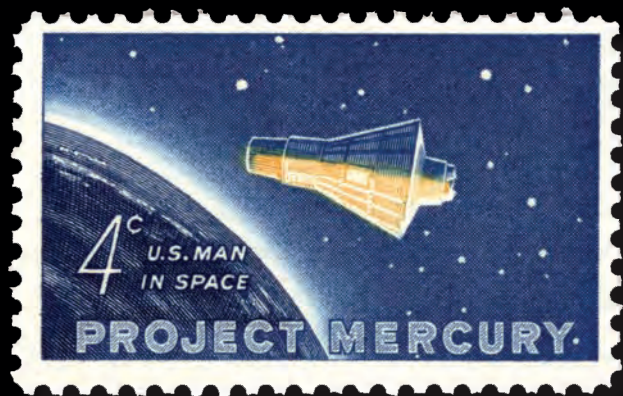




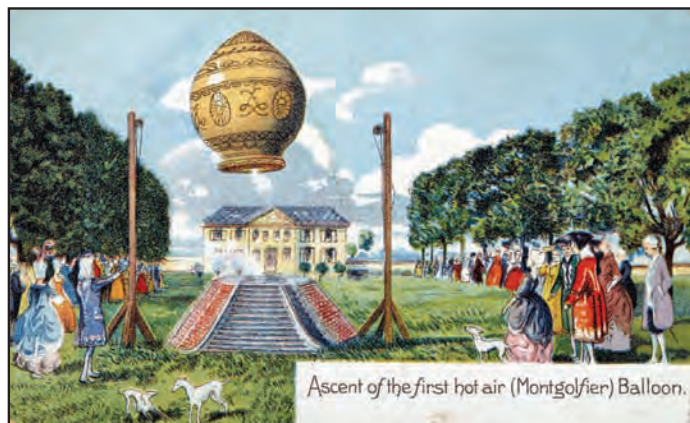
SPACE ON STAMPS



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SPACE ON STAMPS



Ascent of the first hot air (Montgolfier) Balloon.

You might say, it all started with the dream of flight and a desire to see the world as the birds do. For tens of thousands of years mankind has watched the stars and wondered what they might represent. Possibly the oldest constellation identified by humans as a permanent fixture in the night sky is Ursa Major, the Great Bear, the third largest of the constellations, and best known for the seven stars that make up its rump and tail: the Big Dipper (also known as the Plough or the Wagon). The most helpful of the sky maps, a line drawn though the two outside stars on the bowl of the “dipper” points directly to the North Star.

Nothing successfully got human beings above the earth on a repeatable basis, however, until the age of ballooning. The first human to go aloft was a scientist, Pilatre de Rozier, who rose 250 feet into the sky in a hot air balloon and remained suspended above the French countryside for fifteen minutes in October 1783.

A month later he and the Marquis d'Arlandes traveled about 5½ miles in the first free flight, using a balloon designed by the Montgolfier brothers. The first North American flight was made January 9, 1793, from Philadelphia to Gloucester County, New Jersey. The “aeronaut” (as they were called), Jean Pierre Blanchard, carried a letter of safe passage signed by George Washington, who had watched his ascent.

During the Civil War, the “birds-eye view” available from tethered hot-air balloons was used to gain a vantage point for surveying enemy troop movements. Some very early U.S. photographs show Thaddeus Lowe launching an observation balloon, the *Intrepid*, over the battlefield at The Battle of Fair Oaks, Virginia in 1862.

The success of the first powered airplane flight, by Wilbur and Orville Wright on December 17, 1903, was another milestone in the journey to the stars. But the goal wasn't just to travel from point to point *on* the Earth it also was to rise higher and higher *above* it. In 1935 a helium gas balloon carrying a sealed gondola finally rose high enough into the atmosphere for its two passengers to see the curvature of the Earth. Its ascent proved that humans could travel and survive in a pressurized chamber at extremely high altitudes, paving the way for vehicles that would go beyond Earth's atmosphere.



We still wondered “What does Earth look like from space?” — a question that would first be answered on October 1942 when a 35-millimeter motion picture camera attached to a V-2 missile took a series of grainy black-and-white pictures from 65 miles above the planet. However, the first image truly shot from outer space is the beautiful “Earthrise,” taken on Christmas Eve 1968 as the crew of *Apollo 8* circled the moon and saw the partially eclipsed planet Earth hanging in a dark sky above the lunar horizon. A second iconic image was taken five years later in December 1972 by members of the *Apollo 17* mission. Popularly known as “The Blue Marble,” it shows a view of Earth swirled with clouds, taken looking back at the planet as the spacecraft approached the Moon. Almost the entire coastline of Africa can be seen.

New and improved telescopes and cameras continued to search the skies, reaching deeper and deeper into space. Satellites were launched into orbit, beginning with the Russian *Sputnik* in October 1957 and the world's first communications satellite, *Echo I*, launched by the United States in 1960. For a while it seemed as though Russian cosmonauts would have the skies to themselves until America's own space hero, Lt. Col. John Glenn Jr., made the first orbital flight by an American astronaut, on February 20, 1962. The beautiful dark blue and yellow stamp issued to celebrate the occasion showed the *Friendship 7* capsule above the Earth with a corona of sunlight rising behind it.

Although never honored with U.S. stamps, Glenn was preceded by two other heroic astronauts: the fictional Flash Gordon and Buck Rogers, whose adventures in outer space made the transition from the comic strips to the movie theaters in the late 1930s, where both characters were played by Olympic swimming medalist Buster Crabbe. Their respective hair-raising adventures on Mars and in the future were shown as serialized matinee features in movie theaters around the country. In 1951 the combined 52 short films with their cliffhanger endings were released to television to thrill a new generation of would-be space explorers.

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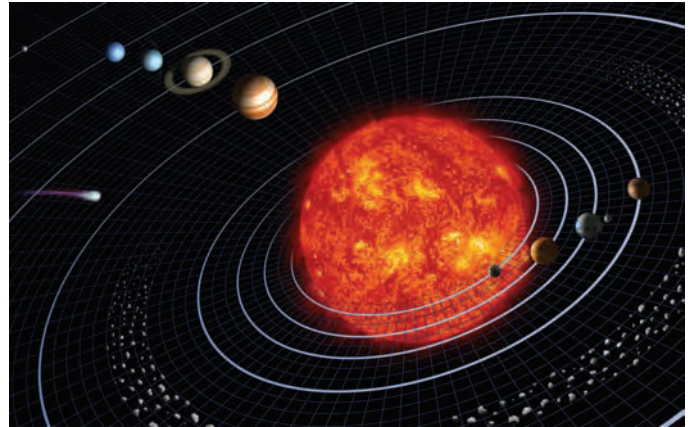
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SPACE ON STAMPS

It wasn't long before real (as opposed to fictional) American astronauts were walking in space, circling the Moon, and finally landing on the Moon itself. The incredible moment when television viewers were able to watch astronauts Neil Armstrong and "Buzz" Aldrin walking on the lunar surface would not be matched in public excitement until the 1997 landing of the Mars *Pathfinder* and the first color photographs were sent back from the desolate surface of the "Red Planet."

There were other highlights, of course, such as the cooperative space mission by Cold War rivals Russia and the United States in July 1975, which culminated in a linkup between the *Apollo* and *Soyuz* spacecraft. The mission was designed in part to test the two systems' compatibility for international space rescue and to explore the possibilities for future joint flights. The U.S. stamps celebrating the event carefully showed neither country, only a cloud-obscured Earth below.



Two individual rocket research scientists have been singled out for special mention in the space stamp program: Robert H. Goddard (1882–1945) is known as the father of modern rocket propulsion. NASA's Goddard Space Flight Center took its motto — "Yesterday's Vision, Tomorrow's Reality" — from a quote by Goddard: "It is difficult to say what is impossible, for the dream of yesterday is the hope of today and the reality of tomorrow." The USPS also recognized the contributions of rocket research scientist Theodore von Karman (1881–1963) whose work on jet propulsion included issues related to flight by subsonic, transonic, and supersonic speeds.

Other stamp releases recognized the numerous U.S. unmanned space missions to explore the solar system as well as the manned flights. In fact, stamp issues celebrating American accomplishments in space proliferated throughout the decades, with the greatest number being released in the 1990s with more than fifty stamps.

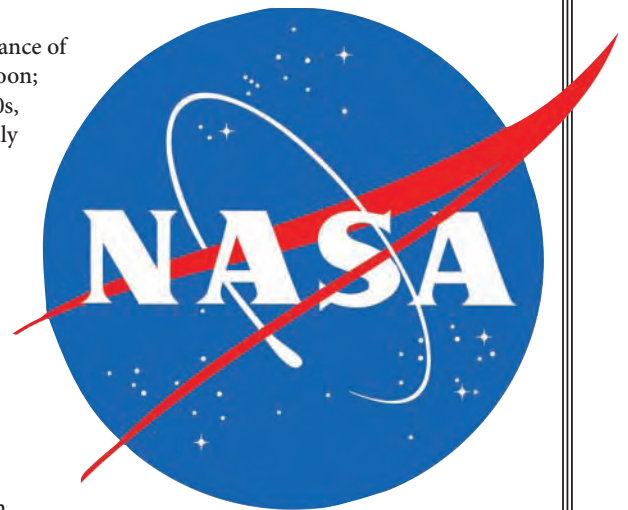
Nevertheless, by 1989 the business of space exploration was gradually becoming so familiar that a note of levity could be injected, and the 20th UPU Congress was recognized with a set of four stamps showing Futuristic Mail Delivery. The 1993 Space Fantasy issue showed fanciful versions of futuristic space vehicles and spacesuits, while a strip of five stamps issued in 1998 also looked to the future with the Space Discovery issue. The strip formed an imaginary scene from a future where humans lived in space colonies on alien worlds.

Four stamps in the Celebrate the Century series recognized the historical significance of the U.S. space achievements: 1950s, U.S. Launches Satellites; 1960s, Man Walks on Moon; 1980s, Space Shuttle Program; and 1990s, Return to Space (3191h). But a fifth — 1960s, *Star Trek* — paid homage to the science fiction television show that urged us "to boldly go where no man has gone before."

A reminder that not just new information about outer space but stunning views of the universe can still be gathered through the lens of a modern telescope can be seen on the Hubble Space Telescope Images set of stamps issued in 2000. That same year the USPS introduced its first round, pentagonal, and holographic stamps with a series of Space souvenir sheets: "Probing the Vastness of Space," "Exploring the Solar System," "Escaping the Gravity of Earth," "Space Achievement and Exploration/World Stamp Expo 2000," and "Landing on the Moon." Space themes also dominated the 2000 "Stampin' the Future Children's Stamp Design Contest Winners" issue.

After that flurry, the only other stamps on space produced by the USPS during the first decade of the twenty-first century belong to the 2005 set of four Constellation stamps, depicting some of the stories written in the night sky as the ancient Greek astronomers imagined them. Of course, stretching things even further, one might want to include the pane of fifteen stamps issued in 2007 to mark the thirtieth anniversary of that iconic space adventure series, the *Star Wars* movies. After all, it may be a fictional treatment now, but we can only guess at what the future of space exploration will hold.

What a long way we've come from the first U.S. stamp issued to honor the Wright Brothers in 1928.



SPACE ON STAMPS

Civil Aeronautics Conference Scott 649–650 • 1928

The International Civil Aeronautics Conference was held in Washington, DC, December 12–14, 1928 to mark the 25th anniversary of the first powered airplane flight by the Wright Brothers on December 17, 1903. The 2-cent stamp showed the *Wright Flyer I* airplane used at Kitty Hawk, North Carolina, in flight against a background frame of the Washington Monument and the Capitol (Scott 649). The 5-cent stamp used the same background but sent a modern *Ryan B-5 Broughman* airplane soaring out and away from the Earth (Scott 650).

International Geophysical Year • Scott 1107 • 1958

The activities of the International Geophysical Year 1957–58 spanned the globe, spurred in large measure by advances in science that made the exploration of space possible. Both Soviet and American participants in IGY successfully launched satellites into space. The stamp shows a flaring solar disc and the touching hands from Michelangelo's *Creation of Adam*.

Seattle World's Fair, Space Needle • Scott 1196 • 1962

Also known as the Century 21 Exposition, the World's Fair ran April 21–October 21, 1962 in Seattle, Washington. Designed as Seattle's contribution to the fair, the structure rises 605 feet above the ground and was built to withstand 200 mph winds and a category 9.5 earthquake. During the Fair almost 20,000 people a day rode an elevator to the observation deck of the "flying saucer."

Palomar Mountain Observatory Scott 966 • 1948

Palomar Observatory is known for its 200-inch "Big Eye" Hale telescope, 60-inch f/8.75 telescope, 48-inch Samuel Oschin Schmidt telescope/camera, 24-inch-telescope, 18-inch Schmidt telescope/camera, and the Palomar Planet Search Telescope, a small robotic telescope that searches for planets around other stars. The Hale telescope took its first picture in January 1949, a view of the northern sky. Astronomers using the Palomar telescopes have discovered hundreds of asteroids, the Eris dwarf planet, the comet Shoemaker-Levy 9, the first brown dwarf star, and the most distant explosion in the known universe.

Echo 1 — Communications for Peace • Scott 1173 • 1960

The world's first communications satellite, *Echo 1*, was launched into orbit by NASA on August 12, 1960. The satellite was visible to the naked eye and was probably seen by more people than any other man-made object in the night sky.

New York World's Fair, "Rocket Thrower" Scott 1244 • 1964

One of the central themes of the 1964–65 New York World's Fair was space exploration. Featured sights in the 2-acre U.S. Space Park included the Court of Astronauts, Fountain of Planets, Space Park, Unisphere with its three orbit tracks of satellites encircling a giant stainless-steel model of the earth, and the massive bronze sculpture "Rocket Thrower," by Donald De Lue (1897–1988).

Fort Bliss Centennial Scott 976 • 1948

After World War II this old U.S. Army post (established 1849) near El Paso, Texas became the home of America's fledgling guided missile program. The modern space program arose in part from rockets designed as part of this Army Air Defense program.

Project Mercury Scott 1193 • 1962

The stamp image of the *Friendship 7* space capsule orbiting above the Earth and silhouetted against a star-filled universe celebrated the first orbital flight of a U.S. astronaut, Col. John H. Glenn Jr., on February 20, 1962.

Accomplishments in Space • Scott 1331–1332 • 1967

The strip of two stamps features astronaut Ed White making America's first spacewalk, June 3, 1965 (Scott 1331), tethered to the *Gemini 4* space capsule shown orbiting above Earth's horizon (Scott 1332).



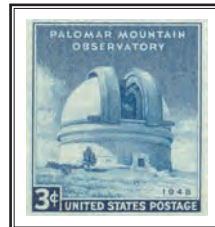
SPACE ON STAMPS



Civil Aeronautics Conference
Scott 649



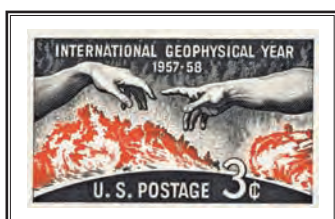
Civil Aeronautics Conference
Scott 650



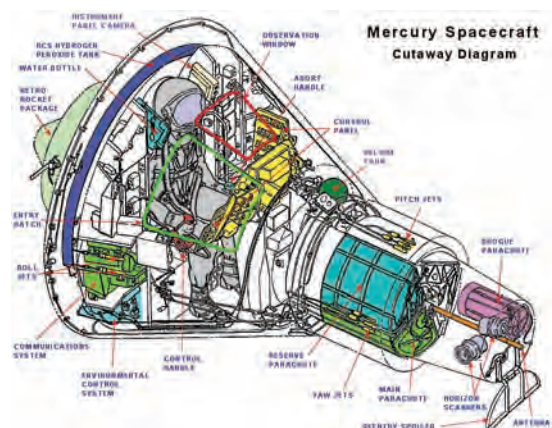
Palomar Mountain
Observatory
Scott 966



Fort Bliss Centennial
Scott 976



International Geophysical Year
Scott 1107



Echo 1 — Communications for
Peace • Scott 1173



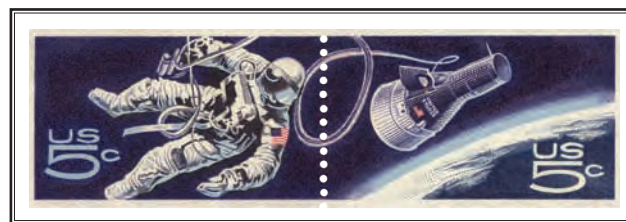
Project Mercury • Scott 1193



Seattle World's Fair,
Space Needle
Scott 1196



New York World's Fair,
"Rocket Thrower" • Scott 1244



Accomplishments in Space • Scott 1331-1332



SPACE ON STAMPS

***Apollo 8* • Scott 1371 • 1969**

The *Apollo 8* mission was the first space journey to put men into orbit around the Moon, December 21–27, 1968. The stamp design features a cropped version of the haunting photograph taken Christmas Eve showing Earth rising against the blackness of space above the lunar horizon. “Earthrise” became an iconic image of the environmentalist movement.

Space Achievement Decade Scott 1434–1435 • 1971

The strip of two stamps celebrates a decade of American space achievements, culminating in the July 26–August 7 *Apollo 15* moon exploration mission. The left-hand stamp shows the Earth, the Sun, and the *Apollo* landing craft (Scott 1434). The right-hand stamp shows two astronauts traveling in the lunar rover (Scott 1435).

***Skylab 1* • Scott 1529 • 1974**

The unmanned *Skylab 1*, America’s first experimental space station, was launched May 14, 1974. However, it was damaged during launch and when the crew finally arrived, via *Skylab 2*, on June 22, their first job was to make repairs so the space station would be habitable. Three 3-man crews occupied the station for a total of 171 days and performed nearly 300 scientific experiments.

Space • Scott 1556–1557 1975

Two stamps celebrate U.S. space accomplishments with unmanned craft launched to explore the far reaches of our solar system and beyond. *Pioneer 10* passed within 81,000 miles of Jupiter on December 10, 1973 (Scott 1556). *Mariner 10* passed both Venus and Mercury in 1974 and managed a second fly-by of Mercury in 1975 (Scott 1557).

Apollo Soyuz Space Project • Scott 1569–1570 • 1975

The final flight of the Apollo space program was also the first flight in which manned spacecraft from different nations docked in space. Scott 1569 shows the *Apollo* and *Soyuz* craft docking above a cloud-streaked blue Earth. Scott 1570 shows the spacecraft before docking, with a view of Earth in the upper left and the Project Emblem in the lower right.

U.S. Postal Service Bicentennial Scott 1575 • 1975

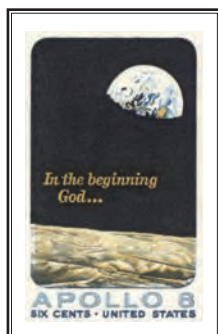
The bicentennial issue honoring the United States Postal Service included four stamps showing old and new versions of mail transportation (the first stamp, Scott 1572, depicted a stagecoach and a modern tractor trailer). The final stamp showed a ground satellite and an orbiting satellite used for transmission of mailgrams. The use of satellites as enhanced communications systems has been one of the great collateral benefits of the old “Arms Race.”

Viking Missions to Mars Scott 1759 • 1978

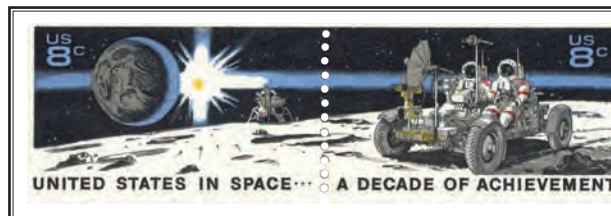
Issued to mark the second anniversary of the landing of *Viking 1* on Mars, the stamp design shows the *Viking 1 Lander* scooping up soil from the Martian surface.



SPACE ON STAMPS



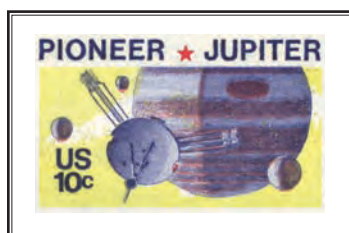
Apollo 8 • Scott 1371



Space Achievement Decade
Scott 1434–1435



Skylab 1 • Scott 1529



Space • Scott 1556



Space • Scott 1557



Apollo Soyuz Space Project • Scott 1569–1570



U.S. Postal Service Bicentennial
Scott 1575



Viking Missions to Mars
Scott 1759



SPACE ON STAMPS

Space Achievement Scott 1912–1919 • 1981

In a celebration of U.S. accomplishments in space exploration, the USPS issued an 8-stamp set of designs including: “Exploring the Moon” (Scott 1912), showing an astronaut on the moon; “Benefitting Mankind” (Scott 1913–1914, 1917–1918) showing views of the *Columbia* space shuttle; “Understanding the Sun” (Scott 1915), showing *Skylab*; “Probing the Planets” (Scott 1916), showing *Pioneer 11*; and “Comprehending the Universe” (Scott 1919), showing a satellite telescope.

Balloons • Scott 2035 • 1982

In 1935 a new altitude record was set by a helium gas balloon, the *Explorer II* that lasted for twenty years. Riding in a sealed gondola to keep from freezing to death, the two-man crew rose high enough to see the curvature of the Earth, 13.7 miles into the atmosphere.

Black Heritage Series: Sojourner Truth Scott 2203 • 1986

Isabella Baumfree (ca.1797–1883) was born a slave in upstate New York who gained her freedom in 1827, after laboring for five masters, some of whom were brutal. Possessed of deep religious convictions, she became a traveling preacher in 1843, taking the name Sojourner Truth. A well-known advocate of abolition and women’s rights, her most quoted speech is the powerful “Ain’t I a Woman?,” given before the Women’s Convention in Akron, Ohio in 1851. The *Pathfinder* Rover that trundled across the surface of Mars in 1997 was named in her honor.

Balloons • Scott 2032 • 1983

The *Intrepid* was used as an observation balloon by the Union Army during the Civil War. Aerial observation allowed orders to be given about troop movements still out of sight of men on the ground.

Moon Landing, 20th Anniversary Scott 2419 • 1989

The Apollo 11 with its 3-man crew lifted off from the Kennedy Space Center July 16, 1969. Four days later the “Eagle” lander set down on the surface of the Moon. Stamp design shows Neil Armstrong and “Buzz” Aldrin raising the U.S. flag on the lunar surface; it was left behind when they departed for home.

Futuristic Space Shuttle • Scott 2543 • 1993

This Priority Mail stamp could easily have been based on one of the “futuristic” designs popular in the science fiction comic strips of the 1930s.

Challenger Space Shuttle • Scott 2544 • 1995

Although the *Challenger* missions, which began in 1983, included the first space walk of the Space Shuttle program, the first American woman astronaut (Sally Ride), and many other achievements, it is most remembered for the tragedy of January 28, 1986, when a booster failure caused an explosion at liftoff, killing all seven astronauts on board, including the first U.S. civilians to join a space shuttle flight: engineer Gregory Jarvis and schoolteacher Christa McAuliffe.

Endeavor Space Shuttle • Scott 2544A • 1995

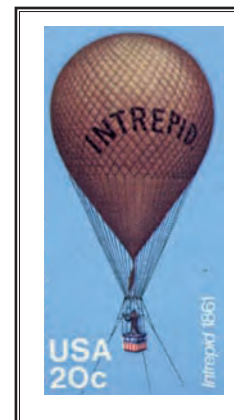
The *Endeavour* was named after the ship commanded by Capt. James Cook in his exploration of the Pacific Ocean in the 18th century. The shuttle first arrived at Kennedy Space Center in May 1991. One of its missions included an 8-hour spacewalk, the longest in history. Among the many improvements to its landing capabilities was the use of a 40-foot-diameter drag chute.



SPACE ON STAMPS



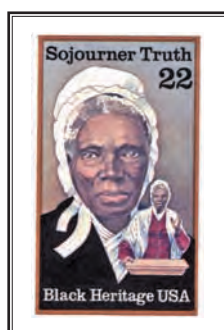
Space Achievement • Scott 1912–1919



Balloons • Scott 2032



Balloons • Scott 2035



Black Heritage Series:
Sojourner Truth
Scott 2203



Moon Landing, 20th
Anniversary • Scott 2419



Futuristic Space Shuttle
Scott 2543



Challenger Space Shuttle
Scott 2544



Endeavor Space Shuttle
Scott 2544A



SPACE ON STAMPS

Space Exploration • Scott 2568–2577 • 1991

Mercury and Mariner 10 (Scott 2568) — *Mariner 10* was actually the seventh successful launch in the series, but it was the first spacecraft to use the gravitational pull of one planet to help it reach another planet, in this case using Venus's gravitational field to fling itself into a flight past Mercury. The spacecraft took hundreds of pictures in its three passes (March 29 and September 21, 1974; March 16, 1975). The final flight was made at an altitude of only 203 miles and showed an intensely cratered Moon-like surface with a very thin atmosphere.

Venus and Mariner 2 (Scott 2569) — *Mariner 2* was the world's first successful interplanetary spacecraft, launched August 27, 1962. It reached Venus for its fly-by mission on December 14, 1962. Its infrared and microwave radiometers showed Venus's surface to be about 800°F (425°C), partly caused by the greenhouse effect of its thick carbon dioxide atmosphere.

Earth and Landsat (Scott 2570) — The Landsat Program is a series of Earth-observing satellite missions begun in 1972 that are jointly managed by NASA and the U.S. Geological Survey, designed to collect information about Earth from space.

Moon and Lunar Orbiter (Scott 2571) — In preparation for the first *Apollo* moon landing in 1969, NASA launched five Lunar Orbiter missions from 1966 through 1967 to map the lunar surface. The orbiters successfully photographed 99% of the Moon to a resolution of 60 meters or better.

Mars and Viking Orbiter (Scott 2572) — The Viking mission to Mars was comprised of two spacecraft, *Viking 1* and *Viking 2*, each of which employed both an orbiter and a lander to collect information. Throughout the mission (*Voyager 1* 1976–1982; *Voyager 2* 1976–1980) the orbiters continued to send back images of the entire surface of Mars, showing volcanoes, lava plains, giant canyons, wind-formed features, and evidence of surface water.

Jupiter and Pioneer 11 (Scott 2573) — The second spacecraft to explore the outer solar system, *Pioneer 11*, was the first mission to visit Saturn. Launched April 5, 1973, it performed a fly-by of Jupiter on December 3, 1974. However, its sister spacecraft, *Pioneer 10*, was actually the first vehicle to obtain close-up images of Jupiter, the solar system's largest planet, on December 3, 1973.

Saturn and Voyager 2 (Scott 2574) — *Voyager 2* was one of a pair of spacecraft launched to explore the planets of the outer solar system. In addition, both *Voyager 1* and *2* had mounted on them a 12-inch gold-plated copper disk with sounds and images of life on Earth. After their primary missions were completed, both spacecraft journeyed on and continue to send scientific information back to Earth. Launched August 20, 1977, *Voyager 2* flew by Saturn on August 5, 1981, capturing about 16,000 images of the ringed planet.

Uranus and Voyager 2 (Scott 2575) — As part of its mission, *Voyager 2* was directed on to Uranus, reaching the giant gaseous planet January 24, 1986. Among the data and approximately 8,000 images of Uranus sent back to NASA was the discovery of ten new orbiting bodies and two new rings around its equator.

Neptune and Voyager 2 (Scott 2576) — *Voyager 2* reached Neptune August 25, 1989. New improvement in image compression technology permitted about 10,000 images to be taken. Originally thought to be too cold to support atmospheric disturbances, large-scale storms on the planet were discovered.

Pluto (Scott 2577) — Traditionally the outermost of our solar system's nine planets, in 2006 tiny Pluto with its erratic orbit was reclassified as a "dwarf planet." Its diameter is estimated to be less than one-fifth of Earth's. NASA launched a new probe, *New Horizons*, in 2006 that is expected to fly by Pluto in 2015.



SPACE ON STAMPS

Space Accomplishments • Scott 2631–2634 • 1992

The block of four stamps celebrates Russia-American cooperation in space. The upper left shows a cosmonaut and a U.S. space shuttle (Scott 2631); the upper right shows an astronaut and a Russian space station (Scott 2632); the lower left shows *Sputnik*, *Vostok*, *Apollo Command*, and lunar modules (Scott 2633); the lower right shows *Soyuz*, *Mercury*, and *Gemini* spacecraft (Scott 2634).

Theodore von Karman Scott 2699 • 1992

Born in Budapest, Theodore von Karman (1881–1963) became a U.S. citizen in 1936. During World War I he invented an early version of a helicopter to try to solve some of the problems associated with the observation balloons still being used by the military. Later he became chair of the U.S. Army Air Force's Scientific Advisory Group, studying rocket and guided missile technology and jet propulsion. His own research into issues related to subsonic, transonic, and supersonic speeds was invaluable to modern rocket flight.



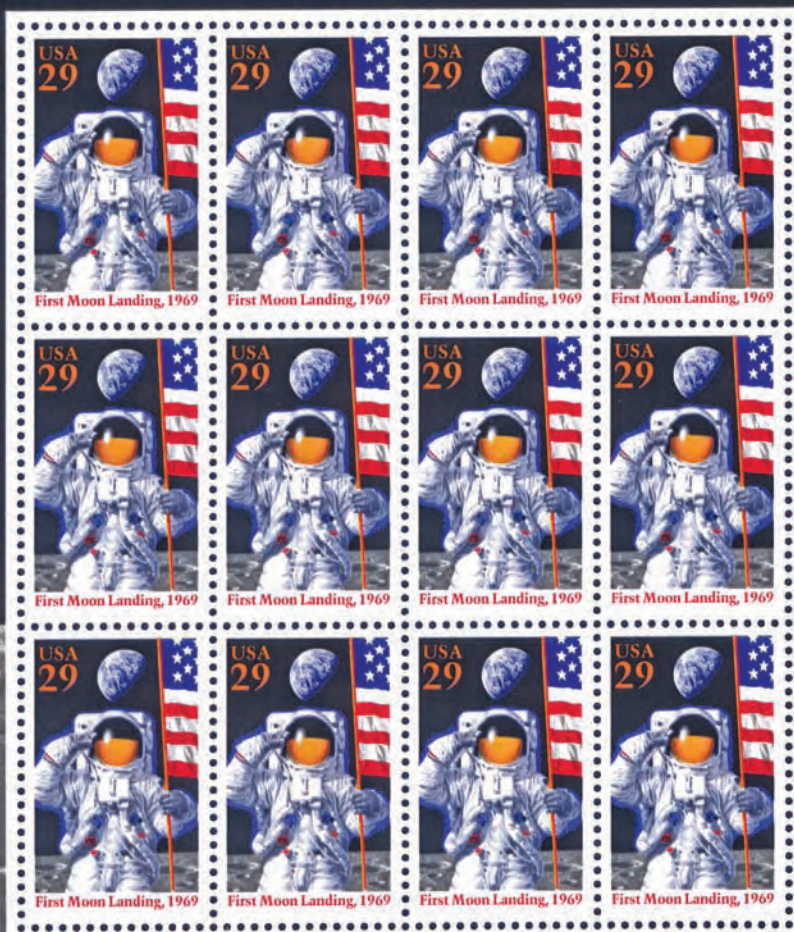
Space Fantasy • Scott 2741–2745 • 1993

Once again stamps reflecting on the future of space travel seemed to take their designs from the primitive technology reflected in comic strip spacecraft designs of the 1930s. Flash Gordon beware!

SPACE ON STAMPS

COMMEMORATIVE EDITION

25th Anniversary
of the First
Moon Landing



*"That's one small
step for a man,
one giant leap
for mankind."*

*Neil Armstrong
July 20, 1969*

Moon Landing, 25th Anniversary • Scott 2841 • 1994

"That's one small step for man, one giant leap for mankind" — Neil Armstrong, July 20, 1969. His deletion of the word "a" from his prepared remarks (as shown on the souvenir sheet) changed the tone and made the statement more universal.

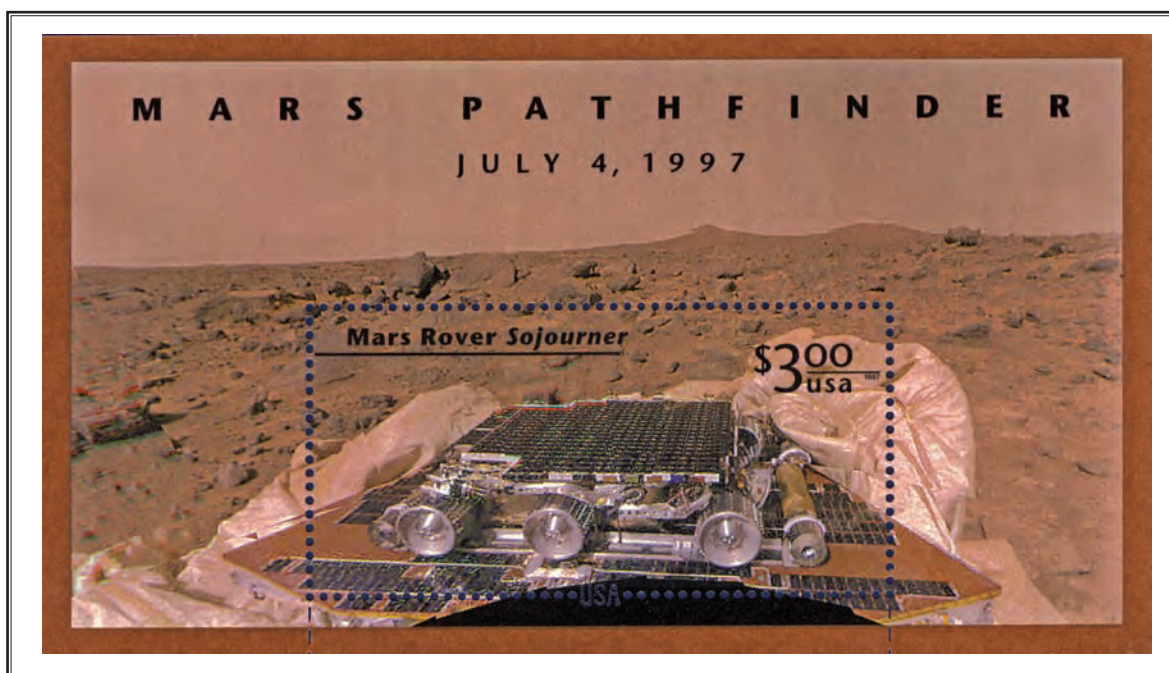


SPACE ON STAMPS



Moon Landing, 25th Anniversary Scott 2842 • 1994

The 25th anniversary of the first Moon landing shows American astronauts saluting the flag, with the lunar lander "Eagle" in the background and Earth rising above the scene.



Mars Pathfinder • Scott 3178 • 1997

The *Pathfinder* landed on Mars on July 4, 1997 after a seven-month flight, at about 40 mph, bounced fifty feet into the air, then bounced and rolled another fifteen times before coming to rest. Two days later the six-wheeled *Sojourner Rover* rolled onto Mars' surface and began its amazing journey to analyze Martian rocks and soil. NASA's final contact with the *Pathfinder* was September 27, 1997.



SPACE ON STAMPS

Celebrate the Century 1950s, U.S. Launches Satellites Scott 3187d • 1999

The first successful U.S. Earth satellite, *Explorer 1*, was launched January 31, 1958. The second, *Vanguard 1*, was launched March 17, 1958. The National Aeronautics and Space Administration (NASA) was formally established October 1, 1958.

Celebrate the Century 1980s, Space Shuttle Program Scott 3190a • 2000

Space shuttles transformed U.S. space exploration. The reusable craft can launch satellites and house labs for scientific experiments. NASA launched *Columbia*, the first space shuttle, April 12, 1981.

Celebrate the Century 1960s, Man Walks on Moon Scott 3188e • 1999

President John F. Kennedy's 1961 commitment to put a man on the Moon was fulfilled July 20, 1969 when the lunar module *Eagle* landed on the lunar surface, and astronauts Neil Armstrong and Buzz Aldrin became the first human beings to leave their footprints in lunar soil.

Celebrate the Century 1990s, Return to Space Scott 3191h • 2000

In 1962, aboard the *Mercury Friendship 7*, John Glenn became the first American to orbit Earth. His 1998 return to space at age 77, aboard the shuttle *Discovery*, heightened interest in the space program and provided valuable data to the National Institutes of Health on issues related to geriatrics and space travel.

Celebrate the Century 1960s, *Star Trek: Space the Final Frontier* • Scott 3188e • 1999

These are the voyages of the Starship, *Enterprise*. Its 5-year mission: to explore strange new worlds, to seek out new life and new civilizations, to boldly go where no man has gone before!" The iconic television series premiered in 1966 and ran a short three years. The story was set in the 23rd century after a third world war when humanity, in alliance with other races in the known universe, has set out to explore the stars. Captain James T. Kirk, Mr. Spock, Dr. McCoy, and the other crew members of the USS *Enterprise* won lifelong fans, and the series became one of the most successful television shows in history. It spawned four spin-off series, an animated series, and six movies.

Space Discovery Scott 3238-3242 • 1998

The strip of five stamps was issued at the John F. Kennedy Space Center in Cape Canaveral, Florida to kick off NASA's 40th anniversary celebrations. The strip shows an imaginary scene of colony life on a distant planet. The design elements also include hidden images than can be viewed only through a decoder lens.

Space Shuttle Landing Scott 3261 • 1998

A triple global positioning system allows the *Endeavour* to make a landing at any runway long enough to handle the shuttle's touchdown.

Express Mail, Piggyback Space Shuttle Scott 3262 • 1998

On May 7, 1991 the Space Shuttle orbiter *Endeavour* arrived at Kennedy Space Center's landing area piggybacked on top of NASA's new Space Shuttle Carrier Aircraft.



SPACE ON STAMPS



Celebrate the Century
1950s, U.S. Launches
Satellites • Scott 3187d



Celebrate the Century
1960s, Man Walks on
Moon • Scott 3188e



Celebrate the Century
1960s, *Star Trek: Space the
Final Frontier* • Scott 3188e



Celebrate the Century
1980s, Space Shuttle
Program • Scott 3190a



Celebrate the Century
1990s, Return to Space
Scott 3191h



Space Discovery • Scott 3238–3242



Space Shuttle Landing
Scott 3261



Express Mail, Piggyback Space
Shuttle • Scott 3262



SPACE ON STAMPS

Hubble Space Telescope Images • Scott 3384–3388 • 2000

American astronomer Edwin Powell Hubble was honored with a souvenir sheet of stamps featuring photographic images taken through NASA's Hubble Space Telescope on the tenth anniversary of its launching. The deep space views include the Eagle Nebula (Scott 3384), Ring Nebula (Scott 3385), Lagoon Nebula (Scott 3386), Egg Nebula (Scott 3387), and the Galaxy (Scott 3388).



Probing the Vastness of Space • Scott 3409 • 2000

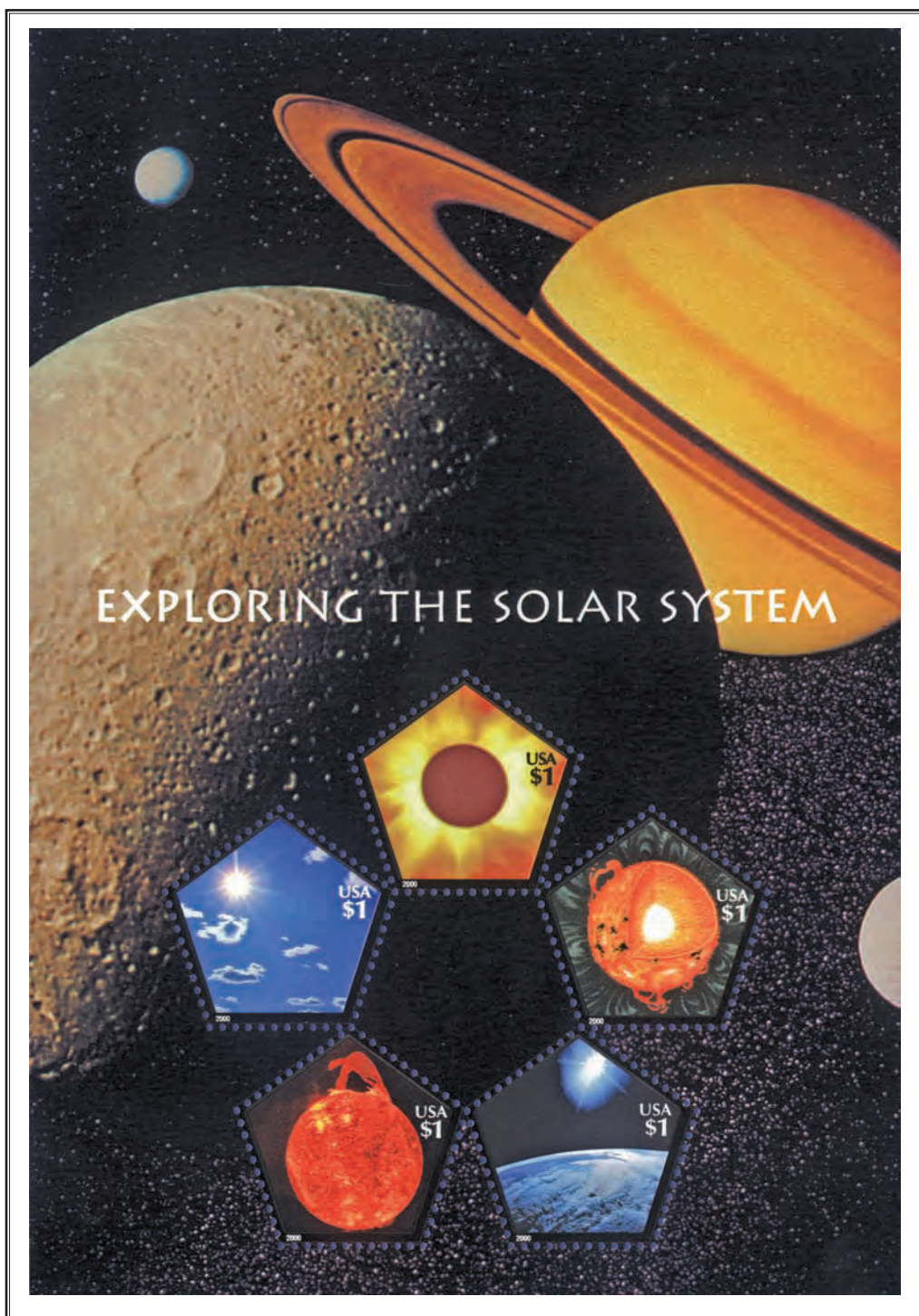
The 60-cent international rate stamps on this souvenir sheet depict the Hubble Space Telescope and other international space telescopes. The souvenir sheet shows an image taken by the Hubble Space Telescope, the stellar nursery known as the Eagle Nebula.



SPACE ON STAMPS

Exploring the Solar System Scott 3410 • 2000

The five stamps on this souvenir sheet are the first pentagonally-shaped stamps to be issued by the United States; each features a different view of the sun. The souvenir sheet shows a montage of Saturn and several of its moons as seen by *Voyager 1*.



SPACE ON STAMPS

Escaping the Gravity of Earth Scott 3411 • 2000

The two Priority Mail rate stamps feature holograms of the International Space Station. The souvenir sheet shows a photograph of astronauts from the October 1984 mission.



SPACE ON STAMPS



Space Achievement & Exploration Scott 3412 • 2000

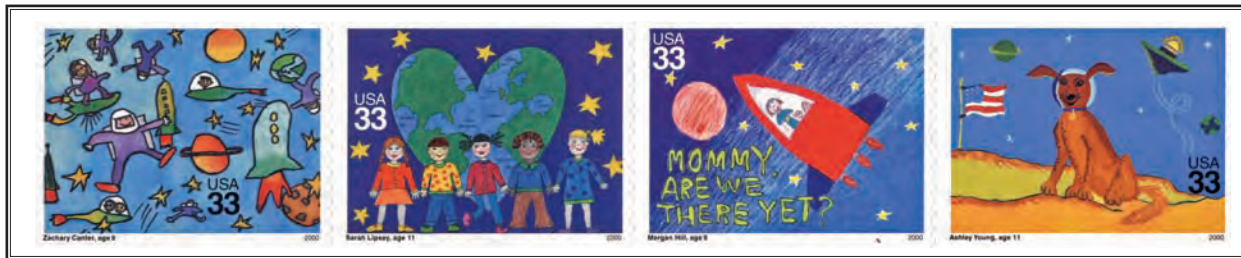
The Express Mail stamp, the first circular stamp and the first holographic stamp in U.S. postal history, features a hologram of the Earth based on images supplied by NASA.

Landing on the Moon Scott 3413 • 2000

The Express Mail stamp features a hologram of a lunar lander. The souvenir sheet was issued to honor *Apollo 16*, the fifth mission to land men on the moon and return them to Earth (April 16–27, 1972). The souvenir sheet shows one of the astronauts walking along the edge of the flag crater. The original photograph included a view of the lunar roving vehicle, a lightweight 4-wheel vehicle capable of carrying two astronauts across the Moon's surface.



SPACE ON STAMPS



Stampin' the Future • Scott 3414–3417 • 2000

The four stamps feature the winning designs from a project that asked students 8–12 years of age to illustrate, in a stamp design, their hopes, dreams, and visions of the future. Zachary Canter, age 9, Kailua, HI (Scott 3414) showed space lanes filled with rockets, astronauts, and other travelers; Sarah Lipsey, age 11, Memphis, TN (Scott 3415) showed a peaceful globe in the shape of a heart against a star-filled sky; Morgan Hill, age 9, Montclair, NJ (Scott 3416) showed a family in space with the caption: “Mommy Are We There Yet?”; and Ashley Young, age 11, Sandy, UT (Scott 3417) showed a space dog posed beside an American flag on an unknown planet.



Constellations • Scott 3945–3948 • 2005

The stamps feature the Northern Hemisphere star patterns known in Greek mythology as Leo the Lion (Scott 3945), the Nemean Lion that came down to Earth from the Moon and terrorized mankind until he was slain by Hercules as one of his Twelve tasks; Orion the Hunter (3946) is one of the oldest recognized constellations, identified by the Greeks with a demi-god who boasted he could hunt and slay any animal but was killed by a small scorpion; Lyra the Lyre (3947) represents the musical instrument carried by Orpheus when he tried to win his wife back from the underworld only to fail when he looked back to see if she was following him; and Pegasus the Winged Horse (3948), who befriended the hero Bellerophon until he tried to fly the magical creature to the home of the gods on top Mt. Olympus and was struck down by Zeus for his presumption.

Premiere of the Movie “Star Wars” • Scott 4143a-o • 2007

This science fiction tale of space adventures in the distant future became a cultural phenomenon that revitalized the fascination with space travel for a jaded public. The commemorative 30th anniversary 15-stamp pane included iconic characters and vehicles from the six movies: Darth Vader (4143a); the *Millennium Falcon* (b); Emperor Palpatine (c); Anakin Skywalker and Obi-Wan Kenobi (d); Luke Skywalker (e); Princess Leia and R2-D2 (f); C-3PO (g); Queen Padmé Amidala (h); Obi-Wan Kenobi (i); Boba Fett (j); Darth Maul (k); Chewbacca and Han Solo (l); X-wing Starfighter (m); Yoda (n); and Stormtroopers (o). The back of the souvenir sheet has extensive text describing the role played by the subject of each stamp.

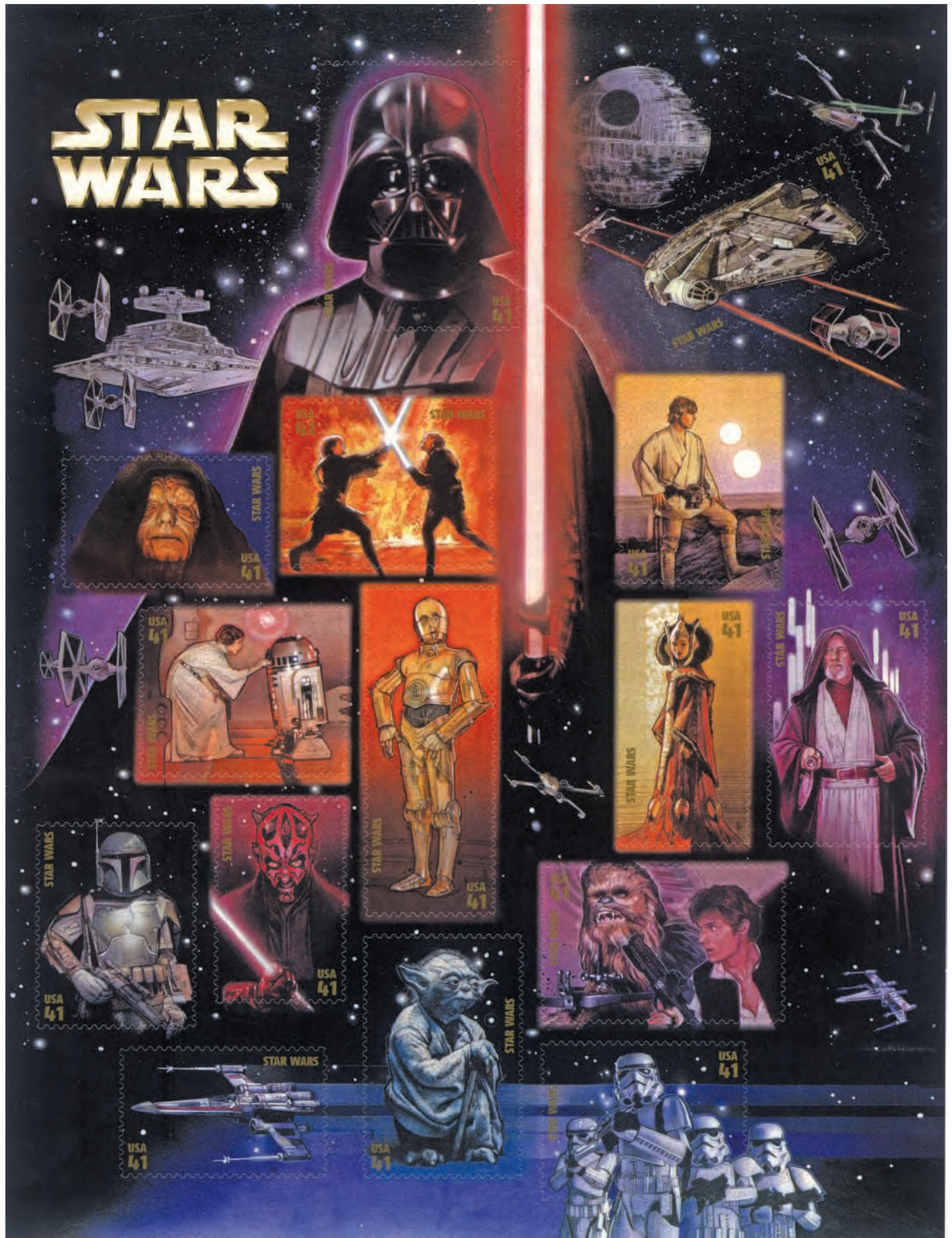


Yoda • Scott 4205 • 2007

Following an online vote for a favorite *Star Wars* character, the USPS issued a commemorative stamp for Jedi Master Yoda, the kindly and wise mentor of Luke Skywalker in the most beloved spaced adventure of all time.



SPACE ON STAMPS



SPACE ON STAMPS

Jupiter Balloon • Scott C54 • 1959

John Wise (1808–1879) was the nation's most famous aeronaut in the 19th century. On August 19, 1859 he undertook the country's first official balloon post flight in the *Jupiter*, leaving Lafayette, Indiana for New York City with 123 letters and 23 circulars that had been marked "PREPAID" by postmaster Thomas Wood, who also required that the mail include the notation "via. Balloon." Although weather conditions were so unfavorable that he only covered 30 miles of his journey (dropping the mail by parachute to be sent on by train), he rose an amazing 14,000 feet into the air — more than 2½ miles — trying to find a favorable wind current. This ascent has to qualify as an early "space" accomplishment. Wise made his final ascent at the age of 71 on September 28, 1879, with a single passenger, George Burr. High winds carried the balloon over Lake Michigan where it disappeared. Although Burr's body later washed up on the Indiana shore of Lake Michigan, no trace of Wise and the *Pathfinder* has ever been found.

Robert H. Goddard Scott C69 • 1964

Dr. Robert H. Goddard (1882–1945) is known as the father of modern rocket propulsion. Although his first successful rocket launch using liquid fuel was in March 1926 at Auburn, Massachusetts, his first two patents were for a rocket using liquid fuel and for a rocket using solid fuel were issued in 1914! Goddard was the first scientist to recognize the potential of missile and space flight and to contribute substantially to their success. He ultimately held 214 patents related to space flight and rocket design and construction. The Goddard Space Flight Center, a NASA's Goddard Space Flight Center in Greenbelt, Maryland, was established in 1959. Goddard Crater on the moon is named in his honor.

Moon Landing Scott C76 • 1969

"The Eagle has landed." On July 20, 1969 perhaps the greatest human technological accomplishment was reached when Neil A. Armstrong stepped off the lunar module "Eagle" onto the surface of the Moon. Armstrong described the surface as being like powdered charcoal. He and fellow astronaut Edwin "Buzz" Aldrin spent 2 hours and 31 minutes on the Moon's surface (the module remained on the Moon for 21.6 hours) and returned to Earth with 44 pounds of lunar material.

20th UPU Congress — Futuristic Mail Delivery • Scott C122–C125 • 1989

Established in 1874 with headquarters in Berne, Switzerland, the Universal Postal Union's governing body, the Universal Postal Congress, attempts to meet every four years to discuss and ratify world postal strategies. The 20th Congress, held in Washington, DC, was recognized with a set of four stamps that looked at Futuristic Mail Delivery: Spacecraft (Scott C122), Air-suspended Hover Car (Scott C123), Moon Rover (C124), and Space Shuttle (Scott C125); also available as a souvenir sheet (Scott C126).



SPACE ON STAMPS



Jupiter Balloon
Scott C54



Robert H. Goddard • Scott C69



Moon Landing • Scott C76



20th UPU Congress — Futuristic Mail Delivery
Scott C122-C125

SPACE ON STAMPS



SPACE ON STAMPS





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