

The Return to the Moon: Artemis and Beyond

For more than fifty years, no human being has walked on the Moon. The last person to leave footprints there was an Apollo astronaut in 1972, and every lunar mission since has been robotic. NASA now hopes to end that **hiatus** through Artemis, a program named after the Greek goddess of the Moon and twin sister of Apollo. The name suits the mission's ambition: rather than repeating Apollo's brief visits, NASA intends to build a lasting human presence beyond Earth. Artemis is a **sprawling**, multi-decade **endeavor** that weaves together new rockets, spacecraft, and international partnerships into one **overarching** plan. Unlike its **predecessor**, which sprinted to the Moon under Cold War pressure and departed almost as quickly as it arrived, Artemis is designed for **permanence**, serving as a stepping stone toward missions to Mars. Reaching that goal has proven slower and more complicated than early planners predicted, marked by a string of delays, redesigns, and **setbacks**.

The first phase of the program, Artemis I, launched on November 16, 2022, after years of **postponement**. It was an **uncrewed** test flight designed to prove that two new pieces of hardware, the Space Launch System rocket and the Orion crew capsule, could function together safely before any astronaut climbed aboard. Standing taller than the Statue of Liberty, the SLS generates roughly 8.8 million pounds of thrust, slightly more powerful than the Saturn V rocket that once carried Apollo astronauts **skyward**. Orion, carrying only **mannequins** and sensors instead of a live crew, looped around the Moon and traveled more than 1.4 million miles before returning to Earth. The capsule splashed down in the Pacific Ocean on December 11, exactly fifty years to the day after Apollo 17's final lunar landing. Engineers **scoured** the recovered spacecraft for **flaws**, and data from its heat shield, navigation systems, and life-support equipment shaped every **subsequent** decision in the program.

Artemis II marked the program's first crewed flight, lifting off on April 1, 2026, after being delayed repeatedly by hydrogen leaks and other **glitches**. Four astronauts, commander Reid Wiseman, pilot Victor Glover, and mission specialists Christina Koch and Jeremy Hansen, spent ten days aboard Orion, which the crew **nicknamed** Integrity. The flight carried several historic **firsts**: Glover became the first Black astronaut to travel beyond low Earth orbit, Koch became the first woman to do so, and Hansen, representing the Canadian Space Agency, became the first non-American. After a translunar injection burn sent the capsule **racing** toward the Moon, the crew looped around the far side, **capturing** photographs of **terrain** never directly observed by human eyes. The mission's purpose was not scientific discovery so much as **validation**, confirming that Orion's navigation and life-support systems could keep a living crew safe across the roughly 240,000-mile journey to the Moon and back.

Landing astronauts on the Moon requires more than Orion alone, since the capsule was never built to touch down on the lunar surface. For that final descent, NASA is relying on privately developed Human Landing Systems, or HLS. SpaceX is adapting a version of its towering Starship rocket, while Blue Origin is building a separate lander called Blue Moon. Awarding contracts to two competing companies gives NASA **redundancy**: if one lander suffers a **crippling** setback, the mission can proceed with the other. Both vehicles remain in development and have not yet completed the **rigorous** certification NASA requires before any crew boards them. The landers differ sharply in design. Starship is enormous and **reusable**, intended to **ferry** large crews and cargo, while Blue Moon is comparatively modest, using storable **propellants** rather than the **cryogenic** fuel Starship demands. Whichever lander flies first, astronauts will transfer from Orion to it in lunar orbit before descending to the surface.

Artemis III was originally billed as the mission that would return astronauts to the lunar surface, but NASA **overhauled** that plan in February 2026. Citing the unfinished state of both landers, the agency

redesignated Artemis III as a demonstration flight confined to low Earth orbit rather than a Moon landing. During the mission, Orion will practice **rendezvous** and docking with test versions of the SpaceX and Blue Origin landers, evaluating procedures without the risk of an actual descent. The revision pushed the first landing to Artemis IV, **tentatively** scheduled for early 2028, when four astronauts are expected to touch down near the lunar south pole. NASA officials described the **shuffle** as a risk-reduction measure, arguing that testing docking **maneuvers** close to home is safer than discovering flaws hundreds of thousands of miles from Earth. Critics worry that repeated schedule changes signal deeper problems within the Artemis **architecture** and could delay an already postponed timeline.

Artemis extends well beyond NASA's own hardware. In 2020, the United States and seven partner nations established the Artemis Accords, a set of non-binding principles meant to guide peaceful cooperation and resource use in space; more than sixty countries have since signed on. Alongside these **diplomatic** efforts, NASA has hired private companies through its Commercial Lunar Payload Services program to deliver scientific instruments and rovers to the lunar surface ahead of any crewed landing. In 2024, one of these missions achieved the first landing on the Moon by a commercial company in history, a **milestone** once thought to belong **exclusively** to national space agencies. These robotic missions are **scouting** the lunar south pole for **deposits** of water ice, testing whether astronauts might eventually extract oxygen and fuel from lunar soil rather than **hauling** every resource from Earth. Such resource utilization could dramatically lower the cost of maintaining a long-term human **foothold** on the Moon.

Beyond Artemis IV, NASA envisions a steady **cadence** of missions rather than a single triumphant landing followed by years of silence, a pattern that **doomed** public enthusiasm after Apollo. Artemis V, tentatively planned for late 2028, would mark the second lunar landing and the first steps toward constructing a permanent base near the south pole. NASA also shelved its earlier plan for the Lunar Gateway, a small space station meant to orbit the Moon, choosing instead to redirect those resources toward surface infrastructure. The **rationale** is straightforward: a **habitat** on the ground offers more scientific value than one circling above it. Officials describe the entire endeavor as a **rehearsal** for Mars, since techniques for living off-world, growing food, generating power, and **shielding** astronauts from radiation will be tested on the Moon first. Whether NASA can sustain the funding and political will such an **undertaking** requires remains an open question that will shape spaceflight for a generation.

Beyond the Headlines

Not every detail of Artemis II involved rocket science. Before launch, NASA ran a public design contest inviting children to create a zero-gravity indicator, a small **plush** toy that floats inside the capsule to show the crew the exact moment they reach **weightlessness**. The contest drew more than 2,600 entries from over fifty countries. The winning design, submitted by an eight-year-old from California, depicted the Moon wearing planet Earth as a **jaunty** baseball cap, a nod to the famous Earthrise photograph taken during Apollo 8. NASA **fabricated** the toy, named Rise, from fire-safe materials approved for spaceflight and **tethered** it inside the crew cabin throughout the mission. Astronauts were originally supposed to leave Rise behind in the capsule for later retrieval, but commander Reid Wiseman admitted he felt **reluctant** to abandon the **mascot**, quietly tucking it into his bag before splashdown instead. The small toy briefly became one of the mission's most talked-about passengers.

Vocabulary

Paragraph 1

hiatus (n.)	(n.) A pause or gap in an ongoing activity. <i>"The band took a five-year hiatus before releasing new music."</i>
sprawling (adj.)	(adj.) Spreading out over a wide area in a way that is difficult to manage as a whole. <i>"The company's sprawling network of offices spans forty countries."</i>
endeavor (n.)	(n.) A serious attempt or effort to achieve something difficult. <i>"Building the new bridge was an ambitious engineering endeavor."</i>
overarching (adj.)	(adj.) Covering or including everything within a larger system; all-encompassing. <i>"Reducing costs was the overarching goal of the reorganization."</i>
predecessor (n.)	(n.) A person or thing that came before another of the same kind. <i>"The new phone model is faster than its predecessor in every way."</i>
permanence (n.)	(n.) The quality of lasting or remaining unchanged indefinitely. <i>"The tattoo's permanence made her hesitate before getting one."</i>
setbacks (n.)	(n.) Events that delay or reverse progress toward a goal. <i>"Despite several setbacks, the research team finished the project on time."</i>

Paragraph 2

postponement (n.)	(n.) The act of delaying an event to a later time. <i>"Heavy rain led to the postponement of the outdoor concert."</i>
uncrewed (adj.)	(adj.) Operated without any human crew aboard. <i>"The uncrewed drone flew several miles to inspect the pipeline."</i>
skyward (adv.)	(adv.) In the direction of the sky; upward. <i>"The children pointed skyward as the fireworks exploded."</i>
mannequins (n.)	(n.) Life-sized dummies used to represent the human body, often for display or testing. <i>"The store window featured mannequins dressed in the new winter collection."</i>
scoured (v.)	(v.) Searched thoroughly and carefully through something. <i>"Investigators scoured the wreckage for clues about the crash."</i>
flaws (n.)	(n.) Imperfections or weaknesses in something. <i>"The engineers found several flaws in the original design."</i>
subsequent (adj.)	(adj.) Coming after something else in time; following. <i>"The company's subsequent products sold far better than its first release."</i>

Paragraph 3

glitches (n.)	(n.) Small, usually temporary malfunctions in a system or device. <i>"A few glitches in the software delayed the app's launch."</i>
nicknamed (v.)	(v.) Given an informal, often affectionate, alternative name. <i>"The old ship was nicknamed 'the Iron Lady' by its crew."</i>
firsts (n.)	(n.) Achievements or events that have never happened before. <i>"The Olympics produced several historic firsts this year."</i>

racing (v.)	(v.) Moving very quickly, often as if in competition. <i>“The ambulance came racing down the highway toward the hospital.”</i>
capturing (v.)	(v.) Recording an image, sound, or moment, often permanently. <i>“The photographer spent hours capturing the sunset over the canyon.”</i>
terrain (n.)	(n.) An area of land, especially considered in terms of its physical features. <i>“The rover struggled to cross the rocky terrain of the crater.”</i>
validation (n.)	(n.) Confirmation or proof that something is accurate, effective, or legitimate. <i>“The test results provided validation for the team’s new theory.”</i>

Paragraph 4

redundancy (n.)	(n.) A duplicate or backup system included in case the primary one fails. <i>“Engineers built redundancy into the aircraft’s electrical system for safety.”</i>
crippling (adj.)	(adj.) Severely damaging or weakening, often to the point of near-collapse. <i>“The company suffered a crippling loss after the factory fire.”</i>
rigorous (adj.)	(adj.) Extremely thorough, careful, and demanding. <i>“Astronauts must pass a rigorous series of physical and mental tests.”</i>
reusable (adj.)	(adj.) Able to be used again after its first use. <i>“The company switched to reusable rocket boosters to cut costs.”</i>
ferry (v.)	(v.) To transport people or goods, especially back and forth between two points. <i>“Small boats ferry passengers between the island and the mainland.”</i>
propellants (n.)	(n.) Substances, such as fuels, used to provide the force needed to move a vehicle forward. <i>“Rocket engineers carefully measure the propellants before every launch.”</i>
cryogenic (adj.)	(adj.) Relating to substances or processes that involve extremely low temperatures. <i>“The rocket’s tanks store cryogenic fuel that must be kept below minus 250 degrees.”</i>

Paragraph 5

overhauled (v.)	(v.) Thoroughly examined and changed or repaired. <i>“The mechanic overhauled the engine before the long road trip.”</i>
redesignated (v.)	(v.) Officially given a new name, classification, or purpose. <i>“The old warehouse was redesignated as a public art gallery.”</i>
rendezvous (n.)	(n.) A planned meeting at a particular time and place, especially between vehicles or spacecraft. <i>“The two spacecraft completed a delicate rendezvous in orbit.”</i>
tentatively (adv.)	(adv.) In a way that is not certain or fixed; provisionally. <i>“The meeting was tentatively scheduled for next Thursday, pending confirmation.”</i>
shuffle (n.)	(n.) A rearrangement or reordering of plans, positions, or priorities. <i>“The sudden staff shuffle left several departments without a clear leader.”</i>
maneuvers (n.)	(n.) Carefully planned and controlled movements, often requiring skill. <i>“The pilot practiced emergency maneuvers before the actual flight.”</i>
architecture (n.)	(n.) The overall structure, design, or framework of a complex system. <i>“Engineers debated the best architecture for the new computer network.”</i>

Paragraph 6

diplomatic (adj.)	(adj.) Relating to the management of relationships between nations. <i>"The two countries resolved the dispute through diplomatic negotiations."</i>
milestone (n.)	(n.) A significant event or point of achievement in the development of something. <i>"Landing the first satellite on Mars would be a major milestone."</i>
exclusively (adv.)	(adv.) Only, without including anything or anyone else. <i>"The award was given exclusively to first-time authors."</i>
scouting (v.)	(v.) Exploring an area in order to gather information before further action. <i>"The team spent weeks scouting the region for a suitable building site."</i>
deposits (n.)	(n.) Naturally occurring accumulations of a mineral or substance in the ground. <i>"Geologists discovered large deposits of copper beneath the valley."</i>
hauling (v.)	(v.) Transporting something heavy, often with effort and over a distance. <i>"Trucks spent all day hauling supplies to the remote village."</i>
foothold (n.)	(n.) A secure position that provides a base for further progress. <i>"The startup gained a foothold in the market with its first product."</i>

Paragraph 7

cadence (n.)	(n.) A steady, rhythmic pattern or flow, especially of repeated events. <i>"The factory settled into a steady cadence of production once the new line opened."</i>
doomed (v.)	(v.) Destined to fail, end badly, or come to a certain unfortunate end. <i>"Without proper funding, the project seemed doomed from the start."</i>
rationale (n.)	(n.) The underlying set of reasons or logical basis for a decision or course of action. <i>"The committee explained its rationale for choosing the new site."</i>
habitat (n.)	(n.) A place where people or living organisms normally live or are based. <i>"Scientists are designing a habitat that could support astronauts for months."</i>
rehearsal (n.)	(n.) A practice session held in preparation for a real performance or event. <i>"The dancers held one final rehearsal before opening night."</i>
shielding (v.)	(v.) Protecting someone or something from harm, damage, or danger. <i>"The thick walls are capable of shielding the crew from radiation."</i>
undertaking (n.)	(n.) A task or project, especially one that is large, difficult, or important. <i>"Building the new airport was a massive undertaking for the small city."</i>

Beyond the Headlines

plush (adj.)	(adj.) Made of soft, thick fabric; luxurious in feel. <i>"She hugged the plush teddy bear her grandmother had given her."</i>
weightlessness (n.)	(n.) The condition of experiencing no perceived gravitational pull. <i>"Astronauts must adjust quickly to weightlessness once they reach orbit."</i>
jaunty (adj.)	(adj.) Having a lively, cheerful, and slightly carefree appearance. <i>"He walked down the street with a jaunty spring in his step."</i>
fabricated (v.)	(v.) Manufactured or constructed, often from raw materials. <i>"The custom parts were fabricated in a small workshop outside the city."</i>

tethered (v.)	(v.) Attached to something using a rope, cord, or similar restraint. <i>“The dog remained tethered to the post while its owner shopped.”</i>
reluctant (adj.)	(adj.) Unwilling or hesitant to do something. <i>“She was reluctant to leave her hometown after so many years.”</i>
mascot (n.)	(n.) A person, animal, or object adopted as a symbol representing a group. <i>“The university’s mascot led the crowd in cheers before the game.”</i>

Language Review

Exercise A — Collocations

Match each item in Column A with the word or phrase in Column B that forms a natural collocation from the article. Write the correct letter next to each number.

Column A	Column B
1. hydrogen	a. political
2. heat	b. leaks
3. low Earth	c. design
4. south	d. orbit
5. measure	e. water
6. ice	f. shield
7. will	g. risk-reduction
8. contest	h. pole

Exercise B — Vocabulary Quiz

Choose the best answer (a, b, c, or d) for each question. Some questions may have more than one correct answer — select all that apply.

- In Paragraph 1, "sprawling" most nearly means:
 - spreading out extensively
 - tiny and precise
 - quickly finished
 - secretly hidden
- The word "uncrewed" in Paragraph 2 describes a flight that:
 - carried a full crew of astronauts
 - had no human crew aboard
 - was canceled before launch
 - was flown remotely by two pilots
- In Paragraph 3, "validation" refers to:
 - a formal complaint procedure
 - the destruction of faulty equipment
 - confirmation that something works as intended
 - a type of fuel used in rockets
- As used in Paragraph 4, "redundancy" means:
 - an unnecessary delay in schedule
 - a reduction in staff
 - excessive fuel consumption

- d. a backup system in case one fails
5. The word "rendezvous" in Paragraph 5 refers to:
- a. a planned meeting between two spacecraft
 - b. a public celebration
 - c. a type of spacecraft engine
 - d. a formal investigation
6. In Paragraph 6, a "milestone" is best described as:
- a. a unit of distance
 - b. a significant achievement
 - c. a legal contract
 - d. a scientific instrument
7. As used in Paragraph 7, "rationale" means:
- a. a strict set of rules
 - b. a financial budget
 - c. the underlying reasoning behind a decision
 - d. a public apology
8. In the Beyond the Headlines section, "reluctant" describes someone who:
- a. is eager and enthusiastic
 - b. is confused or lost
 - c. is proud and confident
 - d. is hesitant or unwilling

Exercise C — Discussion Questions

Discuss the following questions with a partner or in a small group. Use evidence from the article to support your ideas.

1. NASA delayed the first crewed Moon landing from Artemis III to Artemis IV in order to reduce risk. Do you think this kind of caution is worth the additional years of waiting? Why or why not?
2. Two competing private companies are building landers for NASA instead of one. What are the advantages and disadvantages of relying on commercial competition for such an important national project?
3. NASA canceled its plans for the Lunar Gateway space station in order to focus on building a base directly on the Moon's surface. Which approach do you think offers more long-term value, and why?
4. The Artemis Accords now include more than sixty signatory nations. What benefits or challenges might arise from having so many countries involved in a single space exploration effort?
5. Some critics argue that repeated delays and redesigns suggest deeper problems with the Artemis program, while supporters see them as evidence of careful planning. Which view do you find more convincing, and what evidence from the article supports your opinion?