

The Right to Reach for the Stars: Women and the Space Act of 1958

Inaaya Ali, Malak Nassar, and Sarah Zaben

Junior Division

Group Documentary

Process Paper:

446 words

Process Paper

When we heard this year's theme, "Rights and Responsibilities", our minds immediately went to women's rights, and we knew we had to do a project on it. Since women's rights is an extensive topic, we narrowed it down and researched it more profoundly, and eventually came across the role of women in NASA. We decided to do our project on the formation of NASA through the National Aeronautics and Space Act of 1958 and what led to the involvement of women in space exploration. We found this topic interesting as it highlights the struggle for gender equality, and thought it fit well with the theme. The women at NASA had to fight for their right to work in the space industry and break barriers. At the same time, it was NASA's responsibility to recognize their contributions to science and technology.

We researched our topic by going to our local library to find printed sources, and we ended up with valuable primary and secondary books. After gathering printed materials, we expanded our research online and found articles, government documents, and speeches by the president of that time. These sources contributed a lot to our research and helped us deeply understand the challenges women faced at the time when working in space exploration.

We all wanted to try something new because we've only done exhibits and papers in the past, and we thought to ourselves, why not do something creative? Some of us are editors and we decided to try and use our skills in a documentary. We had to create a script and decided to use a timeline. We would make our script in order, from what led up to our event, to the fight for equal opportunities, to the impact and future of women in NASA.

Our historical argument is that while the National Aeronautics and Space Act of 1958 established NASA, it didn't initially ensure equal opportunities for women. However, as women

fought for inclusion in space exploration, NASA was responsible for recognizing their rights and ensuring equal access to careers. Over time, women secured their place in NASA, proving their contributions were crucial to its success. This struggle showcases the theme of rights and responsibilities, as women claimed their right to participate in space exploration, and NASA took on the responsibility of enabling gender equality.

Our topic is significant in history because it highlights women's fight for equality at NASA and in space exploration despite facing discrimination. Their successful protests led to policy changes and NASA recognizing their rights, influencing future missions and leading to more women pursuing careers in STEM and greater representation. Women's contributions greatly helped advancements in space technology and exploration.

Annotated Bibliography

Interviews

Ali, Rimza. Video conference with the author. 12 Mar. 2025.

Rimza Ali is a production engineering manager at NASA who helped us with finding information on the history of women in the space field.

Powell, Christine, and Wilson, Samone. Video conference with the author. 28 Mar. 2025.

Christine Powell is Stennis' Deputy Director, and Samone Wilson is the Public Affairs Specialist. They provided valuable information on women's accomplishments at NASA and helped us by providing more sources.

Primary Sources

Broad, William J. "Woman in the News." *New York Times*, AG Sulzberger,

www.nytimes.com/1983/06/19/us/woman-in-the-news-cool-versatile-astronaut-sally-krist-en-ride-w.html. Accessed 9 Jan. 2025.

This newspaper article, published a day after Sally Ride became the first female astronaut, helped us understand her significance by highlighting her achievements and showing the public's praise.

Ellen Ochoa. May 1999. NASA, www.nasa.gov/former-astronaut-ellen-ochoa/. Accessed 4 Feb. 2025.

This photo gives us a visual representation of astronaut Ellen Ochoa working for the International Space Station in the course of the STS-69 Mission in 1999

"An Interview with Sally Ride." *YouTube*, uploaded by Nova PBS Official, 24 July

2012, www.youtube.com/watch?v=yb6vw9AmiLs&t=665s. Accessed 28 Feb. 2025.

This interview gives us an insight into Sally Ride's experience of being the first American woman to go to space.

Johnson, Katherine G., et al. *My Remarkable Journey: A Memoir*. NY, New York, Harper Large Print, 2021.

This book shares her inspiring life as a NASA mathematician and helps us understand her thoughts. She reflects on her childhood, the challenges of being an African American woman in STEM, and her groundbreaking work in space exploration.

Melba Roy Mouton. TwinCities, MediaNews Group, 17 Feb. 2017, www.twincities.com/2017/02/17/hidden-figures-human-computers/. Accessed 4 Feb. 2025.

This photograph of Melba Roy Mouton, an African American mathematician and the leader of a group known as “Computers” that helped track satellites, visually represents how women contributed in the 60s NASA.

Museum, National Women's History. "The Women of NASA." *National Women's History Museum*, 7 Apr. 2016, www.womenshistory.org/exhibits/women-nasa. Accessed 9 Jan. 2025.

This article on the women of NASA helped us with our research, teaching us about the history of it and how they contributed to NASA’s missions.

NASA. "IBM Electronic Data Processing Machine." 21 Mar. 2023. *KNIT*, knit.ucsd.edu/scholcomm/2023/02/15/oclc-research-library-partnership-rlp-addressing-bias-in-research-analytics/. Accessed 10 Jan. 2025.

This image gives us a visual understanding of what IBM Mainframes, large computer systems, looked like then.

"National Aeronautics and Space Act of 1958, As Amended." *National Archives*, 25 Aug. 2008, ia803008.us.archive.org/6/items/spaceact-legishistory/spaceact-legishistory.pdf. Accessed 9 Jan. 2025.

This document provided an insight into NASA, which helped us understand the legal work behind its creation.

NASA's First Class of Female Astronauts. NASA, 29 Mar. 2010, www.nasa.gov/image-article/nasas-first-class-of-female-astronauts/. Accessed 14 Feb. 2025.

This photograph shows the first six women whom NASA hired as its first female astronauts in 1978.

"National Aeronautics and Space Act of 1958 (Unamended)." *NASA*, 19 Apr. 2024, www.nasa.gov/history/national-aeronautics-and-space-act-of-1958-unamended/. Accessed 13 Dec. 2024.

This document offered us the original text of the National Aeronautics and Space Act of 1958, allowing us to trace NASA's beginnings and original purpose.

Ostovar, Michele. *NASA Administrator Robert Frosch Examines Space Shuttle*

Engines with Sally Ride and Terry Hart. 10 Mar. 2015. *null*, PubSpace, 15 Mar. 2023, www.nasa.gov/image-detail/frosch_5_at_ssc_w_ride_and_hart_jun_1_1979_ssc-1979-00008h/. Accessed 9 Jan. 2025.

This photo of Sally Ride examining space shuttles contributed to our research on NASA's women and helped us understand her role.

President Dwight D. Eisenhower signs the National Aeronautics and Space Act of 1958. *NASA*, www.nasa.gov/history/65-years-ago-the-national-aeronautics-and-space-act-of-1958-creates-nasa/. Accessed 6 Jan. 2025.

This document stated the full details of the act, which helped us fully understand it.

Remembering Sally Ride — 40 years after she shattered the glass ceiling on the way to space. 1983. *CNN*, 18 June 2023, www.cnn.com/2023/06/18/world/sally-ride-nasa-anniversary-scen/index.html. Accessed 4 Feb. 2025.

This image of astronaut Sally Ride shows us what it was like for a woman in space during the STS-7 Mission in 1983.

Sullivan, Kathryn D. *Handprints on Hubble: An Astronaut's Story of Invention*. The MIT Press, 1984.

Kathryn Sullivan's history was key to understanding her contributions to the Hubble Space Telescope, which shows women's important roles in space exploration.

"Vera Huckel." 13 Oct. 2023. *Women's Activism NYC*, 15 Jan. 2021, www.womensactivism.nyc/stories/8655. Accessed 10 Jan. 2025.

This article showed Vera Huckel's role as one of the first female engineers in NASA, offering an example of females breaking barriers.

Secondary Sources

Ackmann, Martha. *The Mercury 13: The Untold Story of Thirteen American Women and the Dream of Space Flight*. Random House Trade Paperbacks, 2004.

This book helped us uncover the story of the Mercury 13, a group of women excluded from NASA's program, showing how women were held back from helping in space exploration.

Cochrane, Dorothy, and P. Ramirez. "Hidden No More: Black Women Groundbreakers

at NASA." *National Air and Space Museum*, 2 Nov. 2021, airandspace.si.edu/Stories/editorial/hidden-no-more-black-women-groundbreakers-nasa. Accessed 9 Jan. 2025.

This article helped us focus on the contributions of Black women at NASA, highlighting their vital roles in advancing space exploration and providing essential diversity context for our research.

Grush, Loren. *The Six: The Untold Story of America's First Women Astronauts*. New York, NY, Scribner, 2023.

This book helped us understand the challenges that NASA's first female astronauts faced, giving us a view of their stories and how they overcame them.

The History of the Space Race. Clint Parks, 18 Sept. 2024, education.nationalgeographic.org/resource/history-space-exploration/. Accessed 4 Jan. 2025.

This article helped us understand the competition between the United States and the Soviet Union in space exploration, which led to many advancements.

Holland, Brynn. "Human Computers: The Early Women of NASA." *History*, A&E Television Networks, 13 Dec. 2016, www.history.com/news/human-computers-women-at-nasa. Accessed 6 Jan. 2025.

This article offered us some history about the female mathematicians at NASA, which shows the work that women did and the role they played.

Holt, Nathalia. *Rise of the Rocket Girls: The Women Who Propelled Us, from Missiles to the Moon to Mars*. Back Bay Books (Little, Brown and Company), 2017.

This book provided us insight into the lives and work of women at NASA's Jet Propulsion Laboratory, which helped us understand their contributions to major space missions.

"The Women Who Brought Us the Moon." *PBS*, WGBH Educational Foundation, 3 June 2019, www.pbs.org/wgbh/americanexperience/features/chasing-moon-women-who-brought-us-moon/. Accessed 6 Jan. 2025.

This website was useful for exploring the contributions of women in the Apollo program, highlighting their roles in the U.S. space program's success.

Johnson, Sandra L. "History Makers and Barrier Breakers: NASA Interns Share the Women Who Inspire Them." *NASA*, PubSpace, 21 Mar. 2022, www.nasa.gov/

people-of-nasa/history-makers-and-barrier-breakers-nasa-interns-share-the-women-who-inspire-them./ Accessed 9 Jan. 2025.

This article provided insight into how NASA interns are inspired by past women, helping us understand the lasting influence of these women in modern space exploration.

Krishna, Swapna. "The Mercury 13: The Women Who Could Have Been NASA's First Female Astronauts." *Space.com*, Future US, Inc., 4 July 2020, www.space.com/mercury-13.html. Accessed 9 Jan. 2025.

This article offered information about the Mercury 13 and their exclusion from NASA's astronaut program, contributing to our understanding of the gender discrimination that shaped women's history in space.

Luabeya, Monika. "Honoring Hidden Figures." *NASA*, SpaceHub, 20 Sept. 2024, www.nasa.gov/image-article/honoring-hidden-figures/. Accessed 10 Jan. 2025.

This article highlights the contributions of women in NASA's history, offering context about their overlooked roles.

Mathias, Marisa. "Mae Jemison." *National Women's History Museum*, 6 Jan. 2019, www.womenshistory.org/education-resources/biographies/mae-jemison. Accessed 9 Jan. 2025.

This article provided important information about Mae Jemison, the first African American woman in space, and her influence on space exploration.

Mortillaro, Nicole. *Searching Beyond the Stars: Seven Women in Science Take on Space's Biggest Questions*. Illustrated by Amanda Key, Annick Press, 2022.

This book focuses on the achievements of seven women in science, offering insights into their groundbreaking work in space exploration.

Nazzal, Jennifer Ross. "Eileen Collins Broke Barriers as America's First Female Space Shuttle Commander." *NASA*, Spacehub, 22 July 2024, www.nasa.gov/history/eileen-collins-broke-barriers-as-americas-first-female-space-shuttle-commander/. Accessed 10 Jan. 2025.

This article helped us learn about Eileen Collins's pioneering role as the first female Commander of a space shuttle, a milestone in NASA's history.

"Pearl I. Young." *NASA*, PubSpace launch, 10 Aug. 2015, www.nasa.gov/centers-and-facilities/langley/pearl-i-young/. Accessed 9 Jan. 2025.

This resource provided valuable information on Pearl I. Young, an important figure in the history of NASA, helping us understand her contributions to the field.

Ross Nazzal, Jennifer. "Kathryn Sullivan: The First American Woman to Walk in Space." *NASA*, 10 Oct. 2024, www.nasa.gov/humans-in-space/kathryn-sullivan-the-first-american-woman-to-walk-in-space/. Accessed 9 Jan. 2025.

This article talked about Kathryn Sullivan's achievement as the first American woman to walk in space, adding depth to our research on women's groundbreaking roles at NASA.

Sherr, Lynn. *Sally Ride: America's First Woman in Space*. Simon & Schuster Paperbacks, 2015.

Sherr's biography of Sally Ride provided us with a deeper understanding of her life and career and her lasting impact on space exploration.

Shetterly, Margot Lee. *Hidden Figures: The American Dream and the Untold Story of the Black Women Mathematicians Who Helped Win the Space Race*. William Morrow, 2016.

Shetterly's book was crucial in uncovering the stories of African American women who made significant contributions to NASA's success, helping us understand their roles in the space race.

Shoichet, Catherine E. "These Highly Trained Scientists and Doctors Were Making History. Reporters Kept Asking Them Sexist Questions by Catherine E. Shoichet, CNN." *CNN World*, 12 Sept. 2023, www.cnn.com/2023/09/12/world/nasa-women-astronauts-the-six-scnc/index.html. Accessed 10 Jan. 2025.

This article highlighted the sexism faced by women astronauts and provided insight into the struggles they overcame to achieve their historic feats.

Society, National Geographic. "Women in NASA." *Education National Geographic*, Clint Parks, 3 Dec. 2024, education.nationalgeographic.org/resource/women-nasa/. Accessed 4 Jan. 2025.

This National Geographic article gave us an overview of the role of women at NASA, helping us understand their significant contributions to the space program.

"Statement by the President Upon Signing the National Aeronautics and Space Act of 1958." *The American Presidency Project*, John Wooley,

www.presidency.ucsb.edu/documents/statement-the-president-upon-signing-the-national-aeronautics-and-space-act-1958. Accessed 13 Dec. 2024.

This statement provided insight into the creation of NASA and its impact, which helped us better understand the historical context of the agency's formation.

Uri, John. "Women Astronauts and the International Space Station." *NASA*, 29 Mar. 2021, www.nasa.gov/history/women-astronauts-and-the-international-space-station/. Accessed 8 Jan. 2025.

This article expanded our understanding of women's roles in the International Space Station program and illustrated their contributions to current space missions.

"Women's History Month." *Women's History Month: Celebrating Women Astronauts 2024*, Johnson Space Center, 1 Mar. 2024, www.nasa.gov/learning-resources/womens-history-month-celebrating-women-astronauts-2024/. Accessed 4 Jan. 2025.

This source highlighted NASA's efforts to celebrate women astronauts during Women's History Month, helping us see their recognition in space programs.

A Woman Space Pioneer HD. Narrated by Natalie Alexander, 2024. *YouTube*, www.youtube.com/watch?v=_TrWvtgw9EI.

This video provided a visual overview of the contributions of women space pioneers, offering a multi-perspective of their work.

"Women in STEM Careers." *NASA*, www.nasa.gov/careers/women-in-stem/. Accessed 2 Jan. 2025.

This source offered valuable information about women's roles in STEM at NASA, helping us understand the ongoing importance of space-related fields.