

ARTEMIS II



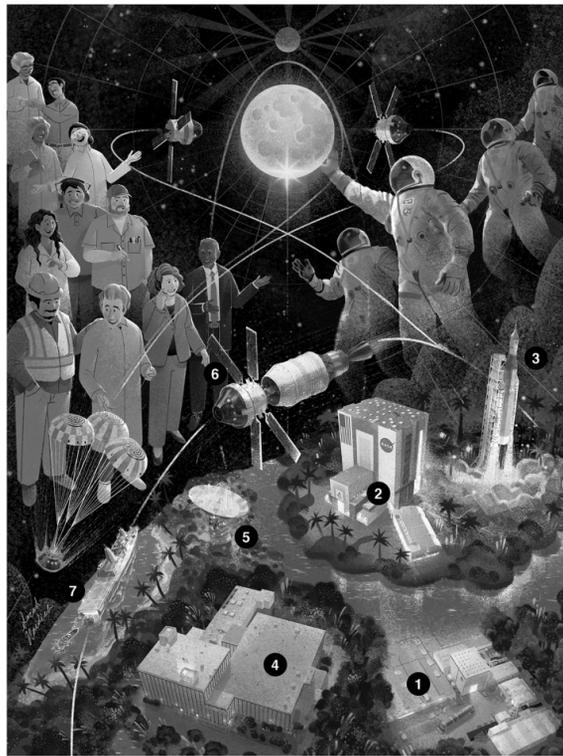
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Building NASA's Human Deep Space Transportation System

Under Artemis, NASA will send astronauts to explore the Moon for scientific discovery, economic benefits, and to build the foundation for the first crewed missions to Mars.

The Artemis II test flight is the first crewed flight under NASA's Artemis program. It will help confirm systems and hardware needed for early human lunar exploration missions. During the mission, four astronauts – NASA's Reid Wiseman, Victor Glover, and Christina Koch, and CSA (Canadian Space Agency) astronaut Jeremy Hansen – will conduct an approximately 10-day mission around the Moon.

The crew represents the best of humanity – explorers daring to forge new frontiers in space. Artemis II is a challenging test flight, and the lessons we learn will directly prepare us to return humans to the Moon on Artemis III and beyond, as well as prepare NASA to send the first astronauts – Americans – to Mars.



1 Michoud Assembly Facility, Louisiana

NASA's Michoud Assembly Facility in New Orleans is the primary site for manufacturing the SLS core stages and Orion spacecraft structures, such as the crew module and launch abort system, that power Artemis missions.

- Total area: 829 acres
- Manufacturing space: 43 acres
- Vertical Assembly Center: 170 ft tall winding tool
- Builds: 212-ft SLS core stage + large Orion structures

2 Vehicle Assembly Building, Kennedy Space Center, Florida

The Vehicle Assembly Building at Kennedy Space Center is where NASA stacks and integrates the SLS rocket and Orion spacecraft for Artemis missions.

- Size: 526 ft tall; 129M cu ft volume; 8 acres footprint
- Built with: 98,590 tons steel; 65K cu yd concrete
- Doors: 456 ft tall; take 45 min to open
- Cranes: 2x325-ton capacity; 10 work platforms

3 SLS (Space Launch System) Moon Rocket

NASA's SLS is a super heavy-lift rocket capable of sending the Orion spacecraft, four astronauts, and large cargo directly to the Moon on a single mission.

- Height: 322 ft
- Thrust: 8.8M lbs
- Payload capacity: 59,500 lbs to lunar orbit
- Engines: 4 RS-25 + 2 solid rocket boosters

4 Mission Control Center, Johnson Space Center, Texas

NASA's Mission Control Center in Houston oversees Artemis missions from SLS booster ignition through Orion's splashdown, with flight control teams and engineers monitoring the Orion spacecraft 24/7 to ensure mission success and crew safety.

- Artemis Flight Control Room: White Flight Control Room (WFCR)
- Supporting rooms: Orion Mission Evaluation Room (MER); Science Evaluation Room (SER)
- Coverage: 24/7 operations with rotating flight control teams from launch to splashdown
- Year established: 1966; first used for Gemini IV

5 Space Communications & Navigation

NASA's Deep Space Network (DSN) and Near Space Network (NSN) enable continuous communication with the SLS rocket and Orion spacecraft during the Artemis missions, supporting critical phases like launch, lunar orbit, and return by relaying commands and data across a global array of antennas.

- 3 DSN sites: California; Spain; Australia (120° apart)
- DSN antennas: up to 230 ft wide
- NSN assets: 40+ ground antennas; Tracking and Data Relay Satellites (TDRS)
- NSN range: up to 1.25 million miles from Earth

6 Orion Spacecraft

NASA's Orion spacecraft will carry astronauts to lunar orbit and safely return them to Earth as part of Artemis missions, launching atop the SLS rocket.

- Crew: 4 astronauts; up to 21-day mission duration
- Habitable space: 330 cu ft
- Life support systems: air revitalization; pressure control; potable water; food warmer; waste management (toilet)
- Heat shield: endures 5,000°F

7 Orion Recovery Operations

NASA's Exploration Ground Systems leads Orion spacecraft recovery operations for Artemis missions, coordinating with the U.S. Navy and other partners to retrieve the capsule and crew from the Pacific Ocean and return them safely to land.

- Orion re-entry speed: 25,000 --> 20 mph via parachutes
- Splashdown: ~60 mi off San Diego coast
- Crew recovery time: <2 hrs to medical bay
- Recovery vessel: Navy amphibious ship (e.g. USS Portland)

Orion Spacecraft

Orion is the exploration vehicle that will carry and sustain the crew on Artemis missions to the Moon and return them safely to Earth. Orion will launch on NASA's SLS rocket, and is equipped with advanced systems for deep space travel such as life support, navigation, and emergency abort capabilities.

SLS (Space Launch System) Rocket

SLS is NASA's most powerful rocket, producing 8.8 million pounds of thrust at liftoff. The SLS uses proven propulsion systems consisting of solid rocket boosters and liquid-fuel RS-25 engines mated to a central core stage.

Mobile Launcher 1

The mobile launcher 1 (ML1) is the ground structure used to assemble, process, and launch NASA's SLS rocket and Orion spacecraft from Launch Pad 39B at the agency's Kennedy Space Center in Florida for missions to deep space destinations such as the Moon, Mars, and beyond.

