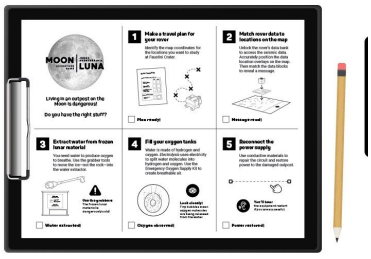
Moon Adventure Game

Facilitator Narrative Script
Early Childhood Adaptation

Revised 10-9-20

The Moon Adventure Game can be easily adapted for younger children by making a few changes to the game. Younger players will need more clues and help understanding the content, but this does not mean they shouldn't have the chance to try, fail, and try again. **It is important for players to exercise their scientific thinking and problem solving skills by attempting the puzzles**, rather than simply having the facilitators or caregiver provide them the answers. It is okay if players do not come to the correct solution immediately. **Remember, this game is meant to be child-driven.**

Early Childhood Adaptations to Setup and Summary of Game Challenges



Please follow the setup of the game and playing environment as outlined in the **Game Guide**, with the following changes.

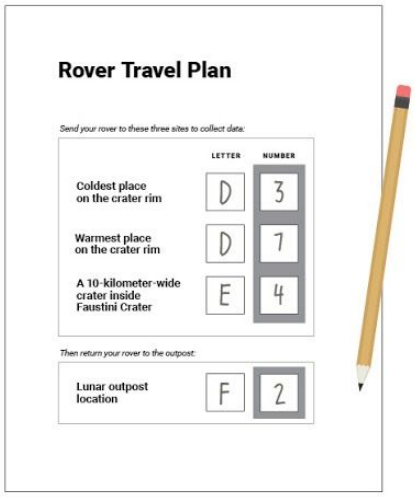
Progress Tracker

It is **not** necessary to use the progress tracker with young players, but facilitators can choose to use it if they wish.

Mission Control Cards

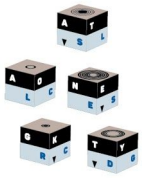
The Mission Control Cards are **not** used with young players.

Challenge 1: Make a travel plan for your rover

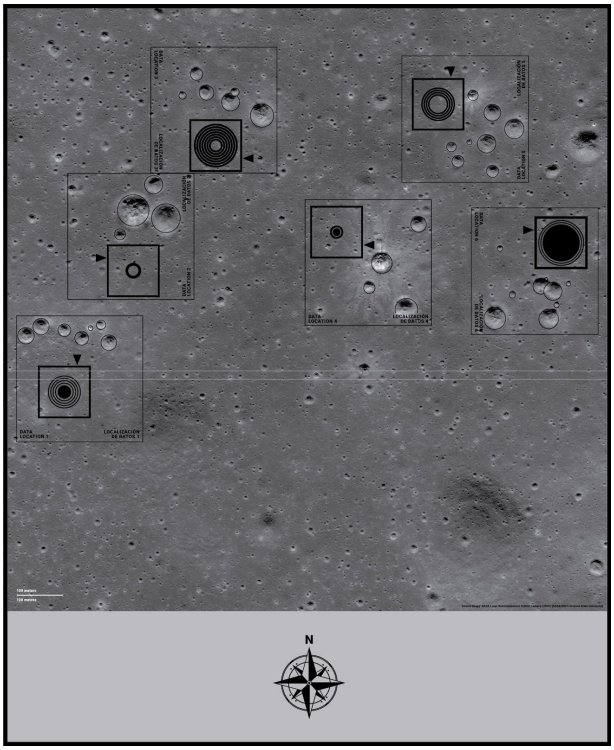


- Advanced Prep Changes: This challenge is greatly simplified for young learners. You will not need to use the crater binder, but take out the Rover Travel Plan sheet and fill out the letter and number coordinates as shown here.
- Revised Challenge Summary: Players need to get the data in the rover's data bank, but it is locked! They will be given a message containing the Rover Travel Plan from Mission Control that could be used to open their rover's data bank. The players can unlock the combination lock on the data bank using the numbers from the Rover Travel Plan.

Challenge 2: Match rover data to locations on the map



- Advanced Prep Changes: Use the orange box with the combination lock as the rover's data bank, but only add the six data blocks, NOT the plastic sheets. Pre-set and tape down the plastic sheets with crater outlines onto the large lunar crater map, matching the crater patterns. Players will unlock and open the orange box in Challenge 1.
- Revised Challenge Summary: Players will match the circle patterns on the data block to the circle patterns on the taped-down plastic sheets, without moving the plastic sheets from the map. They will need to properly align the downward facing triangles on the sides of the data blocks to the downward facing triangles on the plastic sheets to reveal the message. If players properly decode the rover's data, the message "DANGER (ALERTA)" should be seen across the blocks when standing at the South Pole of the Moon map (looking north).



Challenges 3–5

- No major revisions to the challenges.

Resetting Materials Between Groups

- Follow the reset procedures in the Game Guide, but be aware of the difference above in the Challenge 1 and 2 setup when resetting.

Early Childhood Adaptation Facilitator Narrative Script

Introduction for facilitator

- Black text = Do read aloud
- Purple text = Do not read aloud (facilitator cues)

General Tips

- Please read the Game Guide and watch the training videos. If you have younger players, you will be using this script in place of the Facilitator Narrative Script.
- It is important for players to exercise their scientific thinking and problem-solving skills by attempting the puzzles, rather than simply having the facilitator provide them the answer. It is okay if players do not come to the correct solution immediately.
- View your role more as an inquiry-based "facilitator." If players seem stuck, use questions to guide the player's experimentation rather than simply telling them the solution.
- Caregivers can actively participate as a team player by reading instructions aloud, pointing to images on the signs and instructions, and asking children questions.
- Above all else, have fun—it's a game!

Script Begins

Welcome

Welcome! Once you enter this space you will be on the Moon!
Gesture to the door or point to an imaginary line on the floor (adjust according to your space).
Welcome to the lunar South Pole!
Did you know that "lunar" is another word scientists use when talking about the Moon?
You will play astronauts living and doing research on the Moon!

I am located on the Earth at Mission Control, and can relay messages to you from Earth.

Look around. Everything you will need is here on these tables. (Gesture, adjust as necessary.)
Survival on the Moon will require teamwork!

Before we get started, let's introduce ourselves and learn everyone's name.
Go around the circle and facilitate everyone sharing their names before starting the game.

- **Survival**
  - Does anyone have ideas about what humans would need to live on the moon?
  - Let players respond.
  - Things to mention if not suggested by the team: shelter, water, oxygen, food, energy, and communication.

- **Location**
  - Point to the location on the welcome sign where the lunar outpost is located.
  - The lunar outpost is located near the Moon's South Pole.
  - The Moon's South Pole has deep, dark, cold craters that contain water ice. This ice would need to be mined for people to be able to live on the Moon.

- **Teamwork**
  - Do you think astronauts work alone? Let players respond.
  - Astronauts work on a team. Be sure to work together and help each other complete the challenges. Everyone on the team is important.
  - If you need help with any of the challenges, you can contact Mission Control on Earth.

Challenge 1

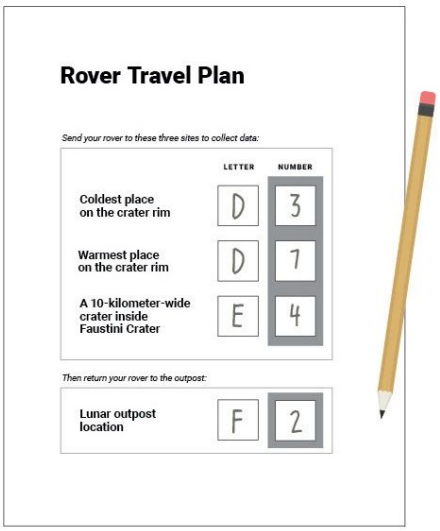
The lunar outpost is your home on the Moon, and it is up and running. Point out the environmental banner with the view of the lunar surface.

Living and working on the surface of the Moon is dangerous. Mission Control is worried about moonquakes damaging the outpost. What's a moonquake? Facilitate a quick conversation about how moonquakes can powerfully shake the ground, similar to earthquakes.

Your team has a remote-controlled rover that has been exploring the Moon's surface and learning about these moonquakes. Point to challenge sign showing the rover.

But all the data that the rover has collected is locked in its data bank. How do we get it out?
Point to the orange box with the combination lock.

Mission Control sent you this Rover Travel Plan—maybe it has a clue about the combination for the lock.
Provide the filled-out Rover Travel Plan.



If the team needs help:

- Remember, if you need help with any of the challenges, you can contact Mission Control on Earth.
- Hints from Mission Control
  - Hint: It looks like the combination lock uses numbers. Are there any numbers we can try on the Rover Travel Plan?

After players unlock the data bank box...

Great teamwork, explorers! You opened your rover's data bank! Now let's see what is in the rover's data bank!

Challenge 2

The rover has recorded the information about the moonquakes into these data blocks. Hand out the data blocks to players—have them notice the different circle patterns.

Match each data block to the exact location where the data was collected to see a message about the moonquakes. Gesture to the lunar crater map with taped-on plastic sheets.

If the team needs help:

- Remember, if you need help with any of the challenges, you can contact Mission Control on Earth.
- If players spell a word other than "DANGER (ALERTA)"
  - Hint: Oh, the message still seems scrambled. Do you want to contact Mission Control for help?
- Hints from Mission Control:
  - Hint: The different circle patterns on the data blocks might be important for where they should go on the map.
  - Hint: The patterns look right, but did you see the downward facing triangles on the data blocks and the plastic sheets? I wonder what those are for?
  - Hint: The arrows on the blocks need to line up with the plastic overlays.
  - Hint: Your body will need to be facing north on the map to read the message. I wonder how we know which way is north? Is there a tool or picture that we could use?

When players reveal the message of "DANGER (ALERTA)"...
DANGER! The rover data shows there could be dangerous moonquakes near the outpost!

Now blast the alarm sound, sway back and forth, and drum your fingers on the table.
(Be aware some players may feel overstimulated by the loud alarm sound.)
Oh no! That's the moonquake alarm!
The outpost is shaking right now! Hold tight!

The moonquake has passed, but you're not out of danger yet! All that shaking cut the power to the outpost. You're relying on the outpost's backup batteries now! And, even worse, the moonquake cracked your oxygen tanks, venting your precious air into the vacuum of space! This is not good at all!

Challenge 3

First things first: You need to refill your breathable air supply. Automatic emergency systems have patched the oxygen tanks, but they're almost empty. You'll need water to produce more oxygen to breathe. If players are confused, the facilitator can point out that they will learn more about this process once they extract the water.

Luckily, your outpost has a supply of frozen lunar material mined from deep, dark craters—and it contains frozen water, or ice!

Use the grabber tools to separate the ice from the rock and move the ice into the water extractor. Be careful—the lunar material is dangerously cold!

Use teamwork!

- If the team needs help: Remember, if you need help with any of the challenges, you can contact Mission Control on Earth.
- Hints from Mission Control:
  - Hint: There are two types of materials—make sure you get the ice, not the rock.

Tap or shake the box if the vials of water are not released after five wooden blocks are placed into the water extractor.

Once the water extractor releases the vials of water, move to the next challenge.

Challenge 4

Good job! Now that you have water, you can use the Emergency Oxygen Supply Kit to begin producing air.

Did you know that water can be used to make oxygen that we can breathe?
Water molecules can be split into hydrogen and oxygen in a process called electrolysis.
Lead players in saying the word together. Let's all say that word together: e-lec-trol-y-sis.

After the team opens the Emergency Oxygen Supply Kit…
But wait—it looks like the shifting, shaking equipment has mixed up the instructions! Put the instruction cards in the right order and build your electrolysis machine!

Players may need assistance with reading the instructions or using the science tools—use guiding questions and scaffolding to help them figure it out together, rather than telling them the solutions. You may need to assist players in taking all materials out of the Emergency Oxygen Supply Kit before starting the challenge.

- If the team needs help: Remember, if you need help with any of the challenges, you can contact Mission Control on Earth.
- Hints from Mission Control:
  - If the team tries to mix ingredients in the graduated cylinder:
    Hint: It might be easier to mix materials in the cup.
  - Hint: Have you used everything in the box?
  - Hint: Hmm...are you sure we have all the correct instruction cards? Look again for the word "Electrolysis" on the cards.

After the oxygen supply is flowing (bubbles appear)**…**
You can breathe again! Take a deep breath!
Encourage players to take a big, loud breath in and out.

Disconnect the battery and remove the washers once players have moved to the next challenge.

Challenge 5

You saw the bubbles, which means you made oxygen to breath. Take another deep breath to celebrate! Lead players in taking a deep breath in and out together.

But hold on, the danger isn't over! The backup batteries won't last much longer!

You need to reconnect the outpost to its main power supply. The moonquake damaged the connecting wires and we don't have enough wire left! You may need to get creative with the materials you use to reconnect the power supply.

Some materials allow electricity to pass through it, while others don't. It sure looks like there is a lot of junk in that cup to try out!

When the electricity is flowing again, you'll hear the system restart.

- If the team needs help: Remember, if you need help with any of the challenges, you can contact Mission Control on Earth.
- Hints from Mission Control:
    - Hint: There are a lot of different materials that can conduct electricity, but not everything can.
    - Hint: Weren't there extra instruction cards in the Emergency Oxygen Supply Kit? I wonder if there are any hints in there about what conducts electricity?

After players connect the power...
Awesome work! Congratulations! Great teamwork!
You've survived the moonquake and restored power to the outpost!
Now you can continue your lunar exploration and research.

Wrap-up and Reflection

Once the game is over, have the wrap-up discussion below with players and offer to take a picture of them in front of the Moon graphics.

Talk about the game and the player's experiences as time allows. Invite caregivers to be part of this reflection time.

- Did you like being an astronaut on the Moon?
- Would you ever like to live on the Moon?
- What would you bring from home to the Moon—what about taking your friends and family along?
- What would you want to explore on the Moon?

Here are some suggestions of content you can use to expand the wrap-up conversation and connect responses from players with NASA missions.

- NASA scientists and engineers are working to send humans to the Moon by 2024 as part of NASA's Artemis Mission.
- Water ice has actually been found on the Moon and will be crucial for survival and producing energy, just like you did today!
- Astronauts living on the International Space Station use electrolysis to produce oxygen from water.

Thanks for playing this game with me!

Would you like a sticker (or temporary tattoo) for NASA's new Artemis mission to the Moon?
Offer the players a sticker or temporary tattoo.