

A collage of space exploration imagery. In the top left, there's a historical map with a compass rose. The top right shows a large view of Mars. In the center, the Moon is visible. A rocket is shown launching from the surface of Mars, with a bright orange plume. The bottom left shows a view of Earth from space. The bottom right shows an astronaut in a white spacesuit walking on the red, rocky surface of Mars. A circular inset map of Mars is also visible in the bottom center.

Space Exploration

Learning Objectives:

To consider reasons for space exploration.
To learn a brief history of space travel.

Reasons for and against going to space

<i>For</i>	<i>Against</i>
To make important scientific discoveries.	It is very expensive.
To better understand our world.	It might put lives in danger.
It is only natural to explore.	There are more important things on Earth to discover.
To find other life forms.	We might make unpleasant discoveries.

Yuri Gagarin

- 9 March 1934 – 27 March 1968, Soviet pilot and cosmonaut.
- The first human to journey into outer space in *Vostok 1* spacecraft on April 12, 1961. After re-entry, Gagarin ejected from the craft and landed safely by parachute.
- After the mission, Gagarin became an international celebrity, and was awarded many medals and honours.
- *Vostok 1* was his only spaceflight.
- Gagarin died when his training jet crashed in 1968. The precise cause of the crash is uncertain.





Russian Rouble commemorating Gagarin in 2001

Valentina Tereshkova

- Chosen out of more than 400 applicants.
- She was selected to pilot *Vostok 6* on the 16th of June 1963 - almost 50 years ago!
- During her 3 day mission, she performed various tests on herself to collect data on the female body's reaction to spaceflight.
- Before being recruited as a cosmonaut, Tereshkova worked in a textile-factory and was an amateur parachutist.
- After her space career she worked in Russian politics.



Laika

- The name comes from the Russian word for ‘barker’.
- She was a stray dog from the streets of Moscow who had to undergo special training.
- Died after a few hours from overheating; however the Russian government claimed that she was euthanised before her oxygen ran out.
- The experiment aimed to prove that a living passenger could survive being launched into orbit and endure weightlessness, paving the way for human spaceflight.



Laika rode to orbit in *Sputnik II* on November 3rd, 1957.
Several countries issued stamps honouring Laika.



The Hubble Telescope

- One of the largest and most versatile space telescopes.
- The Hubble Space Telescope was deployed from the Space shuttle *Discovery* on April 25, 1990.
- Since then, there have been five servicing missions that continued to upgrade the telescope's scientific instruments and operational systems.



International Space Station (ISS)

- The ISS is the largest artificial satellite that has ever orbited Earth. The ISS acts as a **research laboratory** in which crews conduct experiments as well as astronomical and meteorological observations.
- On-orbit construction of the station began in 1998. The station is expected to remain in operation until at least 2015, and likely 2020.
- The ISS can be seen from Earth with the naked eye.
- The space station is operated by crews of six space scientists at a time.
- The station is serviced by several types of spacecraft and has been visited by astronauts from 15 different nations.



<http://iss.astroviewer.net/>

Space Timeline

Warning not in chronological order!

- **April 12, 1981** - Launch of the first reusable space vehicle, the US space shuttle, *Columbia*.
- **June 16, 1963** - Soviet cosmonaut Valentina Tereshkova becomes the first woman in space.
- **November 3, 1957** - The first living creature, a Soviet dog named Laika, orbits Earth in *Sputnik 2*.
- **April 12, 1961** - Soviet cosmonaut Yuri Gagarin becomes the first person to travel into space.
- **November 2, 2000** - The first crew boards the International Space Station.
- **March 18, 1965** - Soviet cosmonaut Alexei Leonov makes the first space walk.



- **July 20, 1969** - The US astronaut Neil Armstrong is the first to walk on the Moon.
- **April 24, 1990** - Launch of the Hubble Space Telescope on board the space shuttle *Discovery*.
- **October 4, 1957** - *Sputnik 1*, the world's first artificial satellite, is put into Earth orbit by the Soviet Union. The space age has begun.
- **November 20, 1998** - *Zarya*, the first part of the International Space Station, is launched.
- **March 6, 2009** - The Kepler space telescope is launched. It will look for planets that may harbour life.

LO: To create a timeline of space exploration.

- In your books create a timeline of space exploration including the most important events.
- You can set out the timeline in any way as long as the events are in chronological order.
- You can include events that are not mentioned in this powerpoint.
- Include illustrations

Useful Links

- Visit NASA on: www.nasa.gov
- Learn more about space: www.space.com