrate an example of how to write a fraction of waste, using one of the categories (e.g. organics) on the **Classroom Waste Data Worksheet**.

Have the students work in pairs to determine the remaining fractions and percentages of the other waste categories.

Students complete the remainder of the **Classroom Waste Data Worksheet**.

### DISCUSSION:

- How much waste was generated by the classroom in one week?
- How much waste would be generated in a year? (*Classroom total x 52*).
- How much waste do you think the school generates in one week? (*Classroom total x number of classrooms in school*)

### DURATION

15 min

## Post-Activity

# INCREASING WASTE DIVERSION

### DIRECTIONS

Pair the students up and have them discuss actions that could help increase recycling rates at school and in their community.

Students write their actions on Post-it notes and post them on the classroom wall.

**OPTION** Share “post-it” actions in school announcements by sticking them in the hallway.

Teacher can have students volunteer to deliver the post-its around the school and encourage other classes to participate.

## Assessment

**FORMATIVE** Evaluate student learning over the course of the class discussion.

**SUMMATIVE (OPTIONAL)** Option to correct the Classroom Waste Data Worksheet

**TRY A SIMILAR ACTIVITY** Solid Waste Surveys (Grade 6)



### ENVIRONMENTAL EVENTS

There are many great opportunities throughout the year to highlight the 3Rs in the classroom. Check out these annual events:

**Waste Reduction Week** October (3<sup>rd</sup> week)

**Earth Day** April 22

**Compost Awareness Week** May (1<sup>st</sup> full week)

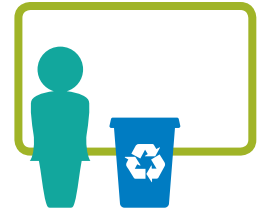
**Environment Week** June (1<sup>st</sup> full week)

### MATERIALS

Post-it notes  
and pen/pencils

### DURATION

10 min



### WASTE REDUCTION EDUCATORS

Divert NS provides funding to municipalities to deliver waste reduction education to schools across the province. Your local waste reduction educator(s) provides the following services, and more, free of charge!

- classroom presentations
- green team set up
- advice on bins and signage
- tours of local waste facilities
- school waste audits

To find out more, visit [divertns.ca](http://divertns.ca)

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## ABOUT DIVERT NS

Divert NS is a not-for-profit organization championing recycling in Nova Scotia. For over 20 years we've helped build a culture of recycling through environmental stewardship, education, and innovation. Divert NS operates the **Beverage Container Deposit-Refund Program** and the **Used Tire Management Program**. In addition, we work in collaboration with government,

industry, and academia to divert waste-resources from landfill. Divert NS, in partnership with municipalities, delivers education and awareness programs to schools, businesses, and community groups. Divert NS also works to develop stewardship agreements and funds innovative research and development initiatives.

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APPENDIX 1

GARBAGE COLLECTORS

# Waste Generation and Recycling Rates

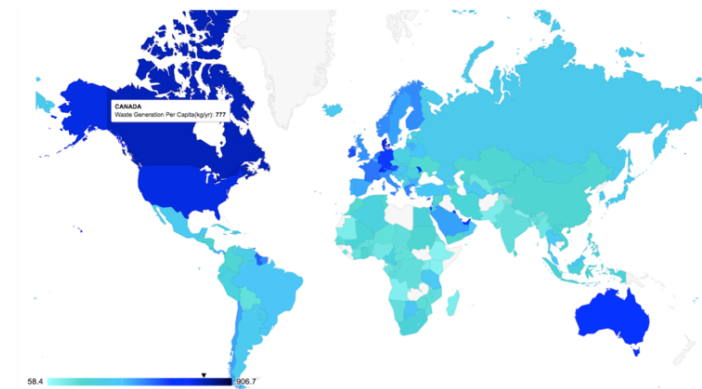
Go to [www.atlas.d-waste.com](http://www.atlas.d-waste.com) to explore per capita waste generation and the percentage of waste recycled.

| Country | Waste Generation (kg per person) | Recycling Rates (% of waste recycled) |
|---------|----------------------------------|---------------------------------------|
|         |                                  |                                       |
|         |                                  |                                       |
|         |                                  |                                       |
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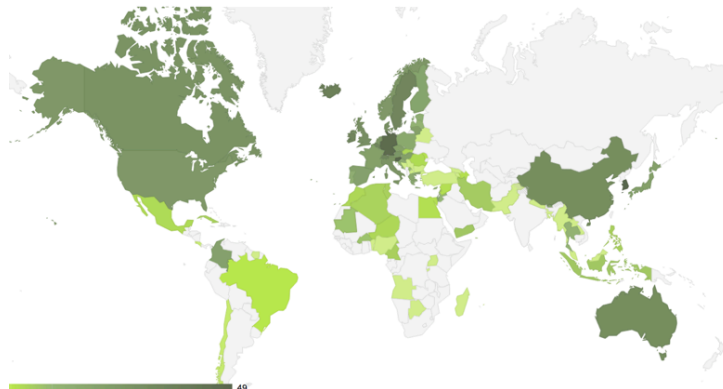
You will see these maps on the site. Hover with your mouse over a country to see its rate for waste or recycling.

[www.atlas.d-waste.com](http://www.atlas.d-waste.com)

## WASTE GENERATION (kg per person)



## RECYCLING RATES (% of waste that is recycled)



APPENDIX 2

GARBAGE COLLECTORS

# Classroom Organics Daily Recording Sheet

|                     | Weight of Empty Plastic Bin (kg) | Weight of Empty Plastic Bin + Organics (kg) | Weight of Organics (kg) |
|---------------------|----------------------------------|---|-------------------------|
| Monday              |                                  |   |                         |
| Tuesday             |                                  |   |                         |
| Wednesday           |                                  |   |                         |
| Thursday            |                                  |   |                         |
| Friday              |                                  |   |                         |
| Total Organic Waste |                                  |   |                         |

# Classroom Waste Data Worksheet

1. **ORGANICS WASTE** Total **ORGANICS** collected in one week (kg) ►  **A**

## 2. OTHER CLASSROOM WASTE — GROUP TOTALS FOR EACH CATEGORY

|                     | Recyclables (kg) | Refundables (kg) | Paper (kg) | Garbage (kg) |
|---------------------|------------------|------------------|------------|--------------|
| Group 1             |                  |                  |            |              |
| Group 2             |                  |                  |            |              |
| Group 3             |                  |                  |            |              |
| Group 4             |                  |                  |            |              |
| Group 5             |                  |                  |            |              |
| Group 6             |                  |                  |            |              |
| <b>Totals (kgs)</b> |                  |                  |            |              |

3. **TOTAL WASTE** Total weight of all five waste categories (kg) ►  **B**

## 4. CLASSROOM WASTE — CATEGORY PERCENTAGES

|  | Organics | Recyclables | Refundables | Paper | Garbage |
|--|----------|-------------|-------------|-------|---------|
| <b>A</b> Category Total (kg)<br>/<br><b>B</b> Total Waste (kg) | /        | /           | /           | /     | /       |
| <b>Percentage</b><br>% = A/B x 100                             |          |             |             |       |         |

- What percentage of classroom waste is going to landfill (garbage)? \_\_\_\_\_
- What percentage of classroom waste is organic? \_\_\_\_\_
- Estimate how much waste the classroom generates in one year. \_\_\_\_\_  
(Hint: you will have to find out how many weeks there are in a school year.)