

# Photography Challenge: Inside the Chamber

As part of the ALEPH mission, documenting plant growth on the lunar surface is a critical aspect of our research. This challenge allows you to practice capturing detailed images of a small plant, simulating how it might be photographed aboard a lander with the lunar horizon in the background.

By photographing a seedling in a container while also showcasing the surrounding landscape, you'll explore the techniques needed to optimise plant photography for space missions. Whether you're using a camera with adjustable settings or a smartphone, you'll gain skills in balancing scientific precision with impactful public communication.



The ALEPH project is an Australian payload putting seeds and plants on the Moon.

# What you'll need:

- This Instruction booklet (check!)
- Seeds of your choice
- Agar\* (or other way to suspend growing seeds)
- Sealable heat-proof container with clear lid
- Table, stool or bench
- Smartphone or camera

\*Caution: Handle hot water carefully when dissolving agar.  
Adult supervision is required for participants under 15 or for anyone uncomfortable with handling hot liquids.



**Your Objective:** Take an image of a small seedling in a container, 20 cm away from your camera or smartphone, while also capturing the background behind it. This exercise helps simulate photographing a plant payload on the lunar surface, elevated on a lander with the lunar horizon in the background.

## Set the Scene

1. Dissolve ½ teaspoon of agar in 1 cup of hot water. Pour mixture into a heat safe container with a clear lid
2. When cool but still not completely set, plant some seeds of your choice in the mixture. Seal with container lid and set aside in a well-lit place like a window-sill.  
*Depending on the species of plant, seeds may take a few days to a week to show signs of germination. If you're interested in learning more, see the seed and plant testing challenge on the [plantsonthemoon.com](http://plantsonthemoon.com) website.*  
*Continue steps below once germination occurs (small leaves showing)*
3. Print the template on the last page of this booklet for your guide (A4).
4. Place your camera or smartphone and plant on the positions shown in the template, and place the container on its side so that the camera is pointing at the lid.
5. Position the setup on a table, bench, or stool to elevate it from the ground. Make sure there's a few meters of open space behind the plant for the background. This could be a backyard, a room with contrasting flooring, or an area with an interesting horizon line.

\*Ensure your setup is stable and secure. Place your container and camera on a flat, safe surface to prevent spills or falls, especially when elevating the setup.



## Option 1:

# Steps For Cameras

### 1. Lens and Focus:

- Use a lens with a low f-stop (e.g., f/2.8 to f/4) to create a shallow depth of field.
- Manually focus on the plant, ensuring it is sharp while slightly blurring the background.

### 2. Depth of Field:

- Experiment with aperture settings to find the balance between a sharp foreground and a recognizable background.
- Take test shots and review how much of the background is in focus.

### 3. Exposure:

- Set ISO to a low value (e.g., 100-400) to reduce noise.
- Adjust the shutter speed for proper exposure. If you're outdoors with natural light, you might need a faster shutter speed to prevent overexposure.

### 4. Composition:

- Frame the plant in the lower half of the image, leaving space above to capture the background.
- If using artificial lighting, make sure shadows and highlights enhance the plant's details without overpowering the background.

Keep all electronics dry and away from water to prevent damage or potential injury. Ensure that any containers with water are securely sealed.



## Option 2:

# Steps For Smartphones

### 1. Use Portrait Mode:

- Most smartphones today have a portrait mode that mimics a shallow depth of field. Enable this mode to focus on the seedling and blur the background slightly.

### 2. Focus:

- Tap the screen to focus on the seedling. Take multiple shots from different angles to find the best focus.

### 3. Exposure and Lighting:

- Adjust the exposure by sliding your finger up or down on the focus box. Aim for balanced lighting on both the plant and background.

### 4. Composition:

- Position the plant in the lower portion of the screen, ensuring you capture the space behind it.
- Use any natural lighting available, or experiment with lamps to highlight the seedling without creating harsh shadows.

When capturing your images, handle your setup carefully to avoid spills or tipping over your container.

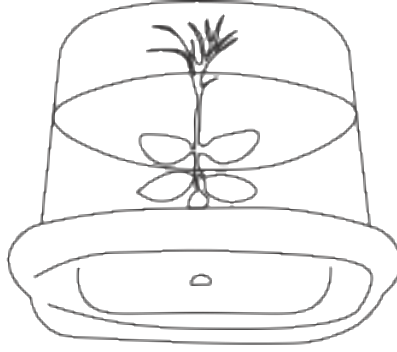
# Share your results!



<https://forms.gle/1TcEVCj5fK8bxqwF9>

Share your results by uploading them via the form above or posting them on Instagram with the tag @plantsonthemoonau or hashtag #plantsonthemoon.

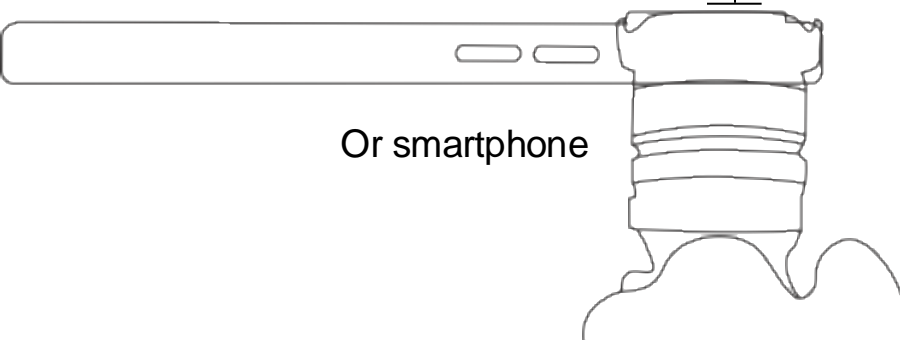
Disclaimer: The creators of this project have taken all reasonable measures to ensure the activities are safe and educational. However, participants are responsible for following instructions carefully and conducting all activities in a safe manner. Adult supervision is required for all participants under the age of 15, and for any use of sharp, hot, or electrical tools.



Place top of plant container here

20 Centimetres

Place end of camera here



Or smartphone