



# The Journey of Wasted Food

A Teachers' Tool Kit for Grade 4-6



## Overview

Food waste is gaining attention at global, provincial and local levels for its negative social, environmental, and economic impacts. This tool kit was developed by the Halton Food Council, in partnership with Food for Life, Feeding Halton, and the Poverty Reduction Roundtable, and with financial support from the Burlington Community Foundation, all of whom share the goal of reducing food insecurity and addressing environmental issues. The tool kit explores food waste along the food chain - production, processing and packaging, distribution, access, consumption and disposal - and some of its consequences.

The food waste tool kit is designed for students from Grades 4 to 6 and will:

- Explore why food waste is an important issue;
- Highlight some key areas where food waste is generated along the food chain, with a focus on consumption;
- Provide instructions for both classroom and school-based activities to help students develop critical thinking skills;
- Share a list of other resources that can be explored; and
- Provide a table of the curriculum in which it can be integrated: science and technology, social studies, health and physical education.

Food waste is gaining attention for its negative impacts:

### Social

- In 2013/2014, 4.3 percent of Halton households are food insecure - they lack reliable access to a sufficient quantity of affordable, nutritious food.
- Fruits and vegetables are the most wasted foods, but are some of the healthiest.

### Economic

- Food waste in Canada amounts to \$31 billion annually, while the true annual cost is closer to \$107 billion.<sup>1</sup>
- Canadian families lose on average \$1,560 each year from wasted groceries.<sup>2</sup>

### Environmental

- Globally, the carbon footprint of food waste is estimated to be at 3.3 Giga tonnes of CO<sub>2</sub> equivalents;<sup>3</sup> as much as the emission of 700,000 cars (U.S.).<sup>4</sup>
- Food waste also represents a loss of precious natural resources such as water, energy, and soil.

Consumers play a key role in this issue as almost half of food waste occurs at the household level, and much of this waste is avoidable. Lack of awareness remains an important barrier in reducing food waste.

<sup>1</sup> Gooch, M.V. & A. Felfel. (2014). "\$27 billion" revisited: The cost of Canada's annual food waste. Retrieved from <http://vcm-international.com/food-waste/food-waste-publications/>

<sup>2</sup> Uzea, N., Gooch, M., & Sparling, D. (2014). *Developing an industry led approach to addressing food waste in Canada*. Retrieved from <http://vcm-international.com/>

<sup>3</sup> FAO. (2013). *Food wastage footprint. Impacts on natural resources*. Retrieved from <http://www.fao.org/>

<sup>4</sup> According to the Environmental Protection Agency (EPA), one typical car emits 4.7 metric tons of CO<sub>2</sub> per year. <https://www.epa.gov/sites/production/files/2016-02/documents/420f14040a.pdf>

## Classroom Activities

---

### Teaching slide deck

Available as a Powerpoint presentation

### Trivia Game

Available as a Powerpoint presentation

### Food Waste Audit

Students conduct a visual food waste audit in the classroom to observe what they are throwing away.

**Note:** This activity could be expanded from a **classroom** to a **school wide** based activity if the class decides to conduct the audit for multiple classrooms.

## Food Waste Audit

### You will need:

- Garbage bins
- Clear garbage bags (labelled for wet and dry waste)
- Optional: permission slip or information letter

### Food Waste Collection:

- If needed: send home permission slips or information letter.
- Notify the custodian of the change in routine.
- Display and label two separate clear bags – one for wet waste (food waste) and one for dry waste (food packaging such as water bottles or food wrapping).
- Instruct students to separate food waste into the two bags. Separation guidelines can be created by students themselves.
- At the end of the collection period (determined at the teacher's discretion), students can visually organize their food waste using criteria such as avoidable/unavoidable food waste or the Food Recovery Hierarchy chart (see resource section).

### Critical Analysis of Data:

- Have the students record their information so it can be compared.
- Discuss students' thoughts about the data and why this is a concern for communities.
- Generate ideas on the best ways to deal with the issue of food waste in the classroom, in the school and at home. Students will reflect and develop personal goals on how to reduce food waste in their own environment.
- Develop a classroom/school action plan to develop goals and an implementation plan to modify behaviours around food waste. The action plan will include a strategy to measure success (e.g. before/after audit, monthly audit...)
- Develop a plan to share the information and develop awareness of the issue, e.g. presentations to other classrooms, schools, school council, assembly, community newspapers, school newsletter, website, posters, etc...

## Documentary: Just Eat It, A Food Waste Story

The documentary follows food lovers Jen and Grant who take on the 6-month challenge of foregoing grocery shopping and surviving only on foods that would otherwise be thrown away. It looks at food production and where the system is failing.

➔ [Access the Documentary Here](#)

Time: 75min

## | YouTube playlist on Food Waste

Find the full playlist on the Halton Food Council [YouTube Channel](#).

**Wasted: The challenge of food waste in the home.** Ralph Martin, University of Guelph, Department of Plant Agriculture and Loblaws Chair of Sustainable Food Production talks about his research into food waste in the home.

➔ [Access the Video Here](#)

Time: 4:10 min.

**Food wastage footprint**, Food and Agriculture Organization of the United Nations  
Facts and figures about world food waste are explored as well as waste reduction solutions.

➔ [Access the Video Here](#)

Time: 3:15min

**Food wastage footprint 2**, Food and Agriculture Organization of the United Nations  
The full economic, environmental and social costs of food loss and waste are examined.

➔ [Access the Video Here](#)

Time: 3:38min

**Tristram Stewart: The global food waste scandal** (TED Talks)

“Western Countries throw out nearly half of their food. Not because it is inedible but because it doesn’t look appealing.” Tristram Stewart delves into the shocking data of wasted food, calling for a more responsible use of global resources.

➔ [Access the Video Here](#)

Time: 14:15min

## School based Activities

---

### Poster Competition

**Option 1:** Students will create a superhero and use it as a platform to help teach about food waste. Students will focus their ideas on the most impactful things they have learned about food waste reduction.

**Option 2:** Students will illustrate the differences between avoidable and potentially avoidable food waste, as well as what can be done about each of them.

### Excursion: Trip to the Halton Waste Management Site (HWMS)

The Halton Waste Management Site has guided tours available for schools. You will be provided with a tour guide and can tour the HWMS in a school bus. The tours are free of cost, but arrangements must be made to provide your own bus transportation. To book a tour, email [accesshalton@halton.ca](mailto:accesshalton@halton.ca) or dial 311. For more information, see the website listed below and click under the tab “Tours for Schools”.

➔ [Access Excursion Information Here](#)

### Take Home Activity: At Home Food Waste Reduction Plan

Similar to an “at home fire plan”, students will design a food waste reduction plan to apply what they have learned to what can be done at home. Parents will be able to see what their child has been learning and participate in developing strategies to reduce their own household food waste.

The plan may include:

- A food waste target based on the current level of food waste at home.
- The actions that the family will take to reach the target.
- A timeline indicating different progress check points.
- Food waste indicators that will be used to assess if the target was reached.
- Responsibilities of each family member.

## Resources

---

### Food Waste Audit

#### **Ontario Eco-Schools**

A detailed waste audit resource was developed by Ontario Eco-Schools. It provides a three step guide to auditing recyclable, compostable and non-recyclable waste. It includes a garbage audit worksheet, a recycling audit worksheet, and a waste minimizing action plan.

➔ [Access the Resource Here](#)

### Food Recovery Hierarchy

#### **U.S. Environmental Protection Agency (EPA)**

The website offers information about the Food Recovery Hierarchy, tools for assessing wasted food, and tips on reducing food waste. The website also has information about the “United States Food Loss and Waste 2030” reduction goals (food loss and waste reduction of 50 percent over the next 15 years).

➔ [Access the Resource Here](#)

### Background Information

#### **Eat Right Ontario**

Eat Right Ontario is a website that offers information by registered dietitians on improving health and the quality of life through healthy eating. It offers tips on reducing food waste, tips on planning meals and much more.

➔ [Access the Resource Here](#)

#### **Environmental Protection Agency (EPA)**

The U.S. EPA has an entire section on food waste, highlighting ways to reduce wasted food at home through planning, storage, preparation tips. It also has valuable tips on diverting unspoiled food.

➔ [Access the Resource Here](#)

### **Green Bin Pledge for Toronto**

Toronto's Green Bin Challenge involves a "Green Bin Pledge", where schools are encouraged to not waste food, put proper items in the green bin, and to use the "waste wizard" if they are unsure of whether the waste belongs in the green bin.

➔ [Access the Resource Here](#)

### **Halton Food Council (HFC)**

The Halton Food Council is an independent, volunteer based, non-profit organization representing a broad range of sectors and interests across the food system in Halton Region. The Halton Food Council promotes and supports a sustainable local food system and inspires people into action. One area of focus has been food waste. The website includes articles about the food we waste and two food waste projects conducted by students of McMaster University.

➔ [Access the Resource Here](#)

### **Halton Region**

The Halton Region website has a wide range of information about recycling and waste. This can be found under the "Living in Halton" tab and includes the waste collection calendar, "put waste in its place" tool, information on blue box and green cart programs, acceptable materials and much more. Workshops aimed at elementary schools (primary, junior and intermediate students) focus on the 3R's (Reduce, Reuse, Recycle). Workshops are 30 min in length.

➔ [Access the Resource Here](#)

### **Love Food Hate Waste**

Metro Vancouver "Love Food Hate Waste" campaign is modeled after WRAP, the United Kingdom's successful campaign of the same name. The website provides useful tools, recipes, food storage tips, and more to help reduce food waste at home.

➔ [Access the Resource Here](#)

### **Sustain Ontario**

Sustain Ontario is a province-wide cross sectorial alliance that promotes healthy food and farming. Its mission is to provide coordinated support for the development of food systems throughout the province that are healthy, equitable, ecologically resilient and financially viable through collaborative action. The site has a link to "Love Your Food: 7 Steps to Reducing Household Food Waste"

➔ [Access the Resource Here](#)

### **Toronto Youth Food Policy Council (TYFPC)**

The TYFPC is the world's first youth run food policy council. It seeks to mobilize and engage youth by building a just food system. There are two permanent youth seats on the Toronto Food Policy Council. The website lists a section on food waste initiatives and provides a list of organizations and websites.

➔ [Access the Resource Here](#)

### **York Region**

York Region's website provides information on planning storage and use of leftover food to reduce food waste in the home.

➔ [Access the Resource Here](#)

### **York Region**

The York Region website provides an online tool to assist with weekly meal planning, and then translates this information into a grocery list as a meal to prevent "overbuying"

➔ [Access the Resource Here](#)

## **Take it Further: Resources on Food Labelling**

Food labelling is a source of major confusion for many Canadians. These resources can help students to learn about food labels at an early age.

### **Eat Right Ontario**

Eat Right Ontario is a website designed by registered dietitians to improve the health and quality of life through healthy eating. The website hosts a video (Episode 1: Introduction to Nutrition Labeling) that discusses information found on food labels.

➔ [Access the Resource Here](#)

### **Government of Canada**

How to read food date labels and packaging.

➔ [Access the Resource Here](#)

### **Government of Canada**

This website provides information on how to wash, prepare, store and cook fruits and vegetables to prevent food poisoning.

➔ [Access the Resource Here](#)



**Government of Canada, Canadian Food Inspection Agency (CFIA)**

The CFIA offers a website that is focused on educating consumers on food labels and discusses information about certain aspects of labels including best before date and country of origin information. It provides interactive tools on “understanding a food label” and “food label requirements” as well as fact sheets.

➔ [Access the Resource Here](#)

## Connection to Curriculum

---

### Science and Technology

#### Grade 4

##### Specific Expectations

1. Analyze the effects of human activities on habitats and communities.
  - 1.1 Analyze the positive and negative impacts of human interactions with natural habitats and communities (e.g. human dependence on natural materials), taking different perspectives into account (e.g. the perspectives of a housing developer, a family in need of housing, an ecologist), and evaluate ways of minimizing the negative impacts.

#### Grade 5

##### Specific Expectations

1. Relating science and technology to society and environment - evaluate the social and environmental impacts of processes used to make everyday products.
  - 1.1 Evaluate the environmental impacts of processes that change one product into another product through physical or chemical changes.
  - 1.2 Assess the social and environmental impact of using processes that rely on chemical changes to produce consumer products, taking different perspectives into account (e.g., the perspectives of food manufacturers, consumers, landfill operators, people concerned about the environment), and make a case for maintaining the current level of use of the product or for reducing it.

##### Conservation of energy

- 1.1 Analyze the long-term impacts on society and the environment of human uses of energy and natural resources, and suggest ways to reduce these impacts (e.g., turning off the faucet while brushing teeth or washing and rinsing dishes conserves water; reusing or recycling products, or using fewer products, conserves natural resources and energy).

## Social Studies

### Grade 4

#### **Specific Expectations**

- B1. Application: assess some key ways in which industrial development and the natural environment affect each other in two or more political and/or physical regions of Canada (Focus on: Cause and Consequence; Interrelationships).
- B1.2 Assess some aspects of the environmental impact of different industries in two or more physical and/or political regions of Canada (e.g., hydro-electric development in Quebec).
- B1.3 Describe some key actions taken by both industries and citizens to address the need for more sustainable use of land and resources (e.g., controlling industrial tailings; putting solar panels on houses or other buildings).
- B2. Inquiry: Use the social studies inquiry process to investigate some issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in one or more of the political and/or physical regions of Canada (Focus on: Perspective).
- B2.1 Formulate questions to guide investigations into some of the issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in one or more of the political and/or physical regions of Canada.
- B2.2 Gather and organize information and data from various sources to investigate issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in one or more of the political and/or physical regions of Canada.
- B2.4 Interpret and analyze information and data related to their investigations, using a variety of tools.
- B2.5 Evaluate evidence and draw conclusions about issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in Canada (Sample question: “What is your position on the issue of urban sprawl in the Greater Toronto Area? What do you think should be done to address this challenge?”).

### Grade 5

#### **Specific Expectations**

- B1. Application: assess responses of governments in Canada to some significant issues, and develop plans of action for governments and citizens to address social and environmental issues (FOCUS ON: *Interrelationships; Cause and Consequence*).
- B1.1 Assess the effectiveness of actions taken by one or more levels of government to address an issue of national, provincial/territorial, and/or local significance (*e.g., the effectiveness of the Far North Act in addressing concerns of Inuit and First Nations about development in northern Ontario; the effectiveness of municipal, provincial, and/or federal programs/policies aimed at reducing child poverty*);

- B1.2 Create a plan of action to address a social issue of local, provincial/territorial, and/or national significance (*e.g., homelessness, child poverty, bullying in schools, availability of physicians in remote communities*), specifying the actions.
- B1.3 Create a plan of action to address an environmental issue of local, provincial/ territorial, and/or national significance (*e.g., managing waste disposal, question- What action should citizens of the province take on this issue?"*).
- B2. Inquiry: use the social studies inquiry process to investigate Canadian social and/or environmental issues from various perspectives, including the perspective of the level (or levels) of government responsible for addressing the issues (FOCUS ON: *Perspective*).
- B2.1 Formulate questions to guide investigations into social and/or environmental issues in Canada from various perspectives, including the perspective of the level (or levels) of government responsible for addressing the issues (*e.g., the perspectives of different levels of government, non-governmental organizations (NGOs), professionals in the field and people directly affected by the issue*).
- B2.2 Gather and organize a variety of information and data that present various perspectives about Canadian social and/or environmental issues, including the perspective of the level (or levels) of government responsible for addressing the issues (*e.g., with respect to the issue of climate change, gather data on sources of carbon dioxide emissions affecting Canada, photographic evidence of melting polar ice and its impact on Inuit and Arctic wildlife, information on the positions and/or actions of various NGOs*).
- B2.4 Interpret and analyze information and data relevant to their investigations, using a variety of tools (*e.g., use an idea web to help them determine connections between the way in which a group is affected by climate change and its perspective on the issue*).
- B2.5 Evaluate evidence and draw conclusions about social/environmental issues, outlining the strengths and weaknesses of different positions on the issue, including the position of the level (or levels) of government responsible for addressing the issues (Sample questions-> what are the most difficult challenges associated with this issue?).
- B2.6 Communicate the results of their inquiries, using appropriate vocabulary (*e.g., government, local, municipal, provincial/territorial, federal, chief, band council, municipal council, Parliament, member of Parliament [MP], member of provincial parliament [MPP], non-governmental organization [NGO], stakeholder*) and formats (*e.g., a report to present to their local MP, MPP, or city/town councilor; a photo essay on the impact of the issue; a brochure or informational poster that presents the strongest points in the position of various stakeholders*;
- B3. Understanding Context: demonstrate an understanding of the roles and key responsibilities of citizens and of the different levels of government in Canada (FOCUS ON: *Significance*).
- B3.7 Describe some different ways in which citizens can take action to address social and environmental issues (*e.g., by determining the position of their local candidates on various issues and supporting/voting for the one whose position they agree with*).

## Grade 6

### **Specific Expectations**

- B1. Application: explain the importance of international cooperation in addressing global issues, and evaluate the effectiveness of selected actions by Canada and Canadian citizens in the international arena.
- B1.2 Analyze responses of Canadian governments, NGOs, and individual citizens to an economic, environmental, political, and/or social issue of international significance (e.g., how the federal government, different NGOs, business people, and individual consumers have responded to economic globalization)
- B1.3 Explain why some environmental issues are of international importance and require the participation of other regions of the world, along with that of Canada, if they are to be effectively addressed.
- B2. Inquiry: use the social studies inquiry process to investigate some global issues of political, social, economic, and/or environmental importance, their impact on the global community, and responses to the issues (Focus on Cause and Consequence).
- B2.1 Formulate questions to guide investigations into global issues of political, social, economic, and/or environmental importance (*e.g., child labour, dwindling oil supplies, ownership of and access to fresh water, climate change, food shortages*).
- B2.2 Gather and organize information on global issues of political, social, economic, and/or environmental importance, including their impact and responses to them, using a variety of resources and various technologies (*e.g., use spatial technologies, satellite images, and/or online image banks as part of their investigation into the diminishing of ocean reef life*)
- B2.5 Evaluate evidence and draw conclusions about global issues of political, social, economic, and/or environmental importance, their impact on the global community, and responses to the issues.

## Health and Physical Education

### Grade 4

- C1.1 Identify the key nutrients (e.g., fat, carbohydrates, protein, vitamins, minerals) provided by foods and beverages, and describe their importance for growth, health, learning, and physical performance.
- C2.2 Apply a decision-making process (e.g., identify potential dangers and risks, consider ways to stay safe, consider the pros and cons of each option, consider whether they need to check with an adult, choose the safest option, act, reflect on their decision, consider whether there is anything they could improve for next time) to assess risks and make safe decisions in a variety of situations (e.g., when using a wheelchair, cycling, preparing food).

C3.1 Identify ways of promoting healthier food choices in a variety of settings and situations (e.g., school, arena, recreation centre, stores, food courts, special events; when camping, having a snack or meal at a friend's house, eating on weekends versus weekdays).

### Grade 5

C2.1 Explain how to use nutrition facts tables and ingredient lists on food labels to make healthier personal food choices.

### Grade 6

C2.1 Apply their knowledge of medical, emotional, practical, and societal factors that influence eating habits and food choices (e.g., allergies and sensitivities, likes and dislikes, dental health, food availability, media influences, cultural influences, influence of family and friends, school food and beverage policies, environmental impact, cost) to develop personal guidelines for healthier eating.

C2.2 Apply their recognition of internal hunger and thirst cues and their knowledge of physical factors that influence the desire to eat and drink (e.g., stage of development, growth spurts, level of physical activity, eating larger portions) to develop personal guidelines for healthier eating.

## Acknowledgements

---

We would like to thank the following contributors to this tool kit:

*Halton Food Council's Food Waste Workgroup: Bob Briehl, Adeline Cohen, Anna DeMarchi-Meyers, Sue Gittings, Moira Matsubuchi-Shaw, Gillian Read, and Mishaal Rizwan.*

*Roger Brenninkmeyer and Paul Browning, Riverstone Branding  
Brenda Hajdu and Meaghan Richardson, Food for Life*