



SPACE ORIENTATION CENTER

**GEORGE C. MARSHALL
SPACE FLIGHT CENTER
HUNTSVILLE, ALABAMA
[HTTP://HEROICRELICS.ORG](http://heroicrelics.org)**



The United States Congress created the National Aeronautics and Space Administration (NASA) in 1958. This was less than a year after man-made satellites orbiting the earth marked the beginning of the Space Age. NASA is responsible for the exploration of space for peaceful purposes.

NASA headquarters is located in Washington, D. C., but research and development facilities are in many states across the nation. Through its agencies NASA attempts to expand human knowledge of phenomena in earth's atmosphere and in space. It develops aeronautical and space vehicles for manned and unmanned probes. NASA also conducts other activities required for the investigation of space.



The George C. Marshall Space Flight Center (MSFC) is the NASA agency responsible for large space launch vehicles. MSFC officially began operations on July 1, 1960, in Huntsville, Alabama, with a core of rocket experts who had previously worked on missiles for American defense. The Center was named for the American general who won a Nobel prize for peace.

Marshall Space Flight Center's major task today is to provide the giant Saturn vehicles that will be used for manned exploration of the moon. For this purpose it employs directly about 7,000 men and women, and also delegates many projects to private contractors and universities.

Historic achievements which qualified MSFC for its important role include creation and launching by its personnel of the first American satellites, accomplishment of the first flight into space and recovery of animal life, and the safe completion of the first manned space flights of the United States.

SPACE ORIENTATION CENTER



*Dr. Wernher von Braun,
Director Marshall Space Flight Center*

“Our Space Orientation Center seeks to enable every visitor to understand better the exciting Age of Space.

America is helping to make significant history in our space age. Only from a broad base of communication can we develop sustained understanding and participation in space exploration. A continuing mandate from the people will allow America to pursue a sound space program worthy of our imagination and ideals, permitting us to use this knowledge for the benefit of all mankind.”

Dr. von Braun, honored throughout the world for his leading role in rocketry and space research, credits the MSFC team for the many successes achieved.

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In 1959 Dr. von Braun was presented the Distinguished Federal Civilian Service Award by President of the United States, Dwight Eisenhower.



Dr. von Braun receiving an honorary degree for his contributions to rocket research.

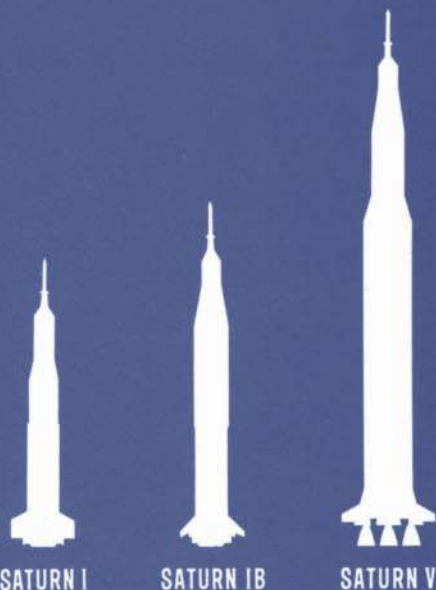


Dr. von Braun and the late President John F. Kennedy discuss our space program during the President's visit to Marshall Center in September 1962.

SATURN I is NASA's first large space vehicle. The 162-foot-long test vehicle can lift 20,000 to 22,000 pounds into earth orbit.

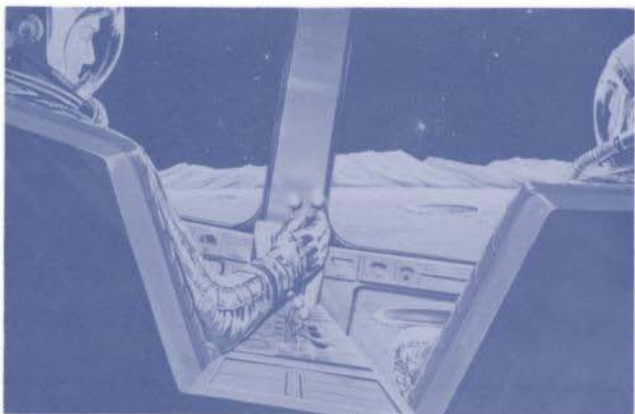
THE SATURN IB, a 207-foot-long vehicle with power to carry 32,000 pounds into earth orbit, combines Saturn I's first stage and Saturn V's third stage.

Chart comparing Saturn I, Saturn IB, and Saturn V.

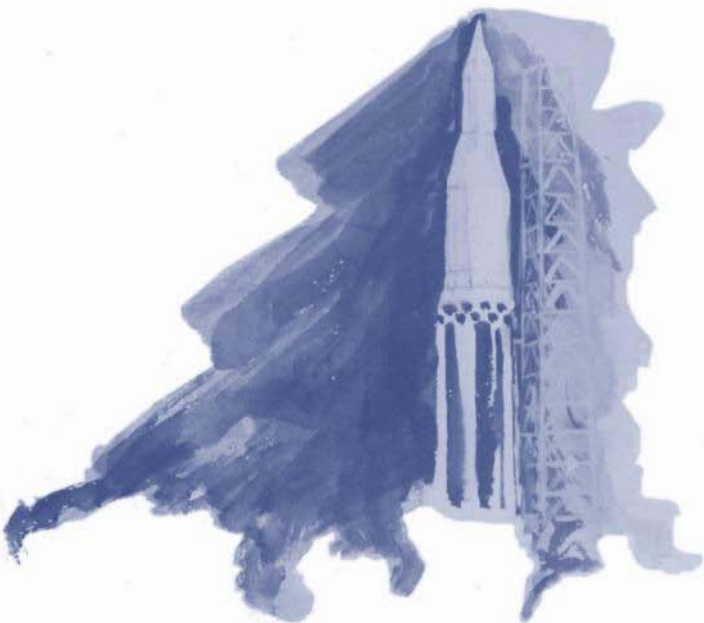


Models can be seen at the Space Orientation Center.

SATURN V will be over 360 feet long with spacecraft (as tall as a thirty-story building) and will have power to lift 240,000 pounds into earth orbit. Saturn V is also expected to place 90,000 pounds in lunar orbit, and 60,000 pounds as far away as Mars.



The first men to land on the moon are expected to journey in an Apollo moonship launched by Saturn V. Prior to that venture, Saturn IB will test the Apollo moonship in earth orbit.



A COLOR FILM OF THIS THIRD SATURN FLIGHT, AS WELL AS FILMS ON THE HISTORY OF SATURN DEVELOPMENT AND A FILM ON ITS LUNAR MISSION, MAY BE SEEN DAILY AT THE SPACE ORIENTATION CENTER.

SPACE ORIENTATION CENTER

B E N E F I T S

THE BENEFITS OF THE SPACE PROGRAM

History has shown that it pays in unexpected but useful ways to try to understand everything on earth, beneath it, and in the heavens. Advances in scientific knowledge spur advances in technology, and these achievements stimulate economic development.

Today we cannot foresee the benefits of space exploration any more than the contemporaries of Columbus could visualize the benefits of the discovery of America.

There are now literally hundreds of dollars-and-cents dividends from our space effort. By-products and applications of space research are emerging daily throughout our economy.

SPACE ORIENTATION CENTER

HERE ARE SEVEN BY-PRODUCTS OF SPACE RESEARCH:

COMMUNICATION — WORLD-WIDE AT LOW COST

WEATHER PREDICTION — ACCURATE ENOUGH TO SAVE MILLIONS OF DOLLARS

NAVIGATION SATELLITES

HEALTH IMPROVEMENT THROUGH NEW DISCOVERIES IN BIOLOGY AND MEDICINE

EDUCATIONAL STIMULATION AND ADVANCE

SECURITY IN THE WORLD COMMUNITY

THE CHALLENGE OF A DRAMATIC AND POSITIVE VENTURE



VISITORS SEE MODEL OF A "SYNCHRO-NOUS" SATELLITE THAT WILL IMPROVE WORLD COMMUNICATIONS.

The Space Orientation Center is open seven days a week, Monday through Saturday, from 8:00 a.m. to 4:30 p.m., and Sunday from 1:00 p.m. to 5:00 p.m.

Visitors not employed at Redstone Arsenal are requested to secure visitors' passes at any Arsenal gate.

In addition to the permanent exhibits described in this brochure, special exhibits such as space suits, capsules, and other significant items will be displayed from time to time when available.

Films will be shown daily, and may also be shown to special groups when requested.



E X H I B I T S

*YOU CAN SEE THE DEVELOPMENT
OF ROCKETRY
AND SHARE IN THE EXPLORATION
OF SPACE BEYOND THE EARTH.*

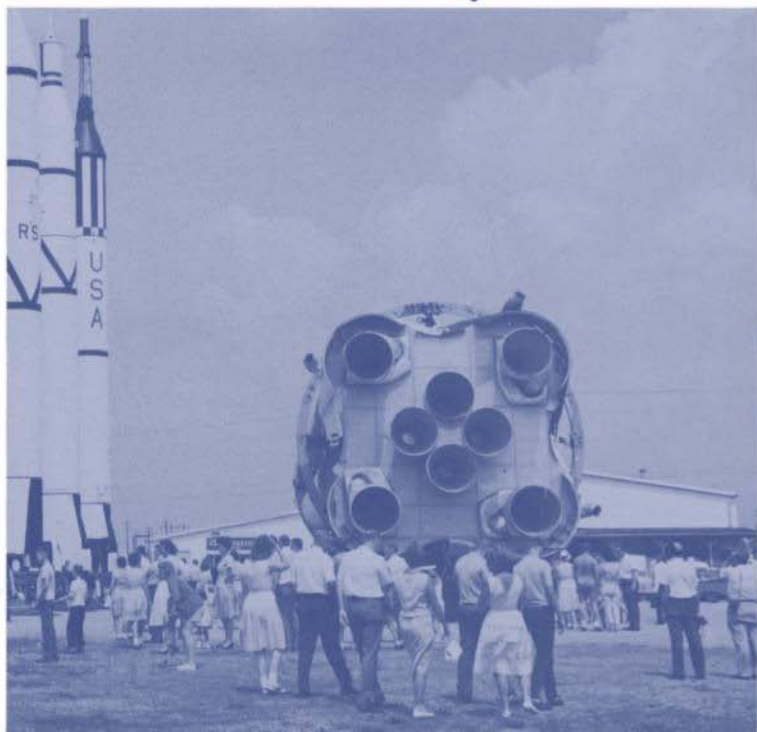
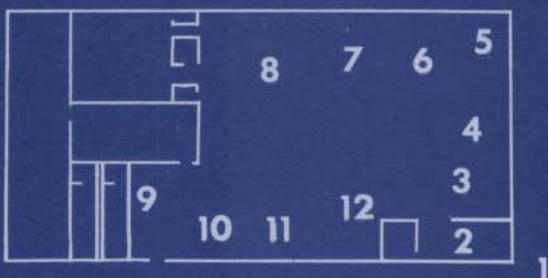
SPACE ORIENTATION CENTER



WORLD-WIDE ACTORS GROUP VISITS SPACE ORIENTATION CENTER



Please follow the numbers indicated on the floor plan.
These numbered exhibits tell the story of the exploration
of the universe.



ACTUAL SATURN BOOSTER IN FRONT OF SPACE ORIENTATION CENTER

EXHIBITS

EXHIBIT NUMBER 1 is the rocket exhibit in front of the Space Orientation Center. The rockets from largest to smallest are:

SATURN BOOSTER—This is the first stage of the Saturn I. Saturn I made its first flight from Cape Canaveral on October 27, 1961.

MERCURY-REDSTONE—The earliest of American manned space vehicles, Mercury-Redstone, launched the first U. S. astronaut, Alan Shepard, on a suborbital flight into space in May, 1961. Later, in July, 1961, it placed our second astronaut, Virgil Grissom, into a similar trajectory over the Atlantic Ocean.

JUPITER C—The Jupiter C, composed of a modified Redstone and solid propellant upper stages, carried three U. S. satellites into orbit. The most famous satellite orbited by Jupiter C was the first United States satellite, Explorer I, launched January 31, 1958. The Jupiter C was developed initially as a re-entry test vehicle.

JUNO II—The Juno II is a four-stage launching vehicle with a modified Jupiter rocket as first-stage booster and with solid propellant upper stages. Some of our most important satellites, including satellites around the sun, were launched by these rockets. They obtained data needed to assure the safety of the first manned space flights.

REDSTONE—The forerunner of larger rockets such as the Jupiter and Saturn, the Redstone was first fired in 1953. Known as “Old Faithful”, it was the basis for the Jupiter C and Mercury-Restone space vehicles.

JUPITER—This intermediate range ballistic missile was a pioneer in space exploration. One of Jupiter’s most successful flights occurred when it carried monkeys Able and Baker on a successful space excursion in May, 1959.

V-2—Developed at the Peenemunde Rocket Center in Germany, the V-2 represents an important contribution to the evolution of rocketry, and thus to space exploration.

HERMES—This Hermes missile, one of the earliest U. S. rockets, is based on the design of the German Wasserfall missile. The Hermes development program began in November, 1944, and contributed heavily to development programs for more advanced rockets.

EXHIBIT NUMBER 2 consists of the pictures on the walls of the reception room inside the front entrance. Highlights in the development of modern rocketry are displayed in chronological order.



VISITORS VIEW THE FIRST LARGE NOSE CONE RECOVERED FROM OUTER SPACE.



A FULL-SIZE MODEL OF THE SPACECRAFT USED TO ORBIT AMERICA'S FIRST ASTRONAUTS IS A FAVORITE DISPLAY.



POWERFUL AND INTRICATE ROCKET ENGINES ARE EXAMINED.



The remaining exhibits, 3 through 12, are in chronological order. (The first two exhibits, 1 and 2, give general views of the history of rocketry).

EXHIBIT NUMBER 3 depicts the history of rocketry from ancient times through the beginnings of modern rocketry. The vastness and complexity of the universe is also indicated by a model of our solar system. Also represented is the parallel research by Russian, German, and American scientists which heralded the space exploration of today.

EXHIBIT NUMBER 4 is the Jupiter C area. The actual firing panel used to launch Explorer I, America's first satellite, can be seen. A replica of that satellite, orbited in January, 1958, and still travelling around the earth, is also displayed. Also to be seen is a replica of the first nose cone recovered from outer space, along with the actual parachute equipment used in its recovery. The original nose cone is in the Smithsonian Institution in Washington, D. C.

EXHIBIT NUMBER 5 features a display of test nose cones by which the problem of re-entry heat was solved. It also depicts

our country's first successful recovery of primates rocketed through space. In this area is included the first full-size nose cone recovered from outer space (camouflaged with a special coating to protect the secrecy of its composition), the parachute used to recover the nose cone, and the balloon used to keep it afloat. This nose cone is identical to the one in which monkeys Able and Baker made their historic flight in 1959, as our first primate "tourists" into space.

EXHIBIT NUMBER 6 is the Juno II area. The actual Juno II firing panel, a Juno II engine, and a large shroud used to protect satellites from aerodynamic heating during the first stage of the rocket's flight can be seen. In addition, there is a display of the revolving upper stages and satellite of a Juno II space vehicle.



A SPACE EXPLORER OF TOMORROW AT WORK.

EXHIBIT NUMBER 7 is the Mercury-Redstone display.

Historic items such as the firing panel used to send the first American into space, and a full-size model of the Mercury spacecraft are in this area.

EXHIBIT NUMBER 8 helps you visualize the giant Saturn class vehicles. Actual engines; models of assembly, testing, and launching facilities; scale models; and many other items tell the story of the huge vehicles being developed for manned exploration of the moon and other planets.



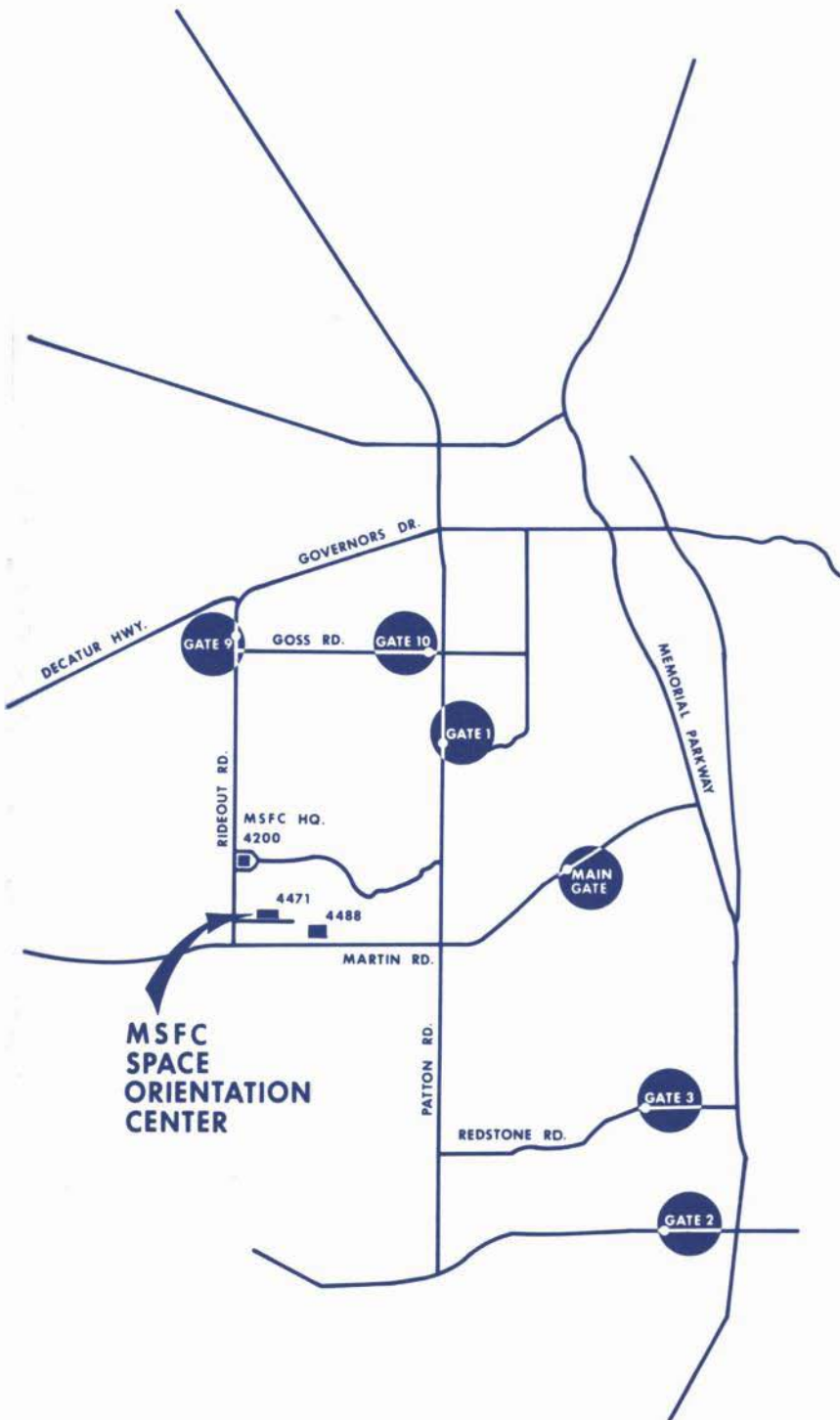
SPACE SCIENTISTS EXAMINE AMERICA'S FIRST SATELLITES.

EXHIBIT NUMBER 9 is a display of some rocket components. Various types of rocket engines are shown in small scale models and compared. You can see guidance equipment, and the guidance display allows you to ride on air, feel the pull of a gyroscope, and see demonstrations of guidance principles.

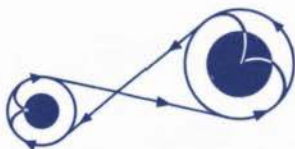
EXHIBIT NUMBER 10 features a display about the nuclear rocket propulsion program. Included in this display is a model of the Reactor-In-Flight-Test (RIFT) vehicle being developed to utilize nuclear power. A model of the first U. S. vehicle propelled by liquid hydrogen, the Atlas-boosted Centaur, can be seen. The Agena B, a 91-foot-high, two-stage vehicle that launched probes to the moon and to Venus, is shown in small scale. Panels enable you to compare American space vehicles and their uses.

EXHIBIT NUMBER 11 is the satellite exhibit. In addition to many actual satellites, you can see a demonstration of the use of solar cells to provide power from the sun for satellite transmitters. Other items are a showcase containing the unassembled parts of Explorer VIII and a model of a "stationary" satellite.

EXHIBIT NUMBER 12 includes a portrayal of all the astronauts. Also, a display indicates some of the many applications of space technology for human benefit, already known or foreseeable. Art inspired from actual working plans permits you to visualize each step in the journey to the moon, the lunar landing, and the return to earth.



**MSFC
SPACE
ORIENTATION
CENTER**



**FROM THE SEVEN SEAS TO THE SOLAR
SYSTEM MAN EXPLORES, FINDING KNOW-
EDGE AND ABUNDANCE FOR ALL MANKIND.**

