



Food in Space - Astronaut Pudding Post Lab Lesson Plan 1 – Teacher Guide Grades – Kindergarten thru Third



Overview:

This lesson plan provides students an opportunity to explore how space food is packaged and prepared for consumption. Due to food restrictions within schools (food allergies, dietary guidelines, etc.) this activity is **optional**. If you choose to complete this lesson plan, please adapt it to meet the needs of your students (can be used as a demonstration in front of the class by the teacher, small group activity, or all students participate).

This lesson helps students understand that astronauts' food is not prepared in a normal kitchen like they have in their home. Most of the food astronauts eat is prepackaged and sealed in bags or cans.

Materials:

(If you are doing as a whole class activity - EACH student needs)

- 1 tablespoon pudding mix (chocolate or vanilla recommended)
- ¼ cup milk (whole milk works best / can use almond milk for lactose intolerant students)
- Ziploc baggie
- Paper towels – in case of spills
- Scissors

Additional Items needed:

- Measuring cup for milk (¼cup)
- Measuring tablespoon for pudding mix
- Large bowl or container
- **Eating in Space Handout**

** Note – if you choose to do this as a teacher demonstration you will only need 1 of **ALL** the above listed items!

Getting Ready:

- Print the **Eating in Space Handout** containing pictures of food in space and information to be read to students.
- Prepare materials:
 - If you are doing this as a whole class activity - place the baggies, paper towels, and scissors on each table for the students.
 - If you are doing it as a demonstration, you just need them assembled on a table in front of the classroom.
- Place the pudding mix into a large bowl or container so the students do not see the packaging.

Procedure:

Tell the students that today you will be reviewing information about how astronauts eat food in space. Ask the students the questions below anyway you wish (orally, writing journal, posters around the room, think/pair/share, etc.):

- What did you have for dinner last night?
- Was it hard (difficult) to eat it?
- Do you think it is hard (difficult) for astronauts to eat their food while in space? Why/why not?
- What are some foods that the astronauts may eat while living and working in space?
- What do you think is the biggest problem for astronauts when it comes to eating and drinking something while in space?

All of us have no problem eating or drinking whatever we want (as long as your parents allow it) here on earth because of gravity. Remember that gravity is the force that pulls things down toward the center of the earth. Gravity is what keeps our feet on the ground. At dinner, if I put my fork on my plate, it will stay there, unless I move it. If I put a slice of pizza on a plate, it will stay there, until I pick it up to start eating it. Do you think that is what happens with food in space? **NO, because there is no gravity.** This is the main problem for astronauts when they are living and working in space. In a spacecraft if an astronaut lets go of a piece of food, it floats around in the air and does not fall to the floor. Water will not stay inside the cup. It will float out of the cup and hang in the air. This could cause a mess and maybe even damage some space equipment.

Refer back to the e-Lab when the Flight Director was talking with your class about eating in space. Allow the students to share what they learned about eating in space (especially the video of Commander Hatfield eating his dried spinach).

Share additional information provided in the *Eating in Space Handout* with the students. Have them comment on the food items and their packaging.

Tell the students that since they now have a better idea of what it is like for an astronaut to eat and drink in space, you are going to make a nice treat called "Astronaut Pudding."

Have the students open their Ziploc baggie. For younger students an adult can measure out the 1 tablespoon of pudding mix into each baggie. For older students they can measure the pudding mix and place it inside the baggie. Then measure out the $\frac{1}{4}$ cup milk and have students pour it into their baggie. Seal it shut and have the students squish the mixture around in the baggie with their hands until it is mixed thoroughly. It should be ready to be eaten but if it does not have the consistency of pudding, it can go in the fridge for about 5 minutes. Have

the students use the scissors to snip off a bottom corner and squeeze the “Astronaut Pudding” into their mouths.

Explanation:

See the information provided in the Eating in Space Handout.

Assessment:

To check for understanding of material, ask the students the following questions:

- What are some foods that astronauts eat while living and working in space?
- What are some problems the astronauts face when it comes to eating food while in space?
- How do they overcome these problems?
- NASA tries really hard to make foods for the astronauts that they would eat in their home here on earth. What food would you want NASA to make for you if you were going on a space mission? Why?