

Local food – myth or reality

Critical Challenge

- Critical tasks**
- A. Develop a workable definition of “local food.”
 - B. Revise a recipe that meets the criteria for “local food.”
 - C. Research and prepare an action plan to enhance your family’s local food choices.

Overview

In this three-part challenge, students explore the challenges to understanding and achieving the goals of the local food movement. To begin, students examine the range of reasons for the food choices they make, and the motivations for the local foods movement. After discussing the complexities of “local foods,” students develop a workable definition of the term. Students then debate the merits of the local food movement. They assess a cake recipe’s environmental footprint and revise the recipe to support the objectives of the local food movement. Finally, students research and prepare an action plan to enhance their family’s success in making food choices that support the environmental, economic, health and social justice principles associated with the local food movement.

Objectives

Broad understanding Buying local” is a confusing concept to define and a difficult goal to achieve.

Requisite tools

Background knowledge

- knowledge of the reasons for food choices
- knowledge of the benefits of, and concerns about, promoting local foods
- understand the concept of local food
- knowledge of family food choice practices



Criteria for judgment

- criteria for a workable definition (e.g., clear, comprehensive, includes important attributes)
- criteria for a local foods recipe (e.g., maintains quality of the product, reduces food miles/carbon footprint, uses local foods)
- criteria for a local food choices action plan (e.g., is feasible, is based on accurate information, makes a positive difference)



Critical thinking vocabulary



Thinking strategies

- reword statements
- rating
- data chart



Habits of mind



Ontario curriculum links

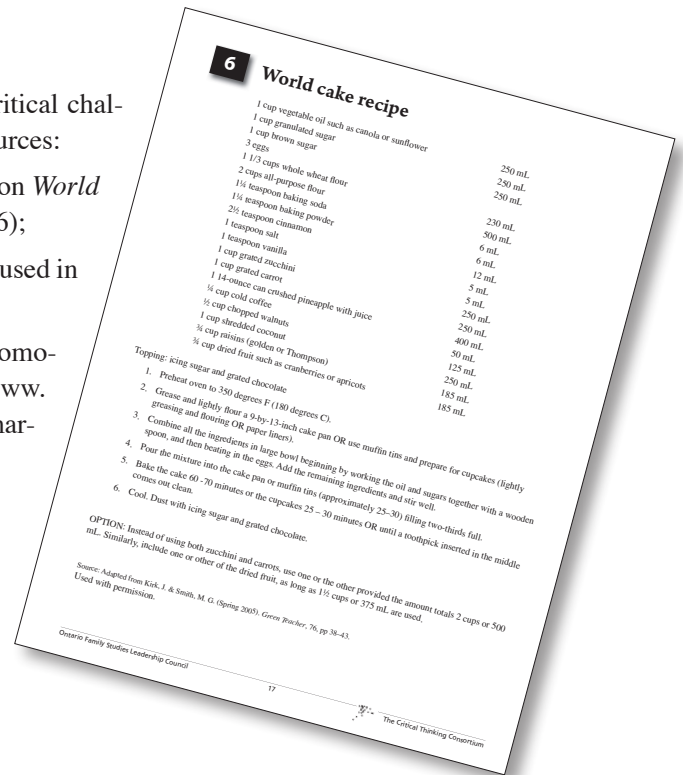
	Grade 9/10 Food and Nutrition	Grade 12 Food and Nutrition
Self and others	<p>Overall expectations</p> <ul style="list-style-type: none"> identify the various reasons for the choices people make about food <p>Specific expectations</p> <ul style="list-style-type: none"> describe ways that individuals and family members can contribute to the provision of food (e.g., growing fruits, vegetables and herbs; planning meals; shopping for food items; preparing meals) categorize the reasons why people eat the food they eat (e.g., cultural, emotional, environmental, nutritional, religious, social) 	<p>Overall expectations</p> <ul style="list-style-type: none"> identify the social, psychological, economic, emotional, cultural, religious, and physical factors that affect food choices <p>Specific expectations</p> <ul style="list-style-type: none"> describe the economic factors that have an impact on the food choices of individuals and families; identify the ways in which physical factors influence food choices (e.g., geographical location, regional growing seasons, availability of food markets, home storage capacity); plan menus for, select, and prepare foods, taking into consideration economic, geographical, and seasonal factors that affect the availability of ingredients
Personal and social responsibilities	<p>Overall expectations</p> <ul style="list-style-type: none"> identify consumer responsibility in the investigation of current food issues summarize the practical factors and demonstrate the skills involved in producing appetizing and healthy foods for themselves and others <p>Specific expectations</p> <ul style="list-style-type: none"> examine the relationship between consumer awareness and food marketing demonstrate the ability to follow a recipe, make substitutions, and alter portions as necessary demonstrate basic cooking and baking skills 	
Diversity, interdependence and global connections	<p>Overall expectations</p> <ul style="list-style-type: none"> identify food supply and production industries in Canada <p>Specific expectations</p> <ul style="list-style-type: none"> select and use regional and seasonal foods to plan and produce a Canadian food product or meal explain the importance of policy decisions as applied to global food issues (e.g., how personal and family decisions can affect our world); differentiate between the food production methods of developed and developing countries and the impact of those methods on food security 	<p>Overall expectations</p> <ul style="list-style-type: none"> identify the economic, political, and environmental factors that affect food production and supply throughout the world <p>Specific expectations</p> <ul style="list-style-type: none"> demonstrate an understanding of the effects of different environmental factors and issues on the production and supply of food items (e.g.; energy and resources required to produce various foods; use of pesticides, fertilizers, food additives and irradiation)
Social science research skills	<p>Overall expectations</p> <ul style="list-style-type: none"> effectively communicate the results of their inquiries <p>Specific expectations</p> <ul style="list-style-type: none"> select and use regional and seasonal foods to plan and produce a Canadian food product or meal explain the importance of policy decisions as applied to global food issues (e.g., how personal and family decisions can affect our world); differentiate between the food production methods of developed and developing countries and the impact of those methods on food security 	

Suggested Activities

Assemble resources

Pre-planning

- In preparation for this three-part critical challenge, assemble the following resources:
 - ingredients for the recipe found on *World cake recipe* (Blackline Master #6);
 - packaging labels from the foods used in the recipe;
 - assorted local food maps and promotional samples available from www.foodlink.ca and www.farmersmarketsontario.com.



Introduce the challenges

- Inform students that they will be exploring the benefits and challenges of embracing local foods. After revising a cake recipe to make it more local, students will investigate their family's success in balancing environmental, economic, health and social justice factors in their diet. Students are to recommend how their family's food choices may become more local and sustainable.

Identify food choices

- Invite students to make a list of everything they have eaten in the last day, and to record what they know about each of these food items (e.g., where they came from, nutritional value, cost). Ask students to share ideas with the class or with a partner.

Explore the reasons for food choices

- Pose the question: "Why do people choose the foods they do?" Record students' answers. Encourage diverse thinking and an assortment of reasons. Invite students to cluster the reasons around broader concepts such as the following:
 - personal taste
 - nutritional value
 - price
 - ease of access
 - religious or cultural practices
 - animal rights concerns (e.g., dolphin free tuna, free range animals)
 - human rights concerns (e.g., fair trade)
 - environmental concerns (e.g., environmental costs of production, endangered stocks)
 - health concerns (e.g., diabetes, food allergies).



understand
reasons for food
choices

Assessment for learning: Ask students to rank order the five considerations that should be most important when making food choice. Invite students to share their priority list with a partner, discussing the reasons for their rankings, and noting similarities and differences between their lists.

Brainstorm the benefits of local foods

Review stated reasons for local foods

Introduce difficulties in defining local food

➤ Ask students what they know about food miles and the “100-mile diet.” Invite students to discuss the reasons people have become increasingly interested in the local food movement. These include the environmental impact of shipping foods over long distances, benefits to the local economy, health benefits, and food quality. Prepare a list of ideas generated.



understand benefits of local foods

➤ Provide students with a copy of *Summarize the reasons* (Blackline Master #1). To help them better understand these reasons, ask students to rewrite in their own words each of the main reasons for encouraging consumers to choose local foods, and to think of a catchy phrase or statement for each reason. Suggest to students that their summary statement should satisfy the following criteria:



reword statements

- be brief,
- reflect the main point presented for each reason
- be amusing or memorable.

➤ Discuss the following questions to help students appreciate the difficulties in defining what qualifies as “local food”:

- Why might prepared foods, such as a loaf of bread, a bottle of wine, or a pie, make the local food designation difficult to determine? (Does “local” identify the source of some/all of the ingredients, where the product was processed or both?)
- Does “local” refers to a geographical region or to legal jurisdiction? (For example, are apples from upper New York state more “local” to someone living in Kingston than are apples grown in Meaford, Ontario?)
- How do campaigns to encourage consumers to buy Ontario produce match with the local food movement? (While they may be complementary it is not always the case. Similarly, “buy Canadian” does not always equate with “buy local.”)
- Must a food be organic in order to qualify as “local”? (Local foods may be grown using conventional methods.)

1 Summarize the reasons

Restate in your own words each of the suggested benefits of eating food-miles as a way to entice consumers to choose local foods. Create a catchy statement or phrase (e.g., tag line, bumper sticker, slogan) to summarize each reason.

Benefits of food-miles	Restated in own words:	Summary
<p>Environmental: Because locally grown food items travel shorter distances than those produced in more remote locations, they are said to generate less CO₂ and other greenhouse gas emissions. Above-ground local food production systems are also viewed as environmentally more sustainable than large, export-oriented systems where only one variety of crop is planted.</p>		
<p>Social: The globalization of the food-supply chain is said to have eroded the community ties that once existed between regional food producers and consumers in the area. Rebuilding these ties would generate significant social benefits. [Local farmers' markets help consumers and producer farmers build relationships.]</p>		
<p>Health: There is much concern over the safety and quality of conventionally produced food grown in countries with low health, safety, and environmental standards. Food produced in close proximity to consumers in more developed economies is also often viewed as fresher and therefore more nutritious and better tasting. [Compared to other countries, Canada's food safety regulations are considered to be very high. Canada's food safety system is also considered to be very high. Canada's food safety system is also considered to be very high. Canada's food safety system is also considered to be very high.]</p>		
<p>Economic: Locally produced food items improve the economic circumstances of many small-scale farmers who otherwise struggle in the face of international competition, along with the farmers of smaller stores who cannot access the international food market as easily as large food retailers, thereby improving the economic viability of rural communities and the independent retailers in advance economies.</p>		

Source: Peter Drouthorn and Hilda Shapiro, "Go, We Have no Intent: A critique of the "Food Miles" program" (October 2009), *Monterey Policy Series*, No. 8. Available at SSRN: <http://ssrn.com/abstract=1370669>

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Define "local" food

- Inform students that their challenge is to develop a workable definition of the concept of local foods. Their definition should clearly explain its meaning, contain no irrelevant information and include the most important ideas associated with the concept. Provide students with a copy of *Defining local food* (Blackline Master #2). Instruct students to add additional attributes and rate the importance of each attribute before developing their own composite definition. Encourage students to consult other sources such as Ontario Food Definitions (Foodland Ontario) <http://www.foodland.gov.on.ca/english/industry/ind-definitions.html>.



criteria for a workable definition



rating

2 Define "local" food

What should "local food" really mean? Rate the importance of each of the following requirements according to the scale provided. Add a rationale (supporting reasons) for each rating.

Definition/Explanation for "local food"	Rating			Rationale
	1 not important	2 somewhat important	3 very important	
Food grown and produced from within a 100 mile (160 kilometre) radius	1 2 3			
Food grown and produced from within a 100 kilometre radius	1 2 3			
Food grown and produced from within a 50 kilometre radius	1 2 3			
National product (all major ingredients and labour must come from within the country)	1 2 3			
Provincial product (all major ingredients and labour must come from within the province)	1 2 3			
Other factor	1 2 3			
Other factor	1 2 3			
Other factor	1 2 3			

To be considered "local" food must meet the following criteria:

- 1
- 2
- 3

Thinking critically about local food

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Assessment for learning: Post student definitions around the room and invite students to provide positive, constructive feedback using sticky notes. Encourage students to refine their definition based on the feedback and the insights gained from reading other definitions. Alternatively, develop a class definition based on student definitions.

Session Two

Challenge the concept of “local food”

- Inform students that the concept of “local” has its detractors, and the media and others have challenged the feasibility of embracing local foods. Distribute the two articles that are provided:

- *Against eating locally* (Blackline Master #4)
- *For eating locally* (Blackline Master #5).

- Invite students to read the articles and consider the opportunities, challenges and interesting implications of choosing local food. Provide students with a copy of *The merits of local and global food* (Blackline Master #3) to record their thoughts.



understand concerns about local foods

Debate the merits

- After completing the chart, encourage students to decide which of the following options best represents their position:

- the local food movement should be endorsed,
- the local food movement should be approached with caution,
- the local food movement should be rejected.

As a class, discuss the issue. Encourage students to support their position with sound reasons and accurate evidence.

4 Against eating locally
100 Mile Diet Skeptic: Is eating local really better?
by Chad Scheib

The Food Network TV show *100 Mile Challenge*, based on the book *The 100 Mile Diet* wrapped up this week. The show followed several families in the Fraser Valley city of Mission as they tried to eat locally for 100 days.

My wife, who is a Food Network fanatic, was a devoted viewer of the show and I caught bits and pieces of it.

4. Higher growth standards
Often smaller community farms are inclined to follow organic methods of production, use less mechanical inputs and more bio-diversity, saving energy and leaving a lighter footprint on the environment. "Organic systems have been shown to require 60 percent less nitrogen and 50 percent less phosphorus," according to Helmut Norberg-Hodgson, *The Food Economy Home*; Steve Gorelick, author of *Bringing Agriculture (and Books) Home*; *Local Alternatives to Global Chemicals in the Farming Process*.

5. Encourages use of farmland for food
Each year valuable farmland is lost to residential and commercial expansion. When you buy local you give local farmers an economic reason to keep the family farm alive.

6. Increases connection to food
Eating locally allows customers to connect directly to the land and meet farmers and gardeners face-to-face. Shopping at a farmer's market, for instance, and meeting the orchardist who grows local fruit or the baker who understands where our food comes from and how it is produced.

7. Saves us money
According to Alisa Smith and James MacKinnon, Vancouver authors of the newly released book *100-Mile Diet: A Year of Local Eating* (Random House Canada, 2007), say, "Most of us pay a big premium for organic, sprouted, or locally sourced products. In my opinion, you might prefer not to have in my body, or prepared foods like frozen pizza, and we were often buying bulk. We preserved enough food for the winter that we rarely had to buy groceries. Our 100-Mile Diet was mostly preserved and we were money by eating locally."

8. Waste reduction
Local growers require less unnecessary packaging and advertising to bring foods to market, which together, are estimated to account for more than 20 percent of total conventional food costs.

5A For eating locally
Ten reasons to eat local
by Catherine Gabriel

There is an "Eat Local" movement arising around the world and it is gaining momentum. Proponents claim that eating food that is grown or produced within a 150-kilometer radius from where one lives can have a significant impact on the health of our planet. But is it even possible to eat locally grown food all year round in one northern country?

I think back to our early pioneers who settled this country; for them, eating locally-produced food was customary. Before the supermarket era, local markets were the only way to shop. Today across Canada we are growing foods never thought possible at the same time, eating foods never thought of. McKibben, in his recent book, *Deep Economy* (Times Books, 2007), states that it takes five to 14 times less energy to feed oneself with locally-grown foods. Here are ten reasons to consider eating more foods that are produced regionally.

1. Fresher, tastier and highly nutritious
Locally-grown food tends to be fresher, often picked within 24 hours of your purchase—and is fresh with ripeness and bursting with flavour. Fresh local produce is more likely to have a higher nutrient content than typical store-bought produce that has spent time in a warehouse or transport truck. When fresh, local produce is available, freeze, can, or dry some to enjoy later in the year.

2. Promotes biodiversity
Independent small farmers are free to grow a more diverse variety of crops that feature high nutrition and superior taste compared to the agribusinesses that grow a limited variety of mono-crop variety for their uniform, extended shelf life.

3. Less pollution
The consumption of non-renewable, carbon dioxide-producing fossil fuels used in refrigeration and transport food adds greatly to greenhouse gas emissions. According to the David Suzuki Foundation the transport of a basic North American meal travel 2400 km (1,500 miles).

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- OPTIONAL: For more extended investigation, provide students with additional resources developed by proponents and opponents of local foods. These materials may include the following:

- Pierre Desrochers and Hiroko Shimizu, “Yes, we have no bananas: A critique of the ‘Food Miles’ perspective” (October 2008), <http://www.mercatus.org/PublicationDetails.aspx?id=24612>
- Rich Pirog, “Food miles: A Simple metaphor to contrast local and global food systems,” *Hunger and Environmental Nutrition* (Summer 2004) http://www.leopold.iastate.edu/pubs/staff/files/local_foods_HEN0604.pdf (or Google the title of the article)
- “Why eat local?” <http://100milediet.org/why-eat-local>

Invite students to critique the suggestion advanced in the article by Desrochers and Shimizu that the concept of food-miles is simply a marketing fad that masks “the very real and serious issues that affect energy consumption and the environmental impact of modern food production and the affordability of food.” Discuss whether or not this is a valid criticism.

Critique the local food movement



Session Three

Make a world food cake

Introduce the footprint of a recipe

- Inform the class that they will jointly bake a cake and then consider how well the cake meets the criteria for local food. Provide students with a copy of *World cake recipe* (Blackline Master #6). Assign one ingredient to each student with the responsibility for accurately measuring the ingredient and stirring it into the cake batter mixture. Point out that this is a one-bowl recipe where the order and process for mixing the ingredients are not crucial to the recipe's success.

- While the cake is baking, invite students to investigate the environmental footprint created by the choice of ingredients. Using one of the ingredient packages, such as the canned pineapple or the dried apricot package, invite students to hypothesize how far that food has travelled since its point of origin, and other environmental costs associated with processing and packaging. Distribute a copy of the briefing sheet *Understanding food impact* (Blackline Master #7) to introduce students to relevant concepts such as food miles and to explain how to calculate food miles for a given product. Direct students to the following websites as tools: <http://www.infoplease.com/atlas/calculate-distance.html> or <http://www.mapcrow.info/> or http://lifecyclesproject.ca/initiatives/food_miles/ (food miles calculator).

Explore food origins in the recipe

- Provide students with a copy of *Exploring the footprint* (Blackline Master #8) and the packaging labels collected from the ingredients of the world cake recipe. Ask students to list several of the main ingredients in the left-hand column of Blackline Master # 8 and, for each listed ingredient, provide the following:

- *second column:* record what they can find out know about the product's origins by examining product labels, consulting maps and conducting research;

7 Understanding food impact

Food miles: the distance a food travels from its source—the farmer who grew or produced it—to the consumer who finally eats the food. This distance includes the energy from farm to processor, from processor to retailer and from retailer to consumer.

Source: <http://www.macanhandictionary.com/buzzword/empes/foodmiles.html>

Carbon footprint: a measure of the impact our activities have on the environment, and in particular climate change. It refers to the amount of greenhouse gases produced in our daily lives through burning fossil fuels for electricity, heating, transportation and other energy needs. The carbon footprint is a measurement of all greenhouse gases we individually produce and how much of them we use.

Source: <http://www.carbonfootprint.com/carbonfootprint.html>

Fair miles: a term that challenges the exclusive emphasis on the distance that food has travelled and invites consideration of the social and humanitarian costs of not importing products from developing countries simply because the products have a lower carbon footprint.

Source: http://open.uta.hk/index2.php?option=com_contentam_pdf_viewer&id=54

Food labels: Under the Government of Canada revised labelling guidelines (December 31, 2008), if "Product of Canada" appears on the label, all major ingredients and those that are manufactured or processed in Canada regardless of whether they are imported or domestic or both. This food product may be only made if the last substantial transformation of the product happened in Canada. The label may also include "ingredients or Made in Canada from domestic and imported ingredients" or "Made in Canada from imported ingredients". The substantial transformation might refer to when a product was made. For example, many "made from concentrate" fruit juice beverages are derived from fruit concentrate produced in China and other countries, but are fully processed and packaged in a Canadian location.

Source: *Product of Canada and Made in Canada*, voluntary *Health Canada*, Government of Canada, Retrieved July 14, 2009 http://www.healthcanada.ca/nutr/2009-06-15h_e.html

Sugar substitution: One way to reduce the food miles when cooking and baking is to substitute local foods for more distance food. The following are various substitutes for sugar. Despite their difference in weight, one cup of white sugar weighs 8 oz. 1 cup of brown sugar weighs 6 oz. 1 cup of maple syrup weighs 11 oz and 1 cup of honey weighs 12 oz. You can substitute brown sugar for granulated white on a 1-to-1 basis, and the most significant difference will be taste.

- Substitute white sugar for brown sugar on a 1-to-1 basis, but add 4 tablespoons of molasses per cup, and decrease the total amount of liquid in the recipe by 2 tablespoons.
- Use honey in place of sugar, use 7/8 cup for every cup of sugar, and reduce the liquid in the recipe by 2 tablespoons.
- To use maple syrup in place of sugar, use 1-1/4 cups of sugar plus 1/4 cup for every 1 cup of sugar.
- To use maple syrup in place of a cup of sugar in baking, use 3/4 cup, but decrease the total amount of liquid in the recipe by about 2 tablespoons for each cup of syrup you use.
- To use sugar in place of a cup of maple syrup, use 1-1/4 cups of sugar plus 1/4 cup more liquid.

Source: <http://www.ockt.com/91.htm>

Statistics on food miles: The calculation of food miles is very complicated, as it is actually much more than just the distance between two points. Studies have been conducted on the environment:

- In the United States, food typically travels 1,500–2,500 miles from farm to plate, as much as 25% farther than in Canada.
- The average North American meal travels 2,400 kilometers from field to plate. That's roughly the drive distance between Toronto and Regina.
- Conventional produce items travel 8 to 12 times farther than local produce to reach points of sale. The average food mile or weighted average source distance (WASD) for locally grown produce to reach markets was 56 miles while the conventional distance was 1,454 miles, nearly 27 times farther. (Checking the Food Oddsometer as cited by Pimental, 2008).
- Carrots from California travelled 59 times farther than carrots from a local (Hamilton) farm [at the Dufferin Grove Farmers Market in Toronto] (Beutley and Barker as cited by Pimental, 2008).
- A half kilogram of local (Hamilton) lamb generated 7 grams of carbon dioxide through transportation, the same quantity of fresh New Zealand lamb yielded over 8 kilograms for the Dufferin Grove Farmers Market in Toronto] (Beutley and Barker as cited by Pimental, 2008).

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8 Exploring the footprint

Ingredient	Here's what I know about the origins of the ingredient and where and how it was processed?	So what? Do the origins and processing location have a large or small carbon footprint?	Now what? What alternatives would reduce the carbon footprint of the recipe?

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Plot the food miles

- *third column*: make notes regarding the implications for the environment (food miles, carbon footprint) of the inclusion of the identified ingredients;
- *fourth column*: suggest alternatives that would maintain the quality of the end product, but reduce the food miles/carbon footprint and use local foods.

➤ **OPTIONAL:** Invite students to visually illustrate the distance each ingredient travelled on a world map using strings to connect the county of origin to their town.

Assessment for learning: Encourage students to share their revised recipe with a fellow student in the class, a friend outside the class or a family member. Encourage them to ask for feedback regarding the feasibility, affordability and significance of their changes to the recipe.

Opportunity for differentiation: Provide some students with accessible sources of information; invite others to locate their own resources.

Session Four

Investigate family food choices

➤ Inform students that their final challenge is to research their family's efforts to balance environmental, economic, health and social justice considerations in their eating habits. Provide students with a copy of *Investigating family food choices* (Blackline Master #9) to gather information about the family's food choices in terms of six factors:

- food origins
- cost of food for the value received
- environmental impact
- health benefits
- supports for local economy
- fair trade and human rights concerns.

9 Investigating family food practices		
Criteria	Evidence criteria met	Evidence criteria not met
Considers food origins		
Considers cost of food for the value received		
Considers environmental impact		
Considers health benefits		
Supports local economy		
Considers fair trade and human rights		

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data chart

Develop an action plan

➤ Direct students to find several pieces of evidence on the presence and absence of each factor by investigating the following:

- the food items in their home to determine evidence of any of the criteria listed above (e.g., fair trade coffee, organic foods);



knowledge of family food practices

Examine family practices

- whether there are viable alternatives to the items that are not local;
- the factors that family members consider when making food purchases;
- what barriers family members anticipate if they were to make alternative food choices.



➤ Instruct students to use what they have learned about the many considerations surrounding food consumption and the possible alternatives, to identify their family's strengths and areas of improvement and propose an action plan to enhance their family's local food choices. Provide students with a copy of *Family food choice action plan* (Blackline Master #10) to record their conclusions. Introduce the following criteria for sound local food choice recommendations:

- are affordable and feasible to implement;
- based on accurate evidence about family food choice practices;
- make a positive difference in the environmental, health and social impact of the family diet.

10 Family food choice action plan

Strengths

Areas for improvement

Recommended next steps

- 1
- 2
- 3

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Session Five

Debrief lessons learned

➤ Arrange for students to share their conclusions about how to enhance their family local food choices. Encourage other students to comment on the recommendations in light of the criteria discussed above. Evaluate student learning using the rubric found on *Assessing the learning expectations* (Blackline Master #11).

11 Assessing learning expectations

	Level 1	Level 2	Level 3	Level 4
Knowledge Identify the personal reasons and social factors that influence the choices people make about food.	Shows limited understanding of the range of factors affecting decisions about local foods.	Shows some understanding of the range of factors affecting decisions about local foods.	Shows a generally accurate and clear understanding of the range of factors affecting decisions about local foods.	Shows highly accurate and thorough understanding of the range of factors affecting decisions about local foods.
Communication Effectively communicate the results of their inquiries.	Has limited success in gathering, summarizing, explaining and communicating the results of their inquiries.	Is somewhat effective in gathering, summarizing, explaining and communicating the results of their inquiries.	Is generally effective in gathering, summarizing, explaining and communicating the results of their inquiries.	Is very effective in gathering, summarizing, explaining and communicating the results of their inquiries.
Thinking/Inquiry Identify consumer responsibility in the investigation of current food issues.	With limited effectiveness, designs a food choices action plan to enhance the environment, economic, health and social effects of the family diet.	Is somewhat effective in designing a food choices action plan to enhance the environment, economic, health and social effects of the family diet.	Is generally effective in designing a food choices action plan to enhance the environment, economic, health and social effects of the family diet.	Is highly effective in designing a food choices action plan to enhance the environment, economic, health and social effects of the family diet.
Application Demonstrate the skills involved in producing appealing and healthy foods for themselves and others.	With limited effectiveness, reduces the "footprint" of the cake recipe using plausible alternatives from local food sources.	Is somewhat effective at reducing the "footprint" of the cake recipe using plausible alternatives from local food sources.	Is generally effective at reducing the "footprint" of the cake recipe using plausible alternatives from local food sources.	Is highly effective at reducing the "footprint" of the cake recipe using plausible alternatives from local food sources.

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- Skelton, C. (2009, May 12). 100 mile diet skeptic: Is eating local really better? *The Vancouver Sun*. Retrieved July 15, 2009 <http://communities.canada.com/vancouver.sun/blogs/parenting/archive/2009/05/12/100-mile-diet-criticism-locavore.aspx>.

1

Summarize the reasons

Restate in your own words each of the suggested benefits of using food-miles as a way to entice consumers to choose local foods. Create a catchy statement or phrase (e.g., tag line, bumper sticker, slogan) to summarize each reason.

Benefits of food-miles	Summary
<p>Environmental: Because locally grown food items travel shorter distances than those produced in more remote locations, they are said to generate less CO₂ and other greenhouse gas emissions. More diversified local food production systems are also viewed as environmentally more sustainable than large, export-oriented systems where only one variety of crop is planted.</p>	<p>Restated in own words:</p> <p>Catchy summary statement:</p>
<p>Social: The globalization of the food-supply chain is said to have eroded the community ties that once existed between regional food producers and consumers in the area. Rebuilding these ties would generate significant social benefits. [Local farmers' markets help consumers and producer farmers build relationships.]</p>	<p>Restated in own words:</p> <p>Catchy summary statement:</p>
<p>Health: There is much concern over the safety and quality of conventionally produced food grown or raised in countries with low health, safety, and environmental standards. Food produced in closer proximity to consumers in more developed economies is also often viewed as fresher and therefore more nutritious and better tasting. [Compared to other countries, Canada's food safety regulations are considered to be very tough. Canada requires farmers to strictly manage pesticides to protect consumer health and safety.]</p>	<p>Restated in own words:</p> <p>Catchy summary statement:</p>
<p>Economic: Locally produced food items improve the economic circumstances of (mostly small scale) farmers who otherwise struggle in the face of international competition, along with the fortunes of smaller stores who cannot access the international food market as easily as large food retail chains, thereby improving the economic viability of rural communities and the independent retailers in advance economies.</p>	<p>Restated in own words:</p> <p>Catchy summary statement:</p>

Source: Pierre Desrochers and Hiroko Shimizu, "Yes, We have no bananas: A critique of the "Food-Miles" perspective" (October 2008). *Mercatus Policy Series*, No. 8. Available at SSRN: <http://ssrn.com/abstract=1315986>

2 Define “local” food

What should “local food” really mean? Rate the importance of each of the following requirements according to the scale provided. Add a rationale (supporting reasons) for each rating.

1
not important

2
somewhat important

3
very important

Definition/Explanation for “local food”	Rating	Rationale
Food grown and produced from within a 100 mile (160 kilometre) radius	1 2 3	
Food grown and produced from within a 100 kilometre radius	1 2 3	
Food grown and produced from within a 50 kilometre radius	1 2 3	
National product (all major ingredients and labour must come from within the country)	1 2 3	
Provincial product (all major ingredients and labour must come from within the province)	1 2 3	
Other factor	1 2 3	
Other factor	1 2 3	
To be considered “local” food must meet the following criteria:		
1		
2		
3		

3

The merits of local and global foods

Opportunities (potential benefits)	Challenges (potential negative implications and hurdles to overcome)	Interesting applications (possible related consequences and unintended impacts)
<p>The idea of choosing local foods should move forward because . . .</p>		
<p>The idea of choosing local foods should move forward with caution because . . .</p>		
<p>The idea of choosing local food does not merit further consideration because . . .</p>		

4

Against eating locally

100 Mile Diet Skeptic: Is eating local really better?

by Chad Skelton

The Food Network TV show 100 Mile Challenge, based on the book *The 100 Mile Diet* wrapped up this week. The show followed several families in the Fraser Valley city of Mission as they tried to eat locally for 100 days.

My wife, who is a Food Network fanatic, was a devoted viewer of the show and I caught bits and pieces of it.

In general, I think it's a good thing for people to give more thought to where their food comes from.

And, in certain circumstances, I can definitely appreciate the advantages of eating local.

For example, fresh, plump blueberries from the Valley are like nothing I've ever tasted from a supermarket freezer aisle – and our family usually freezes dozens of pounds of them every year.

But I find the devotion some people have to eating local a bit fanatical. And I remain deeply skeptical of the idea that we should all eat local as often as we can, for a few key reasons:

- It's far from clear-cut that eating locally is always better for the environment—or that where your food comes from even makes that big of a difference. Indeed, a U.S. study found that only 4% of the carbon emissions related to food involved the transportation of the food from the producer to the retailer. Far more important than where your food comes from are the agricultural practices used in how it's made. Indeed, one New Zealand study found that, for UK consumers, eating local British lamb actually caused more greenhouse gas emissions than eating lamb from New Zealand because the New Zealand farmers used more environmentally friendly practices. And how much meat you eat also makes a big difference: a University of Chicago study found adopting a vegan diet had a bigger environmental benefit than driving a Prius.
- A UK study found that half the environmental impact of food production involves the carbon consumers burn on their trip to the grocery store. The few clips of the 100 Mile Challenge that I did catch often seemed to involve families driving much further than that—all over the Valley in their minivan trying to source local food. Local food advocates argue that if we put more value on eating locally we'd be able to find all these things in our local supermarket.
- Perhaps. But that doesn't change the fact trying to eat locally now involves burning up a lot of gas. It seems to me that encouraging people to make fewer trips per week to the grocery store may have more of an impact on the environment than what they put in their shopping cart.
- Local food advocates—sometimes known as locavores—often seem to view the impact of their food consumption in isolation from other aspects of their lifestyle. For example, it's well established that living in the suburbs and commuting into work causes far greater greenhouse gas emissions than living in a downtown apartment. So wouldn't it be better for the environment to convince people living in Mission to move to the West End rather than to change their diet?
- Food is one of the few products really poor countries can sell to the West to help get their nations out of poverty. In fact, many aid groups spend a lot of their time working to eliminate trade barriers and government subsidies that make it hard for foreign food to be sold here. It seems to me that eating locally—not just occasionally, but most of the time—sets back efforts to ease world poverty.

Source: Skelton, C. (2009-05-12). 100 mile diet skeptic: Is eating local really better? The Vancouver Sun. Retrieved July 15, 2009 <http://communities.canada.com/vancouversun/blogs/parenting/archive/2009/05/12/100-mile-diet-criticism-locavore.aspx>

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Ten reasons to eat local

by Cathrine Gabriel

There is an “Eat Local” movement arising around the world and it is gaining momentum. Proponents claim that eating food that is grown or produced within a 150-kilometre radius from where one lives can have a significant impact on the health of our planet. But is it even possible to eat locally grown food all year round in our northern country?

I think back to our early pioneers who settled this country; for them, eating locally-produced food was customary. Before the supermarket era, local markets were the only way to shop. Today across Canada we are growing foods never thought possible a century ago, making eating local more feasible and at the same time easing the impact on the environment. Bill McKibben, in his recent book, *Deep Economy* (Times Books, 2007), states that it takes five to 14 times less energy to feed oneself with locally-grown foods. Here are ten reasons to consider eating more foods that are produced regionally.

1. Fresher, tastier and highly nutritious

Locally-grown food tends to be fresher, often picked within 24 hours of your purchase—and is lush with ripeness and bursting with flavour. Fresh, local produce is more likely to have a higher nutrient content than typical store-bought produce that has spent time in a warehouse or transport truck. When fresh, local produce is available, freeze, can, or dry some to enjoy later in the year.

2. Promotes biodiversity

Independent small farmers are freer to grow a more diverse variety of crops that feature high nutrition and superior taste compared to the agribusinesses that grow a limited variety of mono-crops strictly for their uniform size, precise harvesting time, ability to ship well, and extended shelf life.

3. Less polluting

The consumption of non-renewable, carbon dioxide-producing fossil fuels used to refrigerate and transport food adds greatly to greenhouse gas emissions. According to the David Suzuki Foundation the elements of a basic North American meal travel 2,400 km (1,500 miles).

4. Higher growth standards

Often smaller community farms are inclined to follow organic methods of production, are less mechanized, and more biodiverse, saving energy and leaving a lighter footprint on the environment. “Organic systems have been shown to require 60 percent less fossil fuel per unit of food produced,” according to Helena Norberg-Hodge, Todd Merrifield, and Steve Gorelick, authors of *Bringing The Food Economy Home: Local Alternatives to Global Agribusiness* (Zed Books Ltd., 2002), and also mean less chemicals in the farming process.

5. Encourages use of farmland for food

Each year valuable farmland is lost to residential and commercial expansion. When you buy local, you give local farmers an economic reason to keep the family farm alive.

6. Increases connection to food

Eating locally allows consumers to connect directly to the land and meet farmers and gardeners face-to-face. Shopping at a farmer’s market, for instance, and meeting the orchardist who grows local fruits or the baker who bakes local bread, gives us a much more meaningful understanding of where our food comes from and how it is produced.

7. Saves us money

According to Alisa Smith and James MacKinnon, Vancouver authors of the newly released book *100-Mile Diet: A Year of Local Eating* (Random House Canada, 2007), say, “Most of us pay a big premium for out-of-season foods like cherries in winter or prepared foods like spaghetti sauce, usually with a long list of ingredients we might prefer not to have in our bodies. Eating locally, we bought fresh ingredients in season and direct from the farmer—and we were often buying bulk. We preserved enough food for the winter that we rarely had to buy groceries. Our bet? Most people eating a typical diet could save money by eating locally.”

8. Waste reduction

Local growers require less unnecessary packaging and advertising to bring foods to market, which together, are estimated to account for more than 20 percent of total conventional food costs.

9. Supports local economy

Farmers who sell directly to local customers receive the full value for their product, rather than see the majority of our food dollar go towards processing, transportation, packing, warehousing, advertising, and other marketing costs.

10. Sustainability

The underlying problems of today's food and farming systems are but reflections of deeper problems within the whole of society. It makes no economic, environment, or health sense to import most of our spinach from China when we can easily grow it here, for example.

As we begin to realize the inherent benefits of relationships of integrity within local food systems, we will begin the process of healing the ecological and social wounds that plague modern society.

Take the challenge. Whether you grow your own food in your backyard or at a community garden, shop at a farmer's market, buy directly from the farm gate, have a box of fresh produce delivered to your door, or belong to a local food cooperative, there are many, many sound reasons to eating locally grown food. Even eating a portion of your food from a local source can make a big difference for your health and our earth.

For more information about eating locally:

www.100milediet.org

www.davidsuzuki.org

www.eatlocal.org

What about chocolate and coffee?

While I'm all for buying locally produced food, I also see the value of supporting developing countries and village economies through purchasing fair-trade products on occasion. Recently, in the community where I live, I attended a travelling market that offered a selection of imported food items – exotic spices, organic, shade-grown coffee, dark chocolate, Brazil nuts, natural cane sugar – that gave me pause to consider a compromise in terms of my food dollars going beyond supporting my local farmers and reaching out to contribute to the livelihoods of small growers in Third World countries.

Fair trade, with its practice of buying directly from small-scale farmers and producers in developing countries and marketing their products in developed countries, offers customers ethical choices and in turn guarantees a fair price to the producer while promoting sustainable economic and environmental practices.

Cathrine Gabriel has worked in the natural health field for over 30 years. She has managed her family's health food store, is past administrator of Health Action Network Society and former co-host of the Healthy Living Show with Croft Woodruff. Cathrine now lives in Alberta.

Gabriel, C. (Summer 2007). Ten reasons to eat local. *Health Action Magazine*. Retrieved July 10, 2009 <http://www.hans.org/magazine/331/Ten-Reasons-to-Eat-Local.html>

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World cake recipe

1 cup vegetable oil such as canola or sunflower	250 mL
1 cup granulated sugar	250 mL
1 cup brown sugar	250 mL
3 eggs	
1 1/3 cups whole wheat flour	230 mL
2 cups all-purpose flour	500 mL
1 1/4 teaspoon baking soda	6 mL
1 1/4 teaspoon baking powder	6 mL
2 1/2 teaspoon cinnamon	12 mL
1 teaspoon salt	5 mL
1 teaspoon vanilla	5 mL
1 cup grated zucchini	250 mL
1 cup grated carrot	250 mL
1 14-ounce can crushed pineapple with juice	400 mL
1/4 cup cold coffee	50 mL
1/2 cup chopped walnuts	125 mL
1 cup shredded coconut	250 mL
3/4 cup raisins (golden or Thompson)	185 mL
3/4 cup dried fruit such as cranberries or apricots	185 mL

Topping: icing sugar and grated chocolate

1. Preheat oven to 350 degrees F (180 degrees C).
2. Grease and lightly flour a 9-by-13-inch cake pan OR use muffin tins and prepare for cupcakes (lightly greasing and flouring OR paper liners).
3. Combine all the ingredients in large bowl beginning by working the oil and sugars together with a wooden spoon, and then beating in the eggs. Add the remaining ingredients and stir well.
4. Pour the mixture into the cake pan or muffin tins (approximately 25–30) filling two-thirds full.
5. Bake the cake 60 -70 minutes or the cupcakes 25 – 30 minutes OR until a toothpick inserted in the middle comes out clean.
6. Cool. Dust with icing sugar and grated chocolate.

OPTION: Instead of using both zucchini and carrots, use one or the other provided the amount totals 2 cups or 500 mL. Similarly, include one or other of the dried fruit, as long as 1 1/2 cups or 375 mL are used.

Source: Adapted from Kirk, J. & Smith, M. G. (Spring 2005). *Green Teacher*, 76, pp 38–43.

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7

Understanding food impact

Food miles: the distance a food travels from its source—the farmer who grew or produced it—to the consumer who finally eats the food. This distance includes the journey from farm to processor, from processor to retailer and from retailer to consumer.

Source: <http://www.macmillandictionary.com/buzzword/entries/food-mile.html>

Carbon footprint: a measure of the impact our activities have on the environment, and in particular climate change. It relates to the amount of greenhouse gases produced in our day-to-day lives through burning fossil fuels for electricity, heating, transportation and other energy needs. The carbon footprint is a measurement of all greenhouse gases we individually produce and has units of tonnes (or kg) of carbon dioxide equivalent.

Source: <http://www.carbonfootprint.com/carbonfootprint.html>

Fair miles: a term that challenges the exclusive emphasis on the distance that food has travelled and invites consideration of the social and humanitarian costs of not importing products from developing countries simply because the products have to travel so far.

Source: http://spore.cta.int/index2.php?option=com_content&do_pdf=1&id=341

Food labels: Under the Government of Canada revised labelling guidelines (December 31, 2008), if “Product of Canada” appears on the label, all major ingredients and labour used to make the food product must come from Canada. If “Made in Canada” appears on the label, then the food product can be manufactured or processed in Canada regardless of the ingredients being imported or domestic or both. This claim may be only made if the last substantial transformation on the product happened in Canada. The claim may be qualified with either ‘Made in Canada from domestic and imported ingredients’ or ‘Made in Canada from imported ingredients’. The substantial transformation might refer to where a product was made. For example, many “made from concentrate” fruit juice beverages are derived from fruit concentrate produced in China and other countries, but are fully processed and packaged in a Canadian location.

Source: Product of Canada and Made in Canada voluntary claims on food labels and in advertising. (2008-07-15).

Healthy Canadians. Government of Canada. Retrieved July 14, 2009 http://www.healthycanadians.ca/media/2008-06-15bk_e.html

Sugar substitution: One ways to reduce the food miles when cooking and baking is to substitute local foods for more distance food. The following are various substitutes for sugar:

- Despite their difference in weight [one cup of white sugar

weighs 8 oz, 1 cup of brown weighs 6 oz, 1 cup of maple syrup weighs 11 oz and 1 cup of honey weighs 12 oz], you can substitute brown sugar for granulated white on a 1-to-1 basis, and the most significant difference will be taste.

- Substitute white sugar for brown sugar on a 1-to-1 basis, but add 4 tablespoons of molasses per cup, and decrease the total amount of liquid in the recipe by 3 tablespoons.
- To use honey in place of sugar, use 7/8 cup for every cup of sugar, and reduce the liquid in the recipe by 3 tablespoons.
- To use sugar in place of honey, use 1-1/4 cups of sugar plus 1/4 cup more liquid.
- To use maple syrup in place of sugar in *cooking*, use 3/4 cup for every 1 cup of sugar.
- To use maple syrup in place of a cup of sugar in *baking*, use 3/4 cup, but decrease the total amount of liquid in the recipe by about 3 tablespoons for each cup of syrup you use.
- To use sugar in place of a cup of maple syrup, use 1-1/4 cups of sugar plus 1/4 cup more liquid.

Source: <http://www.ochef.com/91.htm>

Statistics on food miles: The calculation of food miles is very complicated, as it is actually much more than just the distance between two points. Studies have been conducted and formulas created to understand the impact of food miles on the environment:

- In the United States, food typically travels 1,500 – 2,500 miles from farm to plate, as much as 25 % farther than in 1980 (*WorldWatch Institute* as cited by Priesnitz, 2008).
- The average North American meal travels 2,400 kilometers from field to plate. That’s roughly the driving distance between Toronto and Regina. (David Suzuki Foundation as cited in Health Action Network Society, 2009).
- Conventional produce items travel 8 to 92 times farther than local produce to reach points of sale. The average food mile or “weighted average source distance” (WASD) for locally grown produce to reach markets was 56 miles while the conventional distance was 1,494 miles, nearly 27 times further. (*Checking the Food Odometer* as cited by Priesnitz, 2008).
- Carrots from California traveled 59 times further than carrots from a local [Hamilton] area farm [at the Dufferin Grove Farmers’ Market in Toronto] (Bentley and Barker as cited by Priesnitz, 2008).
- A half kilogram of local [Hamilton] lamb generated 7 grams of carbon dioxide through transportation, the same quantity of fresh New Zealand lamb yielded over 8 kilograms [at the Dufferin Grove Farmers’ Market in Toronto] (Bentley and Barker as cited by Priesnitz, 2008).

Exploring the footprint

Ingredient	Here's what What do I know about the origins of the ingredient and where and how it was processed?	So what? Do the origins and processing location have a large or small carbon footprint?	Now what? What alternatives would reduce the carbon footprint of the recipe?

9

Investigating family food practices

Criteria	Evidence criteria met	Evidence criteria not met
Considers food origins		
Considers cost of food for the value received		
Considers environmental impact		
Considers health benefits		
Supports local economy		
Considers fair trade and human rights		

10

Family food choice action plan

Strengths	Areas for improvement
Recommended next steps	
<ol style="list-style-type: none">123	

11

Assessing learning expectations

	Level 1	Level 2	Level 3	Level 4
Knowledge identify the personal reasons and social factors that influence the choices people make about food	Shows limited understanding of the range of factors affecting decisions about local foods	Shows some understanding of the range of factors affecting decisions about local foods	Shows a generally accurate and clear understanding of the range of factors affecting decisions about local foods	Shows highly accurate and thorough understanding of the range of factors affecting decisions about local foods
Communication effectively communicate the results of their inquiries	Has limited success in gathering, summarizing, explaining and communicating the results of their inquiries	Is somewhat effective in gathering, summarizing, explaining and communicating the results of their inquiries	Is generally effective in gathering, summarizing, explaining and communicating the results of their inquiries	Is very effective in gathering, summarizing, explaining and communicating the results of their inquiries
Thinking/ inquiry identify consumer responsibility in the investigation of current food issues	With limited effectiveness, designs a food choices action plan to enhance the environment, economic, health and social effects of the family diet	Is somewhat effective in designing a food choices action plan to enhance the environment, economic, health and social effects of the family diet	Is generally effective in designing a food choices action plan to enhance the environment, economic, health and social effects of the family diet	Is highly effective in designing a food choices action plan to enhance the environment, economic, health and social effects of the family diet
Application demonstrate the skills involved in producing appetizing and healthy foods for themselves and others	With limited effectiveness, reduces the "footprint" of the cake recipe using plausible alternatives from local food sources	Is somewhat effective at reducing the "footprint" of the cake recipe using plausible alternatives from local food sources	Is generally effective at reducing the "footprint" of the cake recipe using plausible alternatives from local food sources	Is highly effective at reducing the "footprint" of the cake recipe using plausible alternatives from local food sources