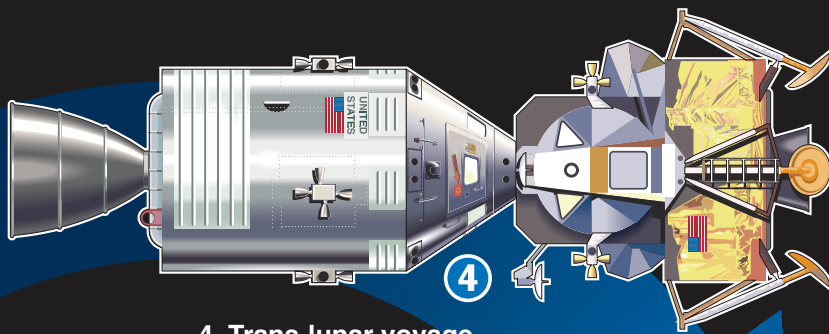


THE APOLLO ADVENTURE

On July 20, 1969, American astronaut Neil Armstrong became the first man to set foot on the Moon, declaring, as he stepped on to the lunar surface, "That's one small step for man, one giant leap for mankind". Just 12 men have walked upon the Moon and they remain the only human beings to have stood on another world

July 16, 1969
Apollo 11 – carrying Neil Armstrong, Michael Collins and Edwin "Buzz" Aldrin – blasts off atop a Saturn V rocket from Kennedy Space Centre



1. First stage
Five F-1 engines, powered by RP1 (refined kerosene) and liquid oxygen, lift Apollo spacecraft to height of 67.6km in just 168 seconds

2. Second stage
Five J-2 engines burn for six minutes lifting craft to 176km at 25,182km/h. Fuel: Liquid hydrogen, liquid oxygen

3. Third stage
Single J-2 engine boosts craft into Earth orbit, from where Trans Lunar Injection (TLI) burn increases spacecraft's velocity close to Earth's escape velocity of 40,320 km/h

4. Trans-lunar voyage
About 40 minutes after TLI, Command Service Module (*Columbia*) separates from third stage, rotates to dock with Lunar Module and begins 385,000km journey to Moon

July 19
Apollo 11 passes behind Moon and fires engine to enter lunar orbit. Craft makes thirty orbits

July 20
Columbia pilot Michael Collins remains in lunar orbit while Neil Armstrong and Buzz Aldrin descend in lunar module

Only 24 people – all Apollo astronauts – have ever seen Earth-rise or far side of the Moon

Apollo Moon-walkers and drivers

1	Neil Armstrong	Apollo 11
2	Edwin "Buzz" Aldrin	Jul 1969
3	Charles "Pete" Conrad	Apollo 12
4	Alan Bean	Nov 1969
5	Alan Shepard*	Apollo 14
6	Edgar Mitchell	Feb 1971
7	David Scott	Apollo 15
8	James Irwin	Jul 1971
9	John Young	Apollo 16
10	Charles Duke	Apr 1972
11	Eugene Cernan	Apollo 17
12	Harrison Schmitt	Dec 1972

*Shepard swings a six iron to hit a couple of golf balls, driving one around 400 metres

Lunar lander (*Eagle*)



STEPS TO THE MOON

"I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the Moon and returning him safely to Earth"
President John F. Kennedy, May 25, 1961

1957, Sputnik: First artificial satellite to orbit Earth launched by Soviet Union

1961, Yuri Gagarin: Soviet cosmonaut becomes first man in space

1962, John Glenn (below): Becomes first American to orbit Earth in *Freedom 7* Mercury capsule

1964-66, Gemini programme: Nine manned flights used to practice rendezvous and docking procedures necessary for *Apollo* missions

Jan 27, 1967: Apollo programme suffers major setback with deaths in capsule fire of *Virgil Grissom*, *Edward White* and *Roger Chaffee*

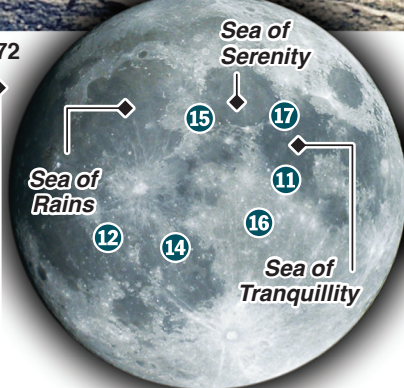
1967, Apollo 4: First test flight of Saturn V rocket

1968, Apollo 7: First manned flight in redesigned capsule

Oct 1968-May 1969: NASA launches four manned Apollo flights

1969 Apollo 11: Neil Armstrong (below) commands first manned mission to land on the Moon

1972, Apollo 17: Final Apollo mission. Apollo 18-20 cancelled due to budget constraints. Eleven-year programme cost \$25.4 billion – almost \$150 billion in today's currency



Apollo 0 landings

