



# NASA Food Technology Commercial Space Center

## General Characteristics of the Space Food by Juan Cadenillas

**BACKGROUND** Since the early space missions, the variety of menu items and presentation of the space food have changed dramatically. Today, the astronauts' menu offers 72 different food items. From Italian vegetables to shrimp cocktail, astronauts have a wide variety of food options.

However, these items have to present certain characteristics such as:

- Bite-size portions to prevent crumbs in the cabin during space flight
- Dehydrated for preservation, lower food weights, and longer shelf lives
- Stability at room temperature, due to the limitations of refrigeration aboard the spaceship

### **NASA Space Food and Nutrition**

For more information about space food and the space food programs, please visit NASA's webpage at

- <http://spacelink.nasa.gov/Instructional.Materials/NASA.Educational.Products/Space.Food.and.Nutrition/>

### **NASA FTCSC Kids' Page**

For simple definitions of complex terms and illustrations that could help students to improve their knowledge about space food, visit the following website about space foods.

- <http://www.ag.iastate.edu/centers/ftcsc/pages/kids.htm>

### **NASA Kids**

For more information about life in space, visit the NASA webpage for kids.

- <http://kids.msfc.nasa.gov/Rockets/Living.asp>
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## **LESSON SUMMARY**

### **Audience**

The audience for this lesson is English as a Second Language (ESL) students who are at least in the medium level of English proficiency. Students must have communication skills that would permit to them understand the lesson. In addition, students must be able to use and navigate the Internet

### **Time**

The length of this lesson is 50-60 minutes. In addition, students will give an oral presentation about space food.

### **Objectives**

The objectives of this lesson are to:

- Provide an interesting lesson ESL teachers may use in order to motivate their students to learn about space

- Increase the knowledge among international students about space food and its general characteristics
- Contribute to ESL students' language learning and acculturation to a new environment

### **Procedure**

The lesson will begin with the instructor asking students about their knowledge of space food and then discussing their answers and beliefs about space food characteristics.

The instructor will then present a short summary of the history of space food and will also present a PowerPoint presentation that includes the principal characteristics of food used in space.

Following the lesson, the students will review the vocabulary introduced during the lesson. Students will then review one of the websites listed above that include information about space food.

From their research, students will prepare an oral presentation that includes:

- Information they found about space food
- A description of a plate of food from their country that they would like to see included in the space program
- An explanation as to why they selected the foods they did

When explaining their reasoning, students may use any of the information presented in this lesson. Following the student presentations, the instructor should lead a discussion about the various plates presented. Before concluding the lesson, the instructor will summarize the lesson and lead a final class discussion utilizing the questions included below.

### **Discussion**

The following questions can be used to start a classroom discussion at the end of the lesson:

- What do you know about space food?
- How has space food changed since the first space missions?
- What characteristics do you think a food must have to be used in space?
- What new words did you learn through this lesson?

### **STUDENT LEARNING OUTCOMES**

#### **Communication**

Through this lesson, students will practice their oral presentation and listening skills. They will also be able to practice reading English through their research on NASA websites.

#### **Learning**

This lesson is designed to increase students' English vocabulary through their preparations and presentations, as well as through listening to other presentations. Students will also have the opportunity to learn about foods that are native to other countries and regions of the world.

## Space Food

Students completing this lesson will learn about the requirements necessary to make certain foods appropriate for space travel.

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### ASSESSMENT/ EVALUATION

Students will be evaluated on their ability to:

- Communicate at least one criteria for use in the judgment of their country's food
  - Include terms or words related to space food
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### MATERIALS

- Pens/pencils
  - Blackboard where the teacher could draw illustrations that will help students understand new vocabulary
  - Access to the Internet
  - Power Point presentation (optional)
  - Computer and projector (optional)
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### INSTRUCTIONS GIVEN TO STUDENTS

In the first discussion, students will provide any previous knowledge on space food. If the number of students is large, it is advisable to divide the class in small groups to better facilitate discussion.

During the review of the vocabulary, students should define words and terms used during the lesson. Also, during the final discussion session, students will provide any information related to what they learned about space food in a class discussion.

For the next class, student will develop an oral presentation that includes the following:

- Any information that they consider relevant toward space food. For example: "In space, astronauts no longer use food dispensers similar to tubes of toothpaste. Instead, astronauts use utensils, such as knives and spoons to eat their food."
- A description of a plate of food from their country. For example: "I am from Peru, and the plate that I selected is called Ceviche, which is a fish cut in small pieces that is cooked using lemon and salt. It is served with potatoes and lettuce. It is very spicy."
- An explanation of how this plate could be included in the space program. "The fish and potatoes could be cut into small, bite-sized pieces and could be previously dehydrated to reduce the weight of meal."

Students may use notes during their presentation, and each student will write the name of the dish on the blackboard.

Students may consult the following websites to learn more about space food:

<http://www.ag.iastate.edu/centers/ftcsc/pages/meal.htm>

<http://kids.msfc.nasa.gov/Rockets/Living.asp>

<http://spacelink.nasa.gov/Instructional.Materials/NASA.Educational.Products/Space.Food.and.Nutrition/types.html>

**NOTES FOR FACILITATOR**      The instructor shall include examples to help students understand new vocabulary and/or definition.

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**LEGEND:**

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—COMMUNICATION MATERIALS

—PROJECT LEARN MATERIALS

—INSTRUCTOR MATERIALS