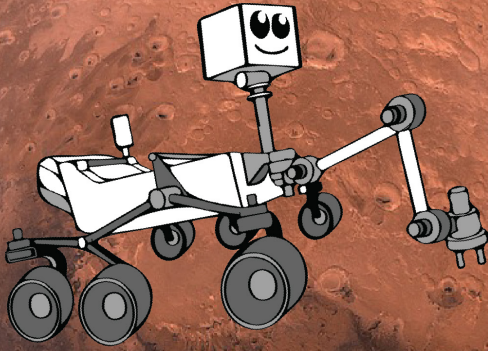


Rover Observation And Drone Survey



FREESTYLE Challenge

on Mars

MISSION OBJECTIVES

www.nwessp.org/mars-freestyle

#ROADSfreestyle

#NASAatHome





MISSION

WELCOME, MARS FREESTYLE CREW MEMBERS

YOUR MISSION

The ROADS Freestyle Challenge is following in the path of the original ROADS on Mars Student Challenge. Think of the Freestyle challenge as a training simulation of the ROADS on Mars challenge.

Students will form teams that act as the crew of a ROADS Freestyle mission. Your crew has 8 Mission Objectives (MO) to accomplish as part of the Freestyle challenge. As your team's crew members tackle each MO, you'll be documenting your mission with both video and a Mission Development Log (MDL). When you've completed your mission, you'll submit a final video and your MDL to the NESSP team for scoring.

The ROADS Freestyle challenge will be ... well, challenging! If we're all practicing excellent social distancing, then each crew member will be working on their tasks on their own at their homes. There's no need to break quarantine to complete the mission — but that does mean you'll have to work out how to overcome the communication and collaboration challenges of being a distributed team.

PRELIMINARY STEPS

Form a team! — A good team size is around 5-6 people. Fewer or more than that is okay, but running it all by yourself would probably be hard! If you already have a team for the ROADS on Mars Student Challenge, we encourage you to keep that team for the Freestyle Challenge.

Register your team. — We strongly recommend that you have your adult register your team by Monday, May 11. If you wait any later than that, you'll likely find your team cutting it a bit close to make the submission deadline.

OBJECTIVES

Plan your mission. — Read over the Mission Objectives document and plan out your mission. Think about what supplies you'll need, what tasks need to be done, which team member will be responsible for each aspect of the mission, and so on. Since each team member will be working in their own home, also plan how you'll keep in touch with each other to share updates on your tasks and to assess how the mission is going overall.

DOCUMENTING YOUR MISSION — A.K.A., SUBMISSION & SCORING

DOCUMENTING YOUR MISSION

Mission Objectives 07 and 08 are about documenting your mission — but don't wait until you've done MOs 01 through 06 before thinking about your documentation! You should start thinking about, and working on, your Mission Development Log (MO 07) and your video report (MO 08) right from the beginning. These are the two submissions you will have to send to NESSP for scoring.

Tip! — Read MOs 07 and 08 first. Then go back and read all of the MOs in order, keeping in mind how you'll document each step in the Mission Development Log and the video report.

**DEADLINE —
MONDAY, MAY 18, 2020**

SUBMITTING YOUR CREW'S DOCUMENTATION

Online — Submissions can be submitted electronically via NESSP's website: <https://www.nwessp.org/mars-freestyle/submit/>

Via USPS — Submissions can also be sent by mail! Put your video on a thumbdrive; your MDL can be on the drive or can be printed.
Send to:

**ROADS Freestyle
c/o NESSP**
UW, Box 351310
Seattle, WA
98195-1310



MISSION

MISSION OBJECTIVES 01-02 ①

Each crew member will complete both MOs. This means everyone on the team will have a map at their house.

MISSION OBJECTIVES 02-07 ②

These MOs are each eligible for a “Best in Mission Objective” prize!

MISSION OBJECTIVES 07-08 ③

These are the 2 pieces you will submit to NESSP for scoring.

MISSION OBJECTIVES 01-02: TO BE COMPLETED BY EACH TEAM MEMBER

MO-01: DESIGN A MAP ①

Design your own obstacle course. Keep in mind the features of the Mars 2020 landing site used in the ROADS on Mars Student Challenge. How you interpret and implement those features is entirely up to your team!

MO-02: BUILD A MAP ① ②

Each team member should replicate the map at their house. Everyone's maps must have the same dimensions, but use whatever objects you have on hand to create the obstacle course designed in MO 01. A landing zone, river delta, mountains, crater, samples to be collected, and the delivery/caching point for the rock samples must be identifiable on each map.

MISSION OBJECTIVES 03-08 TO BE DIVIDED AMONG TEAM MEMBERS

MO-03: BUILD A COMMUNICATION DISH ②

One crew member will design a communication dish (using 10 separate pieces of material that can be found at home), provide the design to all other crew members, and then create a video of constructing the dish and placing it on the map. All other members should then build a copy of the communication dish according to the team design and place it on their own map. Each crew member's map must have a communication dish, and the dish must be visible in the videos that crew members record for MOs 04-05.

OBJECTIVES

MO-04: BUILD & DROP OFF A LANDER ②

One crew member will design, build, and land a lander on their Mars map. The lander should be built out of material you can find at home, but unlike the communication dish in MO 03, there is no requirement on number of pieces. To land on Mars, use whatever means you have available in the house to drop off the lander in the landing circle without directly touching the lander. Be creative, but direct placement on the lander by hand is not allowed! The crew member must record a video demonstrating the lander being dropped off in the landing zone on the map — the video does not need to include construction of the lander.

MO-05: NAVIGATE THE MAP ②

A crew member with a robotic or toy vehicle will use their “rover” to navigate the map should complete this MO. Use the rover to go through the obstacle course to collect the rock samples and deliver them to the cache sample zone on the map.

MO-06: SEARCH FOR LIFE ②

One crew member will perform a search for signs of life within their household. Look for bugs, things decomposing, etc. The member who accomplishes this objective should describe the search extensively in the MDL.

MO-07: MISSION DEVELOPMENT LOG ② ③

Tell us about your activities! What are you learning? What has been easy? What has been difficult? Did you find knowledge about these topics from a book, an online video, a teacher, a friend? Tell us everything! Each team member should contribute, but have one crew member compile the final document for submission to NESSP.

MO-08: MISSION VIDEO REPORT ③

One crew member should collect all the videos from the team and create a single, 4-minute video documenting the team's mission. If you're comfortable sharing the video on social media (YouTube, Twitter, Instagram, Facebook), that's great! The submission form will ask you for the link to your social media post. If you'd rather not post your video publicly online, that's totally fine, too — the submission form will also allow you to upload it directly to NESSP for scoring.



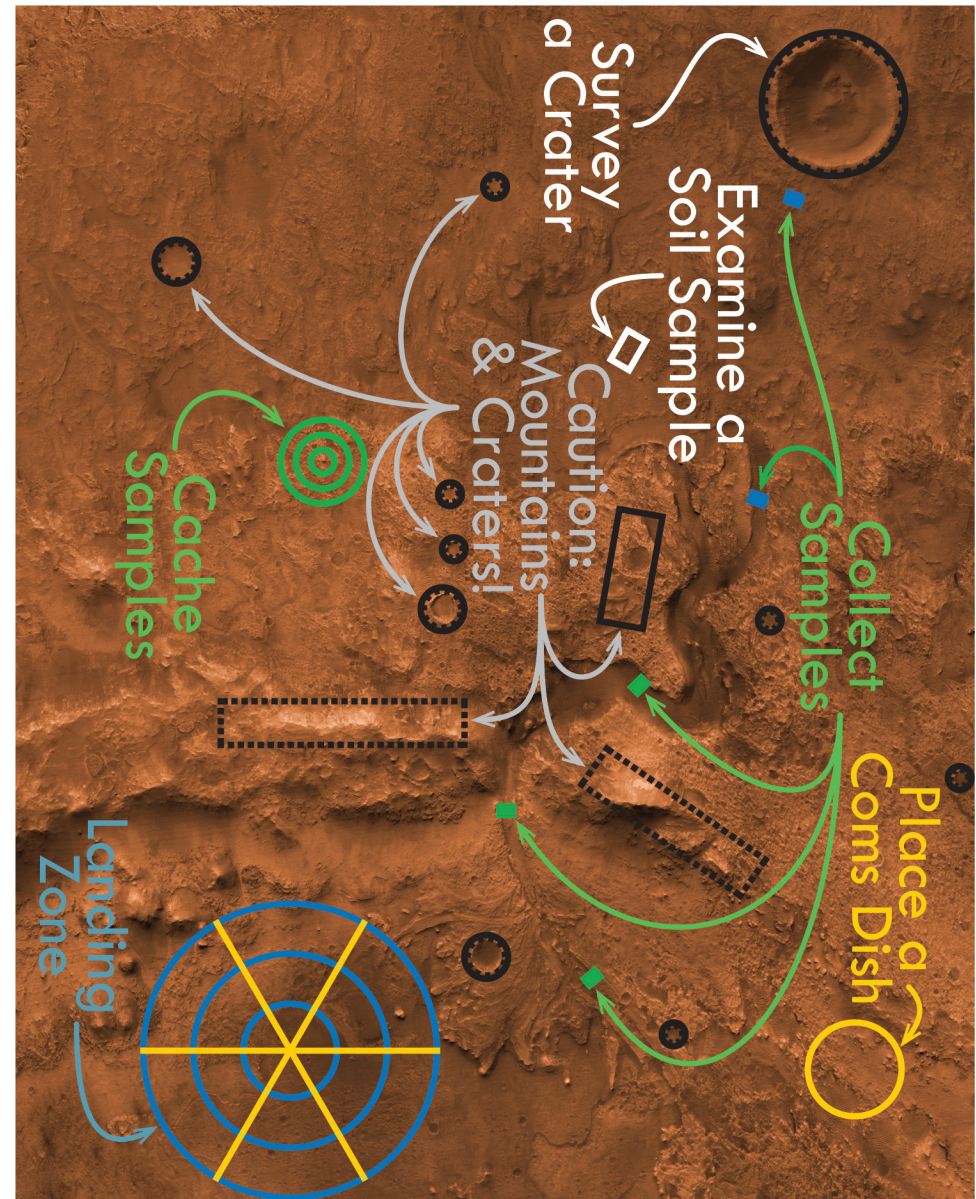
MISSION

ROADS OFFICIAL MARS MAP



OBJECTIVES

ROADS OFFICIAL MARS MAP – ANNOTATED



REGISTRATION OPENS

Thursday, March 26, 2020

SUBMISSIONS DUE

Monday, May 18, 2020



www.nwessp.org/mars-freestyle

#ROADSfreestyle

#NASAatHome

A team exercise for K-12 students using STEM activities to maintain social connections during a time of social distancing.

Follows in the path of the Mars2020 rover.

Complete Mission Objectives, including:

- Design & build a martian landscape.
- Design & build a communication dish.
- Build & land a lander on Mars.
- Navigate a rover across your Mars map.
- Identify signs of life around your home.

