Pre-Tour

Callisto™: Space Innovation Tour

amazon future engineer

LOCKHEED MARTIN

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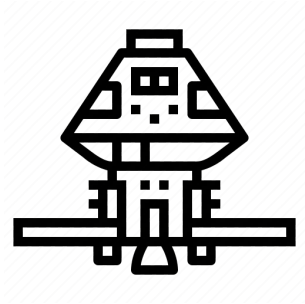
Artemis I

The first in a series of increasingly complex missions, Artemis I is an uncrewed flight test that will provide a foundation for human deep space exploration and demonstrate our commitment and capability to return humans to the Moon and extend beyond.

Artemis I is the first integrated test of NASA's deep space exploration systems: the Orion spacecraft, Space Launch System (SLS) rocket and the ground systems at the agency's Kennedy Space Center in Florida.

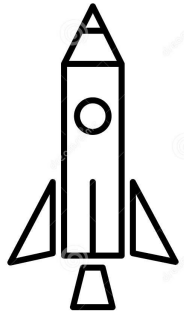
Components of Artemis I

Artemis I is the first integrated test of NASA's deep space exploration systems:



Orion

Orion will serve as the exploration vehicle that will carry the crew to space, provide emergency abort capability, sustain the crew during the space travel, and provide safe re-entry from deep space return velocities.



Space Launch System

NASA's Space Launch System will be the most powerful rocket we've ever built. SLS will enable astronauts to begin their journey to explore destinations far into the solar system.

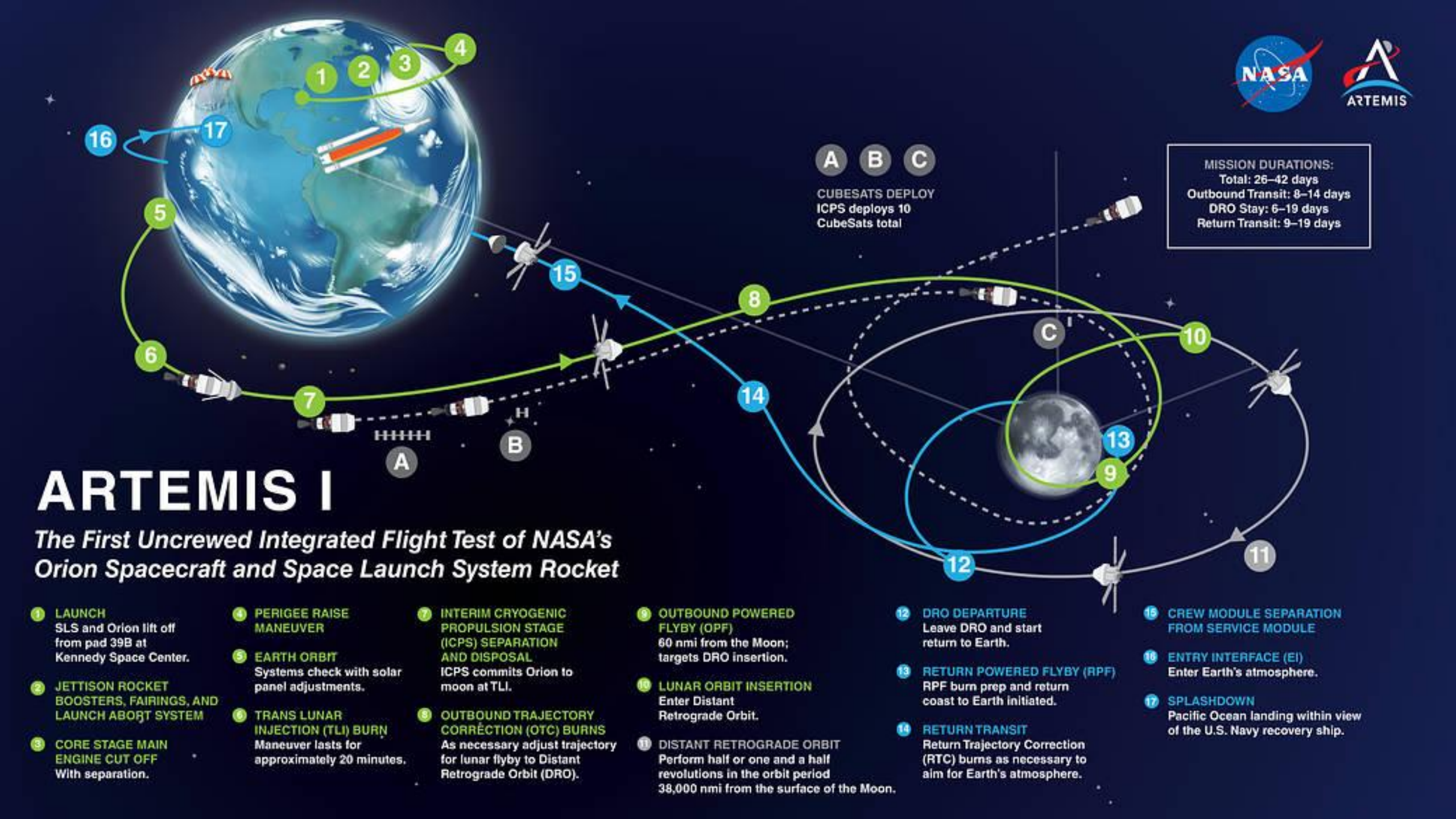
Ground System

Exploration Ground Systems was established to develop and operate the systems and facilities necessary to process and launch rockets and spacecraft during assembly, transport and launch.

Flight Path

During this flight, the spacecraft will launch on the most powerful rocket in the world and fly farther than any spacecraft built for humans has ever flown.

It will travel 280,000 miles from Earth, thousands of miles beyond the Moon over the course of about a four to six-week mission.



ARTEMIS I

The First Uncrewed Integrated Flight Test of NASA's Orion Spacecraft and Space Launch System Rocket

1. **LAUNCH**
   SLS and Orion lift off from pad 39B at Kennedy Space Center.
2. **JETTISON ROCKET BOOSTERS, FAIRINGS, AND LAUNCH ABORT SYSTEM**
3. **CORE STAGE MAIN ENGINE CUT OFF**
   With separation.
4. **PERIGEE RAISE MANEUVER**
5. **EARTH ORBIT**
   Systems check with solar panel adjustments.
6. **TRANS LUNAR INJECTION (TLI) BURN**
   Maneuver lasts for approximately 20 minutes.
7. **INTERIM CRYOGENIC PROPULSION STAGE (ICPS) SEPARATION AND DISPOSAL**
   ICPS commits Orion to moon at TLI.
8. **OUTBOUND TRAJECTORY CORRECTION (OTC) BURNS**
   As necessary adjust trajectory for lunar flyby to Distant Retrograde Orbit (DRO).
9. **OUTBOUND POWERED FLYBY (OPF)**
   60 nmi from the Moon; targets DRO insertion.
10. **LUNAR ORBIT INSERTION**
    Enter Distant Retrograde Orbit.
11. **DISTANT RETROGRADE ORBIT**
    Perform half or one and a half revolutions in the orbit period 38,000 nmi from the surface of the Moon.
12. **DRO DEPARTURE**
    Leave DRO and start return to Earth.
13. **RETURN POWERED FLYBY (RPF)**
    RPF burn prep and return coast to Earth initiated.
14. **RETURN TRANSIT**
    Return Trajectory Correction (RTC) burns as necessary to aim for Earth's atmosphere.
15. **CREW MODULE SEPARATION FROM SERVICE MODULE**
16. **ENTRY INTERFACE (EI)**
    Enter Earth's atmosphere.
17. **SPLASHDOWN**
    Pacific Ocean landing within view of the U.S. Navy recovery ship.

What is Callisto?

Callisto is a technology demonstration meant to show how voice AI and video communication could assist future astronauts on deep space missions.

Made possible through a collaboration between Lockheed Martin, Amazon and Webex by Cisco, the custom, space-grade hardware features innovative technology that allows Alexa to function without an internet connection and Webex to provide a video-conferencing function that is quite literally out of this world.

More about these partners…

Throughout the tour you'll meet engineers from the companies that made this technology possible! Let's learn more about these companies.

Amazon.com, Inc. is an American multinational technology company which focuses on e-commerce, cloud computing, digital streaming, and artificial intelligence.

Lockheed Martin is a global security and aerospace company that is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services.

Webex makes working together better and empowers people to connect from anywhere, on any device.

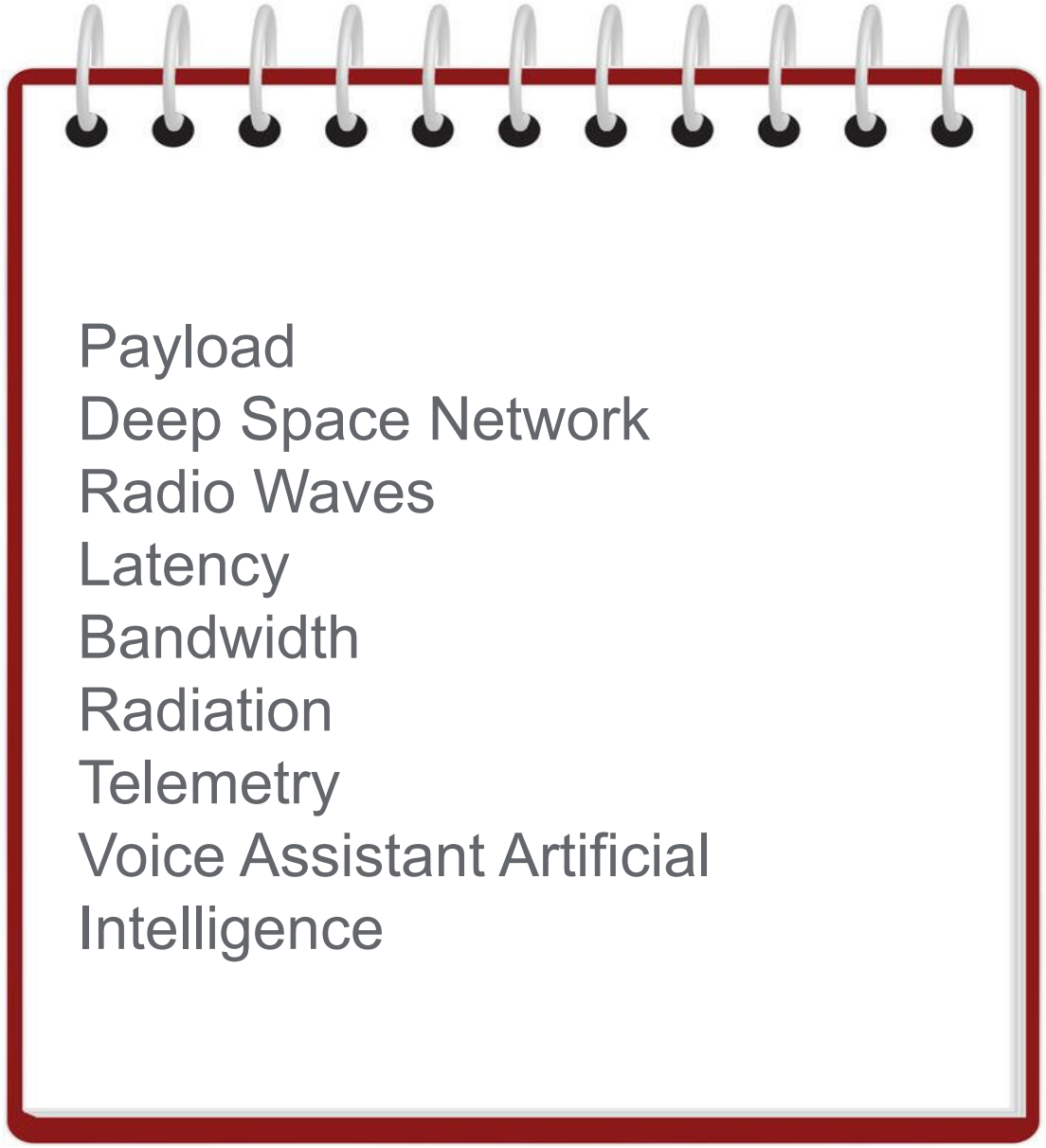
Tour Vocabulary

These are the words you'll encounter while on the tour. Listen carefully for these words and when they are used.

Which words have you heard before?

What do you think they mean?

Keep track in your tour note catcher as they are defined throughout the tour.



Tour Stops

What can you expect from your front-row seat of this incredible mission?

1. **Artemis I**
   What is the mission? What will it accomplish?
2. **Orion and SLS**
   How are we getting there?
3. **Deep Space Network**
   How will we communicate with the payload?
4. **Callisto**
   What are we testing?
5. **Demonstration**
   How do we test the payload?

Which stop are you most excited to learn about?

Vocabulary

Telemetry

Video Communication

Voice AI

Radiation

To sign up for the tour, visit **https://www.amazonfutureengineer.com/space**

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