URL:

ARTICLEID:

GRADE TARGETS: K-12

TITLE: Imagine Future Careers

CATEGORIES: Space exploration, Technology & engineering, Guidance & Careers, Food & Nutrition, Human Space Flight,

TAGS: Career exploration, Living in space (6), Human Spaceflight (Grade 9), Astronauts (6), Food Security,

HEADER IMAGE: https://clubforfuture.org/assets/postcard_earthneedsspace_room.png.png

IMAGE CAPTION: Student drawn postcard representing habitations spheres on an extra-terrestrial planet.

DESCRIPTION: Spark creativity and curiosity by sending a postcard to space thanks to a partnership between Tomatosphere™ and Club for the Future founded. Students will imagine the jobs of the future in space and represent their thoughts on a postcard which will then be sent to space.

OVERVIEW

- Students will design a postcard to send to space.
- Students will imagine what will be needed to produce food in space.

Timing
30-60 minutes, plus some time outside of class

SETTING THE STAGE

As space travel and habitation become more accessible, growing food will become extremely important. Students are asked to imagine how the future of gardening, farming or harvesting will look like in space and illustrate or describe their vision on the back of a postcard. Once collected, these postcards will be flown to space on the Blue Origin New Shepard rocket and then returned to the sender.

While we know that new technologies and advancements will continue to change the face of agriculture, we cannot know what tomorrow will look like. Since space exploration and exploitation seems just around the corner thanks to the emergence of commercial space flight, many jobs agricultural will emerge to fill this new work niche.

This activity can be used as an extension of Tomatosphere. Once you have collected and submitted your results to the Tomatosphere™ website, you will learn which group of seeds went to space. Now it is your students' turn to send something to space.

MATERIALS AND PREPARATION

- Download the postcard template and print and cut a postcard for each student [Google Doc] [PDF]
- Writing and drawing supplies such as markers, pencils, pencil crayons, etc.
- Other craft supplies such as stickers, glitter paint, etc.

WHAT TO DO

Distribute the prepared postcards and ask students to imagine what jobs will be needed to feed astronauts on the Moon or Mars (or your own space-related prompt). Ask students to draw or write their ideas on the blank side of the postcards. For younger students, teachers could send the postcards home with the students to get their parents'/guardians' help fill out the fields on the back of the postcard.

To spark students' imaginations and start them thinking about possible future jobs, teachers could show them or direct them to watch the video *That's a Real Job: Space Farmer*.

- For older students, you can review "Grow a Seed" career program before starting this lesson.

Teachers could facilitate a discussion about what kind of agricultural jobs they think will be needed in space in the future. Student suggestions could be recorded on chart paper, whiteboard, or electronically.

Teachers could use the following prompts to help get the discussion started:

- What jobs would be needed to support space farmers?
- What do you think farming on the Moon or Mars will look like?
- How do you think humans will live in space, on the Moon or on Mars?
- How will people travel in space?
- What do people need to live in space?

Alternatively, students could be organized into groups of five and each question written on a sheet of paper. Silently each member of the group writes ideas in response to the prompt on their paper. After about 5 minutes, the teacher signals to switch papers with the person to the right. This continues until the original sheet is returned. Students could discuss the ideas written on the sheet and share summaries with the class.

If you have already completed the Tomatosphere™, you can also ask:

- What jobs do you think were needed to get the Tomatosphere™ seeds to space?
- What jobs do you imagine would be needed to grow plants on the Moon or Mars?
- What jobs are needed to grow and distribute food on earth?
- How is the environment of the Moon or Mars different from the environment on Earth?
- What technology do you think we would need to grow food on the Moon or Mars?

To help students consolidate their thinking, teachers could have students present their postcards to the rest of the class.

Optional:

- Instead of printing and drawing on the postcards, use a drawing software such as Google Draw and print the student postcards.

ASSESSMENT

- Teachers could review student postcards and provide feedback.
- Teachers could make anecdotal notes on students' engagement and participation in group and class discussion.
- Teachers could provide feedback to students regarding their presentation strengths and challenges.

CROSS-CURRICULAR CONNECTIONS

Connections to visual arts, literacy, competencies of communicating and creative thinking.

EXTENDING THE LEARNING

Tomatosphere Project (Grades K-12)

LEARN MORE

Links to backgrounders and off-site links for educators (general information videos, background information) - follow format of STEM in Context/articles (hotlink, brief description)

Tomatosphere | Earth vs Mars - How Do They Compare
Tomatosphere | So You Want to go to Mars? (It's Ok to be Smart)
Tomatosphere | Soil on Mars
Tomatosphere | Basic Human Needs in Space
Tomatosphere | Earth vs. Mars
Tomatosphere | Destination Mars
Tomatosphere | Is There Enough Light on Mars to Grow Plants