



HEALTHY MEALS IN MICROGRAVITY



FITNESS AND NUTRITION

MISSION DESCRIPTION

Participants create a balanced meal for an astronaut using foods available on the International Space Station (ISS) that meets Canada's Food Guide recommendations.

Difficulty: **EASY**

Duration: **45 MINUTES**

Materials: **MINIMAL**

MISSION PREPARATION

TIMELINE

Breakdown	Duration
Lesson	15 minutes
Individual Activity <ul style="list-style-type: none"> Allow participants to access Canada's Food Guide. Hand out "Plan a Meal for an Astronaut Living on the International Space Station (ISS)" and "Foods Available on the ISS." Participants will create one balanced meal for an astronaut. 	30 minutes
Total	45 minutes

GOALS

To increase knowledge of healthy meal planning.

OBJECTIVES

By the end of the lesson, participants will be able to

- Create a balanced meal for an astronaut living on the ISS which meets Canada's Food Guide recommendations.

MATERIALS

- Background
- Printed worksheets
- Coloured pencil crayons/markers

ACTIVITY

Participants will create a meal for an astronaut using the attached space foods list.



BACKGROUND

A person's food environment includes their social and physical environment and can influence what a person eats and his or her meal patterns. The food environment affects the types of food available, the accessibility of food, and the nutrition information people are exposed to.

The food environment on the ISS is very different from the food environment on Earth. Astronauts living on the ISS eat a variety of foods from the United States, Russia, Canada, Europe, and Japan. The inventory of food on the ISS is tracked to ensure that astronauts have a sufficient supply on orbit. Food is delivered to the Station every few months. The majority of the astronauts' food is based on a set menu that astronauts can supplement with a few of their favourite foods, as long as these foods meet space flight requirements. Astronauts usually select these specific foods one to two years before they launch to the ISS. The food on the ISS is packaged in single servings; therefore, astronauts may have to mix-and-match with food items to create a fulfilling and balanced meal. For example, an astronaut could choose a package of rehydratable chicken and pair it with packages of spinach and brown rice.

Food can be prepared on the ISS by either heating or rehydrating it, and food is eaten directly from the package. Astronauts do not use plates and bowls! In general, astronauts have a heavy and time-sensitive work schedule, so the foods they eat should be quick to prepare or ready to eat while providing enough energy and nutrients for astronauts to complete their tasks. Astronauts usually consume three meals and a snack every day.

Whether you are an astronaut on the ISS or a person on Earth, consuming a variety of healthy foods is important to receive all the nutrients and vitamins your body needs to function optimally.

For further information, visit:

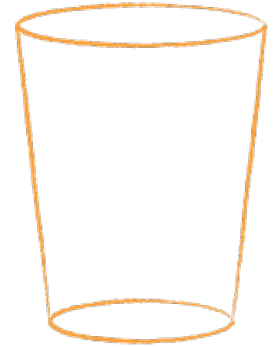
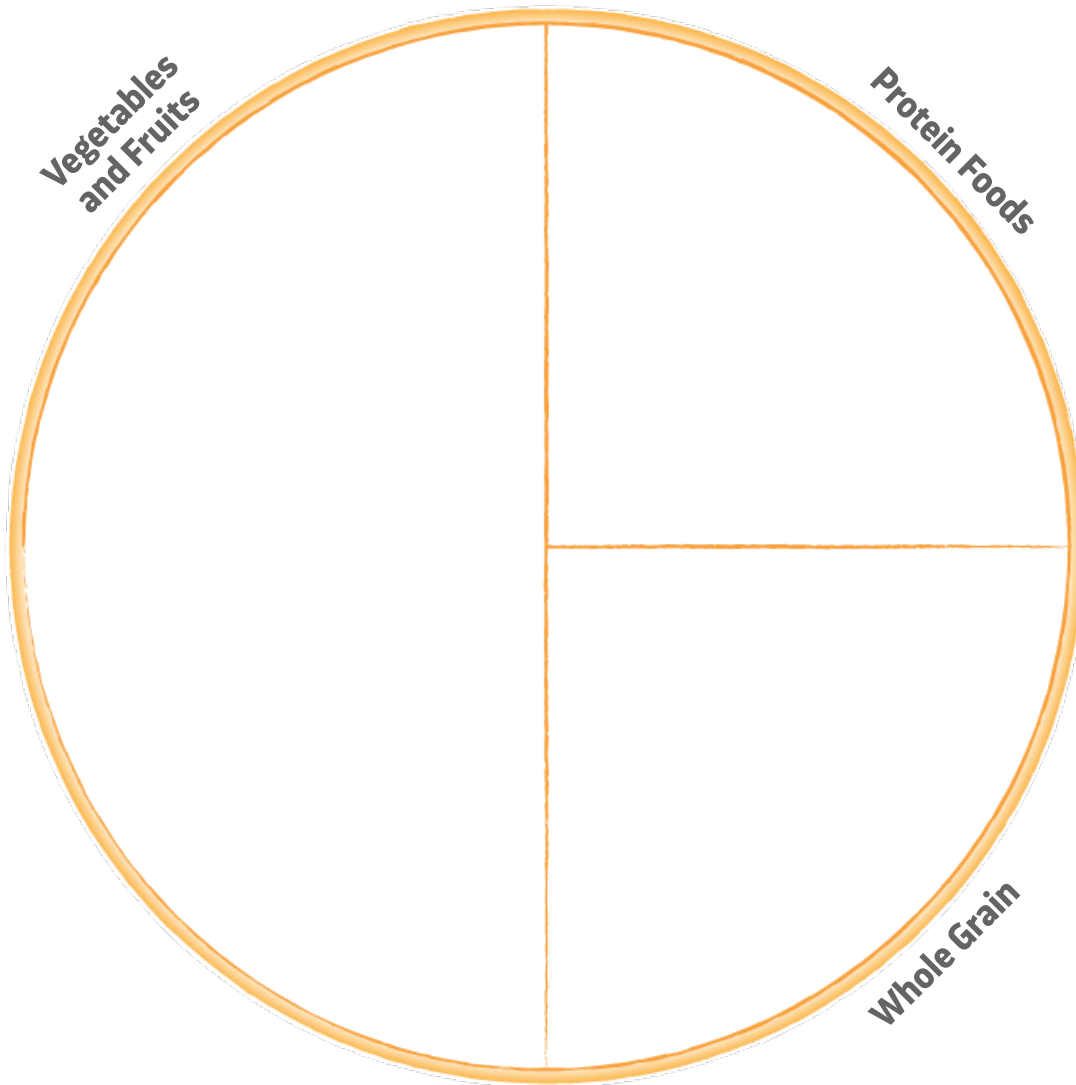
<http://www.asc-csa.gc.ca/eng/astronauts/living-in-space/eating-in-space.asp>



ACTIVITY: PLAN A MEAL FOR AN ASTRONAUT LIVING ON THE INTERNATIONAL SPACE STATION (ISS)

Choose items from the **Foods Available on the ISS** to create a meal that follows Canada's Food Guide. Write or draw the foods/items onto the plate. Answer the questions below.

MEAL: _____



_____ cup(s)
of _____

1. Which food items from the “Foods Available on the ISS” best fit with Canada’s Food Guide? Why?

2. Which food items on the list should astronauts consume less often? Why?

3. Select three food items from the list that should be consumed less often. Describe how you could change the food item to make it healthier.

4. What other items would you add to the space food menu so astronauts can enjoy more meals that meet Canada's Food Guide recommendations?



FOODS AVAILABLE ON THE ISS

Below are some of the foods on the ISS's permanent menu and some speciality Canadian items.

Protein Items	Amount
Almonds	1 pack
Baked beans	1 pack
Baked tofu	1 pack
Barbecued beef brisket	1 pack
Beef stew	1 pack
Black beans	1 pack
Blueberry raspberry yogurt	1 pack
Breakfast sausage links	1 pack
Crab pâté	1 can
Lobster pâté	1 can
Maple glazed salmon	1 pack
Meatloaf	1 pack
Mocha yogurt	1 pack
Sausage patty	1 pack
Scrambled eggs	1 pack
Smoked salmon pâté	1 can
Smoked sockeye salmon	1 pack

Grain Items	Amount
Brown rice	1 pack
Granola	1 pack
Grits with butter	1 pack
Pasta with pesto	1 pack
Rice pilaf	1 pack
Tortillas	1 pack
Waffles	1 pack
Wheat flat bread	1 pack
Wild rice salad	1 pack
Whole grain wheat crackers	1 pack

Fruit and Vegetable Items	Amount
Applesauce	1 pack
Asparagus	1 pack
Carrot coins	1 pack
Cauliflower with cheese	1 pack
Creamed spinach	1 pack
Dehydrated red peppers	1 pack
Green beans & mushrooms	1 pack
Mixed vegetables	1 pack
Peaches	1 pack
Pears	1 pack

Meal or Combo Items	Amount
Bison chili	1 pack
Cornflakes with milk	1 pack
Lasagna with meat	1 pack
Lentil soup	1 pack
Macaroni and cheese	1 pack
Mushroom and cheese risotto	1 pack
Oatmeal with apples and cinnamon	1 pack
Quinoa vegetable salad	1 pack
Shrimp curry with rice	1 pack
Split pea soup	1 pack
Tuna noodle casserole	1 pack
Vegetable quiche	1 pack
Vegetarian chili	1 pack

Other Items	Amount
Banana pudding	1 pack
Chia pudding	1 pack
Granola bar	1 bar