

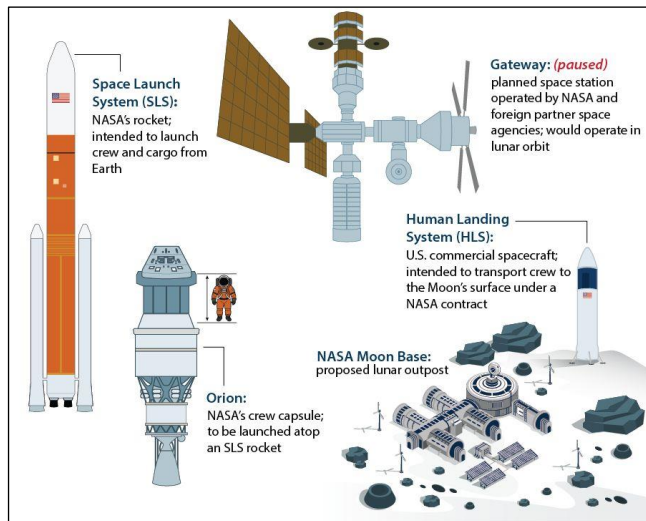


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# Artemis: NASA’s Program to Return Humans to the Moon

Between 1969 and 1972, the Apollo program of the National Aeronautics and Space Administration (NASA) landed 12 American men on the Moon and returned them safely to Earth. Artemis, named for Apollo’s twin sister in ancient Greek mythology, is NASA’s program for a return to the Moon by American astronauts by 2028.

**Figure 1. Major Elements of the Artemis Missions, Current and Proposed**



**Source:** CRS illustration based on information from NASA.

**Note:** In March 2026, the NASA Administrator announced that the agency intends to create a lunar outpost and “pause” development of the Gateway. Both proposals are included in this figure.

## Orion and the Space Launch System

The Artemis program has evolved from plans initiated in the NASA Authorization Act of 2010 (P.L. 111-267). The act established a statutory goal of “expand[ing] permanent human presence beyond low-Earth orbit” and mandated the development of a crew capsule and a heavy-lift rocket to accomplish that goal. The capsule, now known as Orion, and the rocket, known as the Space Launch System (SLS), have been in development since that time (see **Figure 1**).

Each Orion capsule consists of a crew module with room for four to six astronauts, as well as storage space and a docking port; a service module (contributed by the European Space Agency) to provide power and propulsion; and a launch abort system. The crew module is designed to be reusable and is the only portion intended to return to Earth at the end of a mission.

SLS is an expendable rocket designed to carry Orion into space and set it on an initial trajectory to the Moon. SLS could also be used for other missions involving heavy payloads or requiring very high thrust. As required by P.L. 111-267, SLS was designed to accommodate future

upgrades in phases (known as Block 1, Block 1B, and Block 2) to increase its thrust capacity. Similarly, NASA planned to upgrade SLS’s upper stages (i.e., in-space propulsion) by developing what is known as the Exploration Upper Stage.

The first launch of Orion on an SLS was in November 2022. This mission, known as Artemis I, was an uncrewed test flight near the Moon to certify safety for crewed flights. Artemis II, the first crewed test of Orion and SLS, occurred in April 2026. Orion and its crew of four traveled near the Moon before returning to Earth.

In February 2026, the NASA Administrator announced that, after Artemis II, NASA will use a single version of SLS in a “near Block 1 configuration,” rather than upgrading to the Block 1B and Block 2 variants for future missions, in order to reduce complexity and accelerate manufacturing. Rather than developing the Exploration Upper Stage, NASA selected the United Launch Alliance’s Vulcan Centaur V Upper Stage in March 2026. The agency intends to award a sole-source contract, without competition, as NASA determined existing alternatives “fail to meet the performance requirements” or would require significant modifications or development.

## Human Landing System

The Orion capsule is not designed to land on the Moon. Instead, astronauts are to transfer to a separate spacecraft, known as a Human Landing System (HLS), for lunar descent and ascent (see **Figure 1**). NASA selected two HLS providers: SpaceX, using a version of its Starship, and Blue Origin, using its Blue Moon lander. Both systems are still in development. Through committee reports and explanatory statements accompanying appropriations, Congress has repeatedly encouraged NASA to use more than one commercial provider in order to ensure redundancy and bolster competition.

In February 2026, the NASA Administrator announced that the Artemis III mission, to occur in mid-2027, will demonstrate one or both HLSs in low Earth orbit. Next, Artemis IV is to be the first human landing on the Moon since 1972 and is planned to occur by 2028.

In a March 2026 report, the NASA Office of Inspector General (OIG) reported that both HLS providers have faced schedule delays and technical challenges that “have the potential to further impact lander costs and delivery schedules,” particularly for a 2028 lunar landing. NASA is considering proposals from both providers to accelerate development in support of a 2028 lunar landing.

## Other Elements

In addition to Orion, SLS, and HLS, NASA procures commercial space transportation services for small robotic missions through its Commercial Lunar Payload Services

(CLPS) program; the purpose of these missions is to demonstrate new technologies, explore potential landing sites, and conduct research. Other efforts include commercial procurement of spacesuits and development of lunar surface systems such as rovers.

### Lunar Base

In December 2025, President Trump issued Executive Order (E.O.) 14369, “Ensuring American Space Superiority.” The priorities outlined in E.O. 14369 include “establishing initial elements of a permanent lunar outpost by 2030,” as well as developing a nuclear reactor for use on the lunar surface.

In March 2026, the NASA Administrator released the agency’s plan to fulfill E.O. 14369. To establish a lunar base, the agency intends to use a phased approach. Initially, an increased cadence of CLPS missions would deliver initial elements and support research and technology development. In the next phases, the agency intends to progress from recurring lunar astronaut operations to continuous human presence.

As part of this shift, the agency intends to pause development of the Gateway, a modular platform designed to operate in a permanent orbit around the Moon. Gateway was intended to serve as a depot for storing supplies, a platform for science experiments, a location where subsystems launched separately could be assembled and integrated, and a rendezvous point where astronauts could transfer between Orion and HLS. The space agencies of countries such as Canada and Japan had planned to contribute components. In its shift from Gateway to a lunar base, NASA intends to “repurpose applicable equipment and leverage international partner commitments.”

### Issues for Congress

As Congress oversees the progress of the Artemis program and acts on NASA authorization and appropriations legislation, it may consider issues such as the architecture of the program, the planned schedule for a 2028 Moon landing, cost concerns for the program as a whole, and the role of the commercial space sector. Congress may consider the potential effects of recently announced changes.

### Budget

For FY2027, NASA requested \$8.5 billion for Artemis systems, an increase of \$731 million compared with FY2026 appropriations. In addition to regular appropriations, Congress provided \$6.7 billion for Orion, Gateway, and SLS through the FY2025 reconciliation law (P.L. 119-21), available through FY2032.

Congress may continue to consider the budget of (1) the overall Artemis program, (2) the individual Artemis missions, and (3) the various projects and components within the program. For example, the Government Accountability Office (GAO) estimated in a 2025 report that cost overruns for three major Artemis projects total \$6.8 billion. GAO further noted that “growing complexity and scope of future Artemis projects” could negatively impact the agency’s future cost performance, particularly as these projects are interdependent and complex. Thus, Congress may contemplate whether adjustments to the provided funding levels may be necessary (e.g., shift funds

from Gateway to the proposed lunar base) or whether to keep funding levels as they are.

### Moon to Mars Architecture

Per the NASA Authorization Acts of 2022 and 2017 (P.L. 117-167, Title VII; P.L. 115-10), the Artemis program is a stepping stone for future Mars missions. P.L. 117-167 directed the agency to establish a Moon to Mars Office to oversee that approach. Policymakers continue to discuss NASA’s Moon to Mars architecture. Topics of debate include whether the United States should pursue a sustained presence on the Moon; whether future Artemis missions should use SLS and Orion or whether the private sector could provide an alternative; the viability of the agency’s various Artemis components, particularly HLS and SLS; and NASA’s overarching Moon to Mars strategy and its implementation. Congress may also assess the Trump Administration’s announced changes to this architecture.

During the 119<sup>th</sup> Congress, both the House and Senate have considered NASA authorization bills with differing perspectives on the Artemis architecture. In the House, H.R. 7273, as ordered to be reported, would direct the agency to continue developing major Artemis components and would reemphasize existing statutory requirements. (The markup of H.R. 7273 predated the Administrator’s February 2026 announcement.) In the Senate, S. 933, as ordered to be reported, would permit the Administrator greater flexibility in changing the Artemis architecture.

### Role of the Commercial Space Sector

In recent years, NASA has placed growing emphasis on procuring services from the commercial space industry. HLS, CLPS, and other Artemis elements are to be provided as a commercial service. The Trump Administration has supported expanding such efforts in future missions, such as by replacing SLS with commercial transportation services after Artemis V, as proposed in the President’s FY2027 budget request.

In its continued oversight, Congress may assess NASA’s acquisition approaches and the status of these commercial programs, particularly for HLS, which is a key component for future lunar landings. In its 2025 annual report, the Aerospace Safety Advisory Panel (ASAP)—an independent panel that reports to NASA and Congress on the agency’s safety and management—expressed concern that HLS’s complexity and delays “cast doubt” on the timeline and feasibility of the Artemis crewed lunar landing mission.

More broadly, Congress may assess NASA’s use of commercial programs. NASA posits that the use of commercial services will encourage innovation, support the U.S. space industry, and reduce costs for the agency, assuming that commercial providers are able to attract non-NASA investment and customers. Other stakeholders have contended that limited or uncertain markets may hinder the effectiveness of such programs or of certain acquisition approaches. For instance, in its 2024 assessment of CLPS, the NASA OIG found that the agency relied on “overly optimistic” market assessments in selecting contracting approaches and schedules, leading to “cost increases and schedule delays” due to technical difficulties and “continuing market uncertainty.”

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**Rachel Lindbergh**, Analyst in Science and Technology  
Policy

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