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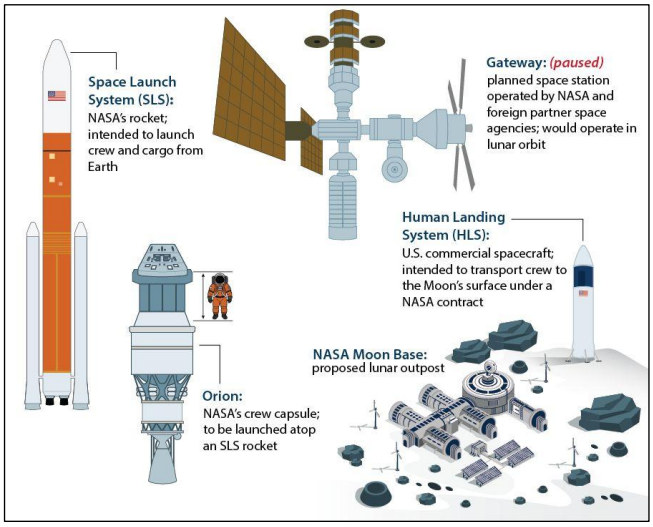
Artemis: NASA's Program to Return Humans to the Moon

Artemis is the National Aeronautics and Space Administration's (NASA's) program to send American astronauts to the Moon by 2028. This In Focus provides an overview of the Artemis program, including its major elements (**Figure 1**) and selected issues for Congress.

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



Source: CRS illustration based on information from the NASA.

Notes: In March 2026, the NASA Administrator announced that the agency intends to create the Moon Base 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, now known as Orion, and a heavy-lift rocket, known as the Space Launch System (SLS), to accomplish that goal (see **Figure 1**).

Each Orion capsule consists of a crew module with room for four to six astronauts, storage space, and a docking port, as well as a service module (contributed by the European Space Agency) to provide power and propulsion. 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, phased upgrades (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, to reduce complexity and accelerate manufacturing. Rather than developing the Exploration Upper Stage, NASA plans to use the United Launch Alliance's (ULA'S) Vulcan Centaur V Upper Stage.

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.

In 2026, the NASA Administrator announced the Artemis III mission, to occur in 2027, will demonstrate both HLSs by docking with a crewed Orion capsule in Earth orbit. Blue Moon's test is to include life and crew support, while the Starship demonstration is to be limited to docking.

Next, Artemis IV is to be the first human landing on the Moon since 1972 and is planned to occur by 2028. Among the goals of this mission is to complete a crewed lunar landing before the People's Republic of China does.

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 the 2028 target date.

Moon Base

In 2025, President Trump issued Executive Order (EO) 14369, "Ensuring American Space Superiority," which outlines priorities including "establishing initial elements of a permanent lunar outpost by 2030" and developing a nuclear reactor for use on the lunar surface.

In March 2026, the NASA Administrator announced that the agency would use a phased approach for the "Moon Base." In the initial phase, NASA plans to focus on establishing "reliable access" and conducting research and technology development missions to inform future phases. NASA anticipates that by 2029 it will transition to Phase 2 by "deploying the first infrastructure" for long-term

operations. In Phase 3 (2032 and beyond), NASA hopes to progress to continuous human presence.

As part of the shift to human presence, the agency intends to pause development of 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 the Moon Base, NASA intends to "repurpose applicable equipment and leverage international partner commitments."

Other Elements

NASA plans to expand the Commercial Lunar Payload Services (CLPS) program to transport payloads for the Moon Base. CLPS was originally intended to deliver science payloads with a high risk tolerance and support nascent lunar transportation companies. In 2026, NASA expanded the role of this program to include infrastructure payloads and a wider array of science and technology missions, all of which presumedly have a lower risk tolerance. NASA estimates the combined award value across two CLPS phases will be about $14 billion, compared to the initial CLPS Phase 1 value of $2.6 billion.

In 2026, NASA announced three new rover projects, all scheduled for launch in 2028. Two are to be commercially provided crewed rovers. The third would be a nuclear-powered rover developed by the agency—the Polar Rover for Observation, Mapping, and In-Situ Exploration (PROMISE)—to study the lunar surface. NASA also plans to launch the Volatiles Investigating Polar Exploration Rover (VIPER) to study the lunar surface in late 2027; this mission had been canceled by the Biden Administration. Other elements include commercially provided spacesuits and MoonFall, a mission to use drones to survey potential Artemis landing sites.

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 schedule and costs of the program, the architecture of the program, and the role of the commercial space sector.

Schedule and Budget

Several major Artemis programs have experienced delays. The explosion of a Blue Origin rocket in May 2026 raised concerns over schedules for Artemis III and for future CLPS missions. The scale of recent changes may also impact mission schedules; in 2026, the Government Accountability Office (GAO) stated that these changes present "a significant acquisition management challenge."

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 the Artemis program and the various projects and components within the program. For example, the GAO estimated in a 2025 report that cost overruns for three major Artemis projects totaled $6.8 billion. The GAO further noted that "growing complexity and scope of future Artemis projects" could negatively impact future cost performance. In 2026, the GAO noted that NASA's "significant changes" to several Artemis projects "will affect the scope of work, cost, and schedule." Congress may contemplate whether to maintain or adjust current funding (e.g., shift Gateway funds to the proposed Moon Base).

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 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 strategy and its implementation. Congress may also assess the Trump Administration's announced changes to this architecture, particularly the Moon Base.

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.

Congress may assess NASA's use of commercial services for Artemis. 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. This model, however, may not be appropriate for early-stage technologies or limited or uncertain commercial markets. For example, in a 2026 report on commercial spacesuits, the NASA OIG noted that this approach "conflicted with the [capability's] developmental nature" and introduced risks. As another example, 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."

Congress may assess the status of these programs as well, particularly of HLS, which is a key component for future lunar landings. In its 2025 annual report, the Aerospace Safety Advisory Panel—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.

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