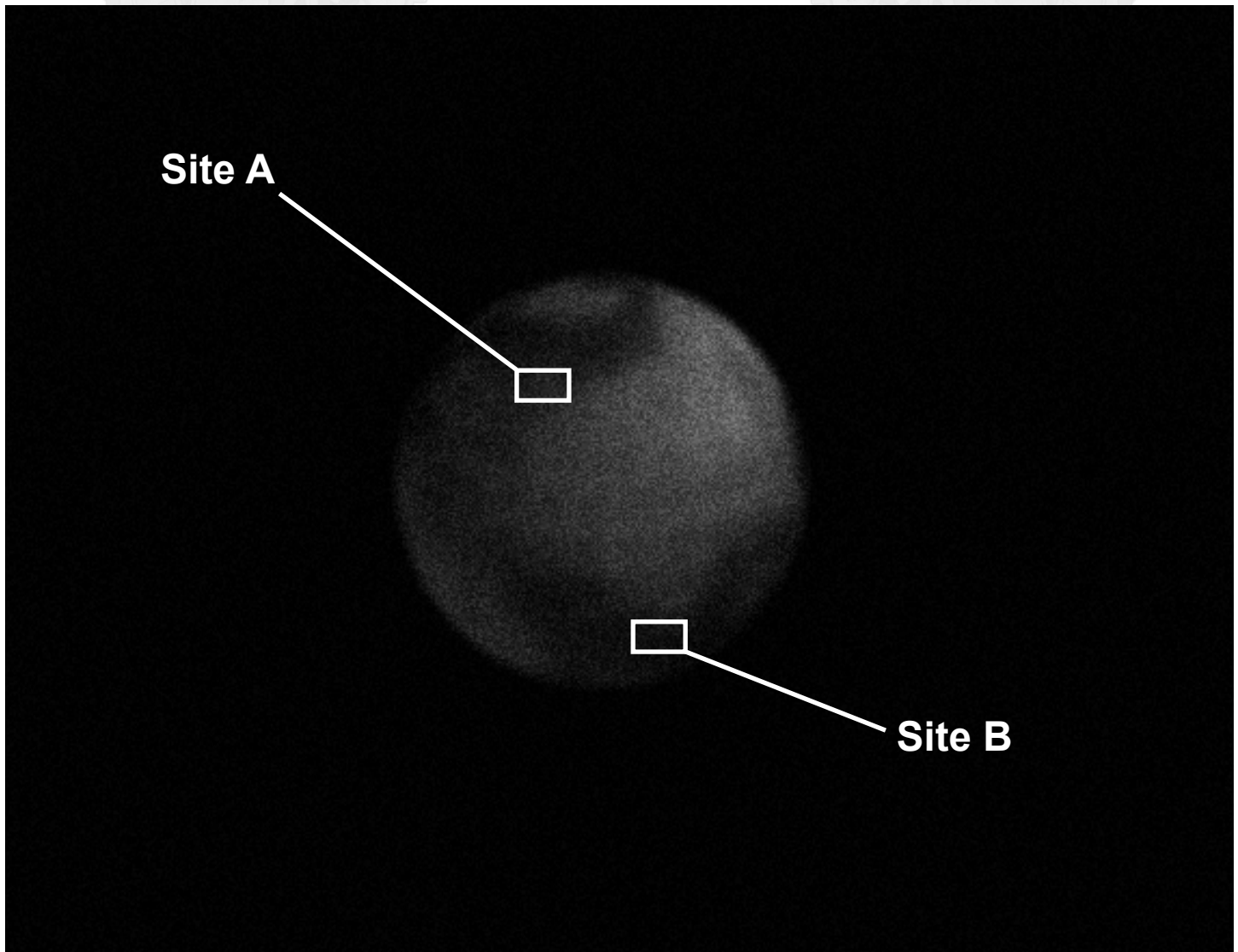


This is the only picture we have of the newly discovered moon, taken through a telescope. There are two sites that scientists have decided to explore further with remote sensing technologies.



### **Remote Sensing Engineering Challenge:**

Your final design challenge is to engineer a remote sensing device (or devices) to collect information about the surface of the Mystery Moon for one of the three scientists.

## Scientist: Jaime, planetary geologist

*"I am interested in the landscape of the moon. What color is the surface? Are there any mountains, valleys, or craters?"*

Criteria	Constraints
Identify the landforms (mountains, valleys, craters) at Site A and Site B.	You may only use the available materials to complete your design.
Identify the colors at Site A and Site B.	You will have two sessions to engineer your remote sensing device(s).

## Scientist: Caris, planetary geologist


*"I am interested in landing a rover on this moon. Sending a rover will allow us to collect samples and more closely examine what the moon is made of. Is there a flat, open space where the rover could land safely?"*


Criteria	Constraints
Identify an area for the rover to land.	You may only use the available materials to complete your design.
The landing area must be large enough for the rover to land safely (3" x 4").	You will have two sessions to engineer your remote sensing device(s).

**Scientist: Alex, biologist**

*“I want to know if this moon can support life. One of the most important elements to support life is water. Are there any sites that show evidence of water?”*

Criteria	Constraints
Identify places on the Mystery Moon where water (represented by a triangle shape) is present.	You may only use the available materials to complete your design.
Look for landforms, like canyons, that suggest the presence of water.	You will have two sessions to engineer your remote sensing device(s).

 **Did You Know?**  
 Many animals can see a different range of colors than humans can, including the mantis shrimp, which has eyes that are like the color sensors NASA uses in spacecraft!

 **Did You Know?**  
 NASA planetary scientists have telescopes that can tell us about solar systems far beyond our own.

Sketch a *plan* for your remote sensing device(s) in the space below. After you *test*, mark areas of your design that you would like to *improve*.

**What information is your scientist interested in?  
What technologies will help you collect the data they need?**

**Scientist:** \_\_\_\_\_ **Criteria:** \_\_\_\_\_



**How will you *improve*?** You can use new materials, try a different resolution, make your devices smaller and more compact, or *improve* in another way!

When collecting data with your remote sensing device...

**DO:**

1. Only put your hands through the opening in the Space Screen to push down on straws.
2. Move device from left to right.
3. Be careful when using the Space Screen so it does not fall over or break.

**DO NOT:**

1. Peek around the sides or into the Space Screen opening.
2. Put your face closer to the Space Screen than the edge of the table.
3. Try to touch the inside of the model landscapes through the Space Screen.

Some of the scientists are interested in the minerals on the surface of the Mystery Moon. Use the key below to help decode your findings:

Minerals	Symbol
Water, ice	▲
Iron	●
Magnesium	★

**Did You Know?**

NASA scientists and engineers can sometimes make mistakes, so they plan, test, and re-plan all human missions several times, to make sure that the astronauts involved are kept as safe as possible.

Use this page to record any data that you collect using your remote sensing device(s). Be sure to visit Site A and Site B.

## Site A



### **Did You Know?**

Some of NASA's first spacecraft sent their data to Earth so slowly that engineers could color in the image by hand, dot-by-dot.

Use this page to record any data that you collect using your remote sensing device(s).

**Site B**