

February 17, 2023

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PM

Traveling to Moon

Halley's comet

SEARCH

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SOLAR SYSTEM

TERRAN SYSTEM

Earth's Moon

FROM EARTH

221,354 MI KM

EARTH'S MOON

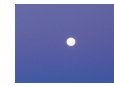
MENU ...

Earth's Moon is the only place beyond Earth where humans have set foot.

The brightest and largest object in our night sky, the Moon makes Earth a more livable planet by moderating our home planet's wobble on its axis, leading to a relatively stable climate. It also causes tides, creating a rhythm that has guided humans for thousands of years. The Moon was likely formed after a Mars-sized body collided with Earth.

## The Latest

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**The Next Full Moon is the Wolf or Ice Moon**

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Earth's Moon is the fifth largest of the 200+ moons orbiting planets in our solar system.

Earth's only natural satellite is simply called "the Moon" because people didn't know other moons existed until Galileo Galilei discovered four moons orbiting Jupiter in 1610.

NASA currently has three robotic spacecraft exploring the Moon – Lunar Reconnaissance Orbiter and the twin ARTEMIS spacecraft (not to be confused with NASA's new Artemis program to send astronauts back to the Moon).

**Explore Earth's Moon In Depth ›**

## 10 Need-to-Know Things About the Moon

1

### SMALL COMPANION

If you set a single green pea next to a U.S. nickel, you'd have a pretty good idea of the size of the Moon compared to Earth.

2

### CONSTANT COMPANION

The Moon is Earth's only natural satellite. It goes around the Earth at a distance of about 239,000 miles (385,000 kilometers).

3

### LOCKED UP

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.

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4

### CAN STAND ON IT

The Moon has a solid, rocky surface cratered and

5

### BRING A SPACESUIT

The Moon has a very thin and tenuous atmosphere called an

## VIEWING COPERNICUS

pitted from impacts  
by asteroids,  
meteorites, and  
comets.

exosphere. It is not  
breathable.

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**6**

### MOONLESS

The Moon has no  
moons.

**7**

### RINGLESS

The Moon has no  
rings.

**8**

### MANY VISITORS

More than  
105 robotic  
spacecraft have been  
launched to explore  
the Moon. It is the  
only celestial body  
beyond Earth – so far  
– visited by human  
beings.

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**9**

### POTENTIAL FOR LIFE?

The Moon's weak  
atmosphere and its  
lack of liquid water  
cannot support life as  
we know it.

**10**

### MOONWALKERS

Apollo astronauts  
brought back a total  
of 842 pounds (382  
kilograms) of lunar  
rocks and soil to  
Earth. We are still  
studying them.

## APOLLO 11 BOOTPRINT

# Exploration

The Moon was the first place beyond Earth humans tried to reach as the Space Age began in the late 1950s. More than 100 robotic explorers from more than half a dozen nations have since sent spacecraft to the Moon. Nine crewed missions have flown to the Moon and back.

The former Soviet Union logged the first successes with its Luna program, starting with Luna 1 in 1959. NASA followed with a series of robotic Ranger and Surveyor spacecraft that performed increasingly complex tasks that made it possible for the first human beings to walk on the Moon in 1969.

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.



With Earth Blue, Rocket Red and Lunar Silver for colors, every part of the identity has meaning. Credit: NASA

***"That's one small step for a man. One giant leap for mankind."***

- Neil Armstrong

Now NASA is gearing up to set up a permanent lunar presence on the Moon. 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. Artemis 1, formerly Exploration Mission-1, is the first in a series of increasingly complex missions that will enable human exploration of the Moon and Mars.

### More

- **NASA's Moon to Mars Strategy**
- **Gravity Assist Podcast: What's so Special About the Moon?**

## FAQ: What is a Lunar Eclipse?

During a lunar eclipse, Earth comes between the Sun and the Moon, blocking the sunlight from falling on the Moon. There are two kinds of lunar eclipses:

- A **total lunar eclipse** occurs when the Moon and Sun are on opposite sides of Earth.
- A **partial lunar eclipse** happens when only part of Earth's shadow covers the Moon.
- Learn more in our special eclipses section.

During some stages of a lunar eclipse, the Moon can appear reddish. This is because the only remaining sunlight reaching the Moon at that point is from around the edges of the Earth, as seen from the Moon's surface. From there, an observer during an eclipse would see all of Earth's sunrises and sunsets at once.

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A composite of seven images shows the full Moon at perigee, or supermoon, during a total lunar eclipse on Sunday, Sept. 27, 2015, in Denver. Credit: NASA/Bill Ingalls

## Pop Culture

Our lunar neighbor has inspired stories since the first humans looked up at the sky and saw its gray, cratered surface. Some observers saw among the craters the shape of a person's face, so stories refer to a mysterious "man in the Moon." Hungrier observers compared the craters to cheese and dreamed of an entire sphere made of delicious dairy products.

The Moon made its film debut in a 1902 black and white silent French film called "Le Voyage Dans la Lune" ("A Trip to the Moon"). And a year before astronauts walked on the Moon, "2001: A Space Odyssey" (1968) told the story of astronauts on an outpost on the Moon. Decades later, it is still widely regarded as one of the best science fiction movies ever made.

American astronauts have planted six American flags on the Moon. But that doesn't mean the United States has claimed it; in fact, an international law written in 1967 prevents any single nation from owning planets, stars, or any other natural objects in space.

### Apollo 50th Anniversary

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**Who Has Walked on the Moon?**

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# Resources

- [NASA: Moon to Mars](#)
- [NASA's Moon Portal](#)
- [Artemis](#)
- [For Kids: About the Moon](#)

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This site is maintained by the Planetary Science Communications team at **NASA's Jet Propulsion Laboratory** for NASA's Science Mission Directorate.

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