

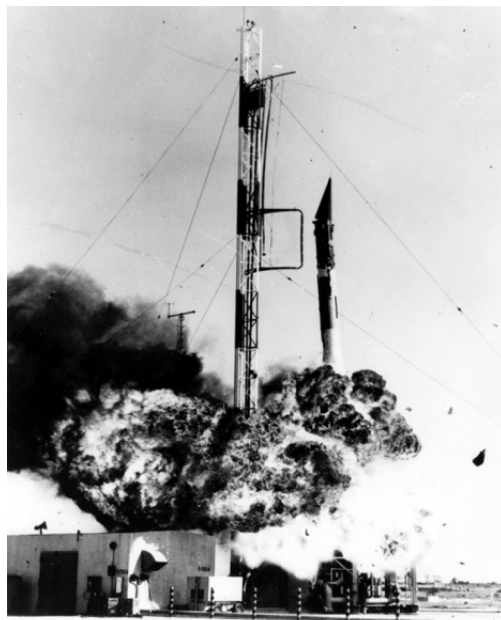


Dwight D.
Eisenhower
Memorial

NATIONAL EISENHOWER MEMORIAL EDUCATIONAL MATERIALS

LESSON

Space Race: Mastery of Space during the Cold War



Duration

One 45-minute period

Grades

7–12

Cross-curriculum Application

U.S. History, World History, English



Historical Background

The United States' effort to develop and test the technology that would eventually put a man on the moon went through a series of impressive breakthroughs and disappointing setbacks in the early years of the Cold War. That effort became particularly urgent when the Soviet Union, the United States' chief adversary in the Cold War, successfully launched the satellite, Sputnik, in October 1957. Just a few months later, in January of 1958, the United States launched its first satellite, Explorer I, into space.

President Eisenhower was a strong proponent of education, establishing the Department of Health, Education, and Welfare, and signing the National Defense Education Act into law in 1958. He especially stressed the need for science education in the United States, and, with the founding of the National Aeronautics and Space Administration (NASA) in 1958, President Eisenhower initiated a campaign that would make the United States the world leader in space exploration.

Eisenhower believed that the United States needed a carefully planned, long term, thoughtful involvement of a space program in conjunction with other national programs that would ensure eventual victory in the Cold War. Although the Soviet Union achieved the first manned space flight in April 1961, the United States followed closely in May 1961 when Alan Shepard, one of the Mercury 7 astronauts, became the first American in space. The U.S. attained the ultimate goal of landing a man on the moon in July 1969 when Apollo 11 astronauts Neil Armstrong and Buzz Aldrin took the first steps on the surface of the moon.

Objective

In this lesson, students will analyze a series of 11 images related to the space programs in both the United States and the Soviet Union in the 1950s and 1960s. Students will create a story in pictures about the Space Race using 7 of the images along with a written paragraph of no more than 250 words explaining the importance of the images they chose within the context of the space race.

Essential Questions

1. How did President Eisenhower demonstrate leadership for space exploration?
 2. What were the most significant setbacks and breakthroughs in the Space Race?
 3. How did the mastery of space fit into Eisenhower's plans to eventually win the Cold War?
-

Sources

- » “Space Race: Launching America’s Era of Space Exploration.” Eisenhower E-Memorial.
<https://www.youtube.com/watch?v=cEeqLJw6OcU>
Teacher Notes: A short video documentary (~9 minutes) on the space race between the United States and the Soviet Union, which began when the Russians launched the first satellite into space in 1957. The video covers President Eisenhower’s focus on science education and national security during his administration through some of the major milestones of the era. Interesting details:
- Eisenhower states that the technology that led to the creation of Sputnik is a scientific achievement that had been long expected and was not a threat to national security.
 - Eisenhower believed that it was the ability to launch the satellite into space that was more significant, as that technology could potentially be used to launch nuclear missiles.
- » “Sputnik and the Space Race.” Eisenhower E-Memorial.
http://eisenhowerfoundation.net/experience/#/space_race
Teacher Notes: This slide show includes text that provides a timeline of events during the Space Race. Interesting details:
- It took years of preparation and tests before a human being could be launched into space as it was unknown how humans would react once out of the earth’s atmosphere.
 - The first flights lasted only a few minutes. John Glenn was the first astronaut to make a complete orbit of the earth in 1962.

Images for A Story in Pictures:

- » “Sputnik.” National Aeronautics and Space Administration.
http://www.nasa.gov/directorates/heo/scan/images/history/October1957_2.html *Teacher Notes: Sputnik, the first artificial satellite, was launched into space by the Union of Soviet Socialist Republics (USSR) in October 1957. Interesting details:*
- The launch of a satellite had long been planned by the United States, but had experienced a series of setbacks.
 - Sputnik weighed about 185 pounds.
 - No experiments were attempted during Sputnik’s orbit and no scientific discoveries were made.



- » “President Eisenhower Delivers Speech on Science and National Security.” Library of Congress.

<https://www.loc.gov/item/2012649174/>

Teacher Notes: President Eisenhower delivered a speech on Science and National Security from the Oval Office of the White House on November 7, 1957.

Interesting details:

- *The object next to Eisenhower’s desk is the nose cone of an experimental missile that had been into space and back.*
- *The speech was televised, which made it possible for the nose cone to be seen by the public.*

- » “Vanguard Rocket Test.” National Aeronautics and Space Administration.

http://www.nasa.gov/multimedia/imagegallery/image_feature_926.html

Teacher Notes: The U.S. Navy’s test of Vanguard rocket, along with its satellite payload, failed when the rocket could not develop sufficient thrust and toppled over on the launch pad on December 6, 1957.

Interesting details:

- *Vanguard was slated to be part of the U.S. International Geophysical Year program.*
- *Vanguard’s mission was to place a satellite into Earth’s orbit to determine atmospheric density and conduct geodetic measurements.*

- » “Explorer I Team.” National Aeronautics and Space Administration.

<http://www.nasa.gov/directorates/heo/scan/images/history/January1958.html>

Teacher Notes: NASA successfully launched Explorer I into orbit in January 1958. Explorer weighed 31 pounds (14 kilograms).

Interesting details:

- *Explorer I accomplished important science while in orbit, including the discovery of the Van Allen radiation belts that protect the Earth from our sun’s solar wind.*

- » “National Aeronautics Space Administration (NASA) Established.” National Archives and Records Administration.

<https://catalog.archives.gov/id/299868>

Teacher Notes: The U.S. space program, the National Aeronautics Space Administration (NASA), was established under civilian control in October 1958.

Interesting details:

- *In Section 102. (a) Congress declares that “activities in space should be devoted to*

peaceful purposes for the benefit of all mankind.”

- *Section 102. (c) (5) stresses the importance of the United States retaining a leadership role in space science and technology.*
- *NASA is a civilian agency and not part of the Department of Defense.*

- » “Mercury 7 Astronauts Introduced.” National Aeronautics and Space Administration.
http://www.nasa.gov/multimedia/imagegallery/image_feature_157.html

Teacher Notes: NASA introduced its first astronaut class, the Mercury 7, on April 9, 1959. Front row, left to right: Walter M. Schirra, Jr., Donald K. “Deke” Slayton, John H. Glenn, Jr., and M. Scott Carpenter; back row, Alan B. Shepard, Jr., Virgil I. “Gus” Grissom, and L. Gordon Cooper, Jr.

Interesting details:

- *Because of the small space in the aircraft, Mercury 7 astronauts could be no taller than 5 feet 11 inches and were required to weigh no more than 180 pounds.*

- » “Project Mercury Ballistic Capsule.” National Aeronautics and Space Administration.
http://www.nasa.gov/multimedia/imagegallery/image_feature_1324_prt.htm

Teacher Notes: This cross section of the Mercury capsule was used by the Space Task Group at the first NASA inspection on October 24, 1959.

Interesting details:

- *Project Mercury objectives included orbiting Earth with a manned spacecraft, researching man’s ability to function in space, and conducting a safe recovery of both man and spacecraft at the completion of the mission.*

- » “Chimpanzee named Ham With Trainers.” National Aeronautics and Space Administration.

http://www.nasa.gov/sites/default/files/thumbnails/image/3-chimpanzee_hamfor_mr-2.jpg

Teacher Notes: On January 31, 1961, Ham became the first chimpanzee in space aboard the Mercury Redstone rocket.

Interesting details:

- *Ham performed well during his 16.5 minute flight. A post-flight medical examination found Ham to be slightly fatigued and dehydrated, but in good shape otherwise.*
- *Ham’s mission paved the way for human astronauts.*

- » “Russian Astronaut Yuri Gagarin Becomes the First Man in Space.” National Archives and Records Administration.

<https://archive.org/details/MSFC-9248173>

Teacher Notes: On April 12, 1961, Russian cosmonaut Yuri Gagarin became the first man in space.

Interesting details:

- *Gagarin’s flight in the Vostok I spacecraft lasted 108 minutes.*

- » “Launch of Freedom 7.” National Aeronautics and Space Administration.

http://www.nasa.gov/sites/default/files/images/284663main_Shepard_Launch_full.jpg

Teacher Notes: On May 5, 1961, Alan B. Shepard, Jr. became the first American in space just 23 days after Yuri Gagarin’s flight.

Interesting details:

- *The main objective of the Mercury project was to determine man’s capabilities in a space environment as well as the rigors of blast-offs and reentry into Earth’s atmosphere.*

- » “Apollo 11.” National Aeronautics and Space Administration.

http://www.nasa.gov/multimedia/imagegallery/image_feature_196.html

Teacher Notes: Image of Apollo 11 astronaut Buzz Aldrin walking on the surface of the moon near the leg of the lunar module Eagle, July 16, 1969.

Interesting details:

- *Apollo 11 Commander Neil Armstrong took this photograph with a 70mm lunar surface camera.*
- *Armstrong and Aldrin explored the moon’s surface for several hours while crewmate Michael Collins orbited above in the command module Columbia.*

Materials

- » “Space Race: Mastery of Space during the Cold War” handout
- » Copies of the 11 possible image sources. The images could be loaded into a presentation program such as PowerPoint to facilitate class discussion either before or after viewing the “Space Race: Launching America’s Era of Space Exploration” video and “Sputnik and the Space Race” subtheme.

Preparation

- Cue video: “Space Race: Launching America’s Era of Space Exploration” (9:18)
<<https://www.youtube.com/watch?v=cEqLJw6OcU>>
- Cue subtheme: “Sputnik and the Space Race” slide show
<http://eisenhowerfoundation.net/experience/#/space_race>
- Print a copy of the “Space Race: Mastery of Space during the Cold War” handout for each student
- Print copies of each of the images to display in the classroom for the students to examine

Procedure

1. Write the Essential Questions on the board: How did President Eisenhower demonstrate leadership for technology and space? What were the most significant setbacks and breakthroughs in the space race?
 2. Show the video: “Space Race: Launching America’s Era of Space Exploration” and the “Sputnik and the Space Race” subtheme slideshow.
 3. Provide the students time to review the 11 images representing the significant milestones in the Space Race. The images could be hung up in the classroom, laid out on a table or desk, or sets of images could be handed out to each student or groups of students.
 4. Each story will begin with the launching of Sputnik and end with the walk on the moon. Students will select the additional 5 images they want to use to complete the “Space Race: Mastery of Space during the Cold War” handout, recording the year of the technology or event; a title or brief description of the image; and a sentence or two on the significance of the technology or event.
 5. Using the information that they have gathered on the worksheet, students should write their own story of the space race in a paragraph in which they support their image choices and describe how each event contributed to the progress of space technology.
 6. If time allows, students may present their stories to the class.
-



Differentiation

Students could be divided into groups of 5 and each group presented with one set of images to study and work together to choose images for their story. Each student could write one caption for the “Space Race: Mastery of Space during the Cold War” handout.

Teachers may also make use of the Teacher Notes that accompany the above sources. Providing these notes to your students may help them to notice important details within the source and help them with the chronology of the events.

Assessment

Per the attached rubric, students will be assessed on their understanding of the significance of the Space Race within the context of the Cold War.

Related Resources

Lesson Plans

- » *America’s Space Program: Exploring a New Frontier.* National Park Service.

<https://www.nps.gov/teachers/classrooms/101space.htm>

This lesson plan emphasizes the importance of studying historic places by using the National Register for Historic Places registration files for Cape Canaveral Air Force Station. An objective of the lesson is to help identify the events that led to the U.S. decision to send a man to the Moon.

- » “Photo Analysis Worksheet.” National Archives and Records Administration

http://www.archives.gov/education/lessons/worksheets/photo_analysis_worksheet.pdf

Secondary Sources and Digital Resources

- » *Vanguard: A History, Chapter 12.* National Aeronautics and Space Administration. <http://history.nasa.gov/SP-4202/chap12.html>
This article is an illustrated history of the United States' Project Vanguard.
- » *Explorer and Early Satellites.* National Aeronautics and Space Administration. http://www.nasa.gov/mission_pages/explorer/index.html
This website features the history of early NASA satellites through images and videos. Included is the first photograph of Earth taken from a weather satellite in 1960, entitled "First Television Picture from Space."
- » *Project Mercury History.* National Aeronautics and Space Administration. https://www.nasa.gov/mission_pages/mercury/missions/program-toc.html
This website details the history of Project Mercury, the first man-in-space program. The site features many images, including Project Mercury drawings and technical diagrams.

Primary Sources

- » *Transcript of press conference regarding launching of Soviet Satellite, October 9, 1957.* Dwight D. Eisenhower Presidential Library. https://www.eisenhowerlibrary.gov/sites/default/files/file/nasa_Binder1.pdf
This document contains a "Summary of Important Facts in the Development by the United States of an Earth Satellite," questions by the press, and Eisenhower's responses.
- » *Memorandum, Dr. Killian to President Eisenhower, progress report regarding missile and satellite programs, December 28, 1957.* Dwight D. Eisenhower Presidential Library. https://www.eisenhowerlibrary.gov/sites/default/files/file/nasa_Binder3.pdf
J. R. Killian, Jr. wrote this memorandum to Dwight D. Eisenhower concerning the progress of the U.S. missile and satellite programs. Killian discussed flight test vehicles and the JUPITER-C satellite program.

Space Race: Mastery of Space during the Cold War Handout

There were many innovations in space technology between the launch of the first satellite in 1957 and the first man to walk on the moon in 1969. Directions: 1) Select five images to illustrate your story of the Space Race. 2) Place your images in order from the earliest event to the latest. 3) Describe your image. 4) Describe the significance of the event or technology that is portrayed in the image.

Year of technology or event	Brief description of the image including any people, objects, or activities	Significance of the technology or event
1957	Image of Sputnik	The USSR's Sputnik was the first man-made object to be propelled into outer space.



Dwight D.
Eisenhower
Memorial

Space Race: Mastery of Space during the Cold War Handout cont.

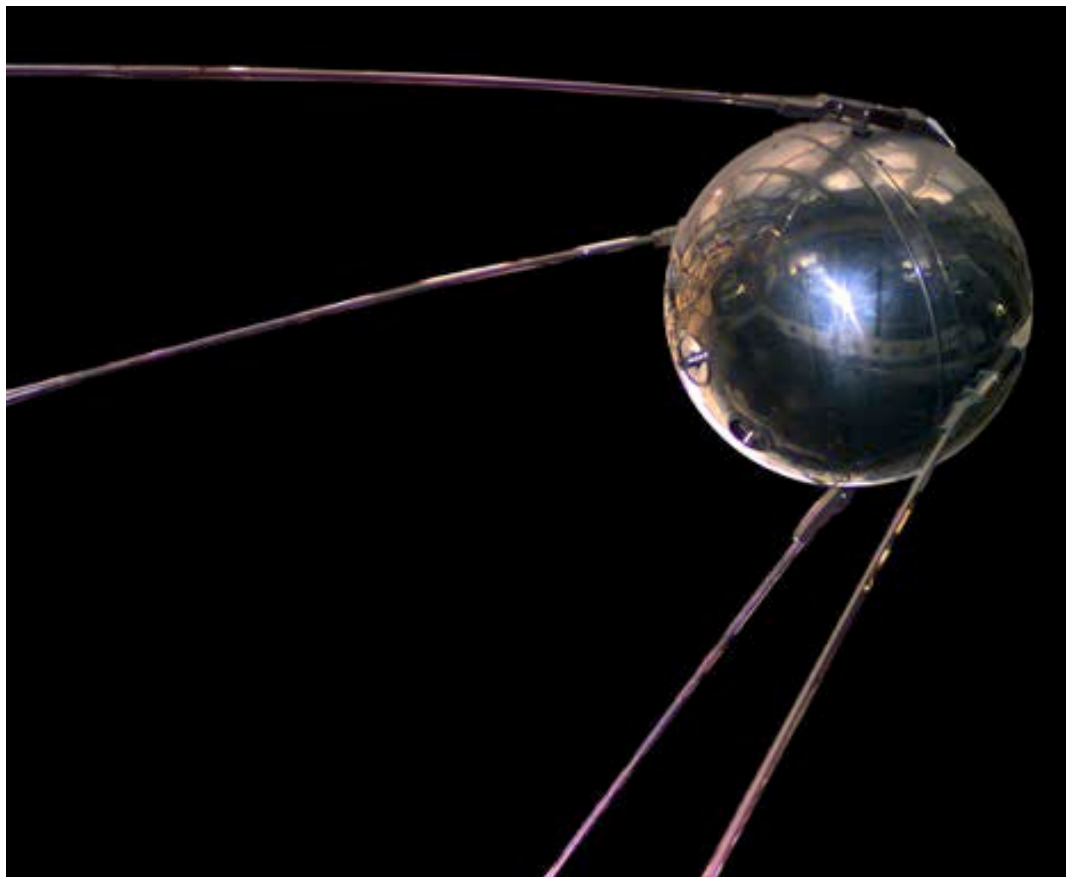
Year of technology or event	Brief description of the image including any people, objects, or activities	Significance of the technology or event
1969	Image of an astronaut walking on the moon's surface.	The U.S. astronauts of Apollo 11 were the first to land on the moon.

5) On a separate sheet of paper, write a paragraph of no more than 250 words explaining why you selected the specific images for your story how they contributed to the United States winning the Space Race even if they initially represented setbacks.



Space Race: Mastery of Space during the Cold War Rubric

	Fully Meets Expectations	Minimally Meets Expectations	Not Yet Within Expectations
	<i>3 points</i>	<i>2 points</i>	<i>1 point</i>
Factual Understanding	The worksheet demonstrates understanding of the main idea of the selected source and identifies its key details.	The worksheet demonstrates understanding of the main idea of the selected source, but does not identify key details.	The worksheet does not demonstrate understanding of the selected source.
Evidence-Based Claim	The worksheet makes a reasonable claim and uses appropriate sources and evidence to support that claim.	The worksheet makes a reasonable claim, but the sources only partially support that claim.	The worksheet makes a claim that is not supported by appropriate sources and evidence.
Presentation	The worksheet is well-organized and clear. No (or only minor) spelling and grammar errors.	The worksheet is somewhat disorganized and unclear. Several spelling and grammar mistakes.	The worksheet is disorganized and unclear. There are many spelling and grammar mistakes.

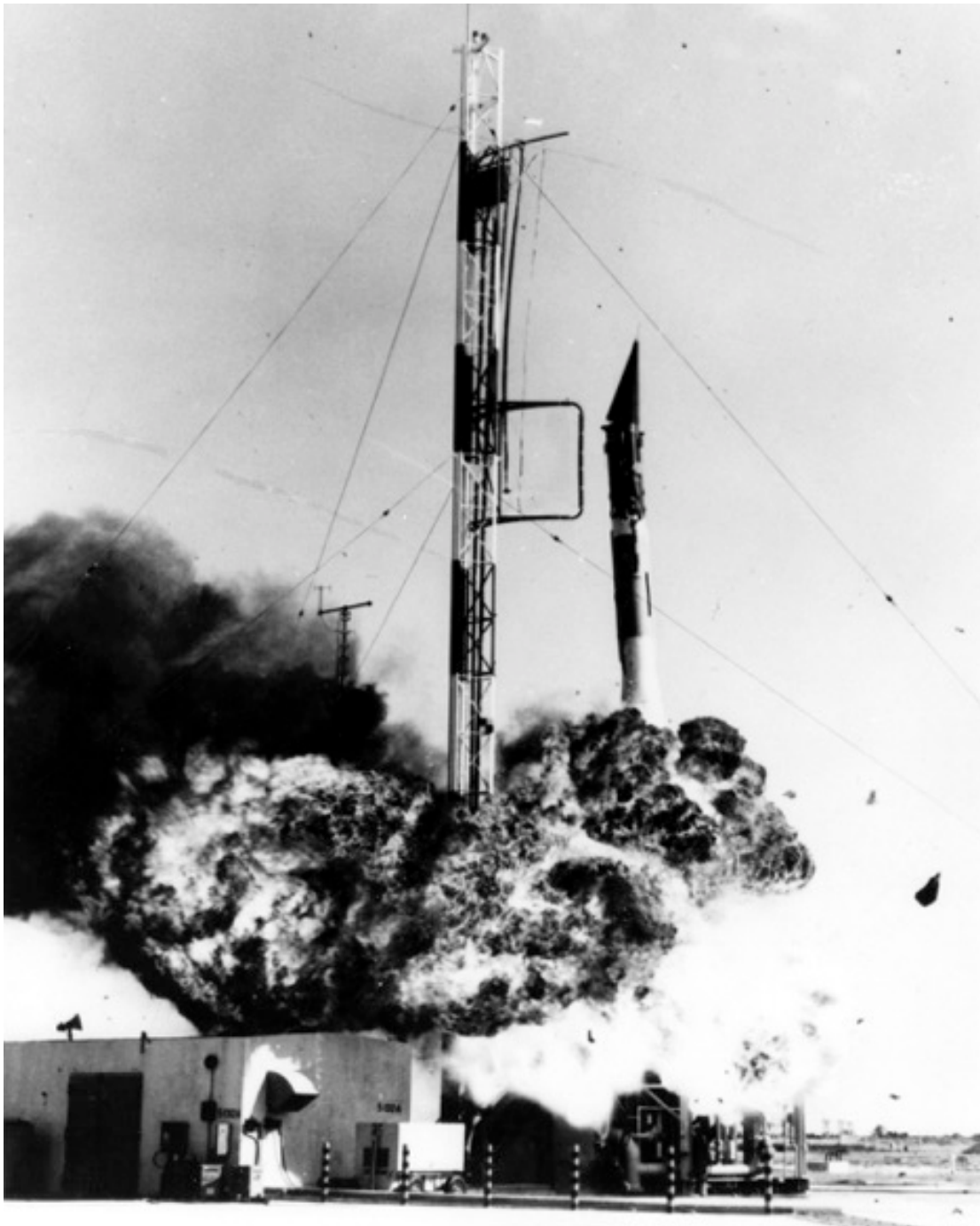


Sputnik was launched into space by the USSR in October 1957.



President Eisenhower delivered a speech on science and national security on November 7, 1957. Next to his desk was a nose cone from a missile that had been into space and back.





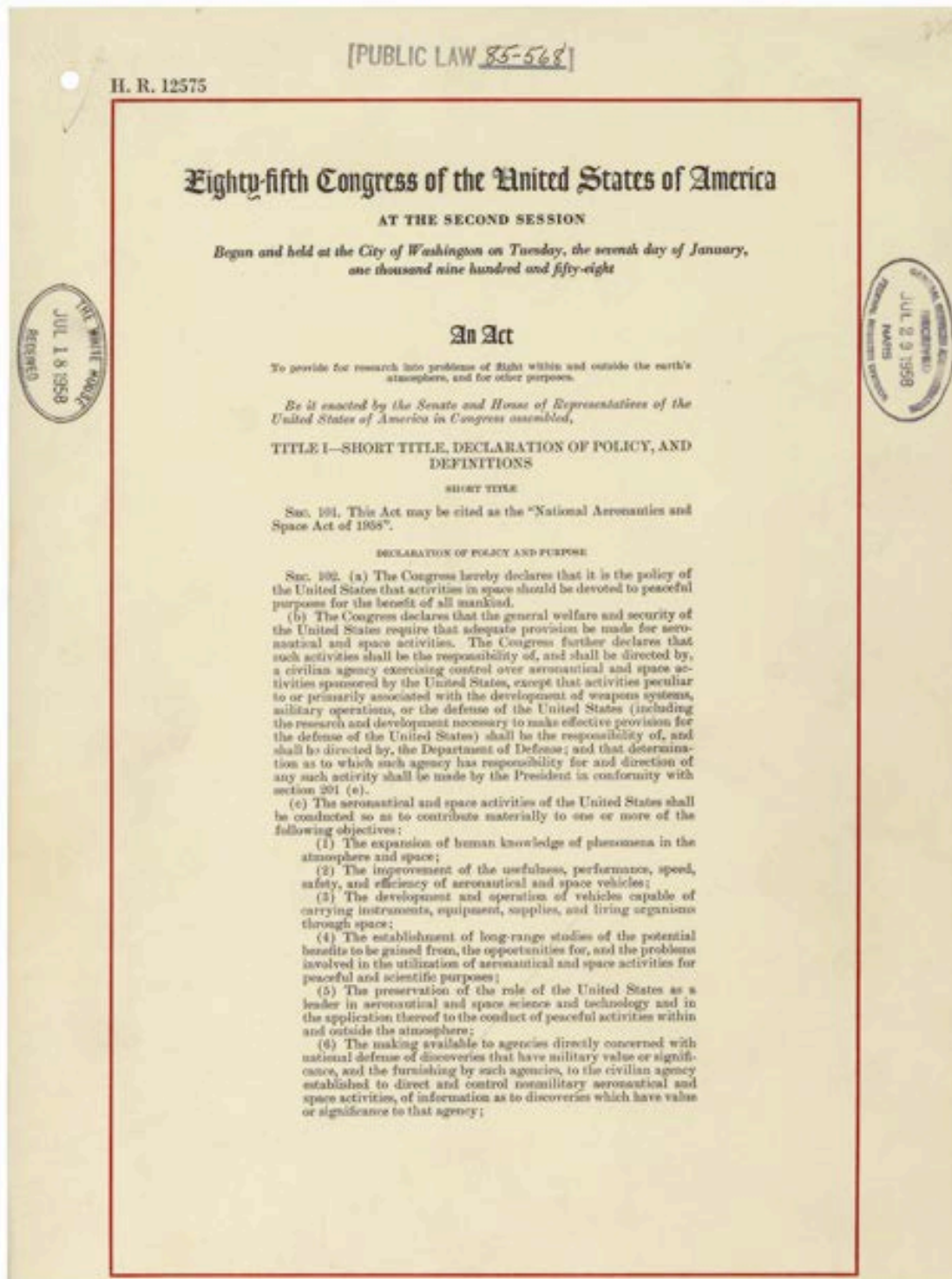
The Vanguard rocket exploded during a test on December 6, 1957.





Explorer I was successfully launched into orbit in January 1958.



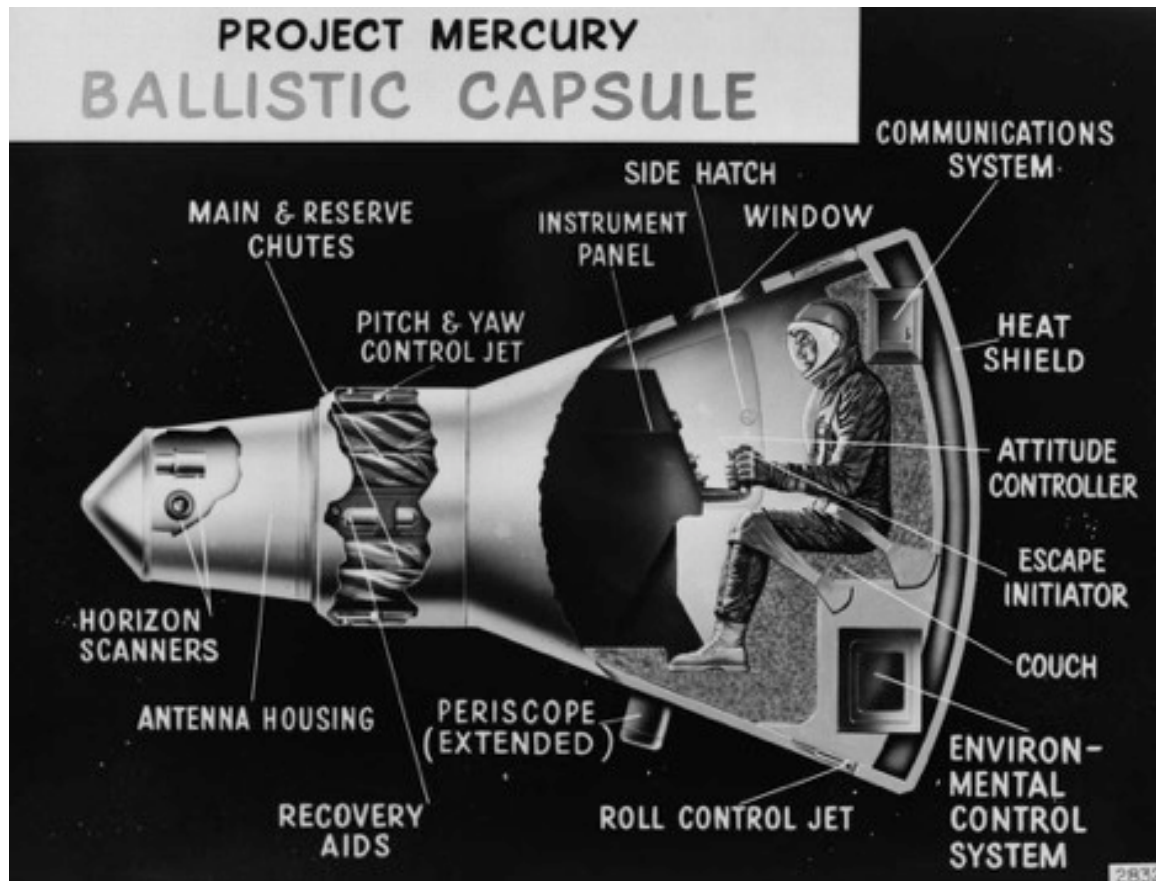


NASA was established in October 1958.





The Mercury 7 astronauts were introduced to the public on April 9, 1959.



This cross section drawing of the Mercury capsule was used at the first NASA inspection on October 24, 1959.



On January 31, 1961, Ham the chimpanzee performed a vital task when he became the first chimpanzee in space aboard the Mercury Redstone Rocket in anticipation of manned flight.



Feature Index

Page	Page	Page
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10

The Huntsville Times

VOL. 10, NO. 11

CHURCH BUILT NEWS SERVICE

HUNTSVILLE, ALABAMA, WEDNESDAY, APR. 12, 1961

ANNOUNCED PRICES - WELLSPOST

Where Progress...

Covers The Valley!

Man Enters Space

'So Close, Yet So Far,' Sighs Cape U.S. Had Hoped For Own Launch

CAPE CANAVERAL, Fla. (AP) — The Redstone rocket which the United States had hoped would launch the first man into space stands on a launching pad here. The Soviet Union beat its firing date by at least two weeks.

"So close, yet so far," commented a technician who is helping groom the Redstone to send one of America's astronauts on a short sub-orbital flight, hopefully one this month or early in May.

Hobbs Admits 1944 Slaying

By Bob White
Macon, Ga. (AP) — James Earl Ray, 34, admitted today in the federal court in Macon, Ga., that he shot and killed the Rev. James Earl Ray, 34, in 1944.



This is Russian Maj. Yuri Gagarin, America's first man in space. The Redstone today reached this point for the first time in an orbiting orbit. He was in the air a total of an hour and 48 minutes.

Soviet Officer Orbits Globe In 5-Ton Ship Maximum Height Reached Reported As 188 Miles

MOSCOW (AP)—A Soviet astronaut has orbited the globe for more than an hour and returned safely to receive the plaudits of scientists and political leaders alike. Soviet announcement of the feat brought praise from President Kennedy and U. S. space experts left behind in the contest to put the first man into space.

By the Soviet account, Maj. Yuri Alekseyevich Gagarin, pilot of a five-ton spaceship, came around the earth, at an orbit taking an hour and 48 minutes. The whole sequence of events and the astronaut's remarks relating to it raised a number of questions. The Soviet announcement said the flight took place today between 9:27 and 10:54 a.m., but some progress in Moscow's Western suburbs were stopped, and the local normally occurred in the city.

To Keep Up, U. S. A. Must Run Like Hell



WERNER VON BRAUN
In Photo Is Russian Ambassador

Praise Is Heaped On Major Gagarin

First Man To Enter Space Is 27, Married, Father Of Two

LONDON (AP)—Soviet scientists presented a picture of the Soviet Union's first man in space today, describing him as a 27-year-old "good Soviet citizen."

The portrait of Maj. Yuri A. Gagarin was shown and the news of his achievement, reported by Moscow radio.

"If those who did not see this picture we should like to give a description of this splendid man."

"He is a young man, 27 years old, a married man, father of two children, a pilot and a cosmonaut. He is a very good citizen, a very good Soviet citizen."

"He is a very good citizen, a very good Soviet citizen. He is a very good citizen, a very good Soviet citizen."

"He is a very good citizen, a very good Soviet citizen. He is a very good citizen, a very good Soviet citizen."

"He is a very good citizen, a very good Soviet citizen. He is a very good citizen, a very good Soviet citizen."

'Worker' Stands By Story

Two weeks later, a Redstone rocket launch of a highly successful mission, which raised the amount of money in the world. The Redstone rocket was launched on the 12th of the month.

The launch of the Redstone rocket was a very successful mission, which raised the amount of money in the world.

The launch of the Redstone rocket was a very successful mission, which raised the amount of money in the world.

The launch of the Redstone rocket was a very successful mission, which raised the amount of money in the world.

The launch of the Redstone rocket was a very successful mission, which raised the amount of money in the world.

The launch of the Redstone rocket was a very successful mission, which raised the amount of money in the world.

The launch of the Redstone rocket was a very successful mission, which raised the amount of money in the world.

The launch of the Redstone rocket was a very successful mission, which raised the amount of money in the world.

Reds Deny Spacemen Have Died

By Bob White
Washington, D.C. (AP) — The Soviet government today denied reports that two American astronauts had died in space.

The Soviet government today denied reports that two American astronauts had died in space.

The Soviet government today denied reports that two American astronauts had died in space.

The Soviet government today denied reports that two American astronauts had died in space.

Reds Win Running Lead In Race To Control Space

Russian cosmonaut Yuri Gagarin became the first man in space on April 12, 1961.



Alan B. Shepard, Jr. became the first American in space aboard Freedom 7 on May 5, 1961.



This image shows Apollo 11 astronaut Buzz Aldrin walking on the surface of the moon on July 16, 1969.

