

# Moon Adventure Game

## Facilitator Narrative Script

Revised 10-9-20

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### Introduction for facilitator

- Black text = Do read aloud
- Purple text = Don't read aloud (facilitator cues)

#### General Tips

- Please read the Game Guide and watch the training videos. If you have younger visitors, please see the early childhood adaptation 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, asking children questions, or helping with the Progress Tracker.
  - Above all else, have fun—it’s a game!
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### 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!

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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 lunar South Pole has deep, dark, cold craters that contain water ice. People would need to mine this ice in order to live long-term 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.
- Your team will need to keep track of your progress.
- Who would like to use the clipboard first to keep track of progress and read the directions out loud?
- Select a player who raises their hand and give them the clipboard with the progress tracker and a pencil.
- If you need help with any of the challenges, you can contact Mission Control on Earth.
- But so much data is being sent back and forth between the Moon and the Earth that you will only have three chances to ask Mission Control questions. So use them wisely!
- Who would like to be the communications specialist?
- Select a player who raises their hand and give them the three Mission Control cards.

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## Challenge 1

Your lunar outpost is up and running, your oxygen tanks are full, and it's time to get to work. Doing research on the surface of the Moon is difficult. Fortunately, your team has a remote-controlled rover that can explore the lunar surface.

To get started, you'll need to send the rover to specific locations on the Moon to collect data. Fill out your rover travel plan to complete your mission. Open the binder to get started.

Double-check your plan to make sure all your team members agree!

### After players complete their rover travel plan...

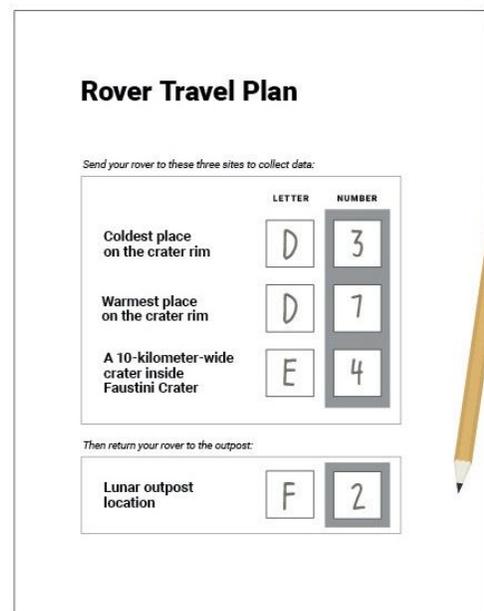
Your rover has traveled to the locations on your plan and collected data. Use the coordinate numbers from the travel plan to unlock the rover's data bank and retrieve the data blocks.

- If the players aren't able to open the lock, check to see if the players' Rover Travel Plan matches the answer key (see image).
- If the team needs help: Remember, if you need help with any of the challenges, you can contact Mission Control on Earth three times.
- Hints from Mission Control:
  - Hint: Each square is 10 kilometers.
  - Hint: If your lock isn't opening, check your data again.

### After players unlock the data bank box...

Great teamwork, explorers! You opened your rover's data bank!

Your travel plan allowed the rover to collect data from the lunar surface.



**Rover Travel Plan**

Send your rover to these three sites to collect data:

	LETTER	NUMBER
Coldest place on the crater rim	D	3
Warmest place on the crater rim	D	7
A 10-kilometer-wide crater inside Faustini Crater	E	4

Then return your rover to the outpost:

Lunar outpost location	F	2
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A yellow pencil is positioned vertically to the right of the form.

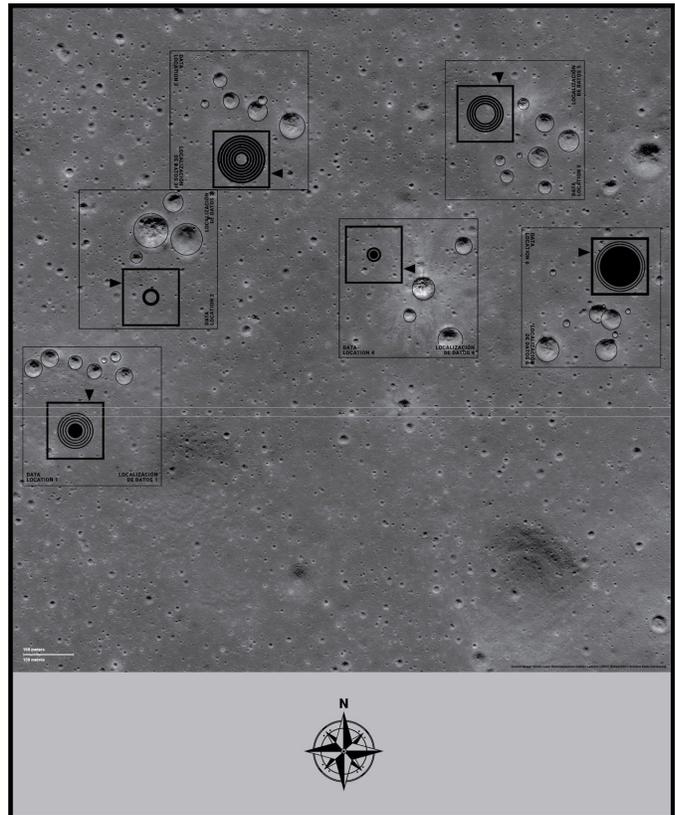
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## Challenge 2

Hmm... Mission Control has detected some strange seismic readings from the outpost sensors. Have you felt the ground shaking?

Let's explore more. Fortunately, your rover just collected some seismic data that we can compare to the outpost sensors to find out what is going on. Match each data block to the exact location where the data was collected to decode a message about the seismic data. Start off by matching the data location overlays to the lunar crater map.

- **If the team needs help:** Remember, if you need help with any of the challenges, you can contact Mission Control on Earth.
- **If the players aren't able to match the plastic data overlays, check to see if the data overlays match the answer key (see image).**
- **Hints from Mission Control:**
  - **Hint:** Take a closer look. Are you sure the correct side of the plastic overlays is facing up?
  - **Hint:** The circles on the plastic data location overlays should be placed on the map to line up with the craters.
  - **Hint:** Did you notice the triangles on the blocks and the plastic overlays?
  - **If players spell a word with the blocks other than "DANGER (ALERTA)"**  
**Hint:** Oh, the message still seems scrambled. Do you want to contact Mission Control for help?
  - **Hint:** Your body will need to be facing north on the map to read the message.



When players reveal the message “DANGER (ALERTA)”...

DANGER! The rover seismic data shows there could be dangerous moonquakes in this area.

**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!

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## 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.

Luckily, your outpost has a supply of frozen lunar material mined from deep, dark craters.

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.

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## Challenge 4

Good job! Now that you have water, you can use the Emergency Oxygen Supply Kit to begin producing air. Water molecules can be split into hydrogen and oxygen in a process called electrolysis.

### After the team opens the Emergency Oxygen Supply Kit...

But wait—it looks like the shifting, shaking equipment has mixed up the instructions! Reorganize the instruction cards and build your electrolysis machine!

- **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?

### 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.**

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## Challenge 5

You can breathe again, but 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, so you have to figure out how to complete the circuit. You may need to get creative with the materials you use—even if the solution is just temporary. Once the circuit is completed and 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.

### **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.

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## 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.

- 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.
- 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.