

# MAN ON THE MOON

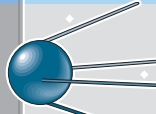
On July 20, 1969, man set foot on the moon for the first time when Apollo 11 commander Neil Armstrong stepped off the ladder of the lunar module. 600 million TV viewers around the world heard his first words: *'That's one small step for man, one giant leap for mankind'*

## Steps to the Moon

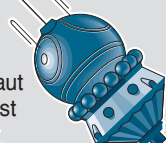
*'I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to earth'*  
President John F Kennedy, May 25, 1961



**1957** Sputnik - The first artificial satellite to orbit the Earth is launched by the Soviet Union



**1961** Yuri Gagarin Soviet cosmonaut becomes the first man in space



**1962** John Glenn becomes the first American to orbit the Earth, in the **Freedom 7** Mercury capsule



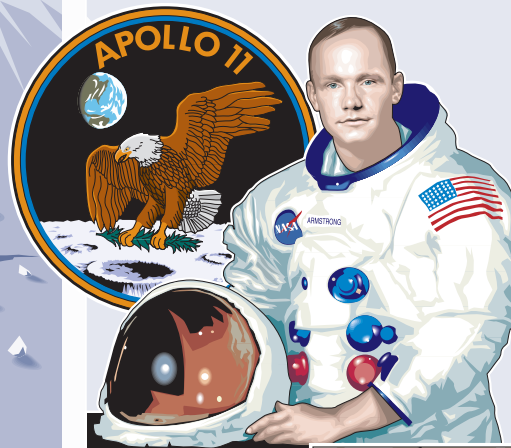
**1964-66** Gemini Program During nine manned flights crews practice rendezvous and docking procedures necessary for the **Apollo moon missions**

### 1967 Apollo Program

Designed to land an American on the moon. The first 6 launches are to be unmanned test flights

January 27: Apollo comes to a tragic halt with the deaths of **Virgil Grissom, Edward White and Roger Chaffee** in a capsule fire

**1968** Apollo 7 First manned flight in redesigned capsule



**1969** Apollo 11 Neil Armstrong becomes the first human being to set foot on the moon. With no atmosphere or weather to disturb them, their footprints could remain crisp and clean for millions of years



HERE MEN FROM THE PLANET EARTH FIRST SET FOOT UPON THE MOON JULY 1969, A.D. WE CAME IN PEACE FOR ALL MANKIND



**1972** Apollo 17 December: Final Apollo mission. The 11-year program cost \$25.4 billion, landed 12 astronauts and three Lunar Roving Vehicles on the moon and collected 843lbs of rocks - which continue to reveal the moon's secrets

Saturn V rocket  
Weight - 2,700 tonnes  
Height - 363 feet

Command module

Service module

Lunar module

Third stage  
One J-2 engine

Second stage  
Five J-2 engines  
developed 1 million pounds of thrust

First stage  
Five F-1 engines - the biggest and most powerful rocket motor ever built - developed 7.6 million pounds of thrust at lift-off

Command module (Columbia)  
Of the crew of three, Michael Collins remained in lunar orbit while Buzz Aldrin and Neil Armstrong manned the lunar module

PLISS  
Portable Life Support System supplied oxygen, water and ventilation, maintained suit pressure and enabled communication links

Reflective visor  
Protection against glare of sun

Lunar module (Eagle)

Apollo moon landings  
Between July 1969 and December 1972 there were six manned landings on the moon. Apollo 13 narrowly avoided disaster and was forced to abandon its mission following an explosion and fire in the service module

Apollo space suit  
Hand-made - the most complex garment ever created

- |   |   |   |
|---|---|---|
| 1 | Outer protective layer - Kevlar, Nomex and Teflon                     | Function: abrasion and fire resistance                                  |
| 2 | Five layers of aluminized nylon, five layers of aluminized Mylar film | Thermal protection - suit exposed to +250°F in sun and -200°F in shadow |
| 3 | Neoprene-coated nylon   | Micro-meteorite protection  |
| 4 | Polyester / Dacron structural layer                                   | Resisted massive pressure differences                                   |
| 5 | Bladder layer of nylon / polyurethane                                 | Protection against external vacuum                                      |
| 6 | Constant volume hinges at main joints                                 | Allowed movement in pressurized suit                                    |
| 7 | Body-hugging Spandex with cool-water tubes                            | Allowed strenuous work for up to 6 hours without sweating               |
| 8 | Nylon comfort liner   | Comfort and ease of entry into suit                                     |

