

ARTEMIS II



A IS FOR ABORT



B IS FOR BURN



C IS FOR CREW



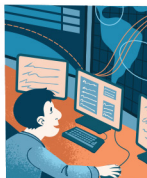
D IS FOR DISCOVERY



E IS FOR ENGINES



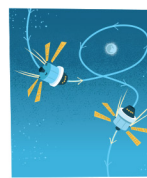
F IS FOR FLYBY



G IS FOR GROUND SYSTEMS



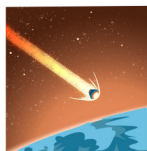
H IS FOR HEAT SHIELD



I IS FOR INERTIA



J IS FOR JETTISON



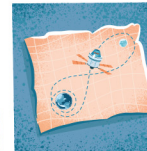
K IS FOR KINETIC ENERGY



L IS FOR LAUNCH



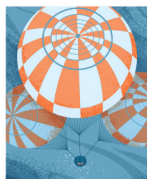
M IS FOR MISSION



N IS FOR NAVIGATION



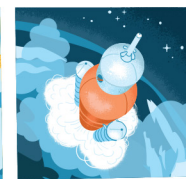
O IS FOR ORBIT



P IS FOR PARACHUTES



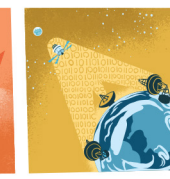
Q IS FOR MAX Q



R IS FOR ROCKET



S IS FOR SPACECRAFT



T IS FOR TELEMETRY



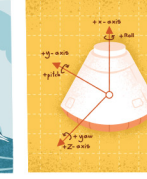
U IS FOR UPPER STAGE



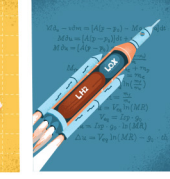
V IS FOR VAB



W IS FOR WATER LANDING



X IS FOR AXIS



Y IS FOR YIELD



Z IS FOR ZERO GRAVITY INDICATOR



ARTEMIS II



ENGINES PROVIDE THE THRUST NEEDED TO LAUNCH ROCKETS AND MOVE SPACECRAFT THROUGH SPACE. ARTEMIS II MISSIONS USE POWERFUL ENGINES ON THE SLS ROCKET TO LAUNCH ORION, AND SMALLER ENGINES ON ORION'S SERVICE MODULE TO STEER AND ADJUST ITS PATH AROUND THE MOON AND BACK.

DISCOVERY IS THE PROCESS OF UNCOVERING SOMETHING NEW THROUGH EXPLOITING NEW AND OBSERVATION-ARTIFICED MISSIONS ARE DESIGNED TO HAVE NEW DISCOVERIES BY EXPANDING THE BOUNDARIES OF KNOWLEDGE THROUGH TESTING TECHNOLOGIES FOR FUTURE MISSIONS TO MAKE SURE MISSIONS HELD UPWARD OUR UNDERSTANDING OF SPACE AND OUR PLACE IN IT.

A CREW IS A GROUP OF ASTRONAUTS WHO WORK TOGETHER ON A SPACE MISSION. THEY ARE TRAINED TO FLY SPACECRAFT, CONDUCT SCIENCE, AND COMPLETE THE MISSION'S GOALS. THE ARTEMIS II CREW — NEED WISDOM, VIGILANCE, GUTTENSTEIN, AND COURAGE AND BOLDNESS. WHOEVER WILL BE THE FIRST WOMAN TO FLY AROUND THE MOON IN OVER 50 YEARS.

A BURN IS WHEN AN ENGINE OR ROCKET MOTOR IS FIRED TO CHANGE THE PATH OF A SPACECRAFT. THE SLS ROCKET AND ORION SPACECRAFT BOTH PERFORM BURNING BURNS TO GET THE CREW TO THEIR DESTINATION. ON ARTEMIS II, ORION WILL PERFORM THE PRECISE THREE-LANDED DEVIATION **BURN** NEEDED LEAD EARTH ORBIT AND HEAD TOWARD THE MOON.

AN ABORT IS A PLANNED WAY TO SAFELY END A MISSION IF SOMETHING GOES WRONG. HELPING TO PROTECT THE CREW AND SPACECRAFT, BURNING BURNS INCLUDING THE LAUNCH ABORT SYSTEM GUID ON TOP OF THE ORION SPACECRAFT CAN QUICKLY HALT THE CREW MODULE AWAY FROM THE ROCKET IN CASE OF AN EMERGENCY DURING LAUNCH.

E IS FOR ENGINES

D IS FOR DISCOVERY

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A IS FOR ABORT

TO **JETTISON** SOMETHING MEANS TO RELEASE OR THROW IT AWAY. BURNING ARTIFICED MISSIONS, PARTS OF THE ROCKET AND SPACECRAFT THAT ARE NO LONGER NEEDED ARE **JETTISONED** TO LIGHTEN THE LOAD AND CONTINUE THE MISSION. THIS INCLUDES THE SPACECRAFT AFTER THE JETTISONING THATS PROTECT ORION'S SERVICE MODULE DURING LAUNCH.

INERTIA IS AN OBJECT'S TENDENCY TO KEEP MOVING ALONG INERTIA MOVING STRAIGHT OR CHANGE ITS MOTION. IN SPACE, WHERE THERE'S NO AIR TO SLOW THINGS DOWN, **INERTIA** ALLOWS ORION TO KEEP MOVING FORWARD WITH LITTLE EFFORT, NEEDING ONLY SMALL ENGINES BURNS TO ADJUST ITS PATH.

A HEAT SHIELD PROTECTS A SPACECRAFT FROM THE EXTREME HEAT CREATED WHEN IT REENTERS EARTH'S ATMOSPHERE. ORION'S **HEAT SHIELD** IS THE LARGEST OF ITS KIND AND WILL KEEP THE CREW SAFE AS THE SPACECRAFT RETURNS FROM THE MOON, READING TEMPERATURES UP TO 5,000°F.

GROUND SYSTEMS ARE THE FACILITIES AND EQUIPMENT ON EARTH THAT SUPPORT SPACE MISSIONS. LIKE THE LAUNCH PAD, PULSING SYSTEMS, COMMUNICATION NETWORKS, AND MISSION CONTROL, **GROUND SYSTEMS** AT NASA'S KENNEDY SPACE CENTER PREPARE THE SLS ROCKET AND ORION SPACECRAFT FOR LAUNCH, WHILE TEAMS AT NASA'S JOHNSON SPACE CENTER MONITOR THE MISSION AND SUPPORT THE CREW.

A FLYBY IS WHEN A SPACECRAFT PASSES CLOSE TO A PLANET OR MOON WITHOUT LANDING OR ORBITING IT. ORION WILL PERFORM A LUNAR **FLYBY**, LOOPING AROUND THE FAR SIDE OF THE MOON BEFORE RETURNING TO EARTH. THIS WILL HELP THE CREW GATHER THE LUNAR SURFACE AND TEST SYSTEMS FOR FUTURE LANDING.

J IS FOR JETTISON

I IS FOR INERTIA

H IS FOR HEAT SHIELD

G IS FOR GROUND SYSTEMS

F IS FOR FLYBY

AN ORBIT IS THE PATH A SPACECRAFT TAKES AROUND A PLANET OR MOON. ON ARTEMIS II, ORION WILL ENTER LUNAR **ORBIT** BUT WILL FOLLOW A FREE RETURN TRAJECTORY — A SPECIAL PATH THAT USES THE MOON'S GRAVITY TO LOOP AROUND IT FOR BACK AND THEN RETURN TO EARTH WITHOUT ANOTHER MAJOR BURN.

NAVIGATION IS HOW A SPACECRAFT KNOWS WHERE IT IS AND WHERE IT'S GOING. ORION **NAVIGATES** USING A COMBINATION OF GROUND STATIONS, STAR TRACKERS, AND GROUND SUPPORT TO GUIDE ITS JOURNEY TO THE MOON AND BACK. THESE SYSTEMS WORK TOGETHER TO KEEP ORION ON THE CORRECT PATH. EVEN WHEN IT'S THOUSANDS OF MILES FROM EARTH.

A MISSION IS A PLANNED JOURNEY OR TASK IN SPACE. EACH ARTEMIS MISSION BEGINS IN THE GROUND. IT STARTS AT KENNEDY SPACE CENTER WITHOUT A CREW. ARTEMIS II WILL SEND ASTRONAUTS AROUND THE MOON TO TEST ORION'S SYSTEMS IN FLIGHT, AND ARTEMIS III WILL SEND ASTRONAUTS ON THE MOON TO EXPLORE THE SURFACE AND CONDUCT SCIENTIFIC RESEARCH.

A LAUNCH IS THE MOMENT A ROCKET LIFTS OFF FROM LAUNCH AND BEGINS ITS JOURNEY INTO SPACE. AFTER ORION'S **LAUNCH** FROM NASA'S KENNEDY SPACE CENTER IN FLORIDA, WHERE THE SLS ROCKET LIFTS OFF FROM **LAUNCH PAD 39B** AND SENDS THE ORION SPACECRAFT ON ITS PATH TO THE MOON.

KINETIC ENERGY IS THE ENERGY OF MOTION. THE FASTER AN OBJECT MOVES, THE MORE **KINETIC ENERGY** IT HAS. WHEN ORION RETURNS TO EARTH AT THE END OF THE MISSION, IT WILL BE TRAVELING OVER 25,000 MPH AND CARRIES SIGNIFICANT **KINETIC ENERGY** THAT MUST BE SAFELY MANAGED BY THE HEAT SHIELD AND PARACHUTES.

O IS FOR ORBIT

N IS FOR NAVIGATION

M IS FOR MISSION

L IS FOR LAUNCH

K IS FOR KINETIC ENERGY

TELEMETRY IS THE DATA SENT FROM A SPACECRAFT TO EARTH. IT INCLUDES INFORMATION LIKE SPEED, TEMPERATURE, AND SYSTEM STATUS. **ORION** WILL SEND TELEMETRY DATA TO EARTH THROUGH ORION'S COMMUNICATION SYSTEMS. **TELEMETRY** HELPS GROUND TEAMS MONITOR ORION IN SPACE AND KEEP THE CREW SAFE.

A SPACECRAFT IS A VEHICLE DESIGNED TO TRAVEL IN SPACE. ORION IS NASA'S **SPACECRAFT** FOR ARTEMIS MISSIONS. DESIGNED TO CARRY UP TO FIVE ASTRONAUTS ON MISSIONS TO THE MOON LISTING UP TO 30 DAYS, ORION PROVIDES THE LIFE SUPPORT, NAVIGATION, AND COMMUNICATION SYSTEMS NEEDED FOR LONG-TERM TRAVEL AND SAFE RETURN TO EARTH.

A ROCKET IS A VEHICLE THAT USES ENGINES TO LAUNCH INTO SPACE. THE **SLS** (SPACE LAUNCH SYSTEM) **ROCKET** USED FOR ARTEMIS MISSIONS IS THE MOST POWERFUL **ROCKET** MADE IN EVER. BUILT, PRODUCE IN MILLION POUNDS OF WEIGHT AT LAUNCH, THE **SLS** IS THE ONLY **ROCKET** CAPABLE OF SENDING THE ORION SPACECRAFT, ALONG WITH ITS CREW AND CARGO, ALL THE WAY TO THE MOON.

MAX Q IS THE POINT DURING LAUNCH WHEN THE ROCKET EXPERIENCES THE MOST PRESSURE FROM THE ATMOSPHERE — A CRITICAL MOMENT FOR THE ROCKET'S STRUCTURE. FOR ARTEMIS II, **MAX Q** WILL OCCUR ABOUT 90 SECONDS AFTER LIFTOFF, WHEN THE **ROCKET** IS TRAVELING OVER 1,000 MPH.

PARACHUTES SLOW DOWN A SPACECRAFT AS IT RETURNS TO EARTH. WHEN ORION REENTERS EARTH'S ATMOSPHERE AT THE END OF THE MISSION, AIR RESISTANCE WILL SLOW IT DOWN TO ABOUT 300 MPH. THEN, **PARACHUTES** DEPLOY IN STAGES TO REDUCE ORION'S SPEED TO LESS THAN 20 MPH FOR A SAFE REENTRY.

T IS FOR TELEMETRY

S IS FOR SPACECRAFT

R IS FOR ROCKET

Q IS FOR MAX Q

P IS FOR PARACHUTES

IN SPACEFLIGHT, **YIELD** MEANS HOW MUCH ENERGY OR THWART IS PRODUCED FROM A CERTAIN AMOUNT OF FUEL. ENGINEERS SELECTED LIQUID OXYGEN AND LIQUID HYDROGEN AS PROPELLANTS FOR THE SLS ROCKET BECAUSE THEIR COMBINATION DELIVERS THE HIGHEST FUEL **YIELD**, PROVIDING MAXIMUM THRUST TO SEND ORION TO THE MOON.

AN AXIS IS AN IMAGINARY LINE THAT SOMETHING SPINS OR ROTATES AROUND. SPACECRAFT LIKE ORION USE THREE MAIN **AXES** — ROLL, PITCH, AND YAW — TO CONTROL THEIR ORIENTATION IN SPACE. ADJUSTING ALONG THESE **AXES** HELPS ORION POINT IN THE RIGHT DIRECTION FOR BURNING, ORBITING, OR REENTRY.

A WATER LANDING IS WHEN A SPACECRAFT RETURNS TO EARTH AND LANDS IN THE OCEAN. AT THE END OF ARTEMIS MISSIONS, ORION LOWS DOWN USING PARACHUTES AND SLOWLY SPLASHES DOWN IN THE PACIFIC OCEAN. **RECOVERY TEAMS** ARE READY READY TO RETRIEVE THE CREW AND SPACECRAFT.

THE VEHICLE ASSEMBLY BUILDING IS LOCATED AT NASA'S KENNEDY SPACE CENTER IN FLORIDA. IS WHERE THE SLS ROCKET IS PACKED WITH THE ORION SPACECRAFT FOR ARTEMIS MISSIONS. IT IS ONE OF THE LARGEST BUILDINGS IN THE WORLD AND IS WHERE THE ROCKET IS FULLY ASSEMBLED AND PREPARED FOR DELIVERY TO THE LAUNCH PAD.

THE UPPER STAGE IS THE PART OF THE ROCKET THAT FIRES AFTER THE LOWER STAGES ARE DONE. FOR ARTEMIS II, THE **UPPER STAGE** IS CALLED THE EXTENSION ORBITAL PROPULSION STAGE, OR **EOPS**. THE **EOPS** WILL FIRE TWICE TO PLACE ORION IN HIGH EARTH ORBIT, AND LATER BEHAVE AS A **TRAIL** TARGET FOR FUTURE ORBIT TESTS.

Y IS FOR YIELD

X IS FOR AXIS

W IS FOR WATER LANDING

V IS FOR VAB

U IS FOR UPPER STAGE



FOUR ASTRONAUTS ABOARD THE ORION SPACECRAFT WILL VENTURE AROUND THE MOON ON **ARTEMIS II**, THE FIRST CREWED MISSION OF NASA'S ARTEMIS CAMPAIGN. THE 30-DAY FLIGHT WILL TEST IMPORTANT SYSTEMS NEEDED FOR FUTURE LUNAR LANDINGS AND LONG-TERM EXPLORATION ON THE LUNAR SURFACE. THE MISSION IS AN IMPORTANT STEP TOWARD RETURNING HUMANS TO THE MOON, LEARNING HOW TO LIVE AND WORK IN DEEP SPACE, AND PREPARING FOR FUTURE MISSIONS TO MARS.

A ZERO GRAVITY INDICATOR IS A SMALL OBJECT PLACED IN A SPACECRAFT TO SHOW WHEN IT REACES MICROGRAVITY. HOW THE OBJECT BEGINS TO FLOAT SHOWS THE ORION. IT SIGNALS THAT THE SPACECRAFT IS IN SPACE. ASTRONAUTS OFFER USE FROM TOYS OR SMALL OBJECTS AS **ZERO GRAVITY INDICATORS** THAT ALSO SERVE AS CONNECTIONS TO HOME ON EARTH.

Z IS FOR ZERO GRAVITY INDICATOR