

Hi Everyone! My name is Hannah, and I am Lunar Scientist!

Background:

B.A. in Economics

Mathematics minor

Saint Mary's College

B.S. Earth Sciences Engineering

University of Notre Dame

6 years of Research experience before NASA
One NASA/LPI Internship

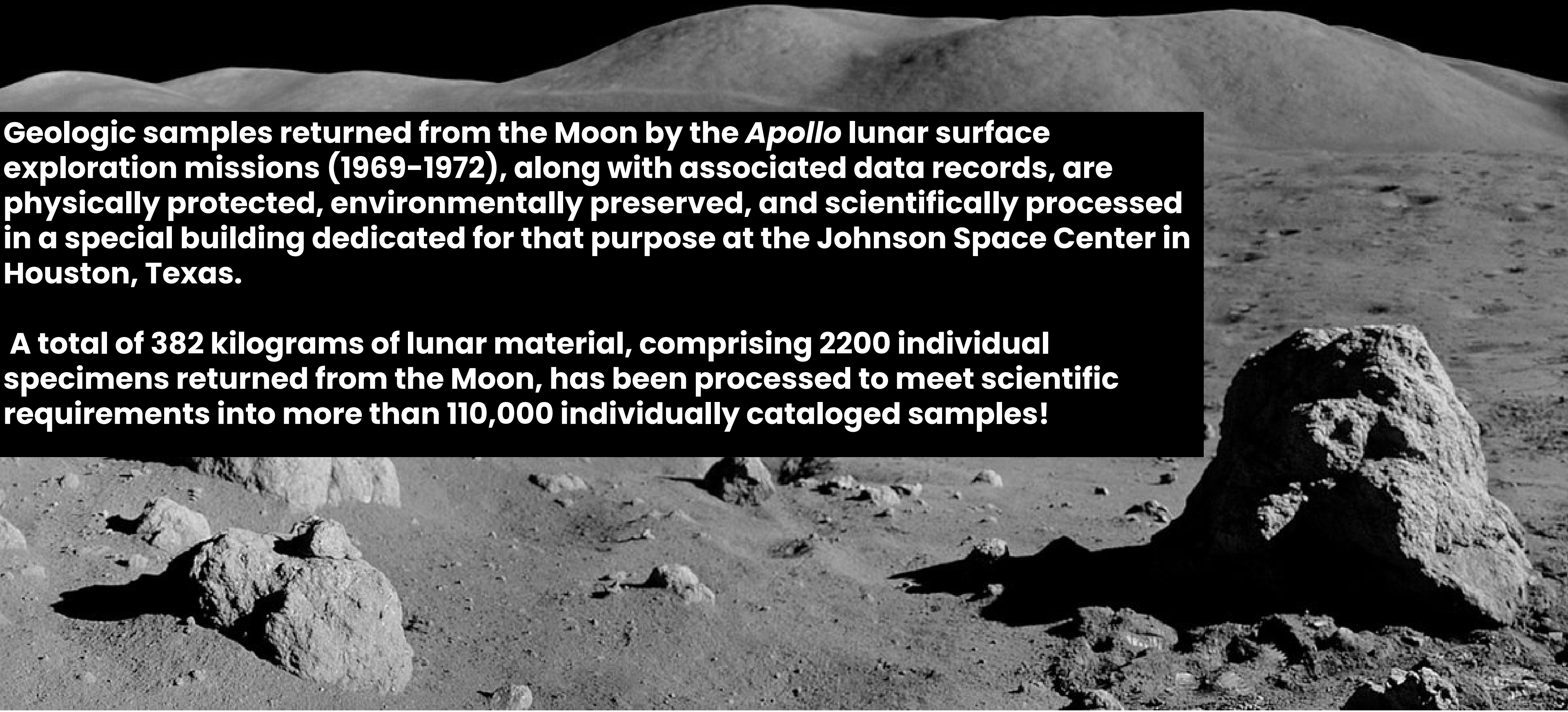
Current role: Lunar Scientist and Lab Manager



What is a Lunar Scientist?

Geologic samples returned from the Moon by the *Apollo* lunar surface exploration missions (1969–1972), along with associated data records, are physically protected, environmentally preserved, and scientifically processed in a special building dedicated for that purpose at the Johnson Space Center in Houston, Texas.

A total of 382 kilograms of lunar material, comprising 2200 individual specimens returned from the Moon, has been processed to meet scientific requirements into more than 110,000 individually cataloged samples!



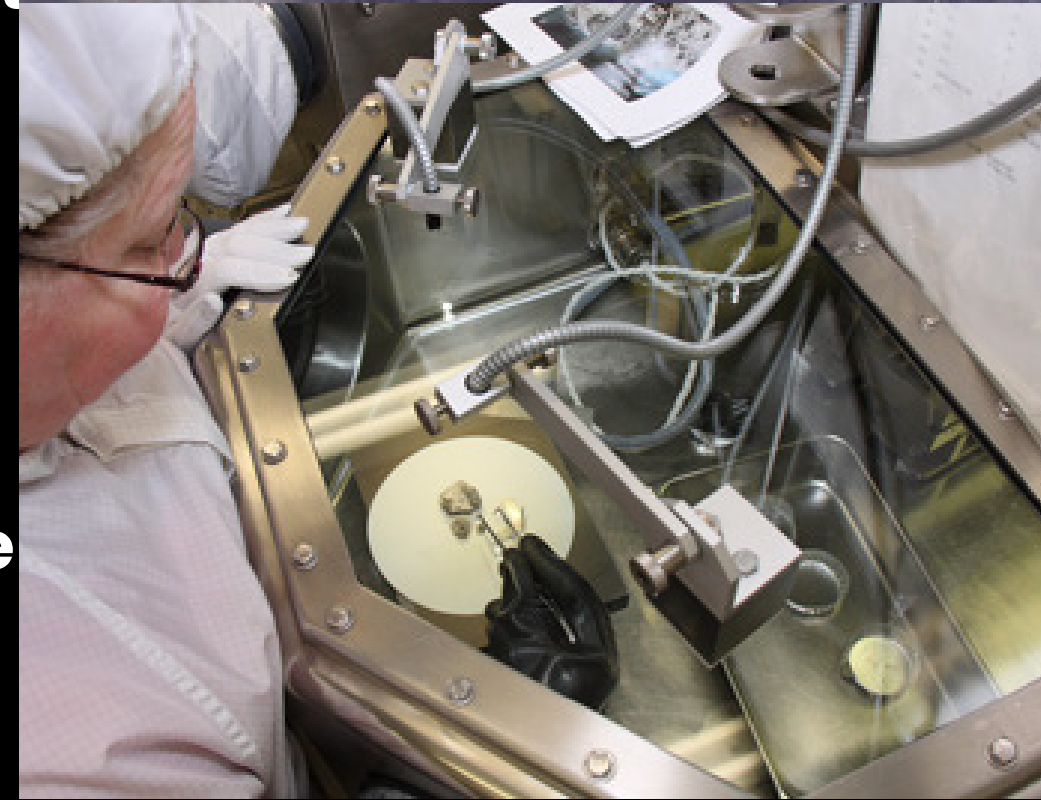


Why do we use
nitrogen gas? 🤔



“Pristine” samples, or samples which have not been out of the laboratory since they were returned from the Moon, are processed in: *specially manufactured stainless steel cabinets filled with flowing nitrogen gas*

Before the samples were collected, they had been in a vacuum on or near the lunar surface for millions to billions of years.



MOON Facts

It is the only celestial body beyond Earth that has been visited by human beings.

Distance from the Earth: About 239,000 miles. (or about 30 Earths away)

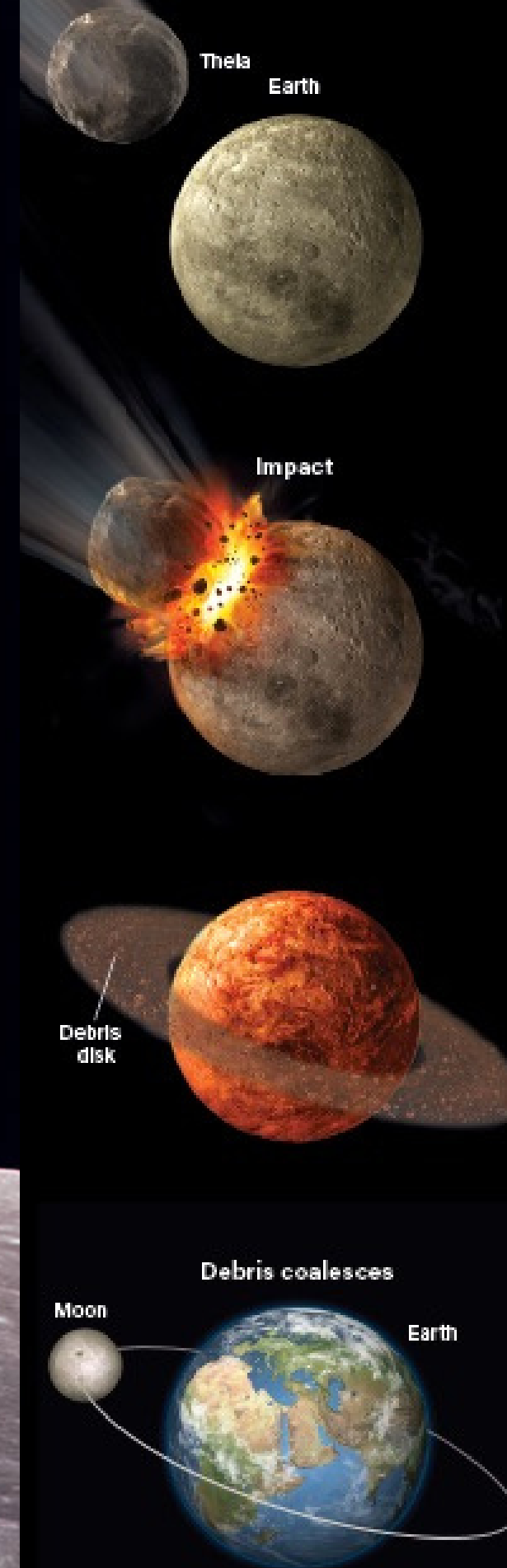


Minimum temperature: -387 degrees Fahrenheit.

Maximum temperature: 253 degrees Fahrenheit.

THE EARTH AND MOON ARE TIDALLY LOCKED. THEIR ROTATIONS ARE SO IN SYNC WE ONLY SEE ONE SIDE OF THE MOON. HUMANS DIDN'T SEE THE LUNAR FAR SIDE UNTIL A SOVIET SPACECRAFT FLEW PAST IN 1959.

GIANT IMPACT HYPOTHESIS



The moon was likely formed after a Mars-sized body collided with Earth and the debris formed into the most prominent feature in our night sky.

Our moon makes Earth a more livable planet by moderating our home planet's wobble on its axis:

- leading to a relatively stable climate
- creating a tidal rhythm that has guided humans for thousands of years.



WE ARE GOING!

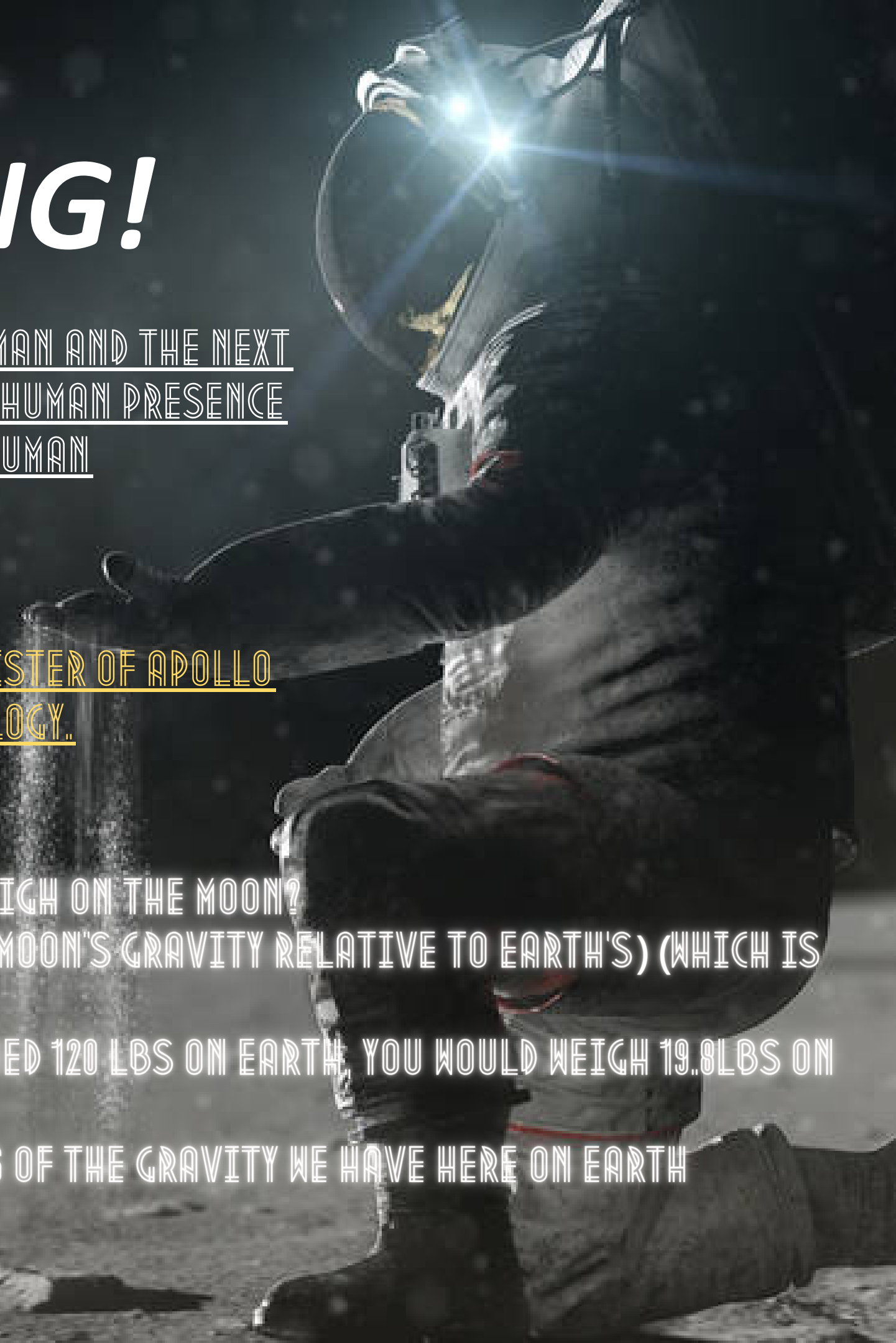
THE ARTEMIS PROGRAM WILL SEND THE FIRST WOMAN AND THE NEXT MAN TO THE MOON AND DEVELOP A SUSTAINABLE HUMAN PRESENCE ON THE MOON AND SET THE STAGE FOR FURTHER HUMAN EXPLORATION OF MARS.

THE PROGRAM TAKES ITS NAME FROM THE TWIN SISTER OF APOLLO AND THE GODDESS OF THE MOON IN GREEK MYTHOLOGY.

- THE MOON HAS SOLID, ROCKY SURFACE CRATERED AND PITTED FROM IMPACTS BY ASTEROIDS, METEORITES, AND COMETS
- TWENTY-FOUR HUMANS HAVE TRAVELED FROM THE EARTH TO THE MOON. TWELVE WALKED ON ITS SURFACE. THE LAST HUMAN VISITED THE LUNAR SURFACE IN 1972.

HOW MUCH DO YOU WEIGH ON THE MOON?

- YOUR WEIGHT X (MOON'S GRAVITY RELATIVE TO EARTH'S) (WHICH IS 0.165.)
- SO IF YOU WEIGHED 120 LBS ON EARTH, YOU WOULD WEIGH 19.8LBS ON THE MOON!
- MOON HAS ON 1/6 OF THE GRAVITY WE HAVE HERE ON EARTH



Have you heard of Artemis?

What are you most excited about going back to the Moon?



Want to look at some Moon rocks? This link let's you look at the rocks in 3D and gives you the rock's history and origin!

<https://ares.jsc.nasa.gov/astromaterials3d/sample-details.htm?sample=76535-0>

Artemis I launch date:
November 16th, 0222

Artemis Phase 1: To The Lunar Surface by 2024

Artemis I: First human spacecraft to the Moon in the 21st century

Artemis II: First humans to orbit the Moon in the 21st century

Artemis Support Mission: First high-power Solar Electric Propulsion (SEP) system

Artemis Support Mission: First pressurized module delivered to Gateway

Artemis Support Mission: Human Landing System delivered to Gateway

Artemis III: Crewed mission to Gateway and lunar surface

Commercial Lunar Payload Services

- CLPS-delivered science and technology payloads

Early South Pole Mission(s)

- First robotic landing on eventual human lunar return and In-Situ Resource Utilization (ISRU) site
- First ground truth of polar crater volatiles

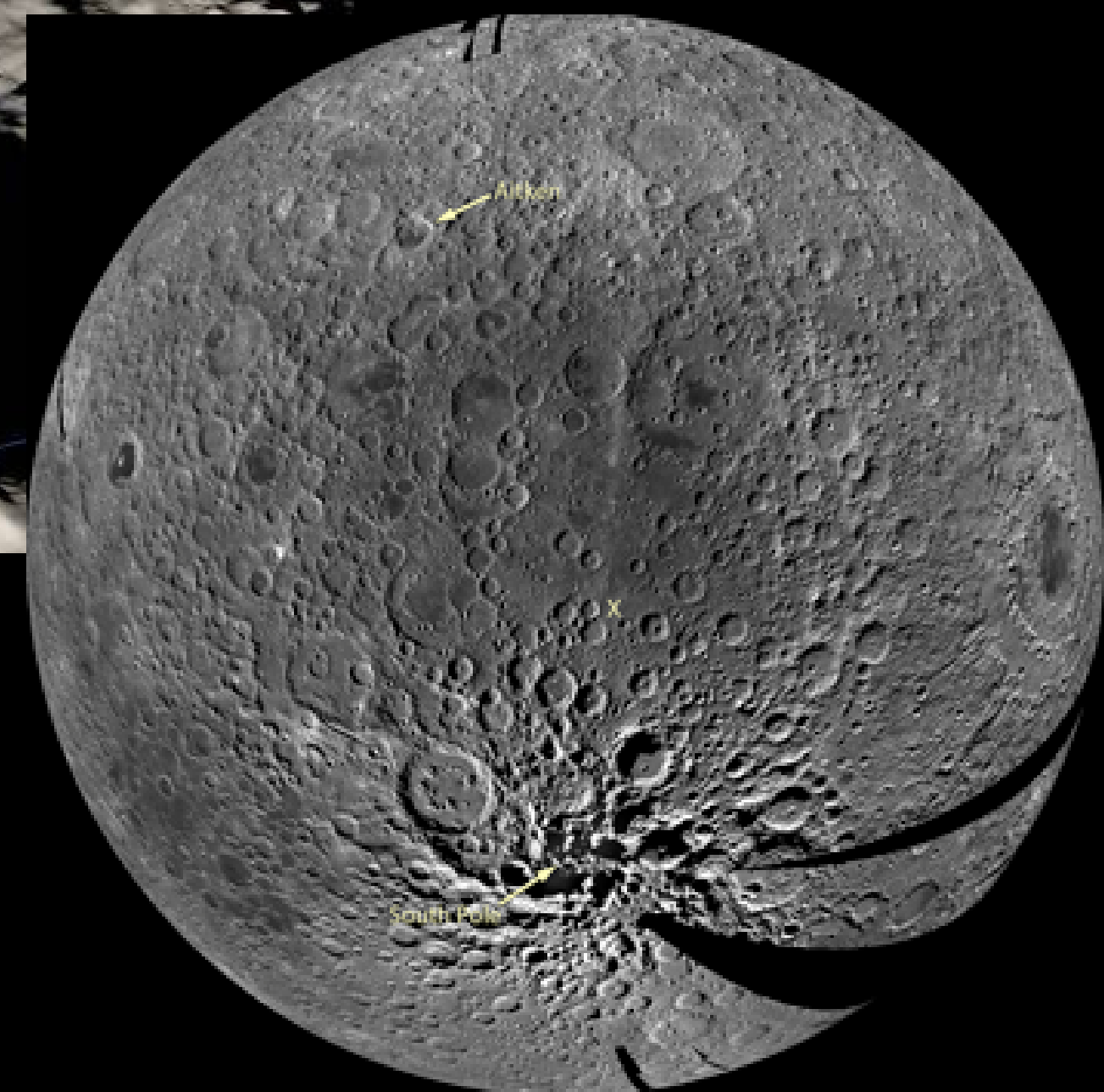
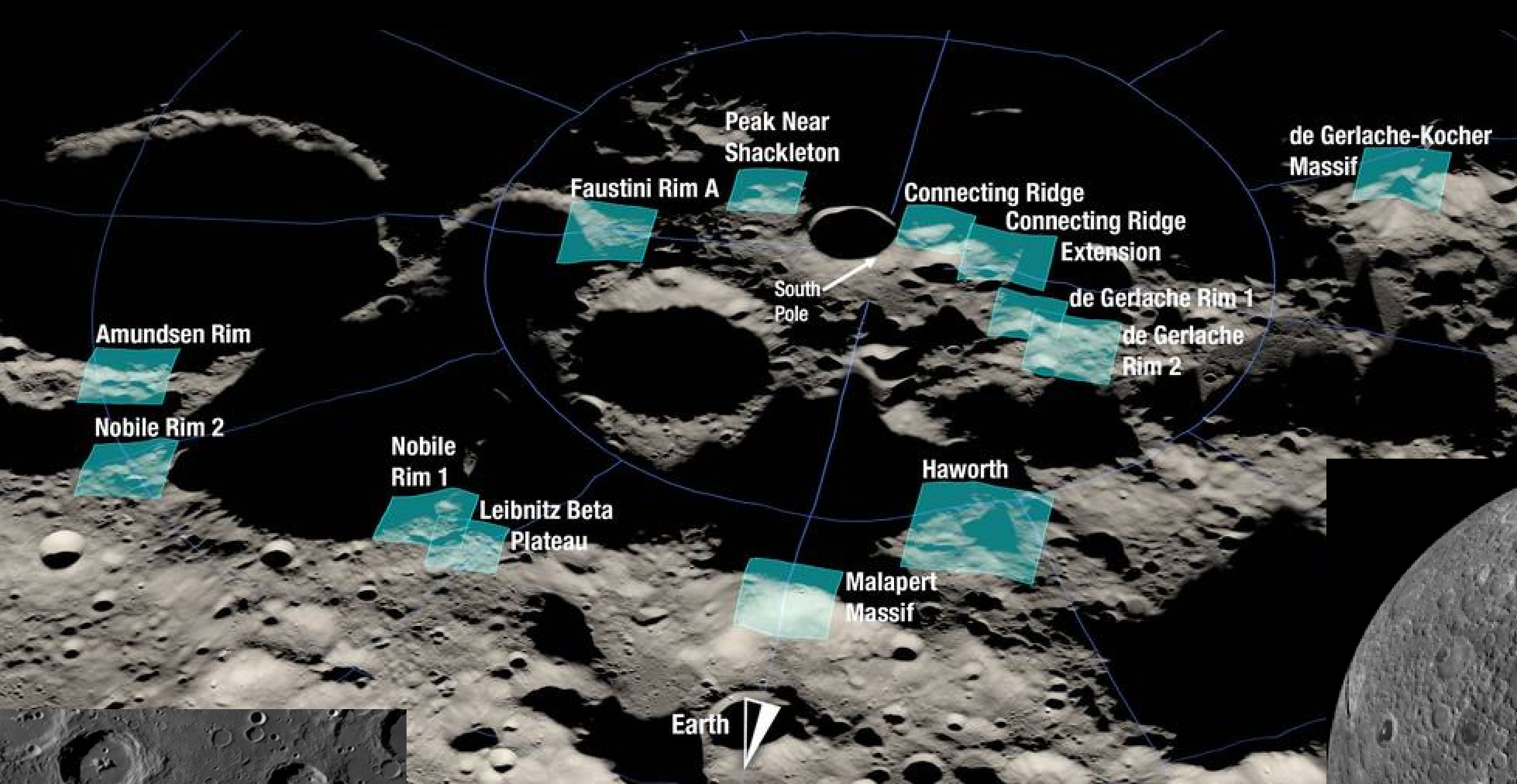
Large-Scale Cargo Lander

- Increased capabilities for science and technology payloads

Humans on the Moon - 21st Century

First crew leverages infrastructure left behind by previous missions

LUNAR SOUTH POLE TARGET SITE



Sample collection during Artemis:

South Pole Aitken Basin

-permanently shadowed regions

-rich in resources, and water ice

-eventually establish presence on the Moon

ARTEMIS



Artemis missions will return important samples to help us better understand our Moon, and to gather resources to create a sustained presence on the Moon. Artemis will also send the first woman and the first person of color to the Moon!

Some of you may work on these missions and the resulting science in the future.



Jessica Watkins, Artemis astronaut

- “Never limit yourself because of others' limited imagination; never limit others because of your own limited imagination.”
- “You have the right to be involved. You have something important to contribute, and you have to take the risk to contribute it. “The future never just happened. It was created.”
-Mae Jemison