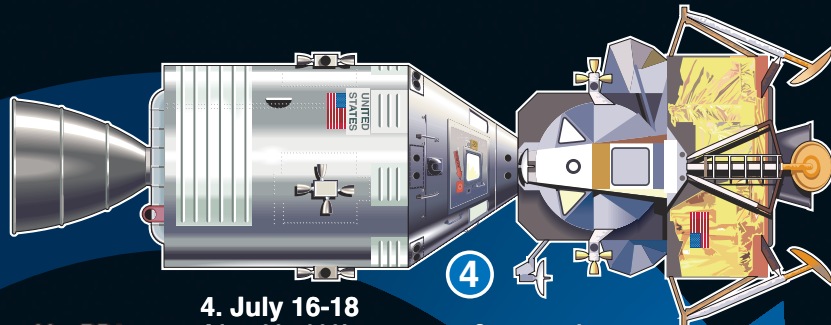


"One giant leap for mankind..."

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 on the Moon, and they remain the only human beings to have visited another world

July 16, 1969
Apollo 11 – carrying Neil Armstrong, Michael Collins and "Buzz" Aldrin – blasts off atop 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 40,320km/h

4. July 16-18
After 385,000km voyage, Command Service Module "Columbia" rotates and docks with "Eagle" Lunar Module

July 19
Apollo 11 enters lunar orbit

July 20
Columbia pilot Collins remains in lunar orbit while Armstrong and Aldrin descend in Eagle. During 13-minute descent radio links with Earth fade and onboard computer flashes error codes. Eagle overshoots landing zone and lands at Tranquility base with less than 30 seconds of fuel remaining

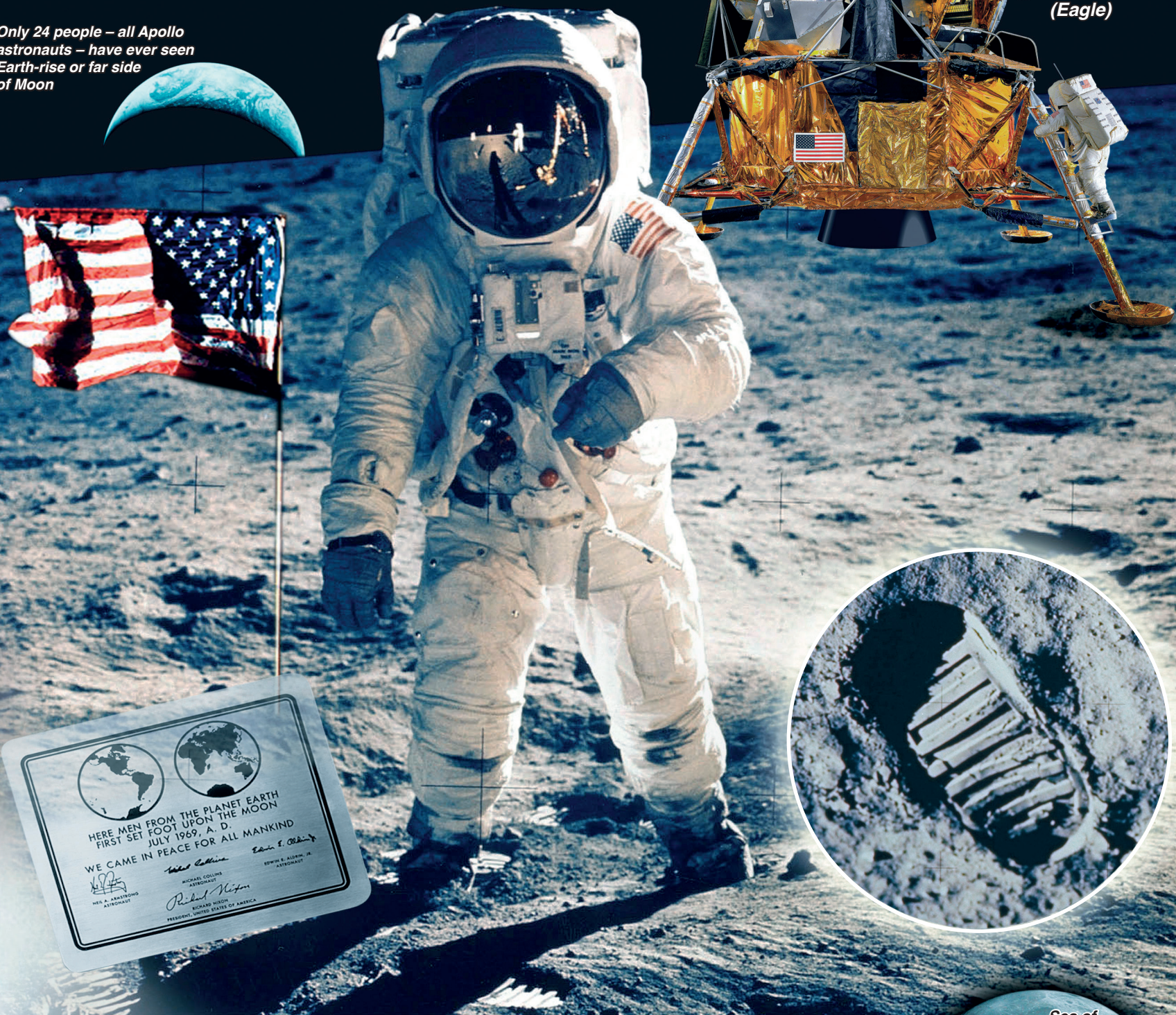
Only 24 people – all Apollo astronauts – have ever seen Earth-rise or far side of Moon

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	Both drive Lunar Rover
8	James Irwin	Jul 1971
9	John Young	Apollo 16
10	Charles Duke	Lunar Rover
11	Eugene Cernan	Apr 1972
12	Harrison Schmitt	Lunar Rover
		Apollo 17
		Dec 1972

*Shepard swings six iron to hit 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*

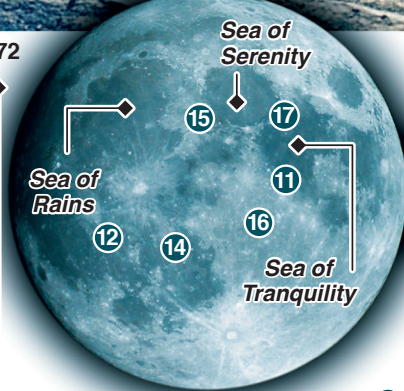
1967, Apollo 4: First test flight of Saturn V rocket

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 Moon

1972, Apollo 17: Final Apollo mission. Apollo 18-20 cancelled due to budget constraints. Eleven-year programme cost \$25.4 billion – more than \$160 billion in today's currency



Apollo 0 landings