

Space Exploration Timeline

Your assignment is to make a timeline showing missions that have helped us better understand the Solar System.

Using your *Exploration of the Solar System* fact sheet, make a timeline showing each mission on the list. Here's how you will make your timeline:

- Each student will make a *separate* timeline for each planet or groups of missions.
- You will use adding machine tape to make your timeline.
- Identify which missions succeeded and which missions failed.
- Information you will include:
 - Month and Year of mission
 - Who launched the mission
 - Mission name
 - What did the mission do? (Flyby, orbiter, impacted on surface, etc.)
 - If the probe is still functioning, include that information.

Your work must be neat, legible, and spelled correctly.

Exploration of Mars (Selected Missions)

1960

Soviet Probes

- ☒ Marsnik 1 & 2 - October 1960 - Attempted Mars Flyby (Both Launch Failure)

1962

Soviet Probe

- ☒ Mars 1 - November 1962 - Mars Flyby (Contact Lost)

1964

US Probes

- ☒ Mariner 3 - November 1964 - (Failed to operate after launch)
- ☒ Mariner 4 - November 1964 - (Successful Mars Flyby)

1969

US Probes

- ☒ Mariner 6 - February 1969 - (Successful Mars Flyby)
- ☒ Mariner 7 - March 1969 - (Successful Mars Flyby)

Soviet Probes

- ☒ Mars 1969 - April 1969 - Attempted Mars Orbiter (Launch Failure)

1971

US Probes

- ☒ Mariner 8 - May 1971 - Attempted Mars Flyby (Launch Failure)
- ☒ Mariner 9 - 30 May 1971 - (Successful Mars Orbiter)

Soviet Probes

- Mars 2 - May 1971 - (Successful Mars Orbiter/Lander Crashed)
- Mars 3 - May 1971 - (Successful Mars Orbiter/Lander Failed 20 seconds after landing)

1973

Soviet Probes

- Mars 5 - July 1973 - (Successful Mars Orbiter)

1975

US Probes

- Viking 1 - August 1975 - (Successful Mars Orbiter and Lander)
- Viking 2 - September 1975 - (Successful Mars Orbiter and Lander)

1992

US Probes

- Mars Observer - September 1992 - (Failed Mars Orbiter)

1996

US Probes

- Mars Global Surveyor - November 1996 - (Successful Mars Orbiter)
- Mars Pathfinder - December 1996 - (Successful Mars Lander and Rover)

Russian Probe

- Mars 96 - November 1996 - (Failed Mars Orbiter/Landers)

1998

Japanese Probe

- ☒ Nozomi (Planet-B) - July 1998 - (Failed Mars Orbiter)

US Probe

- ☒ Mars Climate Orbiter - December 1998 - (Failed Mars Orbiter)

1999

US Probe

- ☒ Mars Polar Lander - January 1999 - (Failed Mars Lander)

2001

US Probe

- ☒ 2001 Mars Odyssey - April 2001 - (Successful Mars Orbiter - Still Functioning)

2003

European Space Agency Probes

- ☒ Mars Express - June 2003 - (Successful Mars Orbiter - Still Functioning/Failed Lander)

US Probes

- ☒ Spirit - June 2003
- ☒ Opportunity - July 2003 - (Successful Mars Rover - Still Functioning)

2005

US Probes

- Mars Reconnaissance Orbiter - August 2005 - (Successful Mars Orbiter - Still Functioning)

2007

- Phoenix - August 2007

2011

- Curiosity Rover - Launched November 2011

Since 1960 -

Total Japanese Probes - 1 (1 Failed)

Total European Space Agency Probes - 2 (1 Successful; 1 Failed)

Total US Probes - 19 - (14 Successful; 5 Failed)

Total Soviet/Russian Probes - 25 (3 Successful; 22 Failed)

Total Probes Sent to Mars - 47 (18 Successful; 29 Failed)

Success Rate - 38%

Exploration of Mercury

US Probe

- Mariner 10 - 4 November 1973 - (Successful Mercury Flyby)

2004

US Probe

- MESSENGER - August 2004 - (Three Successful Mercury Flybys; Entered Mercury Orbit April 2011)

Since 1973 -

Total US Probes - 2 - (2 Successful)

Total Probes Sent to Mercury - 2 (2 Successful)

Success Rate - 100%

Exploration of Venus (Selected Missions)

1961

Soviet Probes

- Sputnik 7 - February 1961 - (Failed Venus Impact)
- Venera 1 - February 1961 - (Failed Venus Flyby)

1962

Soviet Probes

- Sputnik 19 - August 1962 - (Failed Venus Flyby)
- Sputnik 20 - September 1962 - (Failed Venus Flyby)
- Sputnik 21 - September 1962 - (Failed Venus Flyby)

US Probes

- Mariner 1 - July 1962 - (Failed Venus Flyby - Launch Failure)
- Mariner 2 - August 1962 - (Successful Venus Flyby)

1967

US Probe

- Mariner 5 - June 1967 - (Successful Venus Flyby)

1969

Soviet Probes

- Venera 5 - January 1969 - (Successful Venus Probe)
- Venera 6 - January 1969 - (Successful Venus Probe)

1970

Soviet Probes

- Venera 7 - August 1970 - (Successful Venus Lander)
- Cosmos 359 - August 1970 - (Failed Venus Probe)

1972

Soviet Probe

- Venera 8 - March 1972 - (Successful Venus Lander)
- Cosmos 482 - March 1972 - (Failed Venus Probe)

1973

US Probe

- Mariner 10 - 4 November 1973 - (Successful Venus Flyby)

1975

Soviet Probe

- Venera 9 - June 1975 - (Successful Venus Orbiter and Lander)
- Venera 10 - June 1975 - Venus (Successful Venus Orbiter and Lander)

1978

Soviet Probe

- Venera 11 - September 1978 - (Successful Venus Orbiter and Lander)
- Venera 12 - September 1978 - (Successful Venus Orbiter and Lander)

US Probes

- Pioneer Venus 1 - May 1978 - (Successful Venus Orbiter)
- Pioneer Venus 1 - May 1978 - (Successful Venus Orbiter)

1981

Soviet Probes

- Venera 13 - 30 October 1981 - (Successful Venus Orbiter and Lander)
- Venera 14 - 4 November 1981 - (Successful Venus Orbiter and Lander)

1983

Soviet Probes

- Venera 15 - June 1983 - (Successful Venus Orbiter)
- Venera 16 - June 1983 - (Successful Venus Orbiter)

1984

Soviet Probes

- Vega 1 - December 1984 - (Successful Venus Lander and Balloon)
- Vega 2 - December 1984 - (Successful Venus Lander and Balloon)

1989

US Probes

- Magellan - May 1989 - (Successful Venus Orbiter)
- Galileo - October 1989 - (Successful Venus Flyby)

1997

US Probe

- Cassini - October 1997 - (Successful Venus Flyby)

2004

US Probe

- MESSENGER - August 2004 - (Two Successful Venus Flybys)

2005

European Space Agency Probe

- ☒ Venus Express - November 2005 - (Successful Venus Orbiter - Still Functioning)

Since 1961 -

Total European Space Agency Probes - 1 (1 Successful)

Total US Probes - 11 - (10 Successful; 1 Failed)

Total Soviet Probes - 41 (29 Successful; 12 Failed)

Total Probes Sent to Venus - 53 (40 Successful; 13 Failed)

Success Rate - 75%

Exploration of the Moon (Selected Missions)

1959

Soviet Probes

- Luna 1 - Jan, 1959 - (Successful Flyby)
- Luna 2 - Sep 1959 - (Successful Impact)
- Luna 3 - Oct 1959 - (Successful Probe)

US Probe

- Pioneer 4 - Mar 1959 - (Successful Flyby)

1961

US Probes

- Ranger 1 - Aug 1961 - (Failed Impact)
- Ranger 2 - Nov 1961 - (Failed Impact)

1962

US Probes

- Ranger 3 - Jan 1962 - (Failed Impact)
- Ranger 4 - Apr 1962 - (Successful Impact)

1964

US Probes

- Ranger 6 - Jan 1964 - (Successful Impact)
- Ranger 7 - Jul 1964 - (Successful Impact)

1965

Soviet Probes

- Luna 6 - Jun 1965 - (Failed Lander)
- Zond 3 - Jul 1965 - (Successful Flyby)

US Probes

- Ranger 9 - Mar 1965 - (Successful Impact)

1966

Soviet Probe

- Luna 9 - Jan 1966 - (Successful Lander)
- Luna 11 - Aug 1966 - (Successful Orbiter)

US Probes

- Surveyor 1 - May 1966 - (Successful Lander)
- Lunar Orbiter 1 - Aug 1966 - (Successful Orbiter)
- Surveyor 2 - Sep 1966 - (Failed Lander)

1967

US Probes

- Lunar Orbiter 3 - Feb 1967 - (Successful Orbiter)
- Surveyor 3 - Apr 1967 - (Successful Lander)

1968

Soviet Probes

- Luna 14 - Apr 1968 - (Successful Orbiter)
- Zond 5 - Sep 1968 - (Successful Return Probe)

US Probe

- Surveyor 7 - Jan 1968 - (Successful Lander)

1969

Soviet Probes

- Luna 15 - Jul 1969 - (Successful Orbiter)
- Zond 7 - Aug 1969 - (Return Probe)

US Missions

- Apollo 11 - Jul 1969 - (Successful Manned Landing - 1st)
- Apollo 12 - Nov 1969 - (Successful Manned Landing - 2nd)

1970

Soviet Probes

- Luna 16 - Sep 12, 1970 - Sample Return
- Luna 17 - Nov 10, 1970 - Rover

US Mission

- Apollo 13 - Apr 1970 - (Aborted Manned Landing)

1971

US Missions

- Apollo 14 - Jan 1971 - (Successful Manned Landing - 3rd)
- Apollo 15 - Jul 1971 - (Successful Manned Landing - 4th)

1972

Soviet Probe

- Luna 20 - Feb 1972 - (Successful Sample Return)

US Missions

- Apollo 16 - Apr 1972 - (Successful Manned Landing - 5th)
- Apollo 17 - Dec 1972 - (Successful Manned Landing - 6th)

1973

Soviet Probe

- Luna 21 - Jan 1973 - (Successful Rover)

1974

Soviet Probe

- Luna 23 - Oct 1974 - (Successful Lander)

1976

Soviet Probe

- Luna 24 - Aug 1976 - (Successful Sample Return)

1990

Japanese Probe

- Hiten - Jan 1990 - (Successful Flyby and Orbiter)

1994

US Probe

- Clementine - Jan 1994 - (Successful Orbiter)

1998

US Probe

- Lunar Prospector - Jan 1998 - (Successful Orbiter)

2003

European Space Agency Probe

- SMART 1 - Sep 2003 - (Successful Lunar Impactor)

2007

Japanese Probe

- Kaguya (SELENE) - Sep 2007 - (Successful Lunar Orbiter)

People's Republic of China Probe

- Chang'e 1 - Oct 2007 - (Successful Lunar Orbiter)

2007

Japanese Probe

- Kaguya (SELENE) - Sep 2007 - (Successful Lunar Orbiter)

People's Republic of China Probe

- Chang'e 1 - Oct 2007 - (Successful Lunar Orbiter)

2008

India Probe

- Chandrayaan - August 2008 - (Failed Lunar Orbiter)

2009

US Probe

- ☒ Lunar Reconnaissance Orbiter June 2009 - (Successful Lunar Orbiter - Still Functioning)

US Probe

- ☒ LCROSS June 2009 - (Lunar Impactor - Crashed on Moon October 2009)

2010

People's Republic of China Probe

- ☒ Chang'e 2 - Oct 2010 - (Successful Lunar Orbiter - Still Functioning)

2012

US Probe

- ☒ GRAIL - December 2011/January 2012 - Two probes (Ebb and Flow) currently orbiting Moon.

Since 1959 -

Total People's Republic of China Probes - 2 (2 Successful)

Total India Probe - 1 (1 Failed)

Total European Space Agency Probes - 1 (1 Successful)

Total Japanese Probes - 2 (2 Successful)

Total Soviet Probes - 24 (24 Successful; 0 Failed)

Total US Probes - 44 - (38 Successful; 6 Failed)

Total Probes Sent to Moon - 75 (67 Successful; 8 Failed)

Success Rate - 89%

Exploration of the Solar System (Selected Missions)

While we have explored other planets, comets, and asteroids, we haven't sent anywhere the number of missions to those other Solar System objects. This section will identify some of those missions.

1960

US Probe

- Pioneer 5 - March 1960 - (Successful Solar Probe)

1965

US Probe

- Pioneer 6 - December 1965 - (Successful Solar Probe)

1966

US Probe

- Pioneer 7 - August 1966 - (Successful Solar Probe)

1967

US Probe

- Pioneer 8 - December 1967 - (Successful Solar Probe)

1968

US Probe

- Pioneer 9 - November 1968 - (Success Solar Probe)

1969

US Probe

- Pioneer E - August 1969 - (Failed During Launch)

1972

US Probe

- Pioneer 10 - March 1972 - (Successful Jupiter Flyby)

1973

US Probe

- Pioneer 11 - April 1973 - (Successful Jupiter/Saturn Flyby)
- Mariner 10 - November 1973 - (Successful Mercury Flyby)

1977

US Probes

- Voyager 2 - August 1977 - (Successful Jupiter/Saturn/Uranus/Neptune Flyby)
- Voyager 1 - September 1977 - (Successful Jupiter/Saturn Flyby)

1978

US Probe

- ISEE-3/ICE - August 1978 - (Successful Comet Giacobini-Zinner and Halley Flybys)

1985

Japanese Probes

- Sakigake - January 1985 - (Partially Successful Comet Halley Flyby)
- Suisei (Planet-A) - August 1985 - (Successful Comet Halley Flyby)

1985

European Space Agency Probe

- ☒ Giotto - July 1985 - (Successful Comet Halley Flyby)

1989

US Probe

- ☒ Galileo - October 1989 - (Jupiter Orbiter and Probe)

1990

US Satellite

- ☒ Hubble Space Telescope - (Successful Earth Orbiting Observatory - Still Functioning)

European Space Agency/US Probe

- ☒ Ulysses - October 1990 - (Successful Jupiter Flyby and Solar Polar Orbiter)

1996

US Probe

- ☒ NEAR - February 1996 - (Successful Asteroid Eros Orbiter)

1997

US Probe

- ☒ Cassini - October 1997 - (Successful Saturn Orbiter - Still Functioning)

European Space Agency Probe

- ☒ Huygens - October 1997 - (Successful Titan Lander)

1998

US Probe

- ☒ Deep Space 1 (DS1) - October 1998 - (Successful Asteroid and Comet Flyby)

1999

US Probe

- ☒ Stardust - February 1999 - (Successful Comet Coma Sample Return)

2001

US Probe

- ☒ Genesis - August 2001 - (Partially Successful Solar Wind Sample Return)

2002

US Probe

- ☒ CONTOUR - July 2002 - (Failed Fly-by of three Comet Nuclei - Communication with Probe Lost)

2003

Japanese Probe

- ☒ Hayabusa (Muses-C) - May 2003 - (Asteroid Orbiter and Sample Return - Probe is Still Travelling - Has Had Problems and Success is Questionable)

2004

European Space Agency Probe

- ☒ Rosetta - March 2004 - (Comet Orbiter and Lander Still Travelling to Comet)

2005

US Probe

- Deep Impact - January 2005 - -- (Successful Comet Rendezvous and Impact - Mission Continued Under the New Name EPOXI)

2006

- New Horizons - January 2006 - (Probe Travelling to Pluto/Charon and Kuiper Belt Flyby - Currently 1/3 of the Way to Neptune)

2007

US Probe

- Dawn - September 2007 - (Orbiting the Asteroid Vesta)

2011

US Probe

- Juno - August 2011 - (Traveling to Jupiter)

Exploration of Sun (Selected Missions)

1996

US Probe

- SOHO - May 1996 - (Currently Functioning)

1997

US Probe

- ACE (Advanced Composition Explorer) - August 1997 - (Still Functioning)

2006

US Probe

- Stereo A/B - December 2006 - (Still Functioning)

2010

US Probe

- SDO (Solar Dynamics Observatory) - February 2010 - (Still Functioning)