

First crewed Moon mission in 50 years



NASA's *Artemis II* mission will send four astronauts on a 10-day trip around the Moon, paving the way for a future landing and the eventual establishment of a long-term presence on the lunar surface

SPACE LAUNCH SYSTEM (SLS)

NASA's most powerful rocket, generates 39.1 Meganewtons of thrust – 15% more than Apollo-era Moon rocket *Saturn V*

Interim Cryogenic Propulsion System (ICPS):
Single RL10C-2 engine

Orion Service Module:
Built by *European Space Agency (ESA)*

Launch Abort System: Propels Orion capsule to safety in event of emergency

ORION SPACE CAPSULE

Diameter: 5m
Height: 3.3m
Mass: 8.5 tonnes

Heat shield:
Largest of its kind ever built

Crew: Four astronauts inside nine cubic metres of space

Upper stage

Two solid rocket boosters

Core stage
Liquid hydrogen and liquid oxygen

FLIGHT PATH

- 1** Lift-off from Cape Canaveral
- 2** Two minutes after launch, boosters separate
- 3** Eight minutes after launch, *ICPS* and *Orion* separate from *Core stage*. Orion's solar arrays unfurl
- 4** After 90-minute orbit, *ICPS* fires engines to raise Orion to higher Earth orbit. Systems check undertaken for next 24 hours
- 5** If everything is in order, Orion separates from *ICPS*. Then, astronauts manually fly Orion toward and away from *ICPS*, practising proximity operations for future missions
- 6** Around 23 hours later, *Orion Service Module* carries out **Translunar Injection (TLI)** burn – pushing Orion out of Earth's orbit and on four-day trip to the Moon

7 After lunar flyby, Orion begins four-day journey home, drawn back with help of Earth's gravity

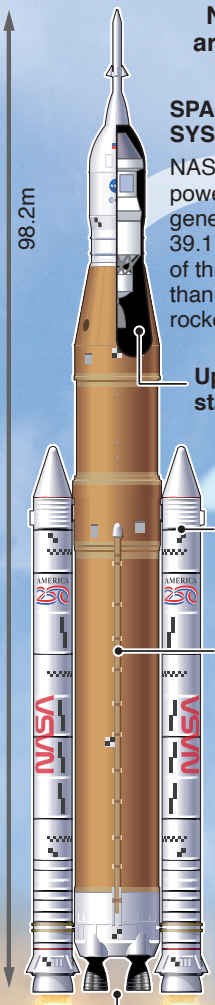
8 Just before re-entry, Orion's crew module separates from service module

9 Capsule re-enters atmosphere at speed of 32,187km/h and temperatures of up to 2,200°C

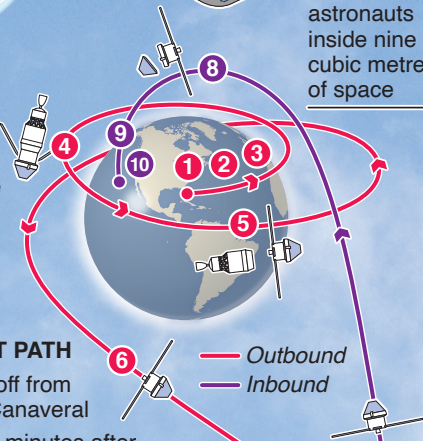
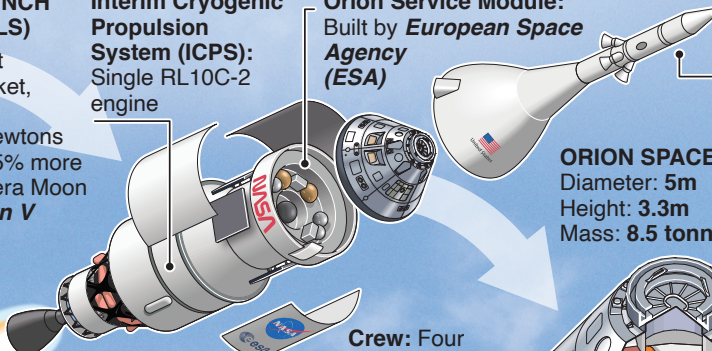
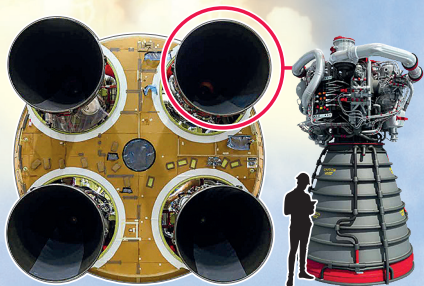
10 Series of parachutes slow craft before splashdown in Pacific Ocean

Artist illustration of Orion entering atmosphere

Orion will travel around 400,000km from Earth – furthest humans have ever gone into space



Four RS-25 engines:
Upgraded from *Space Shuttle* programme



Moon

