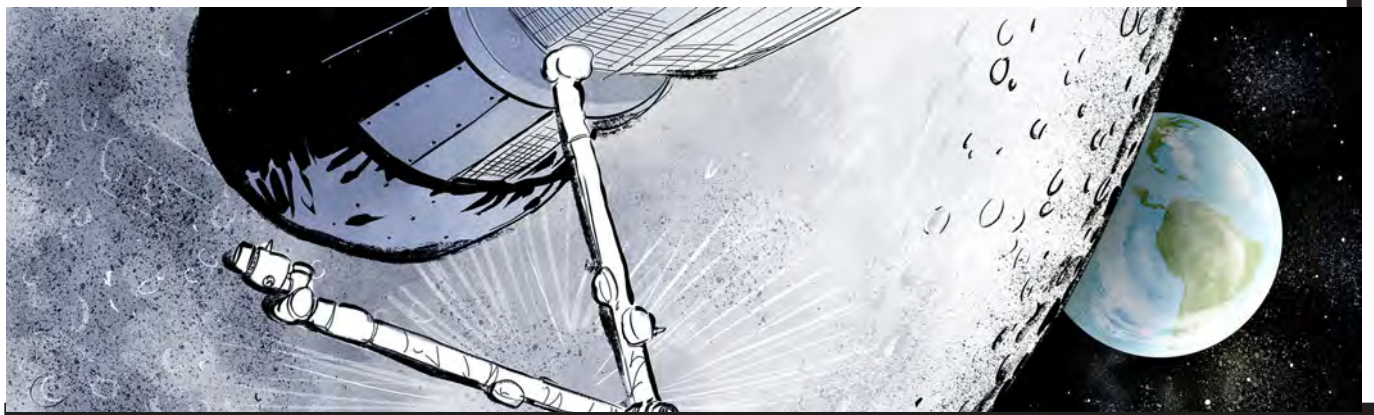


INTERNATIONAL SHOOT TO THE MOON



It's the brightest and largest object in the night sky. It bathes us in moonlight. Over 27 days, we watch it change in size and brightness. We feel its gravitational pull in the rise and fall of the Earth's tides.

The Moon is the Earth's only natural **satellite**. About 384,000 kilometres away, it orbits our planet. One trip takes 27.32 Earth days.

The Moon's temperature ranges from minus 248 degrees Celsius to plus 123 degrees Celsius. It has about one percent of the mass and 0.166 of the gravity of the Earth. So if you weigh 45 kilograms on Earth you'd weigh 7.5 kilograms on the Moon.

Ours is not the only moon in space. But our Moon is closest to us. And it's the only place in space where humans have set foot.

EXPLORING THE MOON

The **Soviet Union** landed the first uncrewed spaceship on the Moon in 1959. That event spurred the United States into action. U.S. President John F. Kennedy wanted to beat the Soviets by landing the first human on the Moon.

He succeeded. On July 20, 1969, Apollo 11 astronauts Neil Armstrong and Edwin "Buzz" Aldrin took "a giant leap for mankind" onto the dusty lunar surface.

Over the next three years, five other Apollo missions delivered U.S. astronauts to the Moon. They brought back 382 kilograms of rock and soil to study.

The last human landing was in 1972. However, uncrewed lunar expeditions resumed in the 1990s. The U.S. National Aeronautics and Space Administration (NASA) sent

robots to probe the Moon. So did the European Space Agency (ESA), Japan, China, and India.

Then in 2019, NASA announced the Artemis Lunar Exploration Program. It's an ambitious new program to send humans back to the Moon.

ARTEMIS I

The first mission was scheduled to launch from the Kennedy Space Center in Cape Canaveral, Florida on August 29. That's when a very powerful rocket, the Space Launch System (SLS), was set to lift the Orion spacecraft into lunar orbit.

This test flight was uncrewed. The only passengers were three **mannequins**. The mission was scheduled to take four to six weeks. Then the spacecraft was expected splash down off the coast of Baja, California.

DEFINITIONS

MANNEQUIN: a life-size model of a human body

SATELLITE: an object that travels in a path around another in space

SOVIET UNION: officially the Union of Soviet Socialist Republics (USSR). It was made up of 15 Soviet Socialist Republics, including Russia, before it broke apart in 1991.



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During Artemis 1, Orion was supposed to fly farther, and remain in space longer without docking, than any other spacecraft built for humans. It was also expected to return home faster and hotter than ever before, reentering Earth's atmosphere at 11 kilometres per second and producing temperatures of approximately 2760 degrees Celsius.

"This is a mission that truly will do what hasn't been done and learn what isn't known," said Mike Sarafin, the Artemis 1 mission manager at NASA Headquarters.

FUTURE MISSIONS

Artemis 2 will be the first crewed mission. It is scheduled for 2024. Artemis 3 will take place in 2025 at the earliest. That's when astronauts will land on the Moon for the first time in over 50 years.

NASA plans to build a spaceport that will orbit the Moon for Orion to dock at. It's called the Gateway.

At the Gateway, astronauts will stay in HALO, short for Habitation and Logistics Outpost. HALO will provide their life support needs. Astronauts will travel to the

Moon's surface via the Starship Human Landing System (HLS).

Eventually, NASA plans to build Artemis Base Camp. Four astronauts could then live and conduct science experiments on the Moon for up to two months. The base camp will likely be at the Moon's South Pole. It will have a lunar cabin, a rover, and a mobile home.

JOINT EFFORT

NASA is leading the Artemis program. However, others are playing a role. They include ESA, the Canadian Space Agency (CSA), and the Japan Aerospace Exploration Agency. Several companies are participating as well.

Canada is contributing Canadarm3. It's an improved version of the robotic arms we once built for the Space Shuttle fleet and the International Space Station. We're also providing a lunar rover. In exchange, CSA astronauts will take part in two missions to the Moon.

NOT SCIENCE FICTION

A Moon base sounds like the stuff of science fiction, but NASA has an even bigger goal: to send astronauts to Mars by the 2030s or soon after.

WHO OWNS THE MOON?

Who governs the Moon? Who decides who can land on it, live on it, and mine its resources? For years, nations have debated these questions.

The Moon Agreement was drawn up in 1979. It was designed to prevent countries from making a profit on space resources. However, only a few countries **ratified** this agreement. They didn't include the U.S., China, and Russia.

Now the U.S. has **unilaterally** drawn up the Artemis Accords. This is a set of guidelines for countries participating in its Artemis Project. Canada is one of eight countries that has signed these accords. Others have refused to do so. Why? They believe the U.S. is imposing rules to keep its leadership position on the Moon.

Setting up a base on the Moon is a key step towards accomplishing this goal – but it's also an inspiring achievement on its own.

"To all of us who [sic] gaze up at the Moon, dreaming of the day humankind returns to the lunar surface – folks, we're here! We are going back," said NASA administrator Bill Nelson. ★

DEFINITIONS

RATIFY: to make an agreement official by signing it or formally accepting it

UNILATERALLY: (something) done by one country without considering what other countries think or want