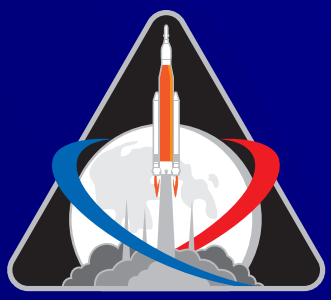
National Aeronautics and
Space Administration



ARTEMIS I

Launch and Splashdown Event Planning Guide

www.nasa.gov | #Artemis

Updated on 2/2/22

WELCOME

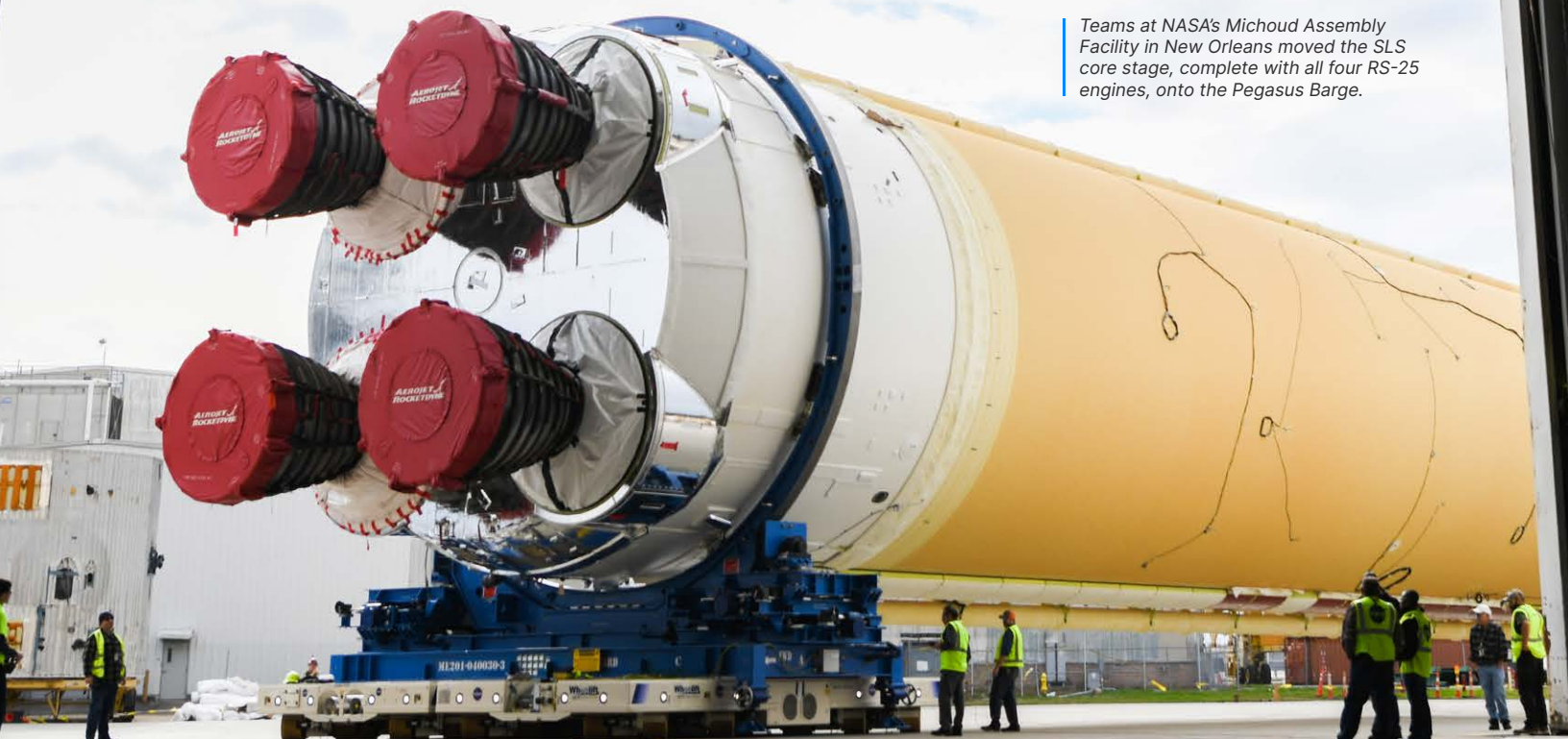
Artemis I is the first integrated test of NASA's Orion spacecraft, Space Launch System (SLS) rocket, and the ground systems at NASA's Kennedy Space Center in Cape Canaveral, Florida. Artemis I is an uncrewed flight test that will provide a foundation for human deep space exploration, and demonstrate NASA's commitment and capability to extend human presence to the Moon and beyond.

NASA invites you and your organization to host a virtual or in person Artemis I launch and/or splashdown watch party. Register to host a watch party on the Eventbrite Artemis I site: **https://www.eventbrite.com/e/artemis-i-registration-144043131885?aff=museum**.

Register your group or organization for a private or public watch party. ***Private*** events are not open to the public but to a select group of individuals. They may take place in, but are not limited to, schools/individual classrooms, afterschool programs, homeschool groups, scouts, and retirement homes. ***Public*** events are open to everyone and may take place in, but are not limited to, museums, science centers, planetariums, libraries, pubs, and community centers. All event types may add on the Learning Pathways ticket to gain access to 4 weeks of free curated lessons and activities for teachers, museums, and parents.

This event planning guide will help take your watch party to the next level. The guide includes free NASA activities, videos, imagery, talking points, and other multimedia resources that will enhance engagement.

All resources, participation, and registration are FREE. Registered groups will receive communications about launch schedule changes, launch related activities, and access to curated launch resources.



Teams at NASA's Michoud Assembly Facility in New Orleans moved the SLS core stage, complete with all four RS-25 engines, onto the Pegasus Barge.

TABLE OF CONTENTS

Installation of the adapter cone to the Artemis I Orion spacecraft shown inside the Neil Armstrong Operations and Checkout Building at NASA's Kennedy Space Center in Florida.

LEARN ABOUT ARTEMIS AND BECOME AN EXPERT

ARTEMIS I OVERVIEW

Artemis I is the first integrated test of NASA's deep space exploration systems: the **Orion spacecraft**, the **SLS rocket**, and the **ground systems** at Kennedy. The first in a series of increasingly complex missions, Artemis I will be an uncrewed flight test that will provide a foundation for human deep space exploration, and demonstrate our commitment and capability to extend human existence to the Moon and beyond.

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 approximately 4 to 6 weeks on its mission. Orion will stay in space longer than any ship for astronauts has without docking to a space station and return home faster and hotter than ever before.

LEAVING EARTH

SLS and Orion will blast off from **Launch Complex 39B** at NASA's modernized spaceport at Kennedy. The **SLS rocket** is designed for missions beyond low-Earth orbit carrying crew or cargo to the Moon and beyond, and will produce 8.8 million pounds of thrust during liftoff and ascent to loft a vehicle weighing nearly six million pounds to orbit. Propelled by a pair of five-segment solid rocket boosters and four RS-25 engines, the rocket will reach the period of greatest atmospheric force within ninety seconds. After jettisoning the boosters, service module panels, and launch abort system, the core stage engines will shut down and the core stage will separate from the spacecraft.

HELPFUL LINKS

ARTEMIS I MISSION WEBSITE
Artemis I is the first in a series of increasingly complex missions that will enable human exploration to the Moon and Mars.

WEBSITE: LINK

ARTEMIS BLOG: LATEST MISSION AND MILESTONE UPDATES
A source of information on Artemis launch and exploration progress, covering updates across our science, technology, and human exploration programs.

WEBSITE: LINK

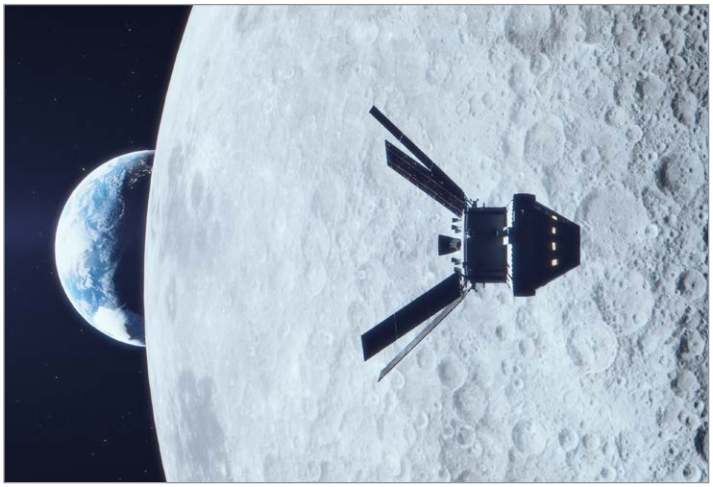
ARTEMIS OVERVIEW PRESENTATION
An In-depth PowerPoint presentation on Artemis, its systems, and objectives.

DOWNLOAD: PPT

As the spacecraft makes an orbit of Earth, it will deploy its solar arrays and the **interim cryogenic propulsion stage** (ICPS) will give Orion the big push needed to leave Earth's orbit and travel toward the Moon. From there, Orion will separate from the ICPS about two hours after launch. The ICPS will then deploy a number of small satellites, known as CubeSats, to perform several experiments and technology demonstrations.

ON TO THE MOON

As Orion continues on its path from Earth orbit to the Moon, it will be propelled by a **service module**, provided by the European Space Agency, that will supply the spacecraft's main propulsion system and power (as well as provide air and water for astronauts on future missions). Orion will pass through the **Van Allen radiation belts**, fly past the Global Positioning System (GPS) satellite constellation and above communication satellites in Earth orbit. To maintain communications with mission control in Houston, Orion will switch from NASA's Tracking and Data Relay Satellite system and communicate through the **Deep Space Network**. From here, Orion will continue to demonstrate its unique design to navigate, communicate, and operate in a deep space environment.



Artist concept of Artemis I Orion lunar flyby.

The outbound trip to the Moon will take several days, during which time engineers will evaluate the spacecraft's systems and, as needed, correct its trajectory. Orion will fly about 60 miles (100 km) above the surface of the Moon and then use the Moon's gravitational force to propel Orion into a new deep retrograde, or opposite, orbit about 40,000 miles (65,000 km) from the Moon.

The spacecraft will stay in that orbit for approximately six days to collect data and allow mission controllers to assess the performance of the spacecraft. During this period, Orion will travel in a direction around the Moon retrograde from the direction the Moon travels around Earth.

RETURN AND RE-ENTRY

For its return trip to Earth, Orion will do another close flyby that takes the spacecraft within about 60 miles of the Moon's surface and the spacecraft will use another precisely timed engine firing of the European-provided service module in conjunction with the Moon's gravity to accelerate back toward Earth. This maneuver will set the spacecraft on its trajectory back toward Earth to enter our planet's atmosphere traveling at 25,000 mph (11 kps), producing temperatures of approximately 5,000 degrees Fahrenheit (2,760 degrees Celsius) – faster and hotter than Orion experienced during its 2014 flight test.

After several weeks and a total distance traveled exceeding 1.3 million miles, the mission will end with a test of Orion's capability to return safely to the Earth as the spacecraft makes a precision landing within eyesight of the recovery ship off the coast of Baja, California. Following splashdown, Orion will remain powered for a period of time as divers from the U.S. Navy and operations teams from NASA's Exploration Ground Systems approach in small boats from the waiting recovery ship. The divers will briefly inspect the spacecraft for hazards and hook up tending and tow lines. Engineers will tow the capsule into the well-deck of the recovery ship to bring the spacecraft home.

FUTURE MISSIONS

The **second flight** will take crew on a different trajectory and test Orion's critical systems with humans aboard. On future missions, the SLS rocket will evolve from an initial configuration capable of sending more than 26 metric tons to the Moon to a final configuration that can send at least 45 metric tons. Together, Orion, SLS, and the ground systems at Kennedy will be able to meet the most challenging crew and cargo mission needs in deep space.

Future exploration missions with crew aboard Orion will assemble and dock with the **Gateway**. NASA and its industry partners will use the Gateway for deep-space operations including missions to and on the Moon with decreasing reliance on the Earth. Using lunar orbit, we will gain the experience necessary to extend human exploration farther into the solar system than ever before.shown

A test version of Orion shown during Underway Recovery Test-8 off the coast of California.

Twin rocket boosters for NASA's SLS that will power Artemis missions to the Moon arrived by rail at NASA's Kennedy Space Center in Florida.

ARTEMIS I OVERVIEW VIDEO

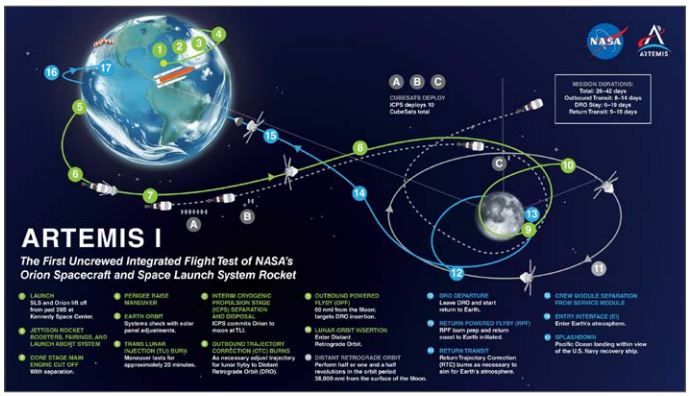
PUSHING FARTHER INTO DEEP SPACE

Experience the Artemis I mission from roll-out to recovery of the first integrated flight test of NASA's Orion spacecraft and the SLS rocket, launching from NASA's Kennedy Space Center in Florida.

DOWNLOAD: MP4 YOUTUBE: LINK

ARTEMIS I MISSION MAP

Journey map of Artemis I and its integrated systems.



WEBSITE: LINK

FACT SHEETS AND RESOURCE PAGES

EXPLORATION GROUND SYSTEMS

WEBSITE: LINK

ORION SPACECRAFT

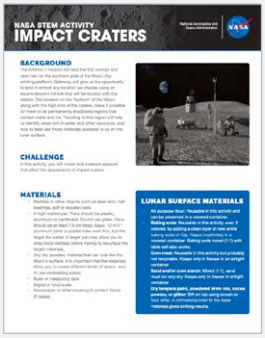
WEBSITE: LINK

SPACE LAUNCH SYSTEM (SLS)

WEBSITE: LINK

STEM ACTIVITIES AND OUTREACH RESOURCES

FLOOR DEMOS



IMPACT CRATERS

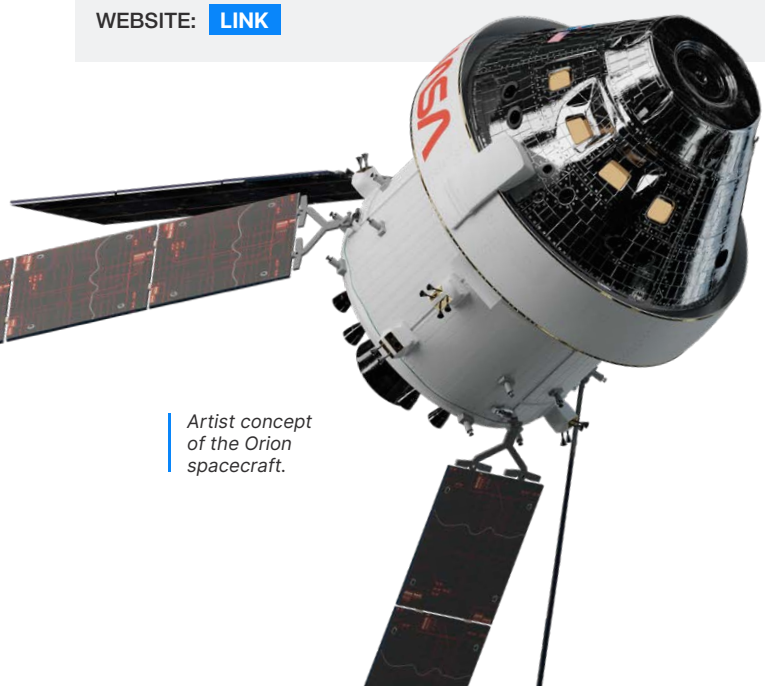
Create your own impact craters! When astronauts visit the Moon, they will be able to study the craters that may contain water and ice. Testing and studying these craters may help NASA identify areas on the Moon that are rich in water and other resources to determine how to best use those materials while on the lunar surface.

WEBSITE: LINK

HOW FAR AWAY IS THE MOON?

To see for yourself how far apart Earth and the Moon are, try this activity!

WEBSITE: LINK



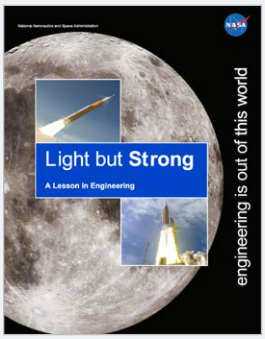
Artist concept of the Orion spacecraft.

FAMILY TABLE DEMOS

BUILD AND TEST AN ORION SPACECRAFT

In this activity, you will decorate a white paper cup with paint, markers, and glitter, cut out windows, and even install a heat shield on the bottom of your capsule. Then test your spacecraft!

DOWNLOAD: PDF



LIGHT BUT STRONG

Design and build a mobile launcher platform that is light enough to be moved to the launch pad, but strong enough to hold the weight of the rocket.

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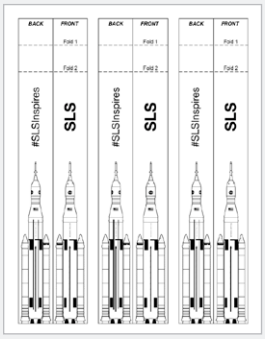
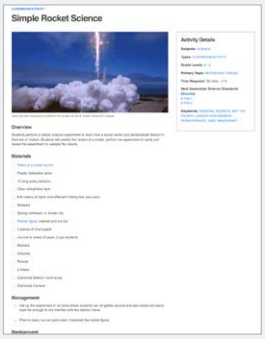


BUILD AND LAUNCH AN SLS STRAW ROCKET

Can you launch a rocket into orbit? You can test your skills by making a simple rocket using the SLS pattern, tape, and a straw. Then, learn how much air is needed to launch your rocket to different altitudes.

DOWNLOAD: PDF

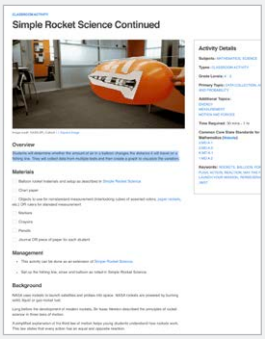
FAMILY TABLE DEMOS



SIMPLE ROCKET SCIENCE

Students perform a simple science experiment to learn how a rocket works and demonstrate Newton's third law of motion. Students will predict the motion of a rocket, perform an experiment to verify, and repeat the experiment to validate the results.

WEBSITE: LINK

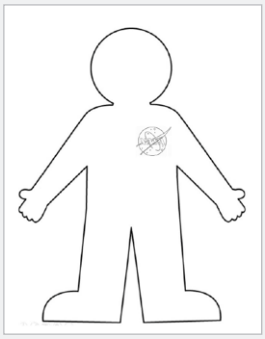


SIMPLE ROCKET SCIENCE CONTINUED

Students will determine whether the amount of air in a balloon changes the distance it will travel on a fishing line. They will collect data from multiple tests and then create a graph to visualize the variation.

WEBSITE: LINK

FAMILY TABLE DEMOS



BE AN ARTEMIS ASTRONAUT

Help protect our astronauts by designing a spacesuit with colored pencils, crayons, and construction paper. Each astronaut and his/her spacesuit will be as unique and creative as you are!

DOWNLOAD: PDF

BUILD YOUR OWN SPACE LAUNCH SYSTEM

Students will build their own Space Launch System using poster paper, copier paper, and everyday school supplies. Students can then use markers and/or poster paint to make it their own design.

DOWNLOAD: PDF

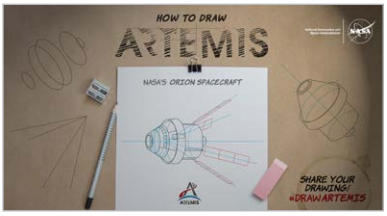
#DRAWARTEMIS

DOWNLOAD AND CREATE ARTEMIS ILLUSTRATIONS OF YOUR OWN

Decorate your space with the systems that will take us to the Moon and beyond! While NASA astronauts continue to live and work aboard the International Space Station, we are preparing for a new future in deep space. With the Artemis missions, NASA will send the first woman and first person of color to the Moon to set foot once again, and will build an infrastructure to allow us to stay, preparing the way for missions to Mars.

Now you can learn to draw a fleet of sophisticated space hardware that will take us on Artemis missions – similar to the way NASA engineers and technicians sketched out early concepts for spacesuits, rockets, spaceships, ground systems, and orbiting platforms that have allowed us to explore other worlds.

WEBSITE: **LINK**



DRAW NASA'S ORION SPACECRAFT

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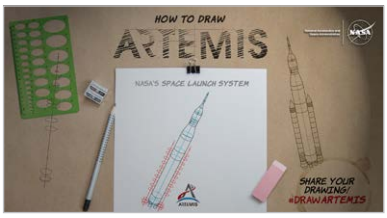

DRAW NASA'S SPACE LAUNCH SYSTEM (SLS)

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DRAW NASA'S MOBILE LAUNCHER

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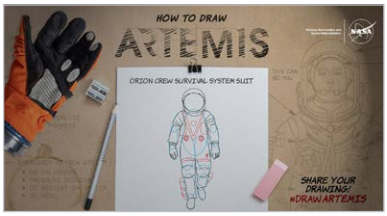

DRAW NASA'S ORION SURVIVAL SYSTEM SUIT

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DRAW NASA'S LAUNCH PAD 39B

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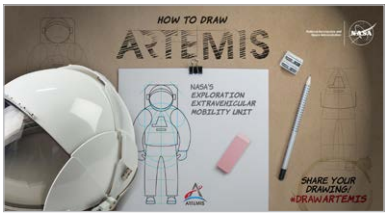

DRAW NASA'S EXPLORATION EXTRAVEHICULAR MOBILITY UNIT (XEMU)

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DRAW NASA'S LUNAR TERRAIN VEHICLE (LTV)

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DRAW NASA'S GATEWAY — FIRST COMPONENT

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DRAW NASA'S CRAWLER-TRANSPORTER

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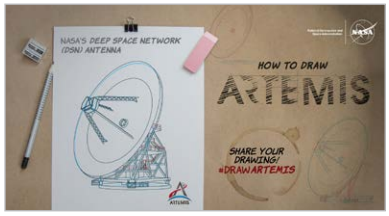

DRAW NASA'S DEEP SPACE NETWORK ANTENNA (DSN)

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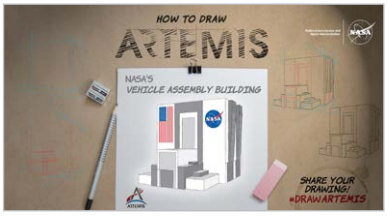

DRAW NASA'S VEHICLE ASSEMBLY BUILDING (VAB)

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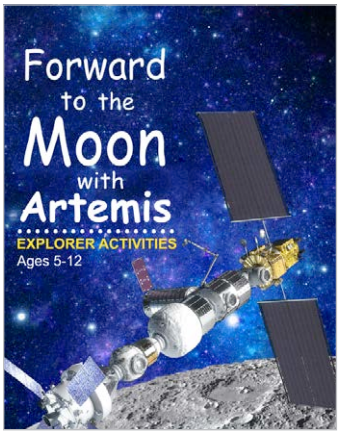
ACTIVITY BOOKS AND COLORING SHEETS

DOWNLOAD PRINTABLE ACTIVITY, WRITING, AND COLORING BOOKS



FORWARD TO THE MOON WITH ARTEMIS ACTIVITY BOOK

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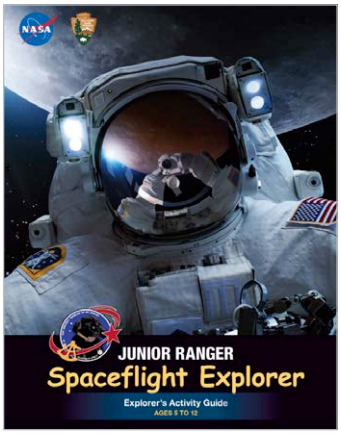

JUNIOR RANGER SPACEFLIGHT EXPLORER GUIDE

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ORION DESKTOP MODEL

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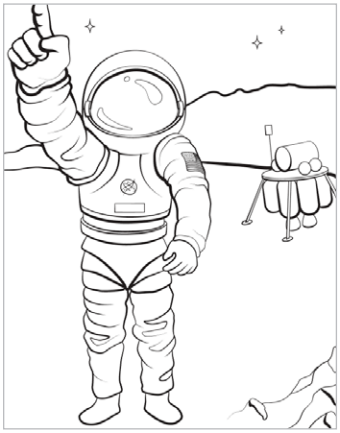

ASTRONAUT ON THE MOON COLORING SHEET

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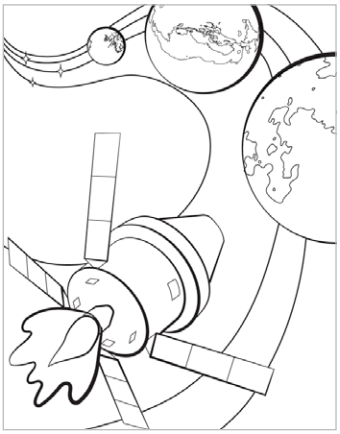

ORION IN SPACE COLORING SHEET

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LAUNCH CONTROL ROOM COLORING SHEET

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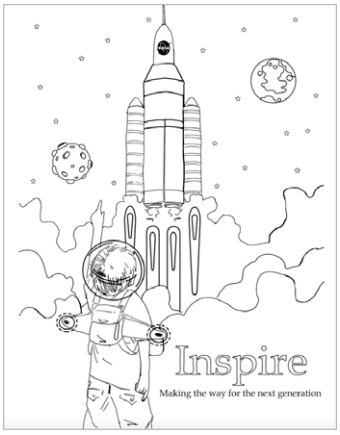

INSPIRE COLORING SHEET

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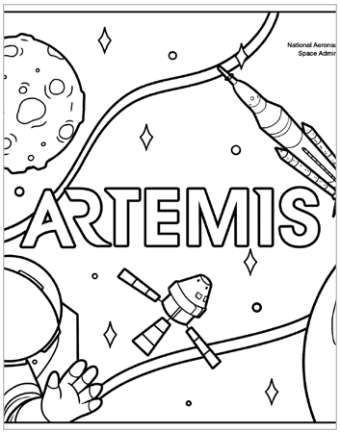

ARTEMIS ILLUSTRATION COLORING SHEET

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SPACE LAUNCH SYSTEM COLORING BOOK

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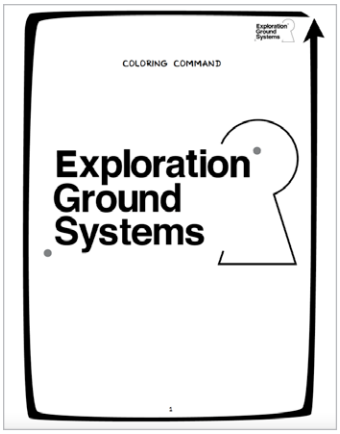

GROUND SYSTEMS COLORING ACTIVITY BOOK

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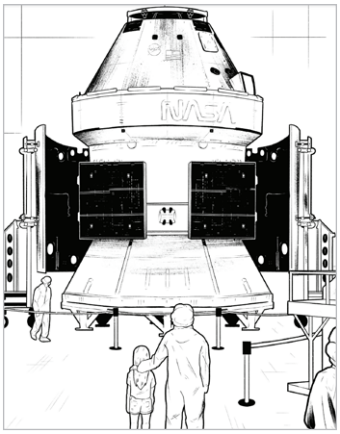

YOU ARE GOING COLORING BOOK

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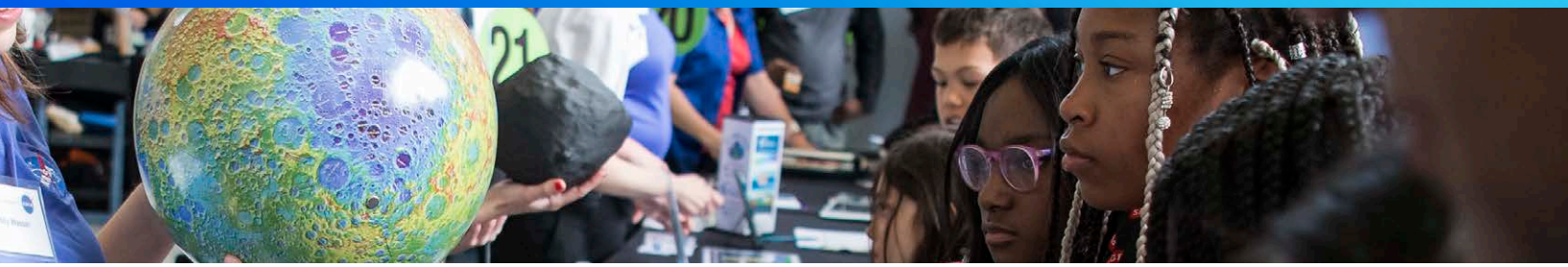
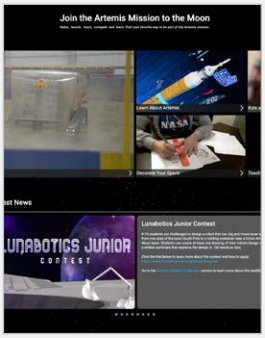
The Vehicle Assembly Building, or VAB, at NASA's Kennedy Space Center in Florida.

K-12 EDUCATION ACTIVITIES AND OPPORTUNITIES





JOIN THE ARTEMIS MISSION TO THE MOON

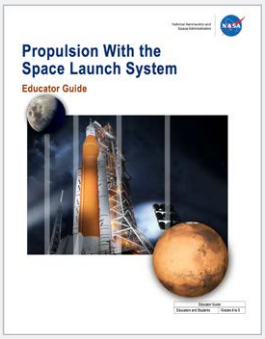
Make, launch, teach, compete, and learn. Find your favorite way to be part of the Artemis mission and explore Artemis student challenges.

WEBSITE: LINK

CREW TRANSPORTATION WITH ORION EDUCATOR GUIDE

Four standards-aligned activities help students learn about NASA's Orion spacecraft that will take astronauts to the Moon and beyond.

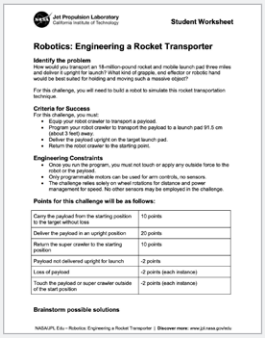
WEBSITE: LINK



PROPULSION WITH THE SPACE LAUNCH SYSTEM EDUCATOR GUIDE

Four standards-aligned activities help students learn about rocketry and NASA's SLS rocket.

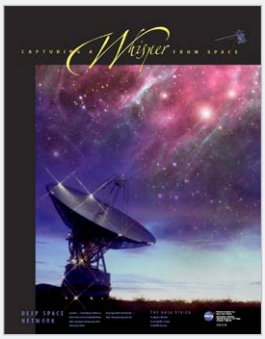
WEBSITE: LINK



ENGINEERING A ROCKET TRANSPORTER

Students design, build, and program a robotic "super crawler" to transport a payload from a starting position to a target launch pad, use a robotic arm with an end effector to deliver the payload in an upright position, and return the robot to the starting point.

WEBSITE: LINK

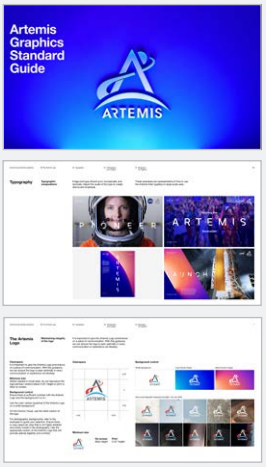


CATCHING A WHISPER FROM SPACE

Students will model the mathematics used to communicate with spacecraft. They will use sound waves as an analog for light waves and parabolic transmitters and receivers to represent antennas on spacecraft and on Earth.

WEBSITE: LINK

EXHIBIT AND GRAPHIC DISPLAY RESOURCES



ARTEMIS GRAPHICS STANDARD GUIDE AND GRAPHICS ASSETS

The goals of the Artemis Graphics Standard Guide and accompanying artwork assets are to help establish the visual identity for Artemis and provide a framework for developing materials that enhance public knowledge of NASA's work. Use these guidelines and assets for Artemis mission efforts.

ARTEMIS GRAPHICS STANDARD GUIDE

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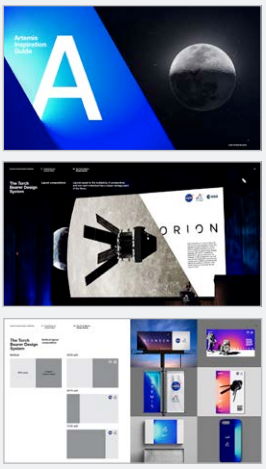
ARTEMIS GRAPHICS ASSETS

BOX FOLDER: LINK



ARTEMIS INSPIRATION GUIDE

This inspiration guide is a document showcasing the Artemis brand personality and brand tone of voice, as well as serving as an introduction to the Torch Bearer Design System. Explorations in color, layout design, and composition, as well as creative use of photography and typography give designers and communicators several tools to inspire a generation of people about the Artemis missions.

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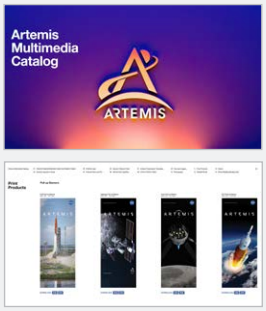


ARTEMIS MULTIMEDIA CATALOG

This catalog is a visual guide to the Artemis branding graphics which are available for download in multiple formats in Box and on the NASA website, including concept imagery, photography, print products, videos, and virtual meeting backgrounds.

DOWNLOAD: PDF

WE ARE GOING BANNERS

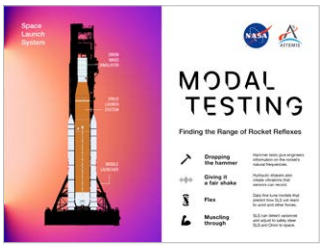
Invite audiences to sign and provide best wishes to the Artemis I team by displaying a "We Are Going" banner in your institution. Organizations may modify the graphic by adding their institutions name. Templates are included.

BOX FOLDER: LINK

ARTEMIS IMAGES ON THE WEB

NASA ARTEMIS IMAGE GALLERY	WEBSITE: LINK
EXPLORATION GROUND SYSTEMS FLICKR IMAGE GALLERY	WEBSITE: LINK
GATEWAY FLICKR IMAGE GALLERY	WEBSITE: LINK
ORION SPACECRAFT FLICKR IMAGE GALLERY	WEBSITE: LINK
SPACE LAUNCH SYSTEM (SLS) FLICKR IMAGE GALLERY	WEBSITE: LINK

SPACE LAUNCH SYSTEM (SLS) INFOGRAPHICS



SLS MODAL TESTING

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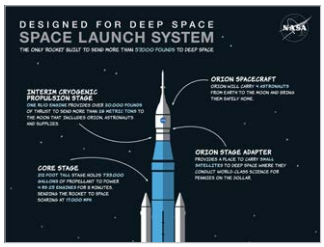

DESIGNED FOR DEEP SPACE: SLS

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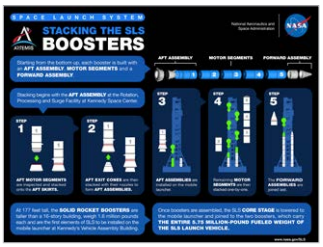

STACKING THE SLS BOOSTERS

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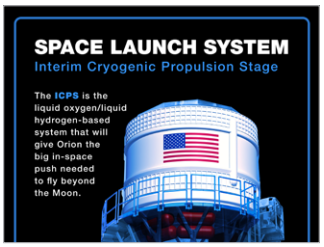

SLS INTERIM CRYOGENIC PROPULSION STAGE

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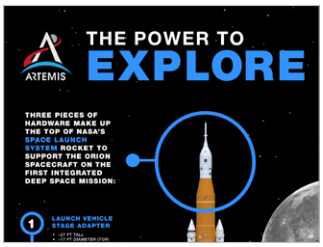

THE POWER TO EXPLORE

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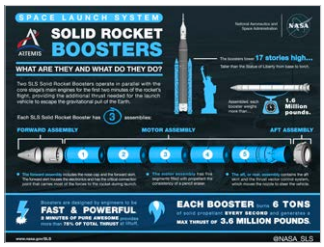

SLS SOLID ROCKET BOOSTERS

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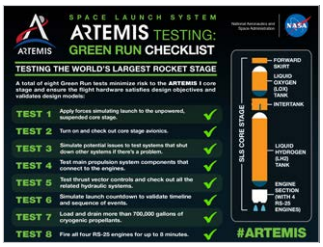

ARTEMIS TESTING: GREEN RUN CHECKLIST

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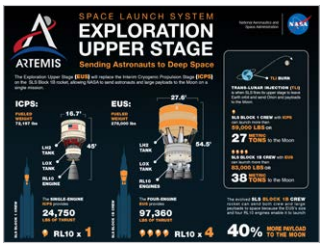

SLS EXPLORATION UPPER STAGE

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SLS LIQUID OXYGEN (LOX) TANK

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SLS LIQUID HYDROGEN (LH2) TANK

DOWNLOAD: JPG

SLS INTERTANK

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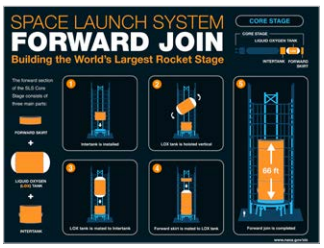

SLS FORWARD JOIN

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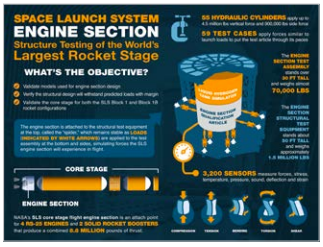

SLS ENGINE SECTION

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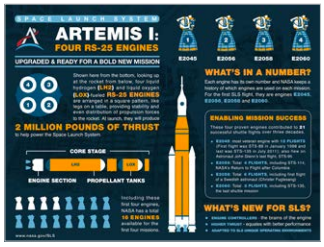

ARTEMIS I: FOUR RS-25 ENGINES

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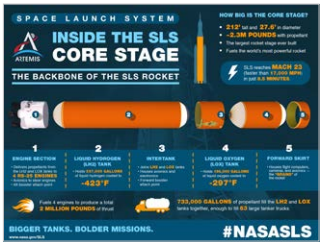

INSIDE THE SLS CORE STAGE

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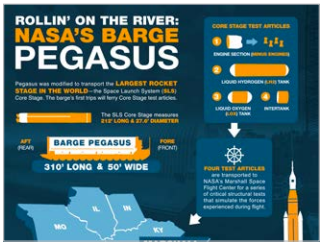

ROLLIN' ON THE RIVER: NASA'S BARGE PEGASUS

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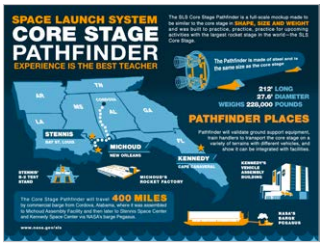

SLS CORE STAGE PATHFINDER

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VOYAGE TO KENNEDY: SLS CORE STAGE DELIVERY

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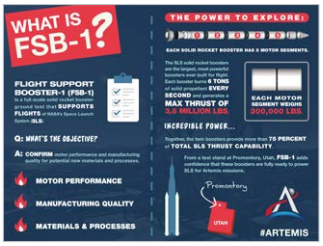

WHAT IS FSB-1?

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WHAT IS QM-2?

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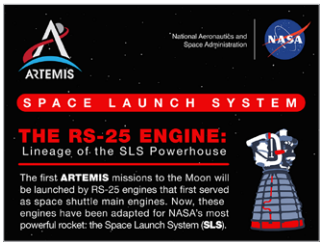

THE RS-25 ENGINE

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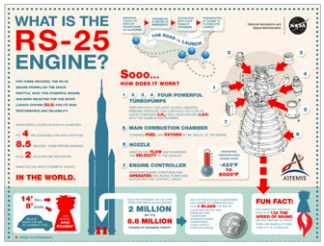

WHAT IS THE RS-25 ENGINE?

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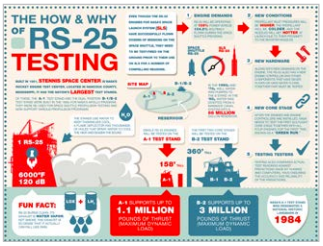

THE HOW & WHY OF RS-25 TESTING

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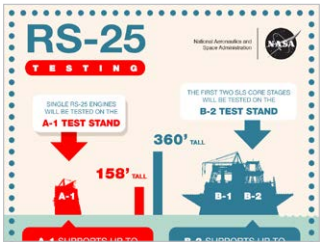

RS-25 TESTING: TEST STANDS

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RS-25 TESTING: LOX + LH2

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RS-25 TESTING: ENGINE SIZE

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RS-25 TESTING: SPEED

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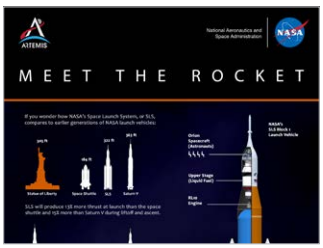

MEET THE ROCKET

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ARTEMIS I: SECONDARY PAYLOADS

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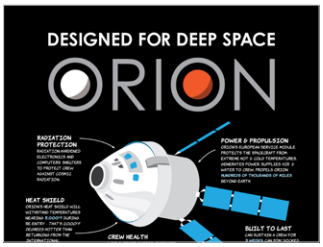
ORION SPACECRAFT INFOGRAPHICS



DESIGNED FOR DEEP SPACE: ORION

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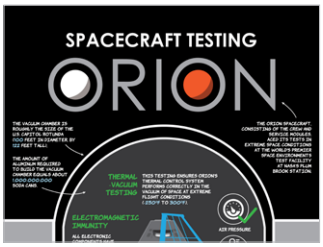

SPACECRAFT TESTING: ORION

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EXPLORATION GROUND SYSTEMS INFOGRAPHICS

CRAWLER-TRANSPORTERS

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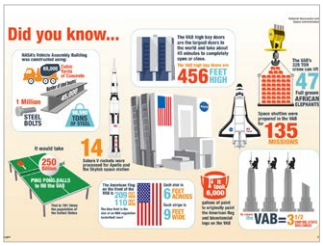

VEHICLE ASSEMBLY BUILDING (VAB)

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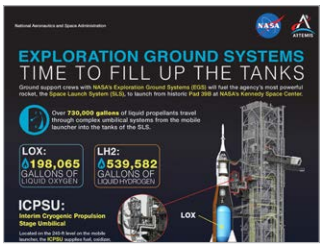

EGS: TIME TO FILL UP THE TANKS

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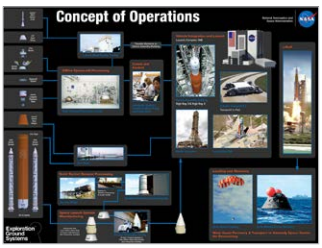

CONCEPT OF OPERATIONS

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Artist concept of the SLS rocket

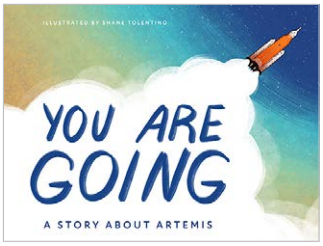
VR AND INTERACTIVES

NASA SLS VR EXPERIENCE

WEBSITE: LINK

FIRST WOMAN GRAPHIC NOVEL

WEBSITE: LINK



YOU ARE GOING CHILDREN'S BOOK

WEBSITE: LINK

VR/360 MULTIMEDIA FOR PLANETARIUMS

WEBSITE: LINK

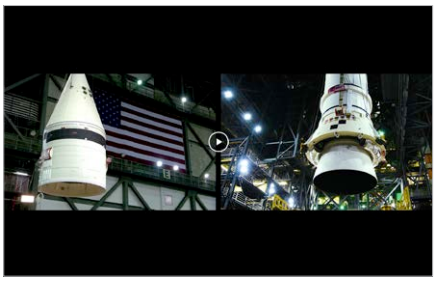
INSPIRATIONAL AND EDUCATIONAL VIDEOS

ARTEMIS I: NASA'S PLANS TO TRAVEL BEYOND THE MOON

DOWNLOAD: MP4 YOUTUBE: LINK

WHY THE MOON?

DOWNLOAD: MOV YOUTUBE: LINK



WE ARE TESTED

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WE ARE FOCUSED

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NASA 2021: LET'S GO TO THE MOON

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GATEWAY INTRODUCTION

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SPACE IS HARD

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3, 2, 1...LIFTOFF OF THE ARTEMIS I MISSION TO THE MOON

YOUTUBE: LINK

ARTEMIS I: SLS LAUNCH AND MISSION ANIMATION

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NASA STEM STARS VIDEOS

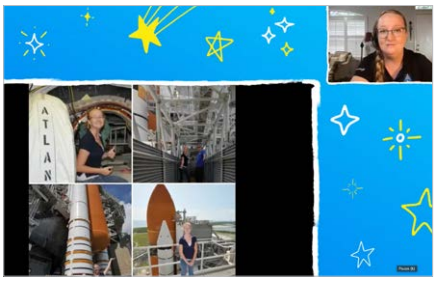
PUBLICLY STREAMED ARTEMIS SPEAKER EVENTS

ARTEMIS I PANEL

YOUTUBE: **LINK**

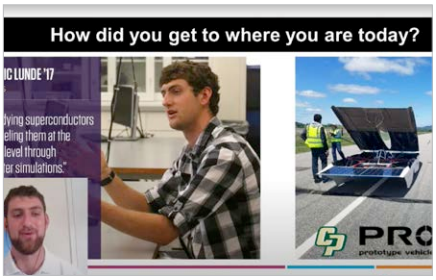
MECHANICAL ENGINEER: ARTEMIS ARMS AND UMBILICALS

YOUTUBE: **LINK**



ORION SYSTEMS INTEGRATION TEST ENGINEER

YOUTUBE: **LINK**

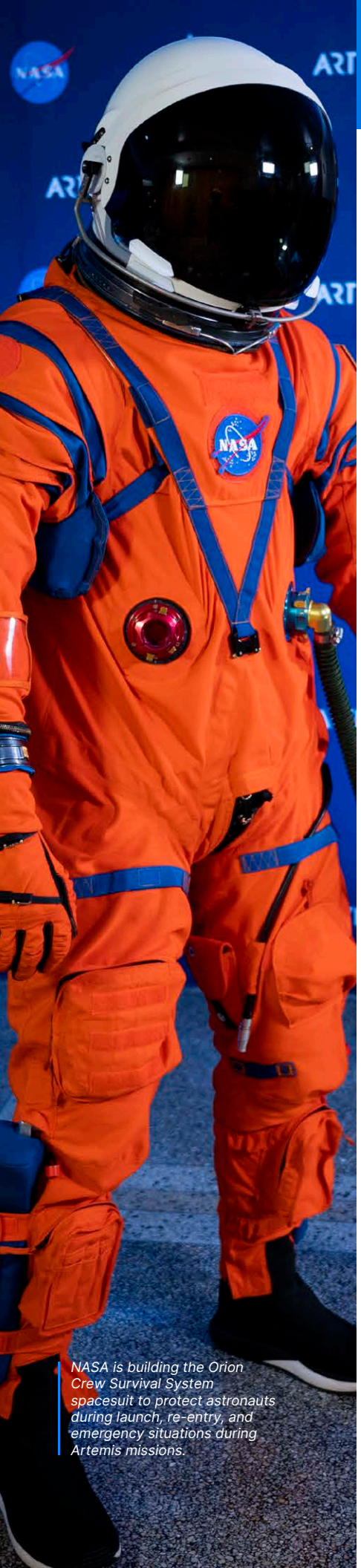


AEROSPACE ENGINEER: ARTEMIS GREEN RUN TEST

YOUTUBE: **LINK**

TECHNICAL LEAD ENGINEER (EN ESPAÑOL)

YOUTUBE: **LINK**



NASA is building the Orion Crew Survival System spacesuit to protect astronauts during launch, re-entry, and emergency situations during Artemis missions.

CONNECT WITH NASA

NASA ARTEMIS ON SOCIAL MEDIA

Follow, share, and be a part of the conversation on popular social media sites with NASA Artemis. Be sure to use the hashtag **#Artemis**!

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REQUEST A SPEAKER

To request a speaker, complete and submit the online request form, preferably six to eight weeks before your event.

WEBSITE: **LINK**

SCHEDULE TRAINING

To schedule museum staff and docent training, contact Patricia Moore at **patricia.l.moore@nasa.gov**

PARTICIPATE IN NASA ARTEMIS THEMED WEBINARS

OSTEM Educator Professional Development Webinars

WEBSITE: **LINK**

Museum & Informal Education Alliance Webinars

WEBSITE: **LINK**