



Reflecting on and Presenting Your Mission



Summary

What went great, and what could have been better? Reflect on your work and summarize it in your MDL. While all teams will submit their final MDL electronically, there are two options for completing this MO: **MO-8a is for teams that attend an in-person hub event** and MO-8b is for teams that cannot attend.

Materials Needed

- The team's rover from MO-5
- The team's rocket and crew exploration vehicle from MO-6
- Electronic access to the MDL
- Tri-fold board and supplies for teams attending in-person hub events

Resources from Companion Course Lesson 8:

- [Engage, Explore, and Elaborate Sections](#): Guidance to help team members reflect on their work and summarize the MOs in the team's MDL.
- [Evaluate](#): Guidance to help students evaluate their own work and the work of their peers with a Mission Review Rubric.

Additional Resources:

- [Description and options for producing a practice challenge map](#)
- [Printable color squares for challenge map](#)
- [Mission Development Log \(MDL\) Template](#)

Mission Guidance

IT'S GO TIME! Your team has modeled and tested its mission, and now it's time to launch. Teams who attend an in-person Final Challenge Event will complete MO-5 and MO-6 on the Final Challenge Course and present a tri-fold board on another MO of their choice.

In-person hub events will be held across the Northwest and beyond. Find dates and details on the [challenge website](#). Teams should complete MO-2, MO-5, MO-6, and at least one other MO (MO-3, MO-4, or MO-7) before attending, so they are prepared to complete the following activities.

Demonstration of ROV-ing Under the Moon (MO-5)

Teams will demonstrate that their rover can navigate the lava tube course on the [Artemis ROADS III Challenge Map](#). Teams won't know what turns will await their rover, so it must be able to autonomously sense walls and corners with an ultrasonic sensor. High school and middle school teams should also be prepared to make measurements of the color of the surface of the course and use the graphical data provided by their rover to reconstruct the tunnel on a [Lava Tube Surface Navigation Color Detection Worksheet](#).

Demonstration of Designing Human Rated Rocket (MO-6)

Teams will launch their most successful water bottle rocket and crew exploration vehicle. The rocket will be evaluated based on the following criteria:

- It's ability to reach the target altitude (50 ft).
- Whether it has a smooth stable flight.
- Whether it was reliable enough to be launched multiple times.
- The damage to the crew exploration vehicle and twist-tie crew.
- If it had a creative design.

Mission Objective Expo (MO-2/MO-7, MO-3, or MO-4)

The Expo gives each team the opportunity to highlight an area of the challenge where they did well. Teams should prepare a tri-fold (maximum size 36" by 48") to present on one or more of the MOs:

- MO-2 (Building a Strong Project Team) and MO-7 (Envisioning Your Role)
- MO-3 (Investigating Water on Earth and the Moon)
- MO-4 (Growing Food on the Moon)

Regardless of which option your team chooses, the tri-fold board should contain:

- The team name, team members' names, and mission patch
- The number and title of the MO or MOs featured on the board
- Include text, photos, drawings, data, artifacts (like plants or prototypes), and other information to summarize the team's work. Use the MO Deliverables as a guide for the board's content.

During the in-person hub event, teams will present their tri-fold boards to NESSP Reviewers and other teams. All team members should be prepared to answer questions about the MO or MOs on their board.

Surprise Teamwork Challenge

Artemis astronauts need to collaborate, develop new strategies, and master new skills for their Moon missions. In-person hub events will include surprise challenges to test each team's teamwork and engineering abilities.

Deliverables

This is your final MO! It's time to wrap up your mission by summarizing your work on all Mission Objectives into a complete and final Mission Development Log (MDL) that will be submitted to NESSP. Remember, the MDL must address the "Deliverables" in each MO. Teams are not required to complete every MO, but only teams that satisfactorily addressed every Deliverable in every MO will be eligible to win the trip to a NASA center. Good work and good luck!

What must be in your Mission Development Log (MDL)?

The MDL must:

- Have a title slide with team name, team number, team members's names, and the mission patch
- Include a completed Table of Contents slide
- Include the deliverables for each Mission Objective that the team completed
- Be 50 slides or less (including 9 green Mission Objective direction slides, see Template in MO-1)
- Include a completed copy of the "Mission Review Rubric" in the MDL template
- Be submitted electronically by May 30th, 2025