National Aeronautics and Space Administration

SPACE LAUNCH SYSTEM

APRIL-JUNE 2025 HIGHLIGHTS

FIRED UP!
PROGRESS CONTINUES FOR ARTEMIS II AND BEYOND

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The four astronauts who will be the first to fly to the Moon under NASA's Artemis campaign have designed an emblem to represent their mission that references both their distant destination and the home they will return to. The crew unveiled the design April 2. The insignia was projected on the Vehicle Assembly Building at NASA's Kennedy Space Center in Florida April 4 to celebrate with the team members who work the overnight shift preparing the Artemis II SLS (Space Launch System) rocket and Orion spacecraft.

The crew explained the patch's symbolism, and its play on the abbreviation of Artemis II to AII, with the following description: The Artemis II test flight begins when a mighty team launches the first crew of the Artemis generation.

This patch designates the mission as "AII," signifying not only the second major flight of the Artemis campaign, but also an endeavor of discovery that seeks to explore for all and by all. Framed in Apollo 8's famous Earthrise photo, the scene of the Earth and the Moon represents the dual nature of human spaceflight, both equally compelling: The Moon represents our exploration destination, focused on discovery of the unknown. The Earth represents home, focused on the perspective we gain when we look back at our shared planet and learn what it is to be uniquely human. The orbit around Earth highlights the ongoing exploration missions that have enabled Artemis to set sights on a long-term presence on the Moon and soon, Mars.

Read more: **go.nasa.gov/3U4EAmJ**

The Artemis II crew holds the mission patch in front of one of their Orion spacecraft simulators at NASA's Johnson Space Center in Houston.

Employees at NASA's Kennedy Space Center in Florida view the official Artemis II mission crew insignia projected on the exterior of the spaceport's Vehicle Assembly Building April 4.

ROCKET UPPER STAGE AND ADAPTER INTEGRATED AS PREPARATIONS FOR ARTEMIS II CONTINUE

NASA's Artemis II SLS rocket is taking shape following the successful integration of the launch vehicle stage adapter April 12 and the interim cryogenic propulsion stage May 1, inside the Vehicle Assembly Building at NASA Kennedy. Technicians with NASA's Exploration Ground Systems Program (EGS) used a 325-ton crane to hoist the launch vehicle adapter almost 250 feet in the air and slowly lower it onto the core stage. The cone-shaped adapter connects the interim cryogenic propulsion stage to the SLS core stage. During launch and ascent, the launch vehicle stage adapter provides structural support and protects avionics and electrical devices within the upper stage from extreme vibrations and acoustic conditions.

Technicians with NASA's EGS Program also stacked the interim cryogenic propulsion stage atop SLS. The four-story propulsion system, built by Boeing and ULA (United Launch Alliance), is powered by an RL10 engine that will enable Orion to orbit the planet twice, once in high Earth orbit, and build up enough speed for the push toward the Moon. The crew also will use the detached stage as a target during a manual piloting demonstration several hours after launch. The SLS upper stage arrived in March to NASA Kennedy's Multi-Payload Process Facility (MPPF) from ULA's Delta Operations Center at nearby Cape Canaveral Space Force Station. At the MPPF, engineers loaded the stage with hydrazine to fuel its reaction control system.

Read more: **go.nasa.gov/3TxYiHq** and **go.nasa.gov/3IkzZdK**

The launch vehicle stage adapter for the Artemis II SLS was added to the core stage April 12.

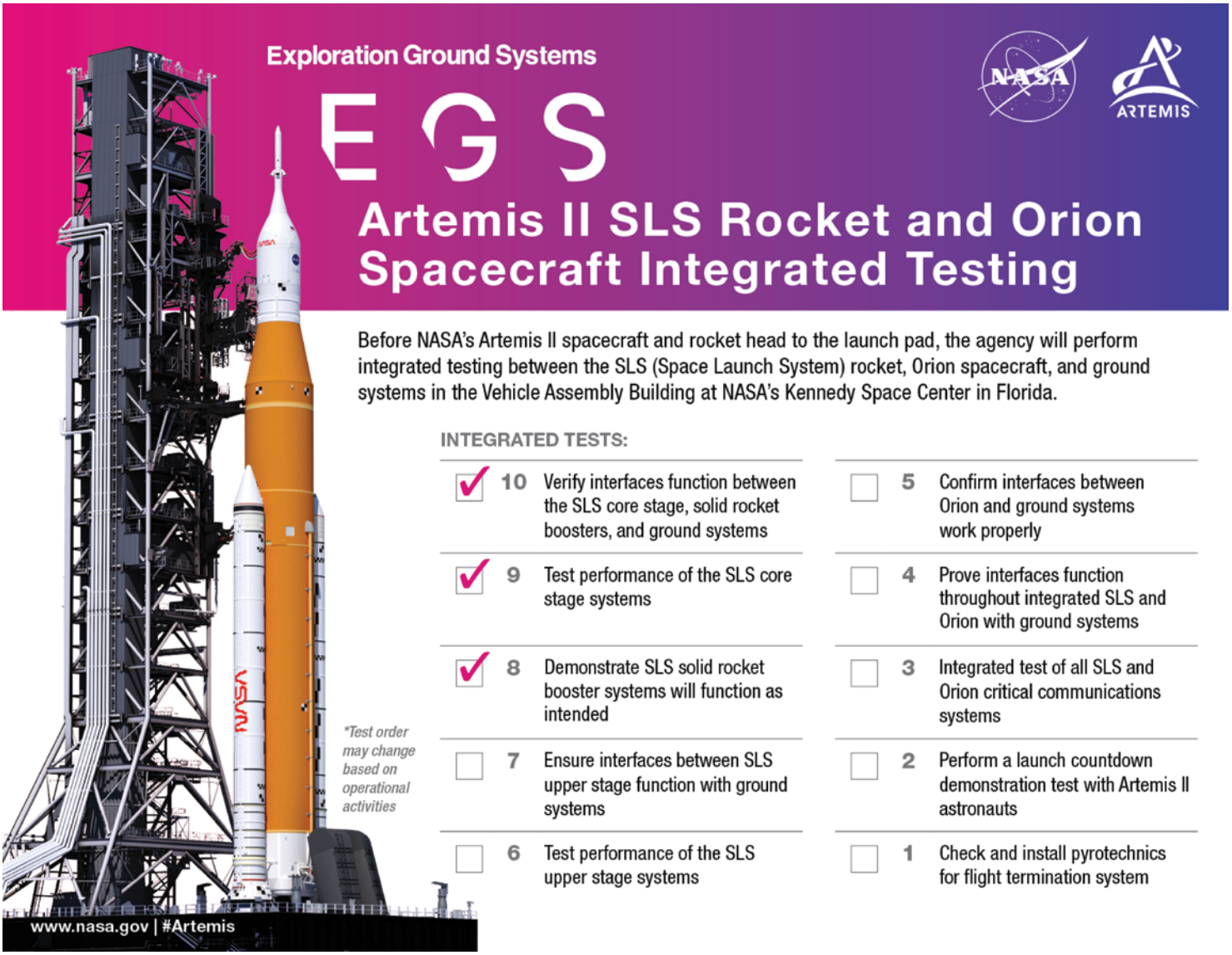
The interim cryogenic propulsion stage for the Artemis II SLS was added to the vehicle stack May 1.

INTEGRATED TESTING ON HORIZON FOR ARTEMIS II LAUNCH PREPARATIONS

Teams responsible for preparing and launching Artemis II at NASA Kennedy have begun a series of integrated tests to get ready for the mission. With the upper stage of the SLS integrated with other elements of the rocket, engineers have started the tests to confirm the rocket and ground systems are working and communicating as planned.

While similar to the integrated testing campaign conducted for NASA's uncrewed Artemis I test flight, engineers have added tests ahead of Artemis II to prepare for NASA's first crewed flight under the Artemis campaign – an approximately 10-day journey by four astronauts around the Moon and back. The mission is another step toward missions on the lunar surface and helping the agency prepare for future astronaut missions to Mars.

Read more: **go.nasa.gov/4lpNjfw**



The Artemis II SLS is undergoing a series of tests to prepare it to launch astronauts aboard the Orion spacecraft to the Moon.

NASA ANNOUNCES FOUR CUBESATS TO FLY ON ARTEMIS II MISSION

NASA has signed an agreement with Argentina's Comisión Nacional de Actividades Espaciales (CONAE) for a CubeSat to fly on the agency's Artemis II test flight. With this agreement, NASA has finalized all partnerships for the four international CubeSats that will fly aboard the mission.

In addition to CONAE, NASA is working with German Space Agency DLR, the Korea AeroSpace Agency (KASA), and the Saudi Space Agency (SSA) to fly payloads aboard Artemis II to access the high Earth orbit environment as part of NASA's Artemis campaign. Collectively, the CubeSats will gather information to inform and potentially improve how missions to deep space are designed. They will be delivered to NASA Kennedy this summer for integration with the SLS's Orion stage adapter.

CubeSats are small but mighty – compact in size, they contain technology demonstrations or scientific experiments that can potentially enhance understanding of the space environment.

Read more: **go.nasa.gov/45YJY27**

NASA astronaut and Artemis II Mission Specialist Christina Koch examines the Orion stage adapter, a ring-like structure that connects the agency's SLS rocket to the Orion spacecraft.

NASA'S ARTEMIS III CORE STAGE RECEIVES THERMAL PROTECTION COATING

NASA completed another step to ready its SLS for the Artemis III mission as crews at the agency's Michoud Assembly Facility in New Orleans recently applied a thermal protection system to the core stage's liquid hydrogen tank.

Building on the crewed Artemis II flight test, Artemis III will add new capabilities with the human landing system and advanced spacesuits to send the first astronauts to explore the lunar South Pole region and prepare humanity to go to Mars. Thermal protection systems are a cornerstone of successful spaceflight endeavors, safeguarding human life, and enabling the launch and controlled return of spacecraft.

The tank is the largest piece of SLS flight hardware insulated at NASA Michoud. The hardware requires thermal protection due to the extreme temperatures during launch and ascent to space – and to keep the liquid hydrogen at minus 423 degrees Fahrenheit on the pad prior to launch.

Read more: **go.nasa.gov/46maK4P**

Teams at NASA's Michoud Assembly Facility in New Orleans move a liquid hydrogen tank for the Artemis III SLS into the factory's final assembly area April 22.

NASA TESTS NEW RS-25 ENGINE

NASA tested RS-25 engine No. 20001 June 20 at the Fred Haise Test Stand at NASA's Stennis Space Center in Bay St. Louis, Mississippi. Test teams fired the engine for almost eight-and-a-half minutes (500 seconds), the same amount of time RS-25 engines fire during a launch of an SLS rocket on Artemis missions to the Moon. The Artemis campaign will explore the Moon for scientific discovery, economic benefits, and to build the foundation for the first crewed missions to Mars – for the benefit of all.

Four RS-25 engines, built by contractor L3Harris Technologies (formerly Aerojet Rocketdyne), help power each SLS launch, producing up to 2 million pounds of combined thrust. During the test, operators also fired engine No. 20001 up to the 111% power level, the same amount of thrust needed to launch an SLS rocket, carrying the Orion spacecraft, to orbit. The full-duration "hot fire" was the first test since NASA completed certification testing for new production RS-25 engines in 2024.

Read more: **go.nasa.gov/40OUDJ9**

NASA tested RS-25 engine No. 20001 June 20 at the Fred Haise Test Stand at NASA's Stennis Space Center in Bay St. Louis, Mississippi.

NASA SLS'S CHIEF ENGINEER SELECTED FOR TOP FEDERAL AWARD

Two NASA employees, including SLS Chief Engineer John Blevins, are being honored as part of the Samuel J. Heyman Service to America Medals, also known as the Sammies, recognizing outstanding federal employees who are addressing many of our country's greatest challenges.

Blevins and Rich Burns, of NASA's Goddard Space Flight Center in Greenbelt, Maryland, were selected out of 350 nominees and are among 23 individuals and teams honored for their achievements as federal employees. They were recognized at a ceremony in Washington June 17, that also was live streamed on the Sammies website. The honorees were commended via videos and presenter remarks and received medals for their achievements.

As the chief engineer for the SLS, Blevins is responsible for the various technical decisions that need to be made to ensure each mission is successful. This includes calculating structural needs, thermal analyses of the effects, and studies of vibrations, acoustics, propulsion integration, among other work.

"This is a reflection on the hard work and dedication of the entire Artemis Team," Blevins said. "I am working with an incredibly competent, dedicated team agencywide that goes above and beyond to promote the space exploration goals of our nation. I am honored to accept the award on their behalf."

Read more: **go.nasa.gov/459oPQT**

John Blevins, Chief Engineer for SLS rocket at NASA's Marshall Space Flight Center in Huntsville, Alabama, stands inside the Vehicle Assembly Building at NASA Kennedy during the stacking of the Artemis I rocket ahead of its first test flight.

I AM ARTEMIS: *PATRICK JUNEN*

For some people, a passion for space is something that might develop over time, but for Patrick Junen, the desire was there from the beginning. With a father and grandfather who both worked for NASA, space exploration is not just a dream; it remains a family legacy.

Now, as the stage assembly and structures subsystem manager at NASA Marshall for the BOLE (Booster Obsolescence Life Extension) Program — an advanced solid rocket booster for SLS — Junen is continuing that legacy.

"My grandfather worked on the Apollo and Space Shuttle Programs. Then my dad went on to work for the Space Shuttle and SLS Programs," Junen says. "I guess you could say engineering is in my blood."

Read more: **go.nasa.gov/40SMjYR**

NASA SLS's Patrick Junen is the next generation in his family to work in the space program.

SCHOOL'S OUT BUT THE LEARNING CONTINUES WITH SLS NERDY WORDS

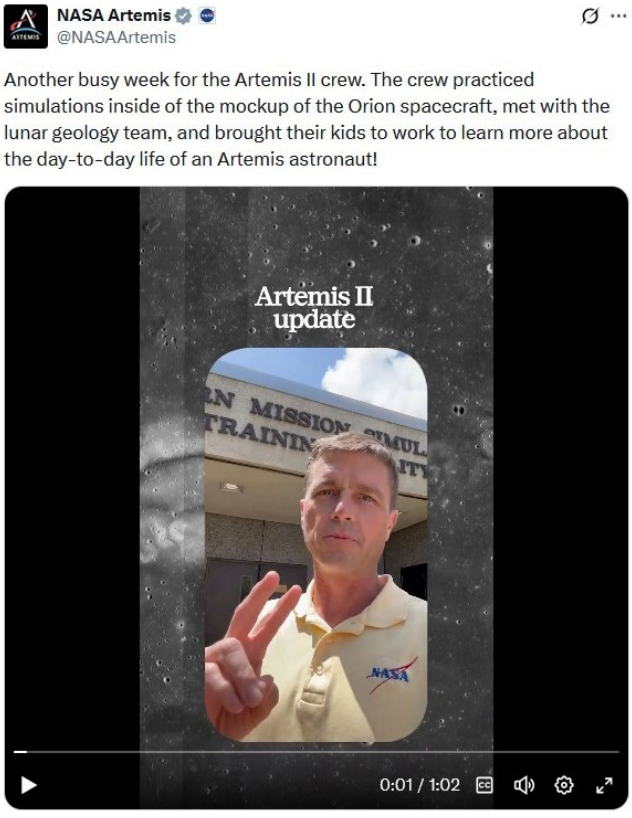
Students may be on summer vacation, but that doesn't mean the learning ends. SLS's latest video series, called Nerdy Words, defines common words used in building and operating SLS.

Read more: bit.ly/4kKgiJM

ARTEMIS II COMMANDER PROVIDES WEEKLY UPDATES

As the Artemis II crew is training and preparing to fly their historic 10-day mission around the Moon and back, Artemis II Commander Reid Wiseman provides weekly crew training updates.

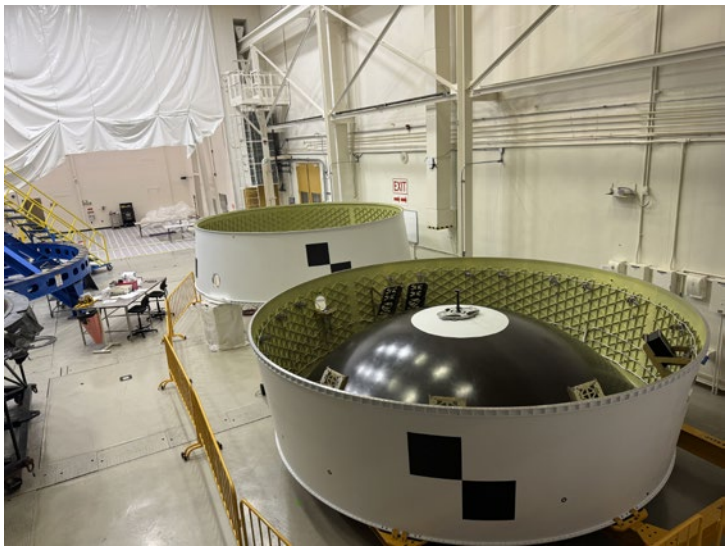
Watch here: bit.ly/44ujwfG



SLS LEADERSHIP VISITS WEST VIRGINIA'S CONSTELLIUM, A PARTNER IN ARTEMIS

SLS Program Manager John Honeycutt, right of center, NASA astronaut Doug Wheelock, and other members of the SLS and Artemis teams visited Constellium in Ravenswood, West Virginia, to thank the team for their contributions to Artemis.

SHARING THE STORY WITH THE HOME TEAM



In April, the SLS team displayed the Artemis II and Artemis III Orion stage adapters to the NASA Marshall community. The adapters, built at NASA Marshall by the center's team, are critical to SLS. In addition to connecting the Orion spacecraft to SLS, the adapters provide the capability to launch CubeSats as secondary payloads and will serve as docking test targets during in-space demonstrations.

SPACEFLIGHT PARTNERS: Constellium

LOCATION: Ravenswood, West Virginia

WHAT THEY DO FOR SLS:
Constellium provides ultra-high-performance aluminum-lithium alloys for SLS. As part of their contributions to Artemis, their alloys offer greater strength, increased damage and corrosion resistance, and a lower density alloy.

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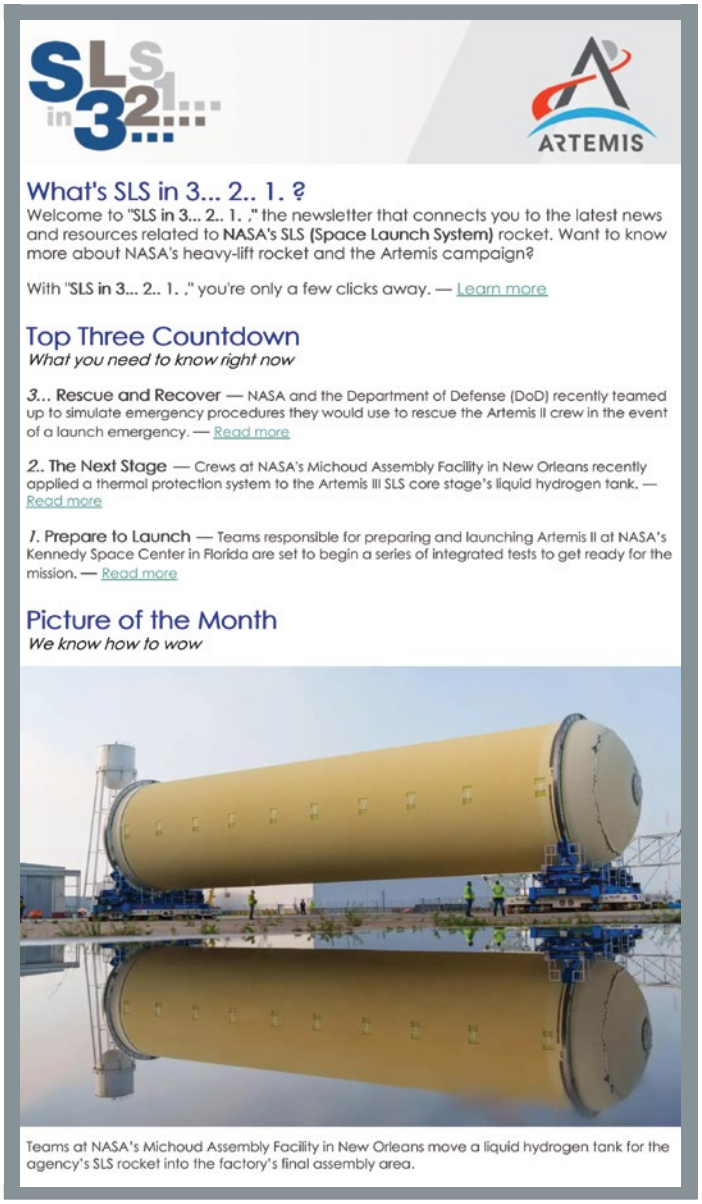

SLS in 3...2...1...

ARTEMIS

What's SLS in 3... 2.. 1. ?

Welcome to "SLS in 3... 2.. 1. ," the newsletter that connects you to the latest news and resources related to NASA's SLS (Space Launch System) rocket. Want to know more about NASA's heavy-lift rocket and the Artemis campaign?

With "SLS in 3... 2.. 1. ," you're only a few clicks away. — Learn more

Top Three Countdown

What you need to know right now

3... Rescue and Recover — NASA and the Department of Defense (DoD) recently teamed up to simulate emergency procedures they would use to rescue the Artemis II crew in the event of a launch emergency. — Read more

2.. The Next Stage — Crews at NASA's Michoud Assembly Facility in New Orleans recently applied a thermal protection system to the Artemis III SLS core stage's liquid hydrogen tank. — Read more

1. Prepare to Launch — Teams responsible for preparing and launching Artemis II at NASA's Kennedy Space Center in Florida are set to begin a series of integrated tests to get ready for the mission. — Read more

Picture of the Month

We know how to wow

Teams at NASA's Michoud Assembly Facility in New Orleans move a liquid hydrogen tank for the agency's SLS rocket into the factory's final assembly area.

FOLLOW THE PROGRESS OF NASA'S NEW LAUNCH VEHICLE FOR DEEP SPACE:

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