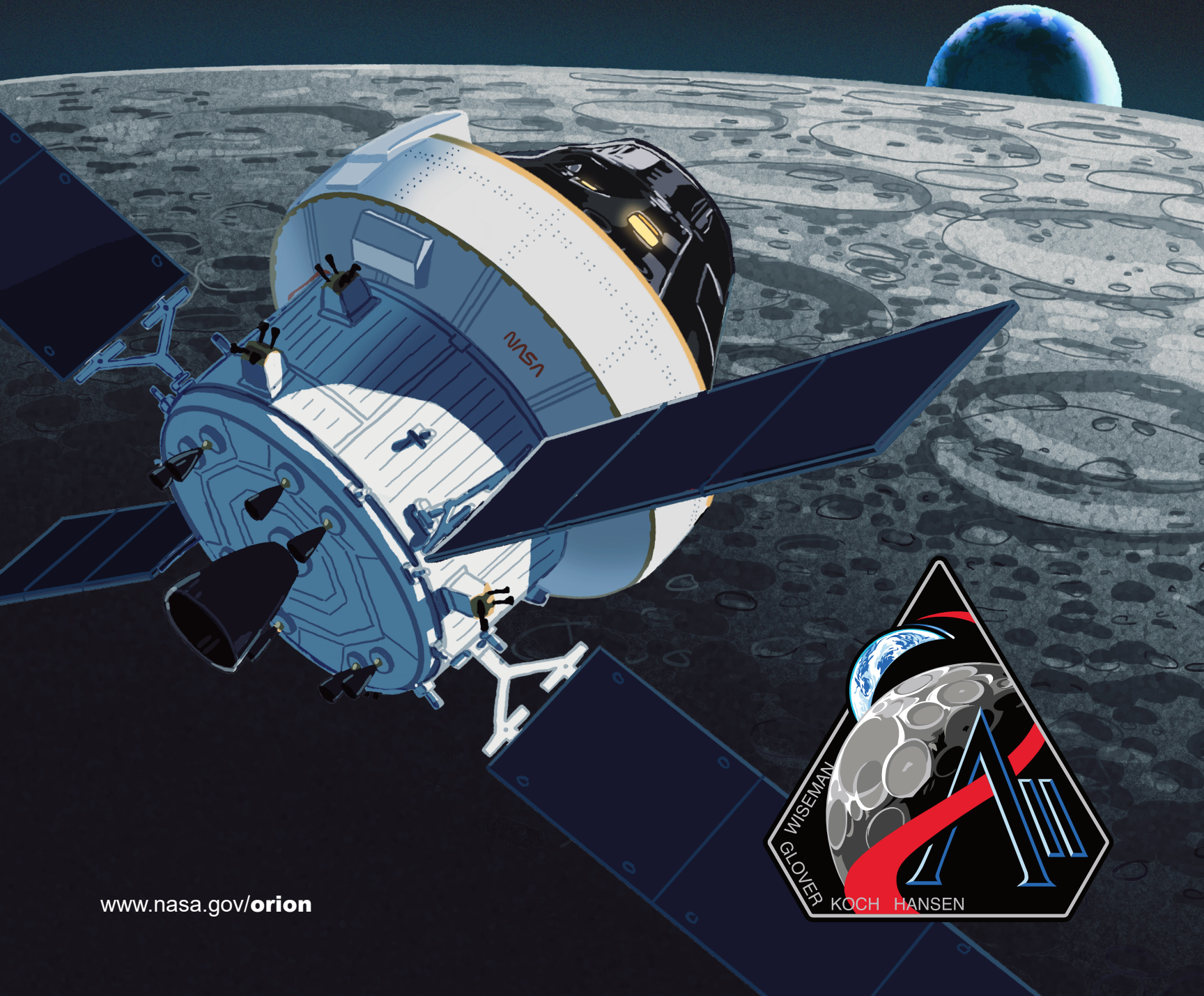




ORION

*ARTEMIS II
EDITION*

DESKTOP MODEL



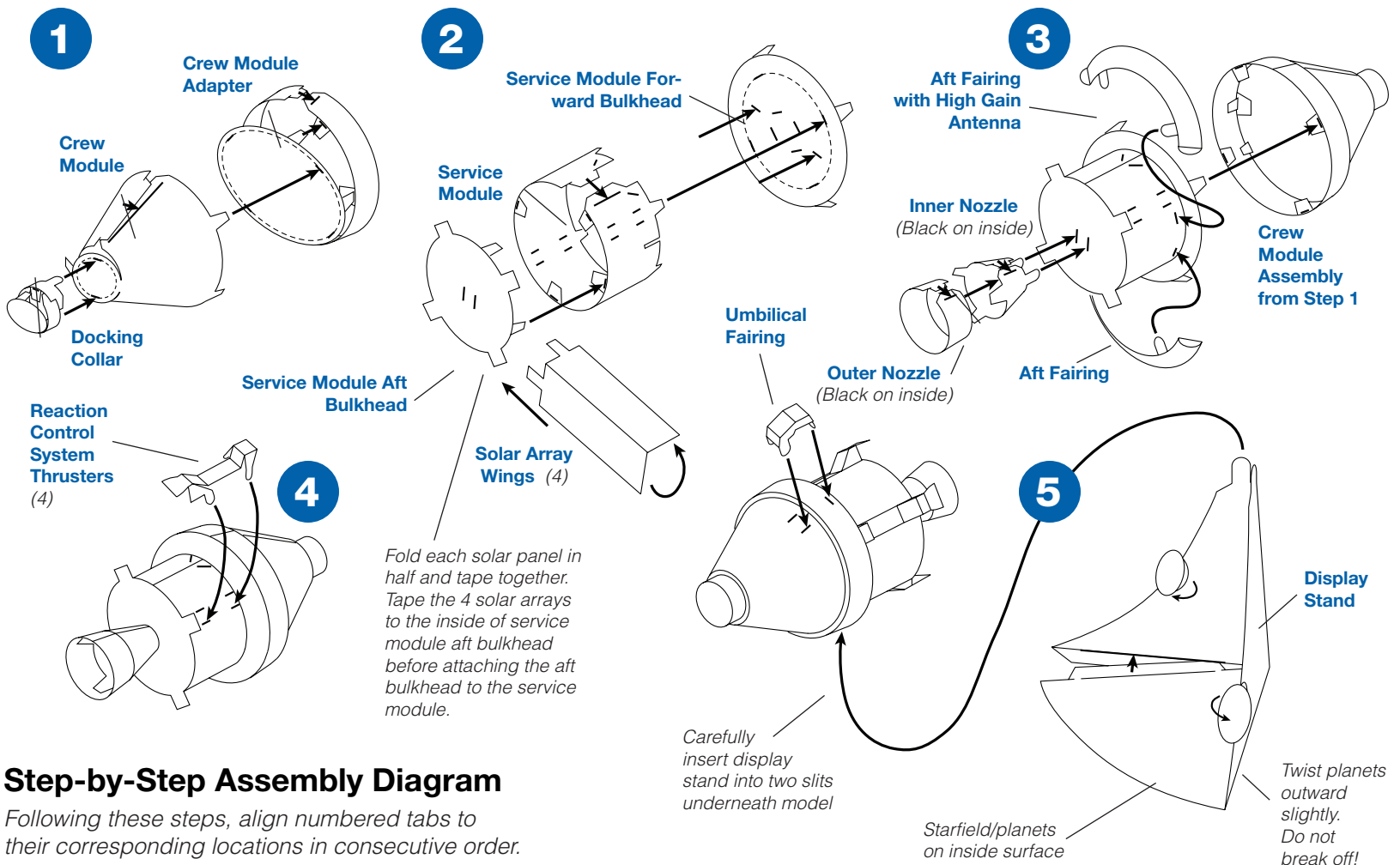
www.nasa.gov/orion

NASA's Orion spacecraft is carrying humanity to the Moon. The key element of NASA's Artemis campaign, Orion will fly four crew members on missions to lunar orbit, located about 240,000 miles away from Earth. Orion will safely carry astronauts back after their exploration, enduring an extremely hot and fast reentry into Earth's atmosphere at the end of Artemis missions.

On Artemis II, the first crewed flight of Orion, astronauts will test the spacecraft's life-support systems and validate the capabilities and techniques needed for humans to live and work in deep space. On this 685,000-mile journey, the crew will prove that Orion's critical life support systems are ready to sustain our astronauts on future, longer-duration missions. The crew will practice operations essential to the success of Artemis III, paving the way to return humans to the Moon for long-term exploration.

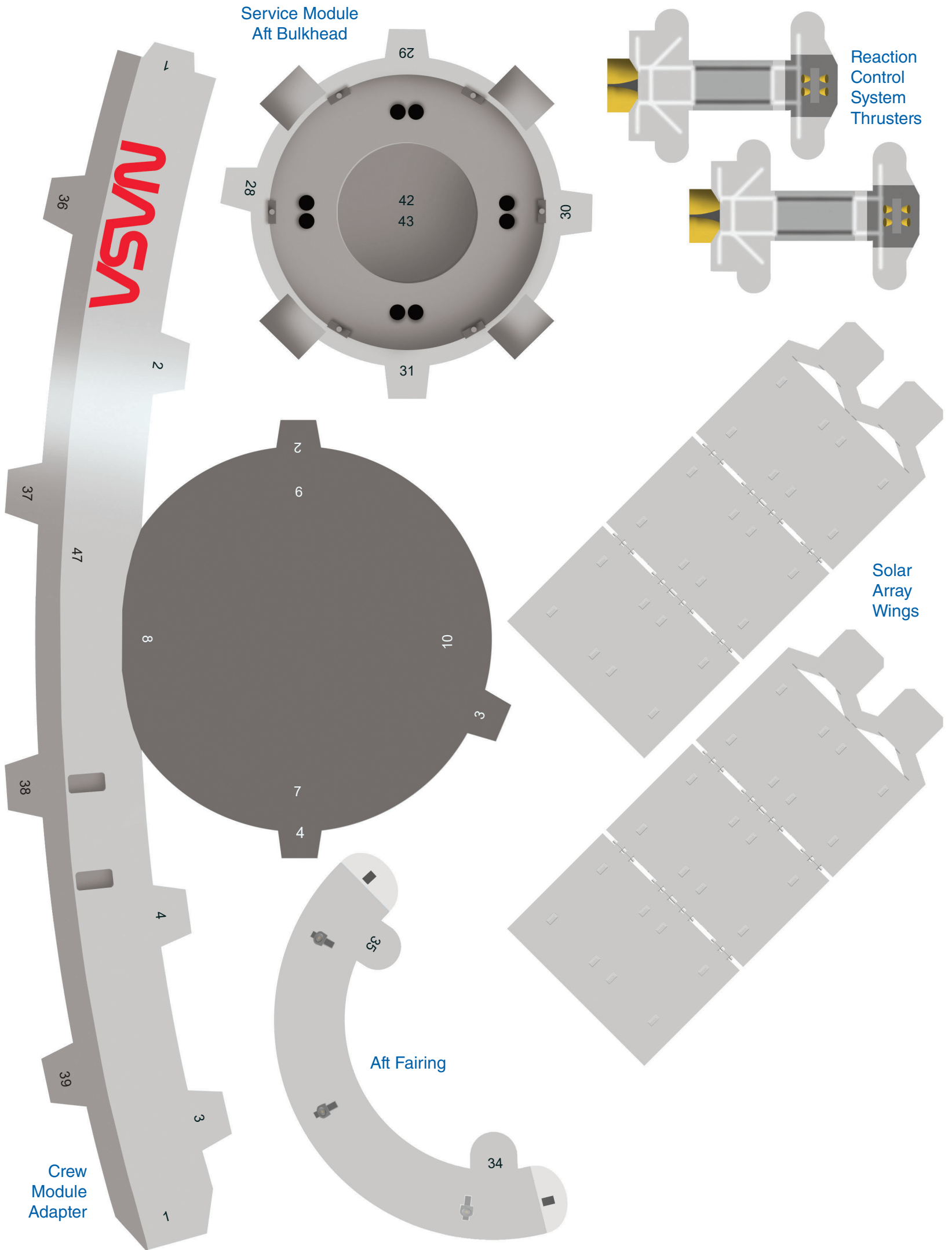
Build your own Orion and join us on our journey to explore around the Moon on Artemis II!

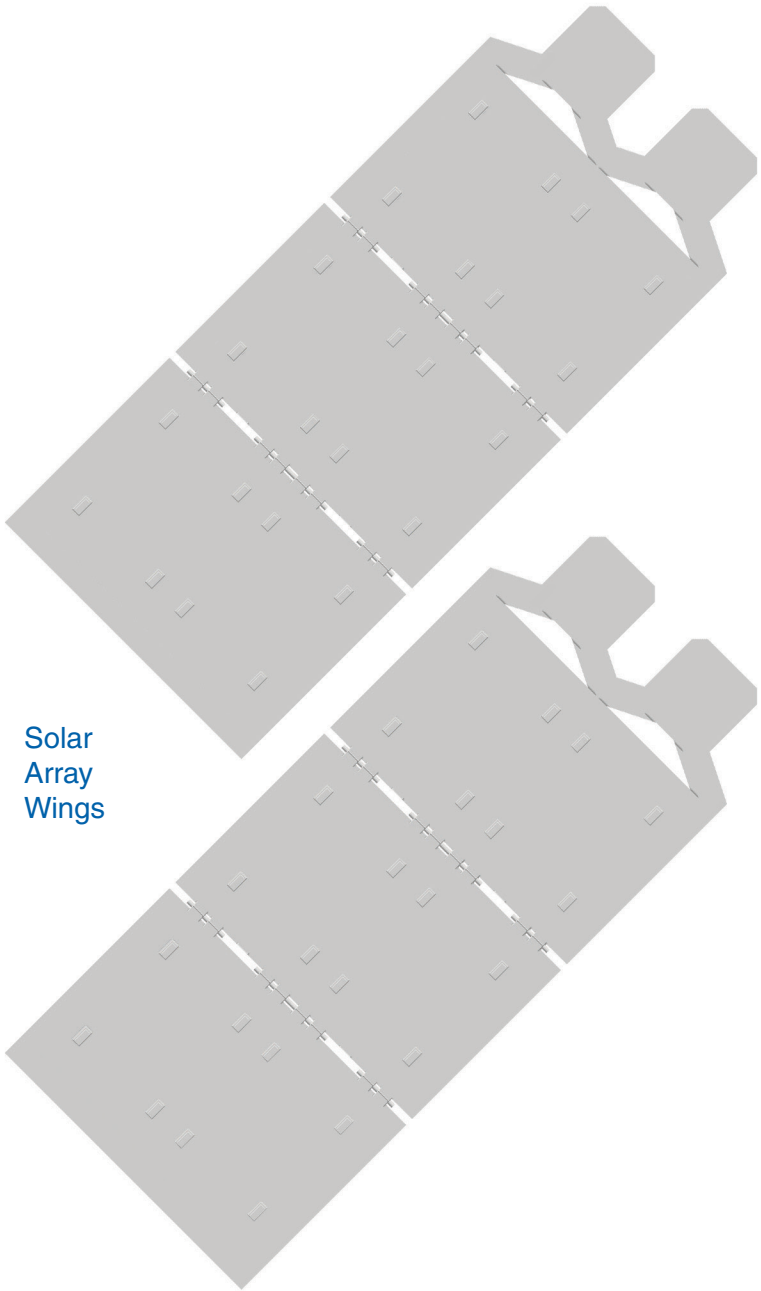
Learn more at nasa.gov/orion



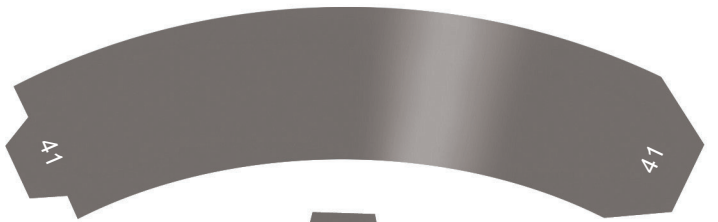
Step-by-Step Assembly Diagram

Following these steps, align numbered tabs to their corresponding locations in consecutive order.

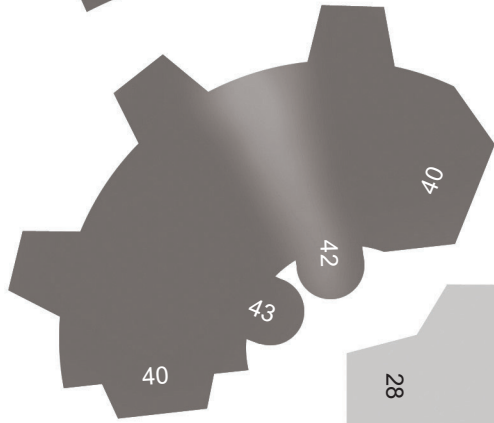




Solar Array Wings



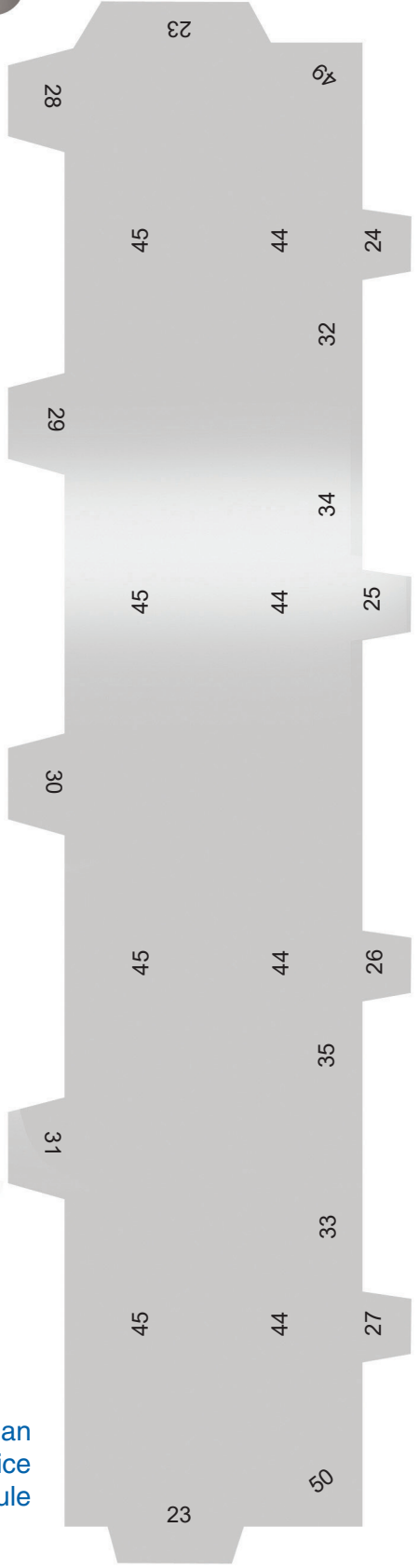
Outer Nozzle



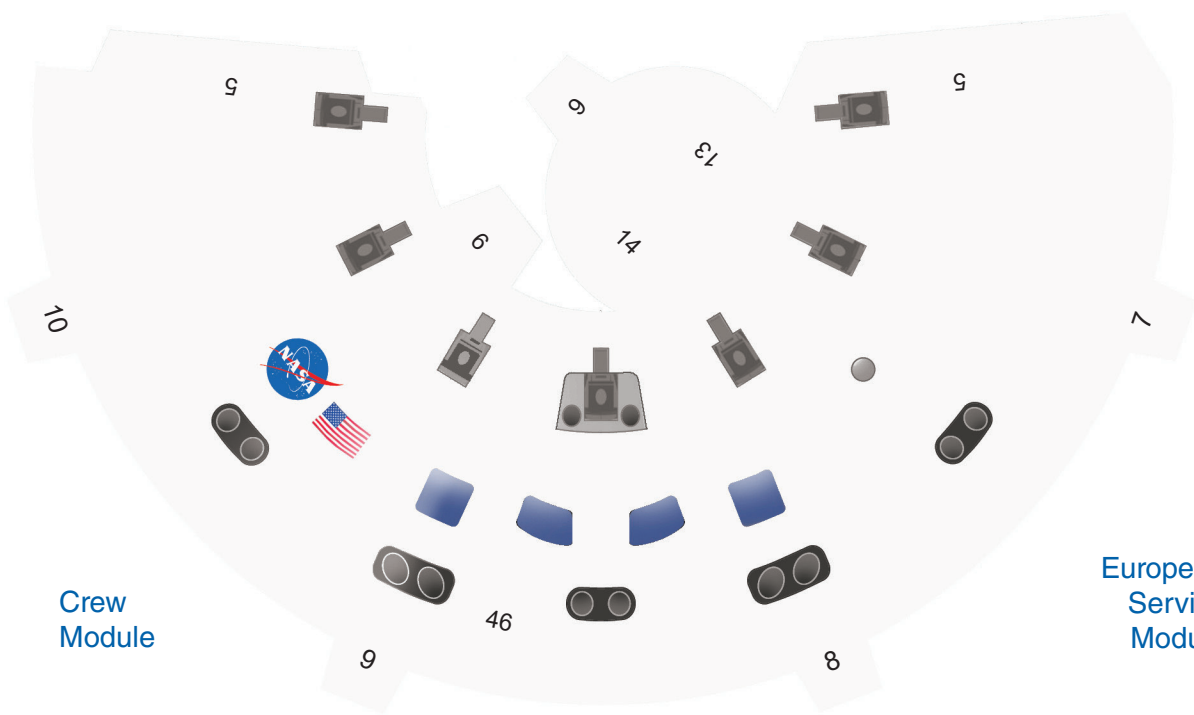
Inner Nozzle



Aft Fairing



European Service Module



Crew Module



Reid Wiseman, Artemis II Commander, is a naval aviator who served as flight engineer aboard the International Space Station for Expedition 41 and served as chief of the Astronaut Office from 2020 through 2022.



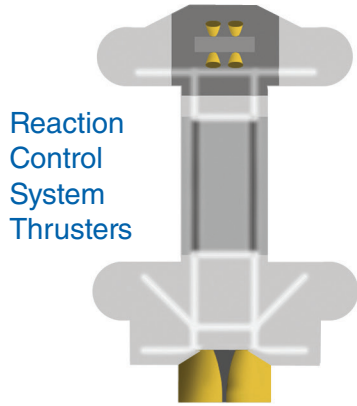
Victor Glover, Artemis II Pilot, is a naval aviator who served as pilot and second-in-command on the Crew-1 SpaceX Crew Dragon, and was flight engineer on the International Space Station for Expedition 64.



Jeremy Hansen, Artemis II Mission Specialist, is a colonel in the Canadian Armed Forces and former fighter pilot who has served as Capcom in NASA's Mission Control Center at Johnson Space Center.

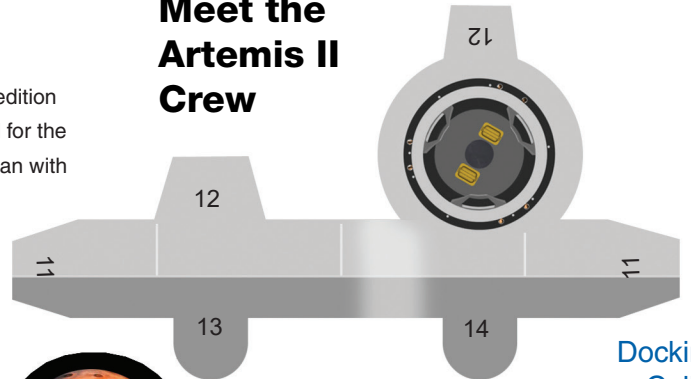


Christina H. Koch, Artemis II Mission Specialist, has served as flight engineer on the International Space Station for Expedition 59, 60 and 61, and holds the record for the longest single spaceflight by a woman with 328 days in space.

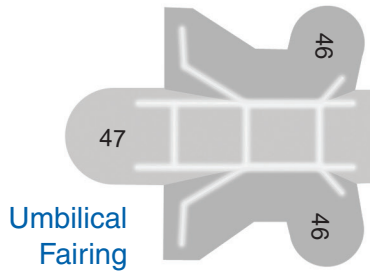


Reaction Control System Thrusters

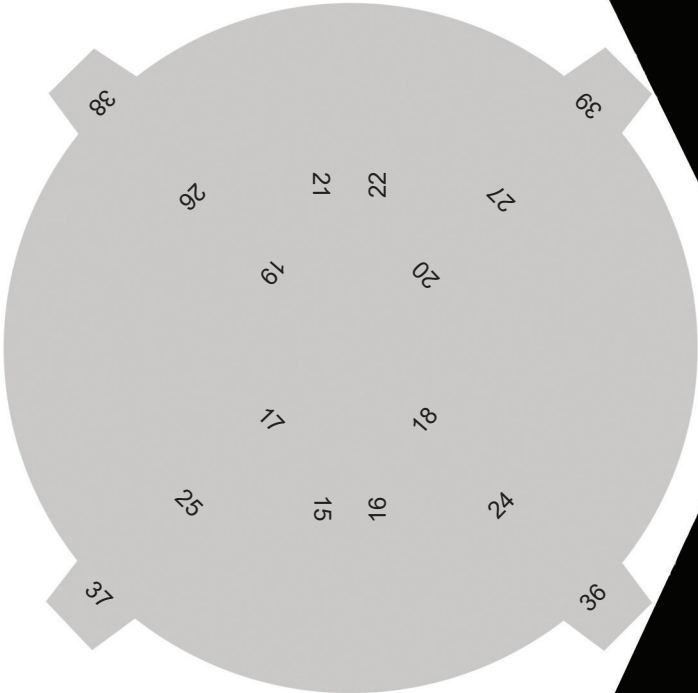
Meet the Artemis II Crew



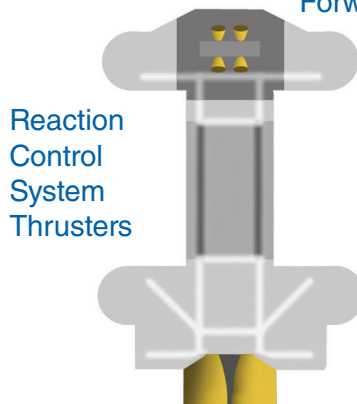
Docking Collar



Umbilical Fairing



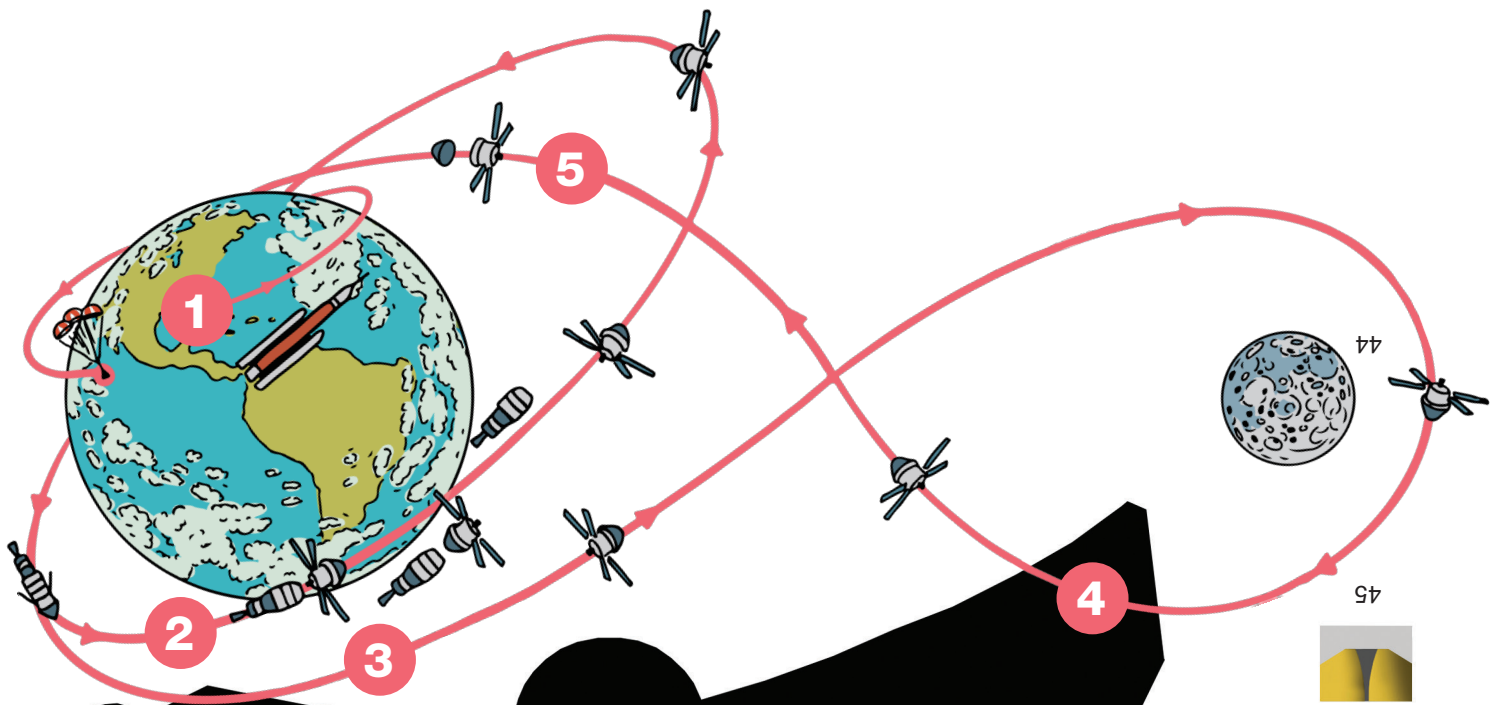
Service Module Forward Bulkhead



Reaction Control System Thrusters



Display Stand



The Mission

Artemis II will take four astronauts aboard Orion on a 10-day flight test around the Moon. The crew will confirm all the spacecraft's systems, such as life support and guidance, operate as designed in deep space with astronauts aboard, paving the way for missions to the lunar surface.

1/ Lift Off

The crew will lift off from Launch Complex 39B at NASA's Kennedy Space Center in Florida, atop the agency's mega Moon rocket, the Space Launch System.

2/ Proximity Operations

Shortly after launch, the crew will perform a key test called the proximity operations demonstration, where they will evaluate the manual handling qualities of Orion. The crew will take control of Orion and command the spacecraft through a series of moves using the detached upper stage of the rocket as a mark. They will approach and back away from the upper stage, evaluating how Orion flies with astronauts at the controls and helping prepare for future docking operations. Then, over the course of about two days, they will check out Orion's systems in a high-Earth orbit relatively close to home before beginning the trek toward the Moon.

3/ To the Moon

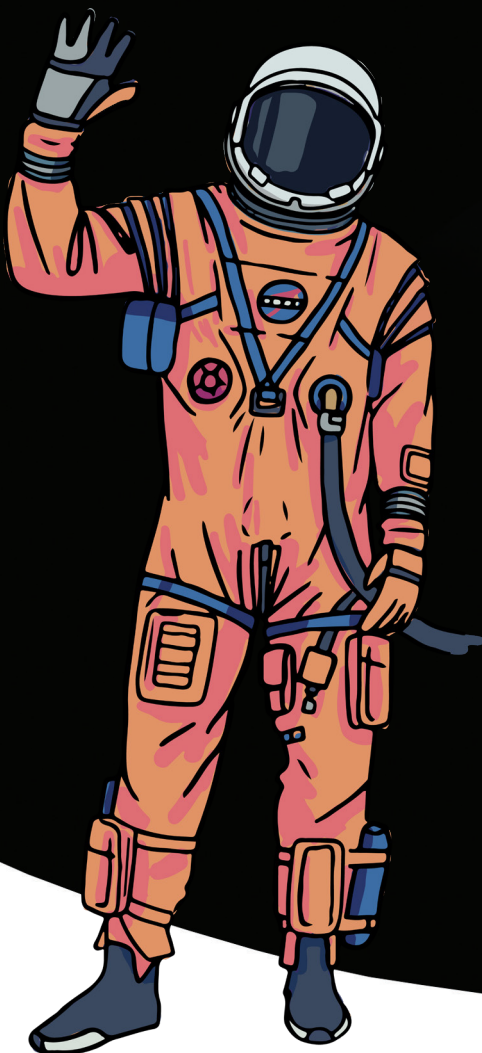
Orion's European-built service module will perform a propulsion move called the translunar injection (TLI) burn, putting the spacecraft on a path toward the Moon. The TLI burn will send the astronauts on an outbound trip of about four days and around the backside of the Moon where they will ultimately create a figure eight extending more than 230,000 miles from Earth. At their max distance, the crew will fly 4,600 miles beyond the Moon.

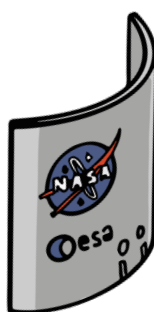
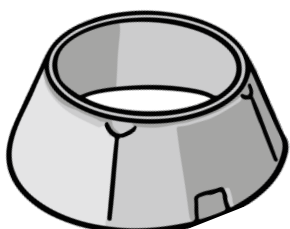
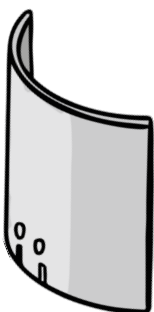
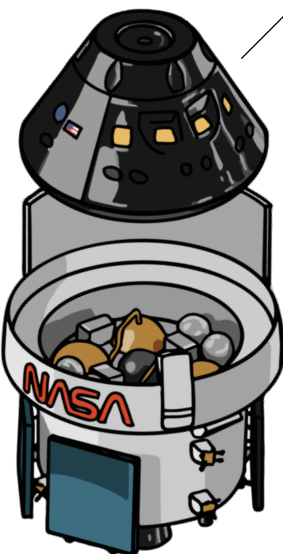
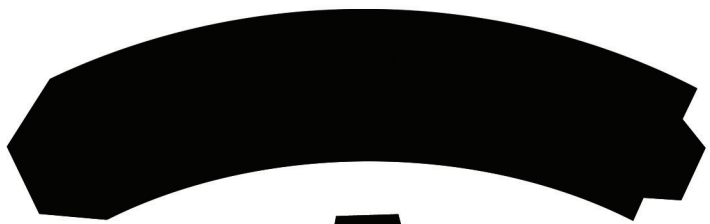
4/ Free Return

During the approximately four-day return trip, the crew will continue to evaluate the spacecraft's systems. Instead of requiring propulsion on the return, this fuel-efficient trajectory harnesses the Earth-Moon gravity field, ensuring that—after its trip around the far side of the Moon—Orion will be pulled back naturally by Earth's gravity for the free return portion of the mission.

5/ Back to Earth

The crew will endure the high-speed, high-temperature reentry through Earth's atmosphere before splashing down in the Pacific Ocean off the coast of San Diego, where they will be met by a recovery team of NASA and Department of Defense personnel who will bring them back to shore.





The Spacecraft

The Orion spacecraft is built to carry four crew members to the Moon and can sustain a crew for up to 21 days in deep space. Orion has three main components: a crew module, service module, and launch abort system. Orion's crew and service module will carry astronauts to lunar orbit. The launch abort system, positioned at the top of the spacecraft, is only used to pull the crew module and the astronauts inside it safely away from the rocket in the event of an emergency, and will be jettisoned after a successful launch and ascent atop the Space Launch System rocket. On Artemis III, astronauts will transfer from Orion to a lunar lander before making their way down to the surface of the Moon.

Launch Abort System

Will carry the crew to safety in the event of an emergency during launch or ascent atop the agency's Space Launch System rocket.

Height	50 ft. with ogive panels 44 ft. without ogive panels
Diameter	3 ft. tower 17 ft. at base
Liftoff Weight	17,000 lbs.
Propellant Weight	5,700 lbs.
Abort Motor Weight	7,600 lbs. includes 4,700 lbs. propellant 400,000 lbs. thrust
Attitude Motor Weight	1,700 lbs. includes 650 lbs. propellant 7,000 lbs. thrust
Jettison Motor Weight	900 lbs. includes 350 lbs. propellant 40,000 lbs. thrust

Crew Module

The pressurized part of the Orion spacecraft where crew will live and work on their journey to the Moon and back.

Height	11 ft.
Diameter	16.5 ft.
Habitable Volume	330 cu ft.
Pressurized Volume	690.6 cu ft.
Lunar Payload Return	220 lbs.
Artemis II Liftoff Weight	22,900 lbs.
Artemis II Landing Weight	20,500 lbs.
Engines/Thrusters	12 Reaction Control System (RCS) Thrusters 160 lbs. of thrust each

Service Module

Provides propulsion, thermal control, electrical power generated by solar arrays, and life support systems including water, oxygen, and nitrogen.

Length	15.7 ft.
Diameter	16.5 ft.
Artemis II Weight	34,400 lbs.
Engine/Thrusters	1 Orbital Maneuvering System Engine; 6,000 lbs. of thrust 8 Auxiliary Engines; 110 lbs. of thrust each 24 Reaction Control System Thrusters; 50 lbs. of thrust each
Solar Arrays	4 arrays 15,000 solar cells 62 ft. when deployed 11kW regenerable electrical power

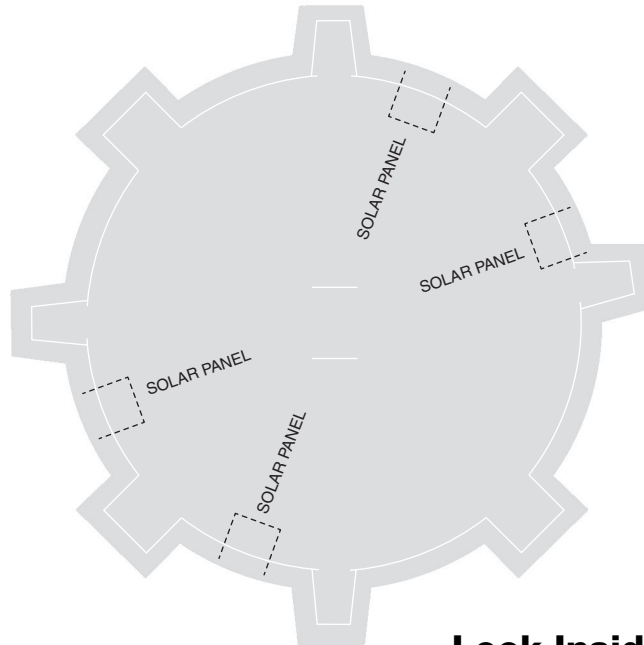
44

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44

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Look Inside

Orion will be home for the Artemis II crew during their 685,000-mile, nearly 10-day journey. They will live and work in the 330 cubic feet of habitable volume inside Orion's crew module, while its service module provides the essentials the astronauts need to stay alive, including potable water and nitrogen and oxygen to breathe.

1/ Potable Water Dispenser

Orion's potable water dispenser will give the crew easy access to water, allowing them to rehydrate food and drink packages and also be used for medical emergencies.

2/ Flywheel Exercise Device

The crew will use a simple cable-based device called a flywheel to do aerobic exercises like rowing and resistance workouts like squats and deadlifts to stay fit during their mission.

3/ Docking Hatch

The docking hatch will allow the crew to travel between Orion and another spacecraft like a lunar lander. The crew can also exit out of the docking hatch after splashdown at the end of their mission if needed.

4/ Displays and Controls

The displays and controls are how the crew will command Orion. There are three display units, seven switch interface panels, two rotational hand controllers, two translational hand controllers, and two cursor control devices that the astronauts will use to control Orion's systems.

5/ Crew Seats

Orion has four crew seats. When configured for launch and reentry, the crew will be lying on their backs with their knees bent at a 90-degree angle and feet resting on foot pans.

6/ Stowage Lockers

The crew will store items for their mission in lockers below the crew seats. The lockers also double as a radiation shelter — if a radiation event occurs, all four crew will get into the lockers and place their cargo around them as extra shielding.

7/ Environmental Control and Life Support Systems

Orion's environmental control and life support systems, or ECLSS, will make the crew module a habitable, safe place for astronauts and is key to survival on their mission. The system includes atmosphere revitalization, pressure control, water supply, and waste management.

