



O CANADA! FOOD ON THE INTERNATIONAL SPACE STATION



FITNESS AND NUTRITION

MISSION DESCRIPTION

In this activity, participants will learn about a variety of foods across Canada including multicultural dishes and famous cuisines by province and territory. Participants can choose a specific dish/meal from a specific province or territory to send to the International Space Station (ISS) to represent Canada.

TIMELINE

Breakdown	Duration
Lesson using background information	10 minutes
Activity #1: Group discussion	15 minutes
Activity #2: Assignment of province or territory	5 minutes
Activity #2: Small groups conduct research on their assigned province or territory and brainstorm popular foods and how to transform into a space-suitable item	60 minutes
Group presentations	15 minutes
Total	105 minutes

Difficulty: **MODERATE**

Duration: **105 MINUTES**

Materials: **MINIMAL**

GOALS

To increase knowledge of Canadian geography, culture and food. To increase knowledge of the provinces and territories of Canada. Additionally, participants will increase their knowledge of food processing and packaging to alter an item to make it suitable to be sent to space.

OBJECTIVES

By the end of this activity, participants will be able to:

- List basic geographical features of at least one province or territory in Canada;
- Identify cultural or popular foods in at least one province or territory in Canada and differentiate between foods that should be consumed more often or less often based on Canada's Food Guide;
- Describe at least one way to transform the food item to make it space-suitable.



BACKGROUND

Every province and territory across Canada has its unique cuisine or famous dish, which was likely influenced by the geography and culture of the place. With its vastly different landscapes and cultures, Canada boasts many types of foods that are specific to different regions.

The Canadian Space Agency (CSA) selects foods across Canada to be sent to the International Space Station (ISS) for CSA astronauts and their crewmembers to enjoy. One of the requirements is that the food product be made by a Canadian company and be a unique item to add variety to the foods available on the Station. The CSA aims to make a variety of products available to provide a good representation of Canada. In prior missions, the CSA sent British Columbian fish and seafood; Québécois ready-to-eat meals such as stews and risotto, maple syrup, cookies, and chocolate; Albertan ready-to-eat foods such as a whole grain salad; Saskatchewan pemmican jerky; and Ontarian red peppers.

As mentioned in “Close Encounters of the Tasty Kind,” food sent to the ISS should meet a number of criteria.

Recommended Properties for Space Food:

- Not carbonated (not bubbly or fizzy)
- Texture is not crumbly or brittle
- Food is chewy, sticky, thick, spicy, or flavourful
- No strong odours

Food Packaging and Processing for Space Flight:

- Foods packaged or processed in the following ways are best for space flight:
- Not packaged in glass
- Small quantity packages
- Lightweight (dehydrated or naturally lightweight)
- Shelf-stable at room temperature for a minimum of 12 months

For this activity, participants may need to propose processing, packaging, or sensory changes to their chosen food product/dish to make it suitable for space. Examples of changes include:

- Dehydrating or freeze-drying a food product (this also extends the shelf life)
- Making liquids thicker
- Swapping crumbly bread products for low-crumbs products like tortillas
- Repacking a product into small portions
- Adding an easy-pull tab to a can

Combining multiple methods of the above is acceptable, especially if the dish has multiple food components.

For more information on food processing techniques, refer to the background in **Close Encounters of the Tasty Kind** and **Trading Spaces: Living and Eating Off Earth**.

Note: The ISS does not have refrigeration or freezer capabilities for food, so suggestions to freeze food or keep cold in a refrigerator are not suitable for space.

MISSION PREPARATION

MATERIALS

- Background
- Laptop/tablet and library access



ACTIVITY 1 (15 MINUTES)

As a class, discuss and create a list of popular foods or food dishes in your province or territory. Ask participants to identify which foods meet the food guide and should be consumed more often and foods which do not meet the food guide and should be consumed less often. Additionally, ask participants to brainstorm ways to transform certain foods on the list to make them suitable for space.

ACTIVITY 2 (65 MINUTES)

Participants work in small groups to research an assigned province or territory in Canada to gain information about the basic geography, cultures, and popular foods. Each group can draw the name of a province or territory out of a box. The groups can research their province or territory to determine which food item would best represent the region while meeting Canada's Food Guide. Additionally, participants can describe how they could transform the food to make it suitable for space (altering the packaging, processing it differently, etc.). After the food is chosen and designed for space, each group can present to the class.

The presentations may include, but are not limited to, the following:

- Brief history of province or territory
- Population
- Geography of province or territory – does this affect the cuisine?
- Famous food dish
- Methods to transform the item to make it suitable for space
- Explanation of how the chosen food meets Canada's Food Guide

If the participants are unable to gather a lot of information about the province or territory, refer to the additional resource information for help.

Cut out the following provinces and territories and place the names in a box for participants to draw from.

Alberta	British Columbia
Manitoba	New Brunswick
Newfoundland and Labrador	Nova Scotia
Ontario	Prince Edward Island
Quebec	Saskatchewan
Northwest Territories	Nunavut
Yukon	



APPENDIX

ADDITIONAL INFORMATION: POPULAR DISHES ACROSS CANADA

Please note that some dishes listed are not aligned with Canada's Food Guide. How could they be altered or changed to be aligned with Canada's Food Guide?

- **Alberta** is a prairie province that has many fields, crops, and animals. Alberta is known for its canola, beef industry, dairy industry, and wheat. In fact, Alberta is the second largest producer of wheat in Canada. Famous dishes in Alberta include Alberta beef, taber corn, bison, and green onion cakes.
- **British Columbia** borders the Pacific Ocean and has vast mountainous regions and lakes. Due to the landscape, B.C. has a rich seafood and fruit industry. Famous foods in B.C. include various fruits such as peaches, nectarines, and berries; seafood meals; and a dessert called Nanaimo bars.
- **Manitoba** is a prairie province and has a combination of mixed grain and livestock industries. With its cultural mix, Manitoba is famous for its rye bread, pierogis, kubasa (kielbasa) sausages, and imperial cookies.
- **New Brunswick** is a maritime province with a rich history, many speakers of both English and French, and a thriving Acadian culture. Potatoes are a popular import from this province, and New Brunswick also produces apples, cranberries, maple syrup, and blueberries. Famous dishes in New Brunswick include chicken fricot, garlic fingers, lobster, fiddleheads, ployes, and dulse.
- **Newfoundland and Labrador** is Canada's easternmost province and has a unique culture with English, Irish, French, and Indigenous heritage. Newfoundland and Labrador has spectacular landscapes and wildlife. This province exports seafood, dairy, eggs, and fur. Famous dishes of Newfoundland and Labrador include figgy duff, jigs dinner, cod tongues, toutons, and pea soup.
- **Nova Scotia** is a maritime province and is the second smallest province in Canada. Nova Scotia is home to Anglophones, Francophones, and Acadians. Nova Scotia is the world's largest exporter of Christmas trees, lobster, fish, and wild berries. Popular dishes in Nova Scotia include hodge podge, scallops, fish cakes, blueberries, rappie pie, and oatcakes.
- **Northwest Territories (NWT)** has a demographic where Indigenous peoples are the majority. Most NWT communities are in arctic or subarctic regions, and people still spend time on the land to harvest traditional foods. In the southernmost regions of the territory, some communities are able to grow their food on farms. The NWT's geological resources include gold, diamonds, and natural gas and petroleum. Famous dishes of the NWT include country foods such as "dry meat" (jerky made of caribou, muskox, moose, whale, or wild fish), wild ducks and geese, wild berries, and bannock.
- **Nunavut** has three major languages: Inuktitut, English, and French. Nunavut has a colder climate compared to the rest of Canada because of its high latitude. Famous dishes of Nunavut include country food such as Arctic char, bannock, raw whale blubber and skin, ptarmigan, musk ox and caribou, and herbal teas.
- **Ontario** is the most populated province in Canada and grows corn, wheat, and soybeans. Famous dishes in Ontario include wild blueberries, beaver tails, pickerel, Windsor-style pizza, butter tarts, and cheddar cheese.
- **Prince Edward Island** is a maritime province that consists of an island and many smaller islands nearby. Overall, P.E.I. is the smallest province of Canada. P.E.I.'s largest agriculture commodity is potatoes. However, P.E.I. also produces grains and oilseeds, fruit, beef and poultry, vegetables, and dairy. Some famous dishes of P.E.I. include mussels, lobster, chowder, island peas and raspberry cream cheese pie.
- **Quebec** has a rich French history and it is physically the largest province in Canada. Quebec is the largest maple syrup producer in the world and is Canada's largest pork and veal producer, Canada's top producer of milk, and the world's third-largest cranberry producer. Famous dishes of Quebec include Montreal-style bagels, pâté chinois, poutine, maple syrup, tourtière, cretons, cheese, and smoked meat.



- **Saskatchewan** is a prairie province. It is Canada's main producer of wheat, oats, flaxseed, and barley. Additionally, Saskatchewan is well known for its pulse crops such as lentils, beans, and chickpeas. Famous dishes in Saskatchewan include Saskatoon berry pie, spudnuts, deer sausage, pemmican, and bannock.
- **Yukon** is the shape of a right triangle and includes beautiful national parks. However, Yukon has freezing temperatures during the winter. The record is -63°C ! Famous dishes of Yukon include morel mushrooms, moose, wild seafood, Arctic char, and root vegetables.

For more information about Canada's food and agriculture industry, visit <https://www5.agr.gc.ca/eng/industry-markets-and-trade/buying-canadian-food-products/explore-canada-s-food-and-agriculture-industry/?id=1426101553286>

