



# ORION

NASA's Orion spacecraft  
is carrying humanity to  
the Moon.

Orion is the exploration vehicle that will carry and sustain the crew on Artemis missions to the Moon and return them safely to Earth. Orion will launch on NASA's SLS (Space Launch System) rocket, and is equipped with advanced systems for deep space travel such as life support, navigation, and emergency abort capabilities.

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NUMBER OF CREW ..... **4**

MISSION DURATION ..... **21 DAYS**

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GROSS LIFTOFF MASS ..... **78,000 lbs** / 35,380 kg

TRANS-LUNAR  
INSERTION MASS ..... **58,500 lbs** / 26,536 kg

POST TRANS-LUNAR  
INSERTION MASS ..... **57,000 lbs** / 25,854 kg

USABLE PROPELLANT ..... **19,000 lbs** / 8,618 kg

## Launch Abort System

HEIGHT ..... **50 ft** / 15.25 m

DIAMETER ..... TOWER: **3 ft** / 0.9 m  
BASE: **17 ft** / 5.2 m

MASS AT LIFTOFF ..... **17,000 lbs** / 7,711 kg

TOTAL PROPELLANT MASS ..... **5,700 lbs** / 2,585 kg

	MASS	PROPELLANT MASS	THRUST
ABORT MOTOR	<b>7,600 lbs</b> 3,447 kg	<b>4,700 lbs</b> 2,132 kg	<b>400,000 lbs</b> 181,437 kg
ATTITUDE CONTROL MOTOR	<b>1,700 lbs</b> 771 kg	<b>650 lbs</b> 295 kg	<b>7,000 lbs</b> 3,175 kg
JETTISON MOTOR	<b>900 lbs</b> 408 kg	<b>350 lbs</b> 159 kg	<b>40,000 lbs</b> 18,144 kg

## Crew Module

HEIGHT ..... **11 ft** / 3.35 m

DIAMETER ..... **16.5 ft** / 5 m

HABITABLE VOLUME ..... **330 ft<sup>3</sup>** / 9.34 m<sup>3</sup>

PRESSURIZED VOLUME ..... **690.6 ft<sup>3</sup>** / 19.56 m<sup>3</sup>

LUNAR RETURN PAYLOAD MASS ..... **220 lbs** / 100 kg

REACTION CONTROL SYSTEM ..... **12 THRUSTERS**  
**160 lbs** / 73 kg **THRUST EACH**

MASS AT LIFTOFF ..... **22,900 lbs** / 10,387 kg

NOMINAL LANDED MASS ..... **20,500 lbs** / 9,299 kg

## Service Module

HEIGHT ..... **15.7 ft** / 4.79 m

DIAMETER ..... **16.5 ft** / 5 m

SOLAR WINGS ..... **4 SOLAR ARRAYS**  
**15,000 SOLAR CELLS**  
**62 ft** / 18.9 m **WIDE**  
**11KW POWER**

REACTION CONTROL SYSTEM ..... **24 THRUSTERS**  
**50 lbs** / 23 kg **THRUST EACH**

AUXILIARY ENGINES ..... **8 ENGINES**  
**110 lbs** / 50 kg **THRUST EACH**

ORION MAIN ENGINE ..... **6,000 lbs** / 2,722 kg **THRUST**

MASS AT LIFTOFF ..... **34,400 lbs** / 15,604 kg

SPACECRAFT ADAPTER MASS ..... **2,800 lbs** / 1,270 kg

JETTISONED FAIRINGS MASS ..... **1,000 lbs** / 454 kg

## Launch Abort System

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



## Crew Module

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



## Service Module

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



## Spacecraft Adapter

Attaches the Orion spacecraft to the SLS rocket.