Day 6

1. Student 1's argument differs from Student 2's argument in which of the following ways? Student 1 claims that viruses: * 1 point

Living things share the following characteristics:

- Are made of 1 or more cells
- Have genetic material
- Reproduce
- Respond to change
- *Metabolize* (carry out chemical reactions to obtain and use energy)

A teacher asked 4 students to discuss whether viruses should be considered living things:

Student 1

Viruses are not cells. Viruses do have genetic material, and when in a host cell, viruses can reproduce and respond to change. However, viruses do not metabolize. The energy used to make copies of a virus is metabolized by the host cell. Because viruses are not made of cells and do not metabolize, they are not living things.

Student 2

Viruses are not cells. Viruses do have genetic material, and when in a host cell, viruses can reproduce and respond to change. However, viruses are not able to respond to changes in the environment and they do not mutate. Because viruses are not made of cells and do not respond to change, they are not living things.

Student 3

Although viruses are not cells, they do have genetic material and they are able to reproduce when in host cells. During reproduction, viruses respond to change and metabolize. Even though viruses are not made of cells, they can do everything a cell can do when they are inside a host cell, so viruses are living things.

Student 4

Viruses are simple cells containing genetic material but lacking organelles. Although it is correct that viruses are only able to reproduce when in a host cell, when they are within a host cell, viruses respond to change and metabolize. Viruses exhibit all of the characteristics of life, so viruses are living things.

- ○ A. are cells, and Student 2 claims viruses are not cells.
- ○ B. are not cells, and Student 2 claims that viruses are cells.
- ○ C. metabolize, and Student 2 claims that viruses do not metabolize.
- ○ D. do not metabolize, and Student 2 claims that viruses metabolize.

Day 7

2. All 4 students would most likely agree with which of the following statements? * 1 point

Living things share the following characteristics:

- Are made of 1 or more cells
- Have genetic material
- Reproduce
- Respond to change
- *Metabolize* (carry out chemical reactions to obtain and use energy)

A teacher asked 4 students to discuss whether viruses should be considered living things:

Student 1

Viruses are not cells. Viruses do have genetic material, and when in a host cell, viruses can reproduce and respond to change. However, viruses do not metabolize. The energy used to make copies of a virus is metabolized by the host cell. Because viruses are not made of cells and do not metabolize, they are not living things.

Student 2

Viruses are not cells. Viruses do have genetic material, and when in a host cell, viruses can reproduce and respond to change. However, viruses are not able to respond to changes in the environment and they do not mutate. Because viruses are not made of cells and do not respond to change, they are not living things.

Student 3

Although viruses are not cells, they do have genetic material and they are able to reproduce when in host cells. During reproduction, viruses respond to change and metabolize. Even though viruses are not made of cells, they can do everything a cell can do when they are inside a host cell, so viruses are living things.

Student 4

Viruses are simple cells containing genetic material but lacking organelles. Although it is correct that viruses are only able to reproduce when in a host cell, when they are within a host cell, viruses respond to change and metabolize. Viruses exhibit all of the characteristics of life, so viruses are living things.

- A. Viruses have some of the characteristics of living things.
- B. Viruses react to environmental stimuli.
- C. Viruses should be considered living things because they can reproduce.
- D. Viruses cannot reproduce in a host cell.

Day 8

4. According to Student 2, viruses do NOT exhibit which of the following characteristics? Select EACH correct answer. * 1 point

Living things share the following characteristics:

- Are made of 1 or more cells
- Have genetic material
- Reproduce
- Respond to change
- *Metabolize* (carry out chemical reactions to obtain and use energy)

A teacher asked 4 students to discuss whether viruses should be considered living things:

Student 1

Viruses are not cells. Viruses do have genetic material, and when in a host cell, viruses can reproduce and respond to change. However, viruses do not metabolize. The energy used to make copies of a virus is metabolized by the host cell. Because viruses are not made of cells and do not metabolize, they are not living things.

Student 2

Viruses are not cells. Viruses do have genetic material, and when in a host cell, viruses can reproduce and respond to change. However, viruses are not able to respond to changes in the environment and they do not mutate. Because viruses are not made of cells and do not respond to change, they are not living things.

Student 3

Although viruses are not cells, they do have genetic material and they are able to reproduce when in host cells. During reproduction, viruses respond to change and metabolize. Even though viruses are not made of cells, they can do everything a cell can do when they are inside a host cell, so viruses are living things.

Student 4

Viruses are simple cells containing genetic material but lacking organelles. Although it is correct that viruses are only able to reproduce when in a host cell, when they are within a host cell, viruses respond to change and metabolize. Viruses exhibit all of the characteristics of life, so viruses are living things.

- [ ] Made up of 1 or more cells
- [ ] Have genetic material
- [ ] Reproduce in a host cell
- [ ] Respond to change
- [ ] Metabolize in a host cell

Day 9 Day 9 Read and Annotate the article. Find Main ideas

Space-grown lettuce to give astronauts a more varied diet

By Hannah Devlin, The Guardian, adapted by Newsela staff on 03.13.20
Word Count **539**
Level **MAX**

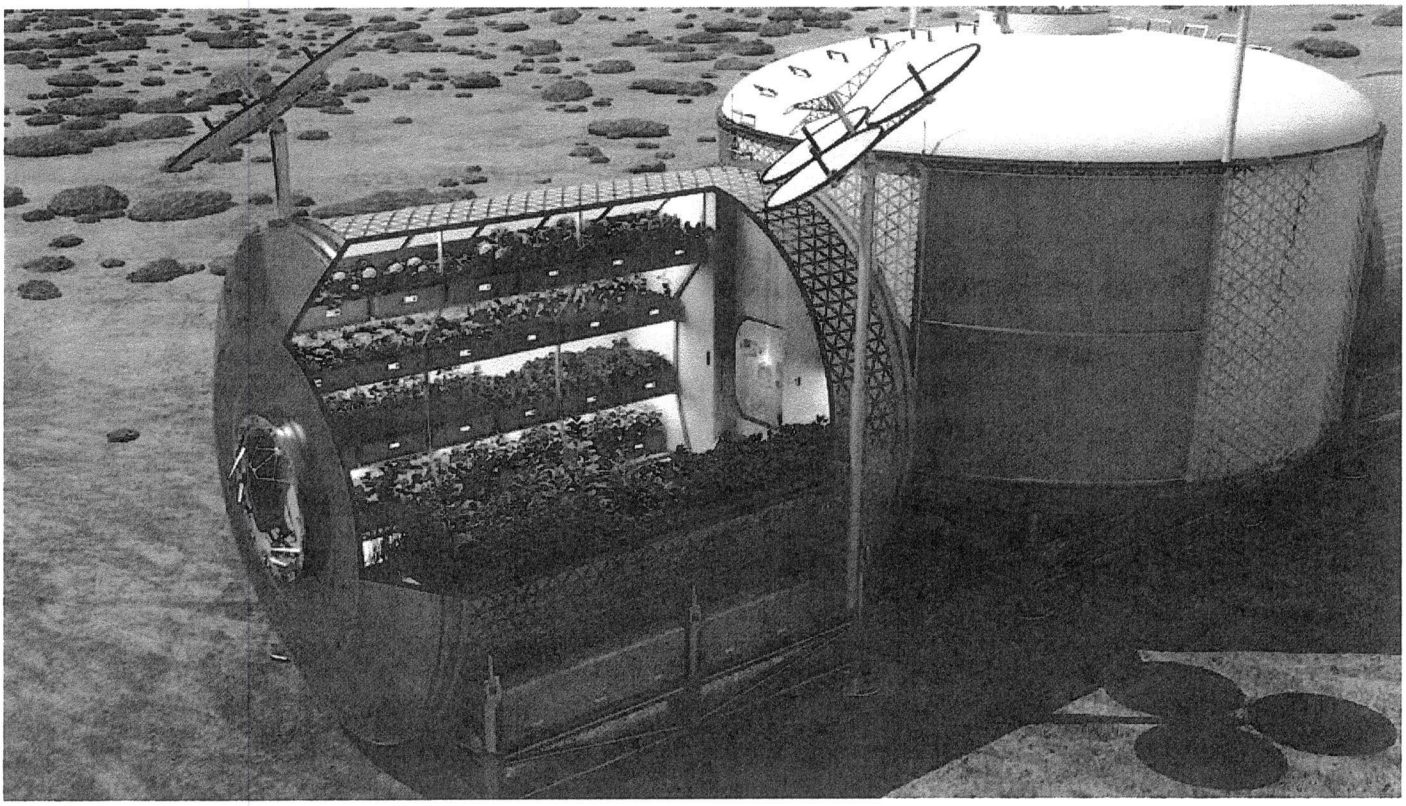


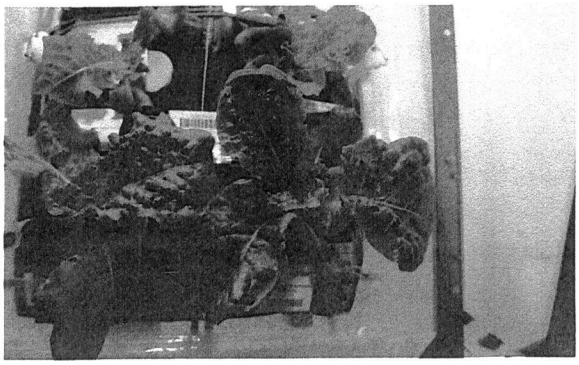
Image 1. NASA's Veggie system for growing fresh food on future spacecraft and on other planets. Photo by: NASA

Life as an astronaut has various unique attractions. This can include experiencing weightlessness. It can include gazing back at Earth as a pale blue dot. And it can also be the adrenaline rush of being propelled into orbit at 20,000 miles per hour.

The food is not among them. Space travelers over the years have endured delicacies such as freeze-dried ice-cream and liquid salt and pepper. They've also had to eat dehydrated prawn cocktail. However, the menu is now set to be expanded, with the first space-grown lettuce having been found to be as safe, nutritious and palatable as the Earth-grown variety.

Gioia Massa of NASA Kennedy Space Center is the lead scientist on the lettuce-growing project. She said that growing food in space could be crucial for astronauts on long-duration missions such as Artemis III. That mission is scheduled to land humans on the lunar south pole by 2024. And NASA's first crewed mission to Mars is planned for the late 2020s.

"If you store packaged food for a long duration the quality, flavor and nutritional quality decrease, the vitamins degrade," she said. "We can't guarantee that they're going to get enough nutrition right now."



She added: "There may also be psychological benefits of growing plants and looking after plants."

Space food is said to have improved in recent years. Anything sent to the International Space Station (ISS) has to score a 6 or above on a 1-to-9 taste scale where one is "the worst thing you've ever tasted." But even so, astronauts can grow fatigued of eating the same old vacuum-packed meals.

"There's some weight loss in many of the astronauts," said Massa.

Lettuce was grown in batches onboard the ISS between 2014 and 2016. The vegetable production system is known as Veggie. It is comprised of plant pillows (sealed units containing ceramic soil), LED lighting and a watering system that involved astronauts injecting water through a tube.

The lettuce crops grew undisturbed for 33 to 56 days before being harvested and eaten, or deep-frozen and returned to Earth for chemical and biological analysis. Astronauts rubbed the leaves with sanitized wipes before eating. "We don't want to get anyone sick. That's why we're doing all this," said Massa.

The space-grown lettuce was similar in composition to Earth-grown controls. And some plants were even richer in elements such as potassium, sodium, phosphorus, sulphur and zinc. They had higher levels of bacteria, possibly due to their growing in a warmer, more humid and closed-air system. But they were not found to carry any dangerous bacteria such as coliform E coli or salmonella. The findings of the project are published in the journal Frontiers in Plant Science.

NASA is now expanding the range of produce grown onboard the ISS. There are plans for bok choy, dragoon lettuce, wasabi mustard and red Russian kale to be grown later this year, as well as tomatoes and peppers. It will be longer before these can be transformed into a stir fry, however. "We have nowhere to cook up there so we're looking at things that taste good fresh," said Massa.

From Day 9 passage
Day 10

Quiz

1 Which sentence from the article shows NASA's main problem?

(A) Space travelers over the years have endured delicacies such as freeze-dried ice-cream and liquid salt and pepper.

(B) "If you store packaged food for a long duration the quality, flavor and nutritional quality decrease, the vitamins degrade," she said.

(C) The space-grown lettuce was similar in composition to Earth-grown controls.

(D) "We have nowhere to cook up there so we're looking at things that taste good fresh," said Massa.

2 Read the conclusion below.

Growing plants could help astronauts on long-term missions to feel happier and more connected to home.

Which sentence from the article provides the BEST support for the statement above?

(A) She said that growing food in space could be crucial for astronauts on long-duration missions such as Artemis III.

(B) She added: "There may also be psychological benefits of growing plants and looking after plants."

(C) But even so, astronauts can grow fatigued of eating the same old vacuum-packed meals.

(D) And some plants were even richer in elements such as potassium, sodium, phosphorus, sulphur and zinc.

3 What is the MOST likely reason the author included the information about the ISS's food taste scale?

(A) to show that NASA is concerned about how much the astronauts enjoy their food

(B) to illustrate that most of the foods astronauts eat do not taste very good

(C) to show that one way astronauts at the ISS spend the free time is by rating their packaged foods

(D) to illustrate that taste is more important than nutritional value for astronauts

4 Read the following selection.

The lettuce crops grew undisturbed for 33 to 56 days before being harvested and eaten, or deep-frozen and returned to Earth for chemical and biological analysis. Astronauts rubbed the leaves with sanitized wipes before eating. "We don't want to get anyone sick. That's why we're doing all this," said Massa.

WHY did the author include this information?

(A) to illustrate that space-grown foods are naturally less nutritious and more dangerous than Earth-grown foods

(B) to describe the difference in the growth cycle for space-grown plants compared with Earth-grown plants

(C) to emphasize that NASA is still discovering the risks and challenges of growing food in space

(D) to help readers understand that most of the vegetables astronauts grow will be sent back to Earth