

4-H Cloverbot Challenge: Mars Transportation

2021 Ohio 4-H Cloverbot Challenge

Imagine you live on a newly established colony on the planet Mars. What might that look like? Where will you live? How will you move from place to place? Use your imagination to think about what your life on Mars might be like.

Explore

Cloverbud teams will learn about the planet Mars and potential modes of transportation. As a team, ask:

- What are similarities and differences between Earth and Mars?
- What might your colony look like on Mars?
- What kinds of transportation do you use on Earth?
- How would transportation you use on Mars be different or similar to what we use on Earth?
- What jobs are associated with space travel?
- How might you stay safe when using transportation on Mars?
- How does the environment on Mars impact transportation?

The Challenge

Use the answers to these questions to help you design a colony in which to live on Mars. Create a model of a method of transportation and show it in action. (See page 2 for Challenge Guidelines)

Example

The Cloverbuds in the Movers and Shakers 4-H Club select a zipline as their favorite mode of transportation around the colony. But the atmosphere of Mars is not safe for humans, so they design a capsule to ride in down the zipline and a poster with other ideas.



Ohio 4-H Cloverbuds explain their project, poster, and display to expert reviewers at the Challenge.

Let's Begin! Learn About Mars

Below are some online resources you can use to help your Cloverbuds learn more about Mars:

Modes of Transportation List

<https://www.enchantedlearning.com/wordlist/transportation.shtml>

NASA (activity ideas and informational videos):

<https://www.jpl.nasa.gov/edu/learn/tag/search/Mars>

Explore Activities:

<https://www.lpi.usra.edu/education/explore/>

Mars STEM lessons:

<http://marsed.asu.edu/stem-lesson-plans>

National 4-H Mars Base Camp STEM Challenge:

<https://4-h.org/wp-content/uploads/2020/07/2020-Mars-Base-Camp-Youth-Guide.pdf>

PBS (Several Mars Videos for Pre-K-3):

<https://wosu.pbslearningmedia.org/collection/fun-facts-about-our-planets/#.Wp3-JIPwYdU>

Pictures of Mars:

https://www.windows2universe.org/mars/planet_structure.html

Glossary

Atmosphere: the gases surrounding the earth or other similar objects in outer space

Capsule: a small compartment with nearly normal atmospheric pressure for a pilot or astronaut

Colony: a place where a group of people come to settle which is under the control of their home country

Environment: all the things together that surround animals and humans in the natural world, including the air, the water, and the soil

Mars: the seventh largest planet in the solar system and fourth in distance from the sun. Mars is known as "the red planet" because of its unusual color

Mode: a way of doing something

Planet: A sphere moving in orbit around a star (e.g., Earth moving around our sun)

Rover: A robot designed to travel on the surface of a planet

Transportation: the process of moving things or people from place to place

Zipline: an inclined cable or rope with a suspended harness, pulley, or handle, down which a person slides for amusement



THE OHIO STATE UNIVERSITY

COLLEGE OF FOOD, AGRICULTURAL,
AND ENVIRONMENTAL SCIENCES



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Challenge Guidelines

- ✓ Teams must have at least two, but no more than eight members. All participants must be 4-H Cloverbud members
- ✓ Models must be constructed in an area no larger than 15"x15". A baseplate is recommended, but not required.
- ✓ Any type and quantity of interlocking bricks (ie: Mega Bloks, LEGOS) may be used.
- ✓ Models must feature a moving part or simple machine (lever, wedge, incline, wheel and axel, pulley, screw).
- ✓ Poster must include team name and members' names. Use the poster to highlight the overall experience.
- ✓ Teams **must** be present at the Virtual Challenge, in order to receive recognition.

Timeline

First meeting

- Explain the 4-H Cloverbot Challenge.
- Find out what children know about Mars.
- Facilitate an activity
- Distribute a parent handout explaining the Ohio 4-H Cloverbot Challenge. Include the dates of your meetings and the date, time, place of the event.

Second meeting

- Facilitate an activity
- Review the Challenge Problem
- Brainstorm a list of project possibilities and select a focus

Subsequent meetings

- Virtual Field trips/ Videos
- Construct project model
- Create a project poster
- Continue activities



Questions?

Christy Millhouse

Millhouse.10@osu.edu

Rhonda Williams

Williams.418@osu.edu

The Event

Where: Virtual via ZOOM

Date: Monday, July 12 or Thursday, July 22

Time: 6:30 – 8:00 p.m. Teams will register for a date. Timeslots will be assigned closer to the event.

Breakout rooms will be used for team presentations. Additional information will be collected closer to the event including submitting a picture of your team's poster and model.

Team Registration

Cost

There is no cost for clubs to register for the Ohio 4-H Cloverbot Challenge. Returning teams may utilize their kits from previous years. New teams may use their own interlocking blocks and base plates or may purchase a kit at half the cost. Thanks to the Ohio 4-H Foundation for their support of the Cloverbot Challenge!

ALL TEAMS MUST REGISTER AT THIS SITE:

Deadline to register: June 30, 2021

<https://go.osu.edu/21cloverbot>

ORDER A KIT

Teams needing a kit may order one at a reduced rate thanks to funding from the Ohio 4-H Foundation!

Kit Includes: a large brick set, a simple & motorized mechanisms set, a build to express set, and a base plate

Reduced Kit Cost: \$170 (maximum of 12 kits available)

Order Deadline: Checks must be received by **May 14** to receive a kit at the discounted rate.

Make \$170 Check Payable To: Ohio 4-H

Send Checks To: Ohio 4-H Cloverbot Challenge
c/o Christy Millhouse
119 S. Barron St.
Eaton, OH 45320

Include with Check: 1. Club Name
2. County
3. Club Advisor Name
4. Contact Phone Number
5. Email Address

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For Deaf and Hard of Hearing, please contact Ohio State University Extension using your preferred communication (e-mail, relay services, or video relay services). Phone 1-800-750-0750 between 8 a.m. and 5 p.m. EST Monday through Friday. Inform the operator to dial 614-292-6181.