The Space & Rocket Center

U.S. SPACE CAMP • NASA VISITOR CENTER

THE ★★★★★ RIGHT STUFF

For Fun!

Souvenir Book

WELCOME

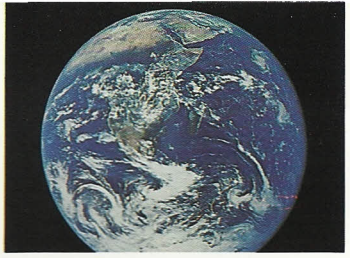
The Space and Rocket Center. Here, both the space science novice and enthusiast may discover anew the enduring dream of life in space. At The Space and Rocket Center, we want you to feel the history, know the present and imagine the future of manned space programs. To stimulate active imaginations and dormant wonderings, we have uniquely assembled a wide variety of artifacts, models, hands-on exhibitry and simulators. Spacedome Theater, one of our most vivid and inspiring presentations, promises a gripping launch to space, a heartwarming introduction to some of America's astronauts and a new awareness of mankind's role in space. Together with NASA, we also offer you a glimpse of actual, ongoing technology through a narrated tour of astronaut training facilities at Marshall Space Flight Center. Tomorrow's astronauts, engineers, educators and scientists have a special place here: U.S. SPACE CAMP® and U.S. SPACE ACADEMY®. The potential of our young people is as limitless as our potential to utilize space and at U.S. SPACE CAMP, trainees learn how their inspiration can advance the hopes and dreams of yesterday and today. SPACE CAMP trainees from across the United States and other countries apply newly-found knowledge and share their special talents for the successful completion of a space shuttle mission. Let's work together to keep the dream alive. I hope you enjoy your visit to The Space & Rocket Center.

Welcome,

Edward O. Buckbee
Director
The Space & Rocket Center

• The Space and Rocket Center is home to U.S. SPACE CAMP and U.S. SPACE ACADEMY, NASA's Visitor Center for Marshall Space Flight Center, one of the most comprehensive U.S. manned spaceflight hardware museums in the world, Spacedome Theater, Rocket Park and Shuttle Park. Here, visitors may trace the evolution of man's ventures into space and watch as tomorrow's potential engineers, scientists, educators and astronauts prepare in the U.S. SPACE CAMP Training Center.

• The Space and Rocket Center offers a variety of public programs, including special "O-S-T" (outer-space tour) group packages which include an overnight stay, commonly at the nearby Marriott Hotel.

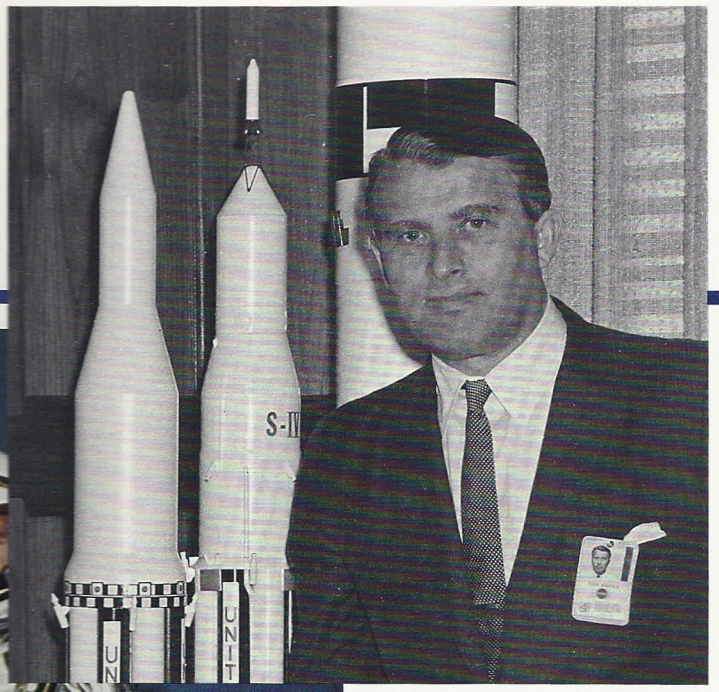


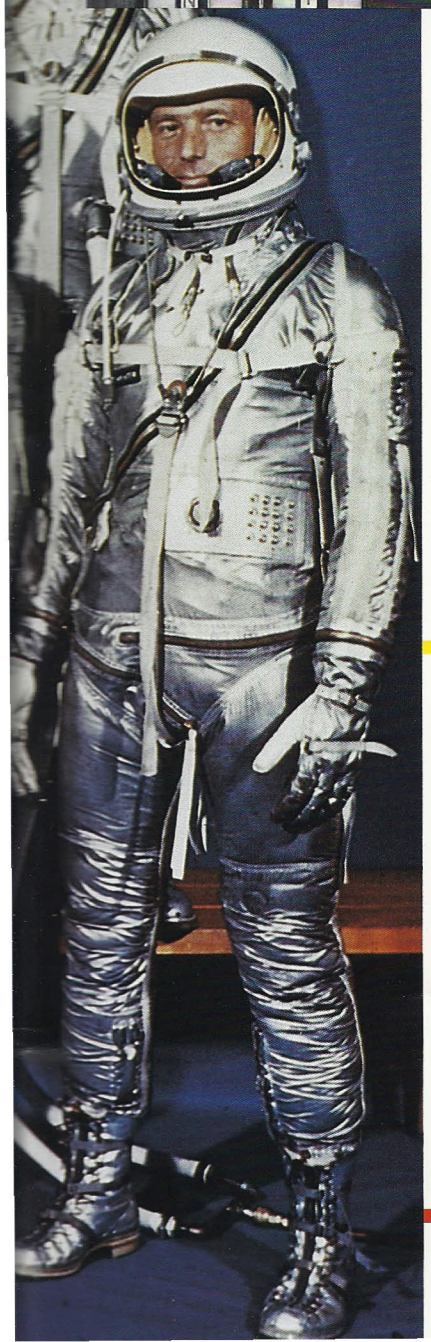
Huntsville, Alabama, has a history rich in aerospace technology.

HISTORY

• Right: Rocket scientist Dr. Wernher von Braun was a man of many dreams. But more importantly, von Braun was a man of action. Through his ingenuity, the U.S. manned space program progressed from drawing board to celebrated success. To ensure his dreams would continue to inspire future generations, von Braun, in 1965, persuaded Alabama officials to create The Space and Rocket Center which opened in 1970.

This history's origins are deeply embedded in the Army's ballistic missile program and the arrival of the Wernher von Braun team of rocket scientists at Redstone Arsenal in 1950. Throughout the 1950's, von Braun and his rocket team worked diligently for the Army in the development of first the Redstone, then the Jupiter and the Saturn missiles. The Explorer satellite program was also an Army project under the von Braun team, as were numerous other missile projects. In 1960, however, under the order of President Eisenhower,

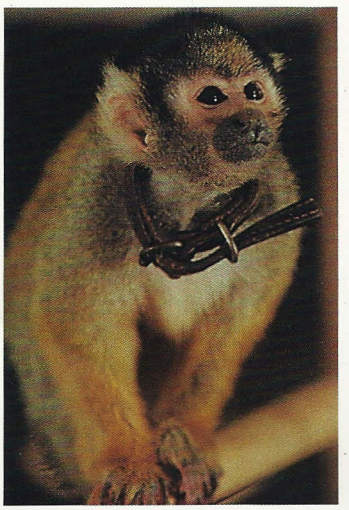


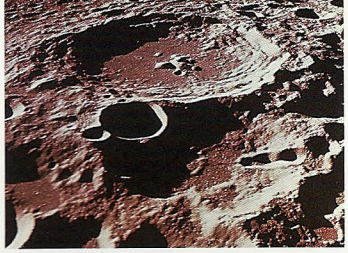


• Left: Truly our nations space pioneers, the Mercury 7 astronauts are: Front row, left to right, Walter M. Schirra, Jr., Donald K. Slayton, John H. Glenn, Jr., and Scott Carpenter; back row, Alan B. Shepard, Jr., Virgil I. "Gus" Grissom and L. Gordon Cooper.

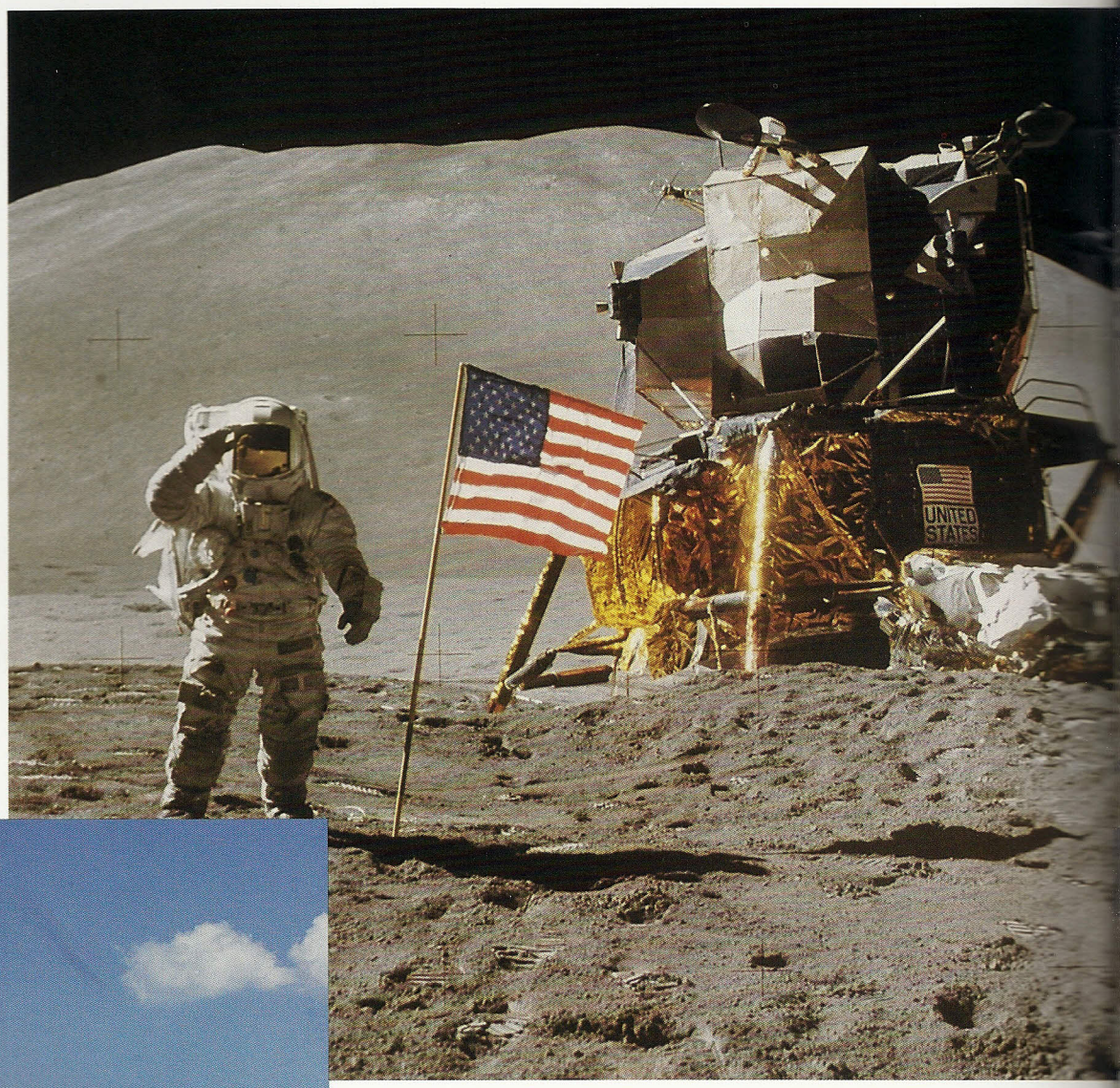
• Right: On May 5, 1961, the Redstone-powered "Freedom 7" spacecraft carried the first U.S. astronaut, Alan B. Shepard, Jr. into space.

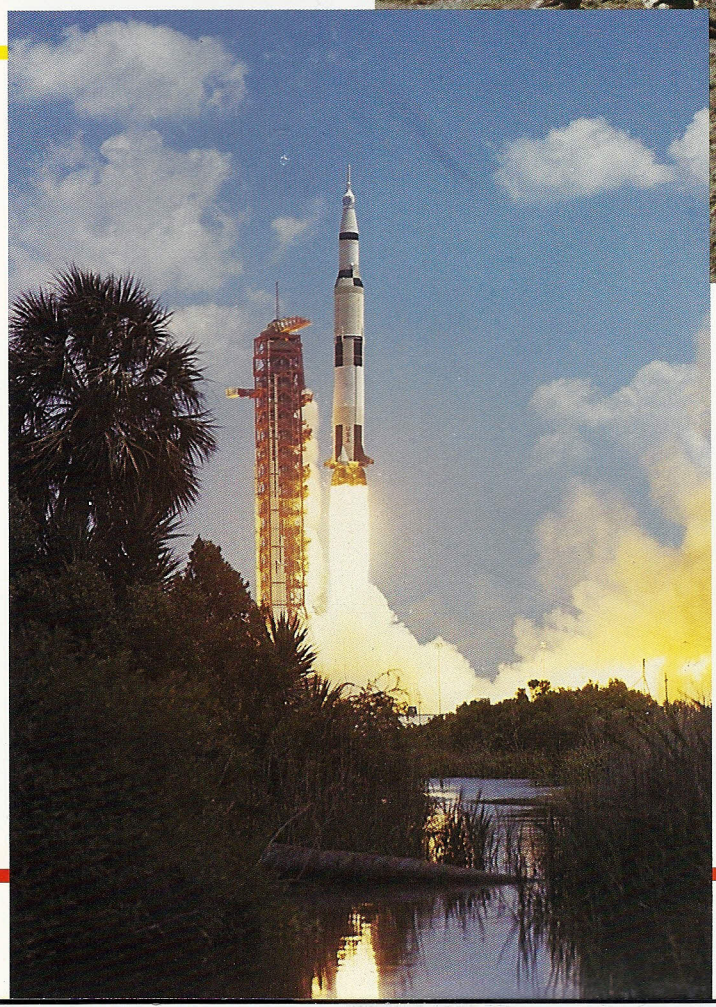
• Below: Miss Baker and fellow "monkeynaut" Able were the first primates launched into space by the U.S. and recovered alive. On May 18, 1959, wearing helmets and space suits, these monkeynauts were launched by a Jupiter rocket which had been developed by the Huntsville based, U.S. Army Ballistic Missile Agency.





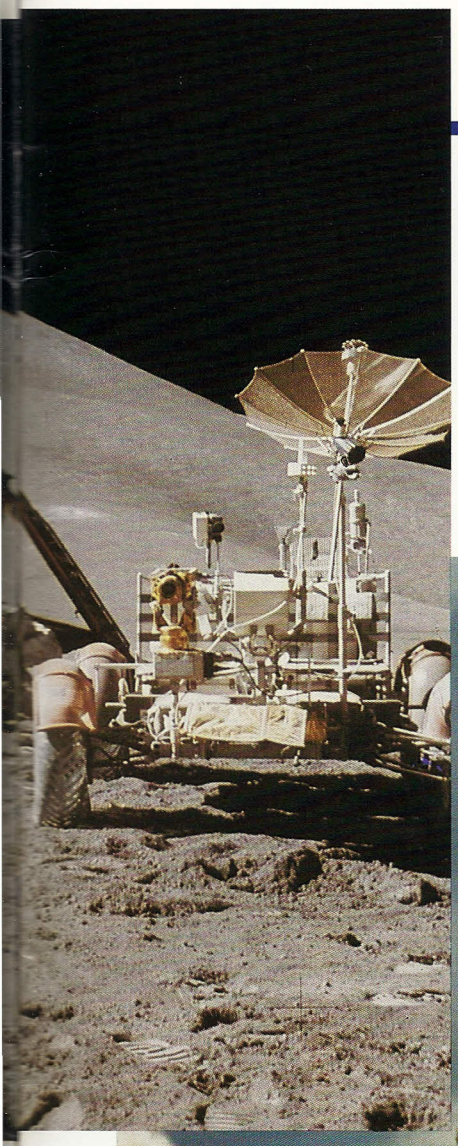
von Braun and his projects were transferred from the Army to the National Aeronautics and Space Administration (NASA) at Marshall Space Flight Center. From that point, more than ever, the dream of America's manned space program was on its way to reality. From the launch of Alan Shepard's Mercury capsule from on top of a modified Redstone, to the current shuttle program, to the future Space Station, Huntsville, Alabama, proudly builds a legacy of dreams that come true.





• *Left: From lift-off at Cape Canaveral, Florida, the three-stage Saturn V lunar launch vehicle sped a total of 18 Apollo astronauts to the moon. The Apollo program included eleven manned orbital flights, six expeditions to the moon's surface, and seventeen development missions. Utilizing the Saturn I, the Saturn IB and the Saturn V, the program existed from October, 1961 through December, 1972. In all, the Saturn V is 281.8 ft. tall but, with the Apollo complex and the umbilical tower, it reaches a height of 363 ft. At lift-off, the Saturn V weighs 6,200,000 pounds and has a thrust of 7,600,000 pounds.*

• *Above: John Young, Apollo 16 astronaut, smartly salutes his fellow Americans after disembarking from the Lunar Module. The Lunar Module, sometimes referred to as "Bug" and "Spider", carried two astronauts and the Lunar Rover from the Apollo capsule to the surface of the moon. Developed at Marshall Space Flight Center, the Lunar Rover enabled Apollo 15, 16 and 17 astronauts to cover over 56 miles and achieve a distance of 4 miles from the Lunar Module. Among the Rover's features: direct radio communications with earth, a television camera, a 15 mm cine-camera and its magazines, a 70 mm ordinary camera, drill, magnetometer, pincers for taking samples, miscellaneous tools, storage closets, drawers beneath the seats and various other items.*



• *Left: The orbiter Enterprise undergoes vibration testing at NASA's Marshall Space Flight Center. Rigorous testing on shuttle propulsion systems is also performed at Marshall and provides NASA with the data necessary for the execution of successful STS launches from Cape Canaveral.*

Rocket Park salutes the work of the von Braun rocket team by

ROCKET PARK

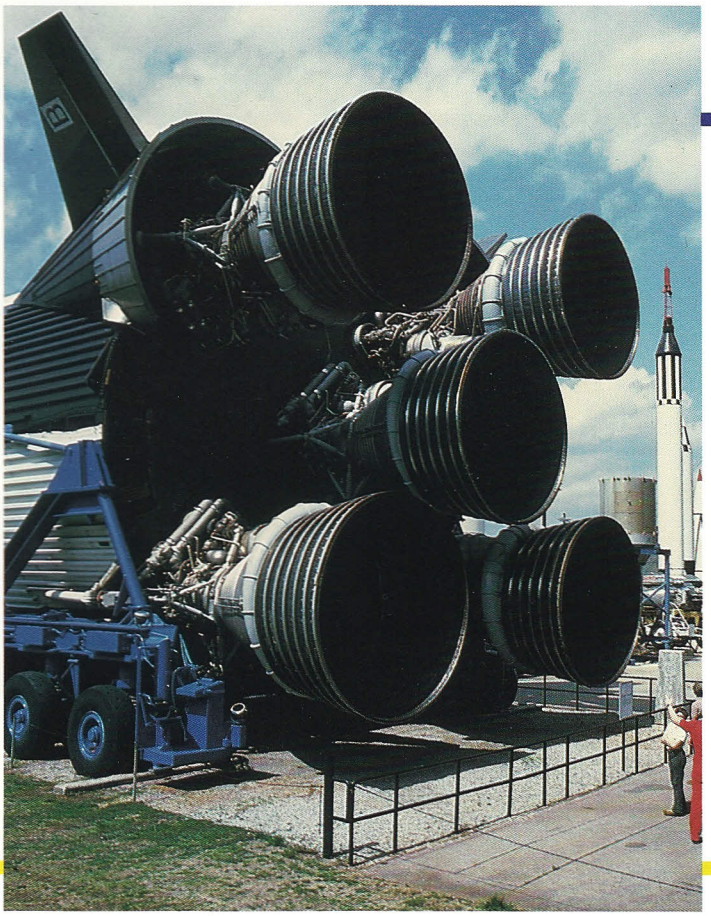
tracing the evolution of rocketry through the early days of the U.S. manned space program. Included in this impressive array are the first rocket to launch a U.S. satellite, the first to put an American in space and the largest U.S. rocket, the 363-foot, three stage Saturn V that took a total of 18 astronauts to the moon. The U.S. Army Missile Command's contributions to national defense is also

• The Space and Rocket Center is proud to display what U.S. Senator and Astronaut John Glenn calls "the finest rocket collection in the world."

• *Below: An Apollo 10th anniversary celebration at The Space and Rocket Center featured a reenactment of the Lunar Module landing on the moon.*

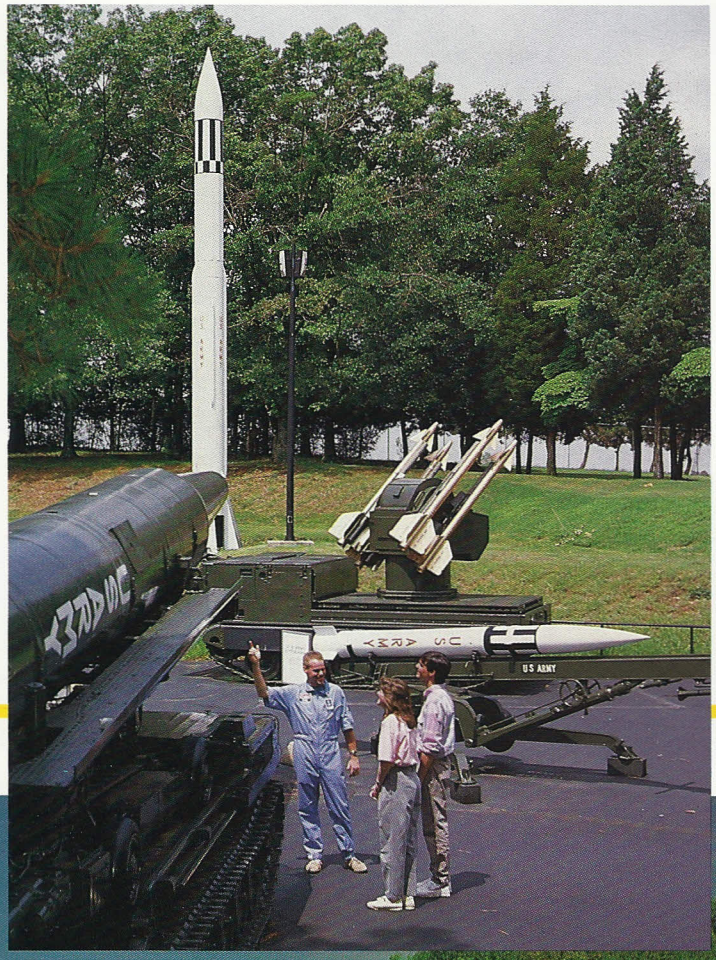
• *Left: The towering Saturn I - Block II was the second in a family of four rockets which also included the Saturn I - Block I, Saturn IB and the Saturn V. The two early Saturn rockets provided vital information for the development of the moon rockets. Below: Here you see the union of yesterday and today with von Braun's early rockets in the foreground and the STS (Shuttle Transportation System) in the background.*

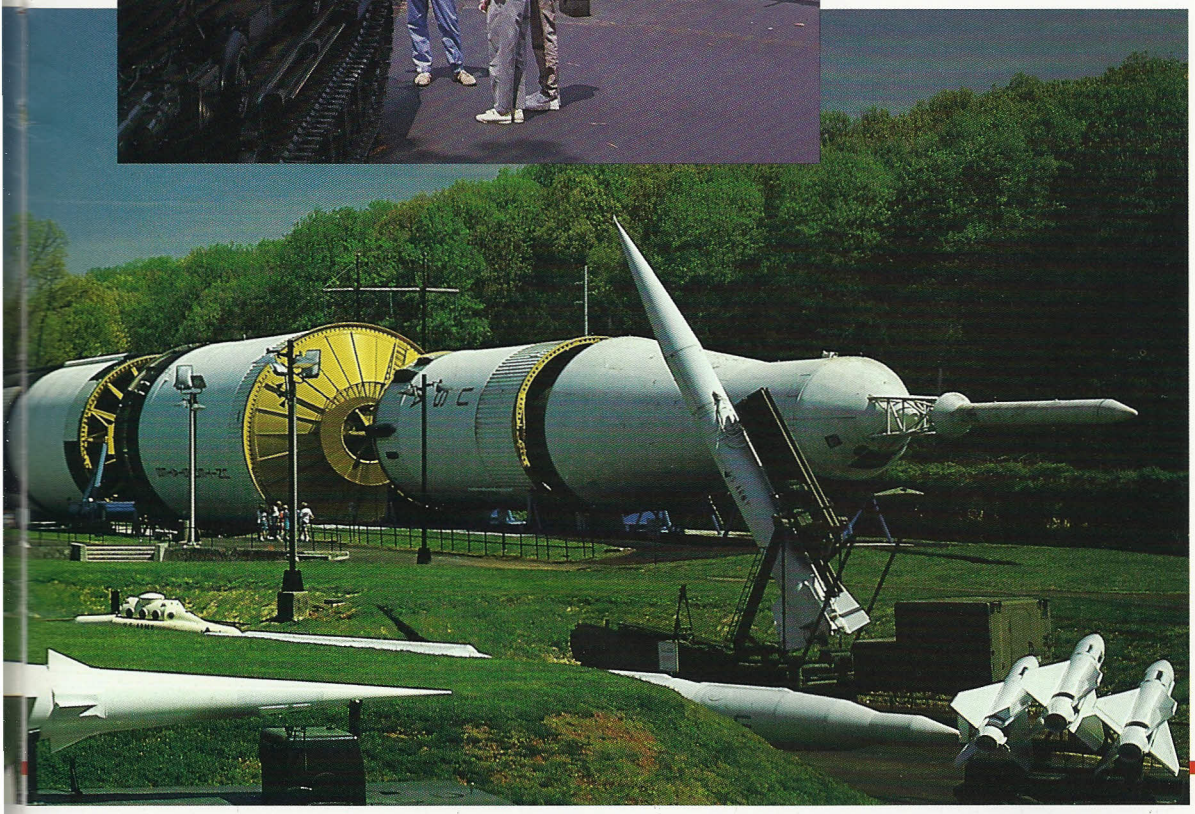
featured in Rocket Park. The systems developed at the nearby Redstone Arsenal provide an impressive review of the nation's defense capabilities. Manufacturers' nameplates signify private contributions to space exploration and national defense.



• Left: The Saturn V lunar launch vehicle has five Rocketdyne F-1 engines, the center one being fixed with the surrounding four being on gimbals. These engines, which burn kerosene and liquid oxygen, are on the first stage of the three-stage rocket. The Saturn V was designed to transport man to the moon and lift tons of cargo into space. During flight, the first stage operates for 2 1/2 minutes and shuts down at 35 miles altitude. In 1987 the U.S. Department of the Interior declared the Saturn V a National Historic Landmark.

• Below: A western view of Rocket Park with the experimental X-15 rocket powered plane centrally positioned.

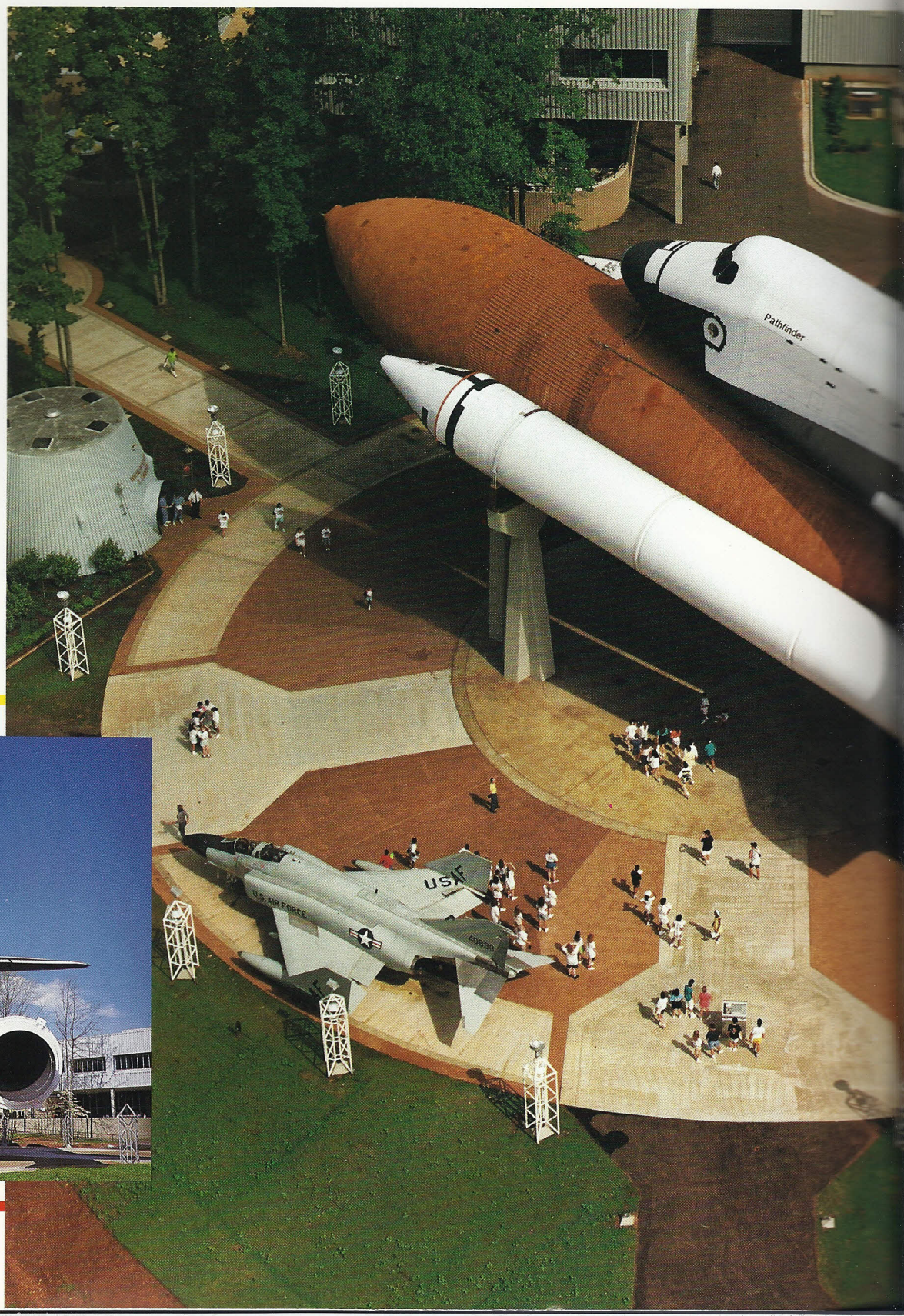


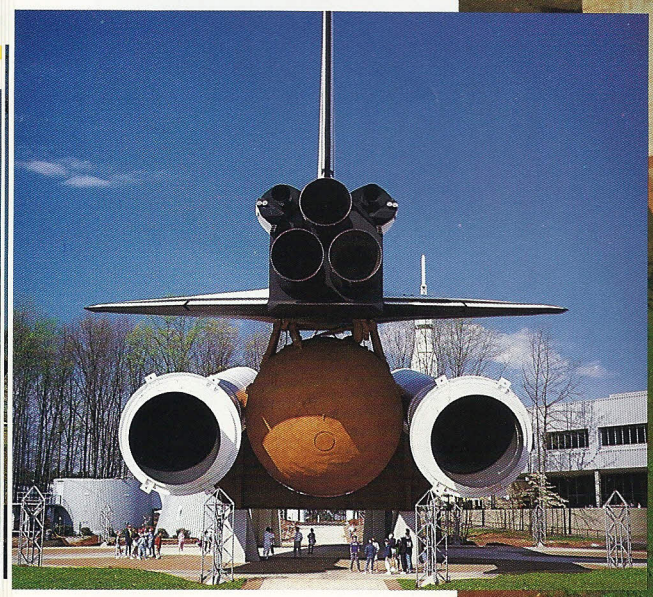


• Left: Tour guides patrol Rocket Park to answer visitors' questions. Here, a tour guide explains the U.S. Army Pershing, a two stage, solid propellant ballistic missile with a selective range capability. It can carry a nuclear warhead to a range of 400 miles. Above: The Hawk missile is capable of searching out and destroying attacking aircraft. The Hawk Air Defense System is transportable and can maintain a high rate of fire.

SHUTTLE PARK

Pathfinder, the nation's first full scale Space Shuttle exhibit, is dedicated to the brave astronauts aboard the ill fated Challenger mission of 1986. Components of the exhibit are the orbiter, the external tank and the solid rocket boosters. The shuttle orbiter was used to test equipment and procedures in the assembly of space shuttles at NASA's Marshall Space Flight Center and Kennedy Space Center. The solid rocket boosters and external tank were also used as test equipment by NASA.





• *As centerpiece of Shuttle Park, the Pathfinder Shuttle exhibit provides a dramatic display of NASA supported ingenuity. Assembling the exhibit also took some engineering finesse with the orbiter requiring three cranes to lift it into place on top of the external tank. The giant concrete pedestals on which the external tank rests, support more than 222 tons of space hardware.*

• *Visitors to The Space and Rocket Center are most impressed with the size of the exhibit. The external tank is 154 ft. long and 27 ft. in diameter. The orbiter is 122 ft. long, 56 ft. tall and has a wingspan of 78 ft. The solid rocket boosters are 149 ft. long. The tallest point, the orbiter's tail fin, soars more than 80 ft. above the ground.*

Step right up, up, and up! Floating, spinning, touching, moving... learn

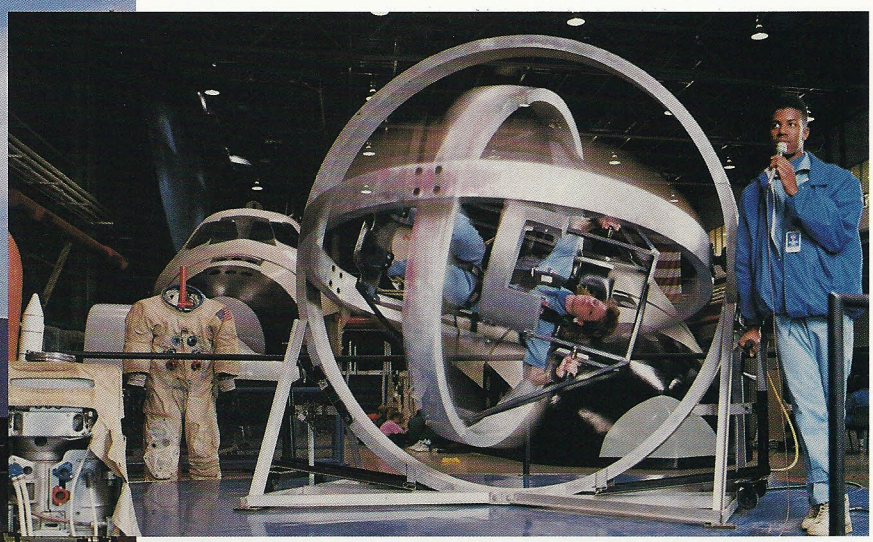
SIMULATORS

and laugh as you encounter a myriad of sensations at The Space and Rocket Center. Live demonstrations are offered to help make America's space program a personal experience. Plus, hands-on, not hands-off, is the rule at more than 65 exhibits and public simulators.

• Right: Located in Rocket Park, the Spacewalker is a popular public simulator which gives passengers a floating sensation as they descend to the earth. Below: The motion-based Shuttle Liner gives visitors the opportunity to become shuttle passengers, taking them from launch to Space Station rendezvous to landing.

• *Above: Aboard the Centrifuge, planets and stars whirl around your head as you experience 3-G force, the same force experienced by shuttle astronauts. Because scientists didn't really know what kind of gravitational pull the Mercury astronauts would undergo, America's first astronauts were subjected to much greater G-forces during training than those they were actually subjected to in their mission. Currently, centrifuge simulations training is most widely used in the preparation of high performance jet pilots.*

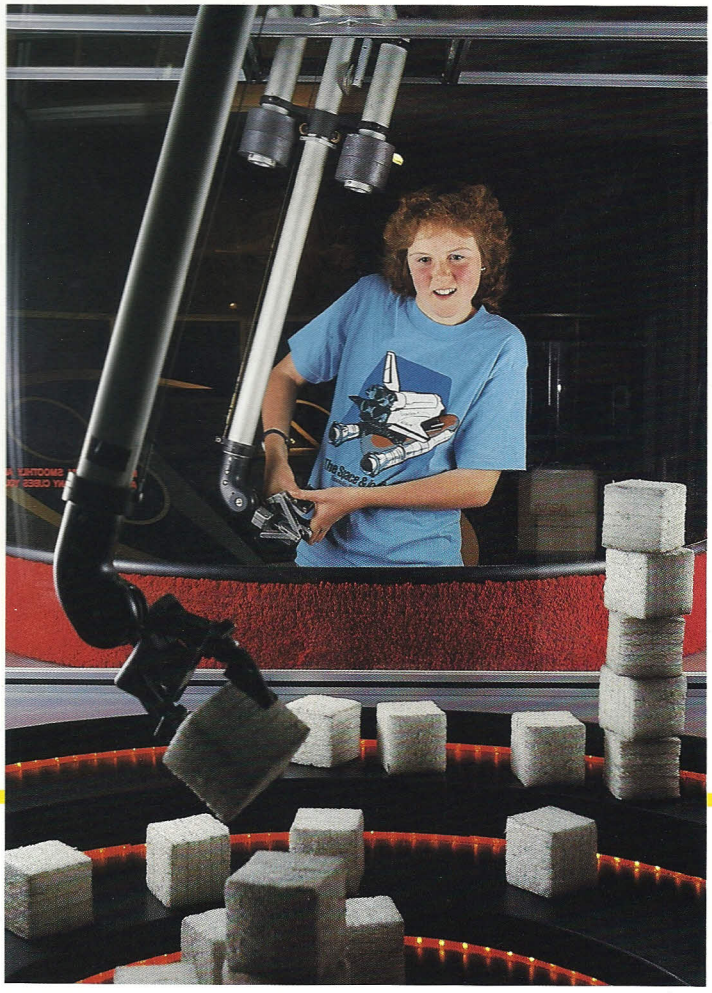
• *Below: A floor guide gives a demonstration of the Multi-Axis Trainer, a SPACE ACADEMY simulator. The Multi-Axis Trainer is a "spin off" of a Mercury-era training device called the MASTIF, Multiple Axis Space Test Inertia Facility. MASTIF let astronauts move in three axes of rotation - roll, pitch and yaw, plus two degrees of linear freedom. MASTIF fine-tuned astronauts' reactions through the simulation of a tumbling spacecraft.*



The Right Stuff for fun and learning is at The Space and Rocket Center.

MUSEUM

Helpful floor guides, live demonstrations, actual space hardware and high fidelity models make a just "right" combination. Imagine sitting high atop a Mercury-Atlas rocket measuring more than 63 ft., in a capsule just large enough for a single, occupant. The count-down starts. Ignition. Your heart pounding and the engines rumbling, the capsule is hurtled into a hostile environment. Millions of Americans rode along with Wally

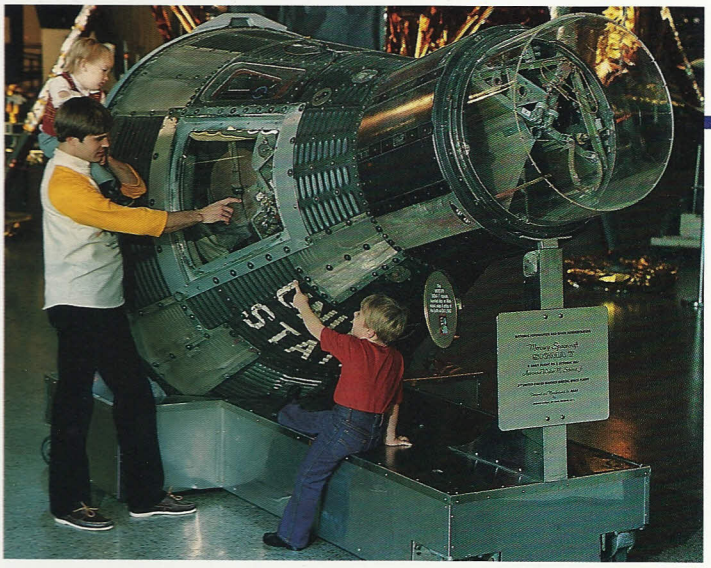


• *Right: Interactive exhibits such as the Robotic Arm and the gyro chair (Far Right) give a fun twist to learning. Below: What's more fun than a barrel of monkeys? Why, shuttle monkeys at The Space and Rocket Center, of course!*

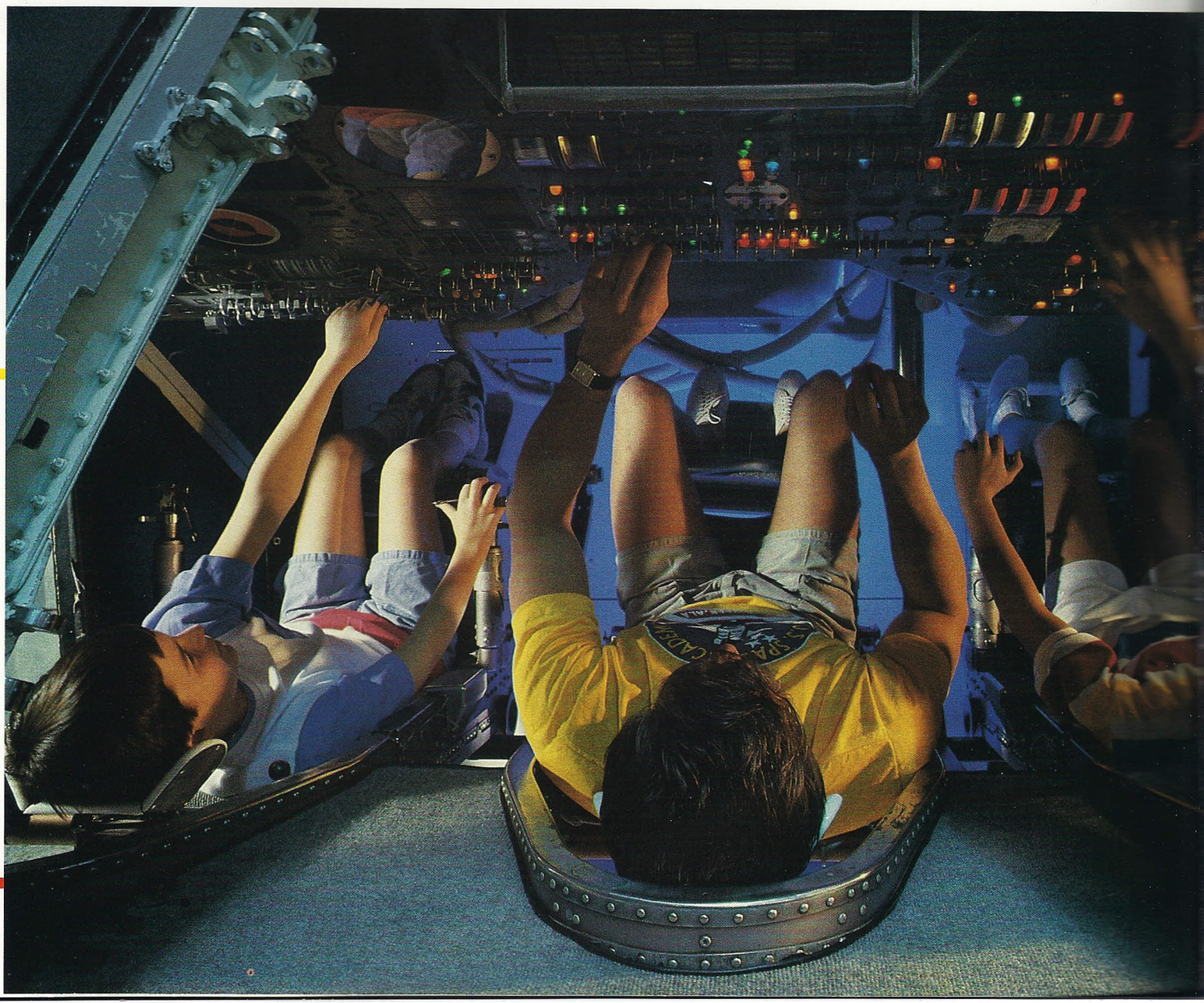
• *The main objective of The Space and Rocket Center is to provide an exciting, educational, recreational science-related and computer-age learning facility for students, teachers and other visitors. As such, the Museum, the centerpiece of the original 35-acre complex, is a popular site for school field trips. Among its yearly visitors are approximately 100,000 students and teachers.*

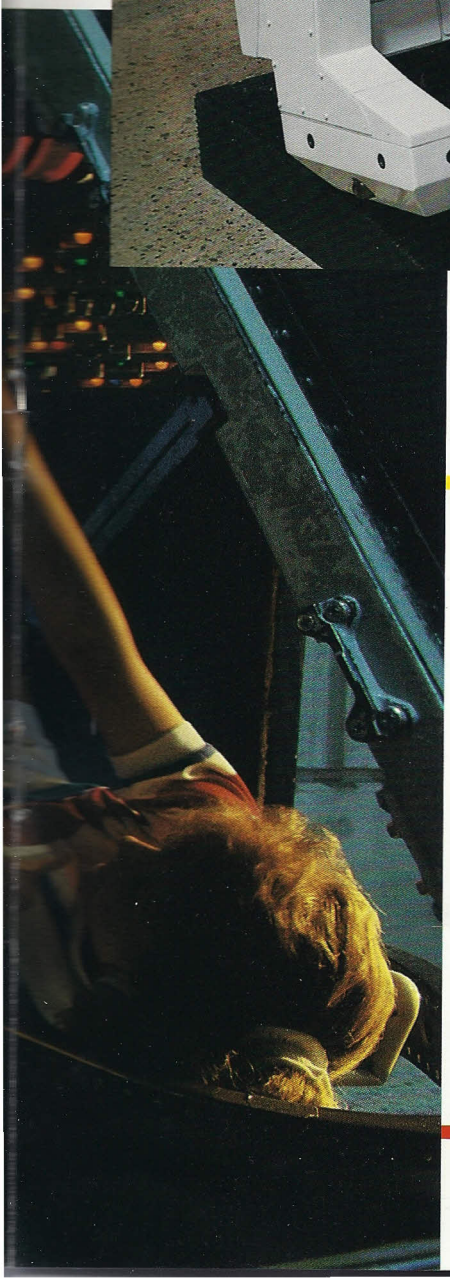

MERCURY
1961-1963
NIMBUS
WEATHER
SATELLITE
APOLLO
SPACE SHUTTLE
MERCURY
APOLLO
UNITED
STATES

Schirra, who, aboard his Sigma 7 spacecraft was the fifth Mercury astronaut to experience space. You too, can imagine Schirra's flight as you gaze into the cockpit of the actual Sigma 7. The flight of moon-bound astronauts is also revisited as you gaze inside the Apollo 16 cockpit. Study the Skylab astronaut trainer and learn how Skylab paved the way for America's newest Space Station, Freedom.

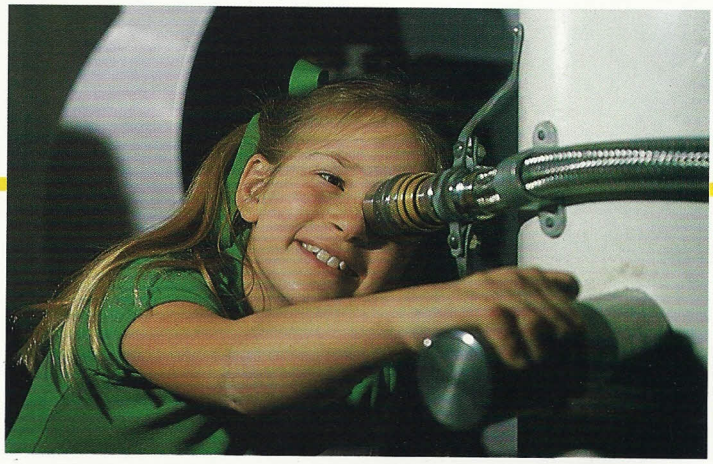


• Left: Visitors get an up-close view of the interior of Wally Schirra's Sigma 7 capsule. Project Mercury, the first U.S. manned space program, was also the only program that sent astronauts into space solo. Each Mercury capsule was equipped with a couch that was personally contoured to fit each astronaut perfectly. Below: Want to know what it felt like to be an Apollo astronaut? Climb into the Apollo capsule mockup and find out just how "close" the three-man Apollo team had to be.





• *Above: Seated in the Manned Maneuvering Unit, a young visitor attempts to dock with a crippled satellite in order to make repairs. Helpful floor guides are on standby to offer assistance.*

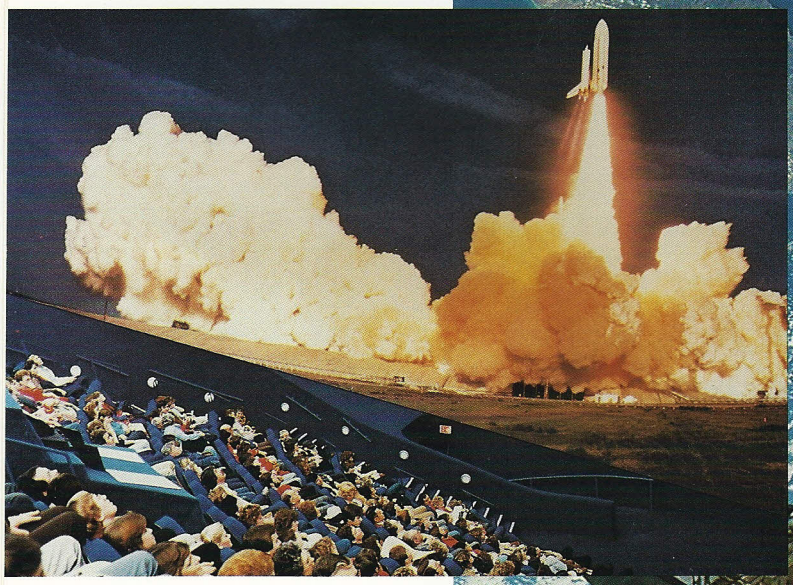


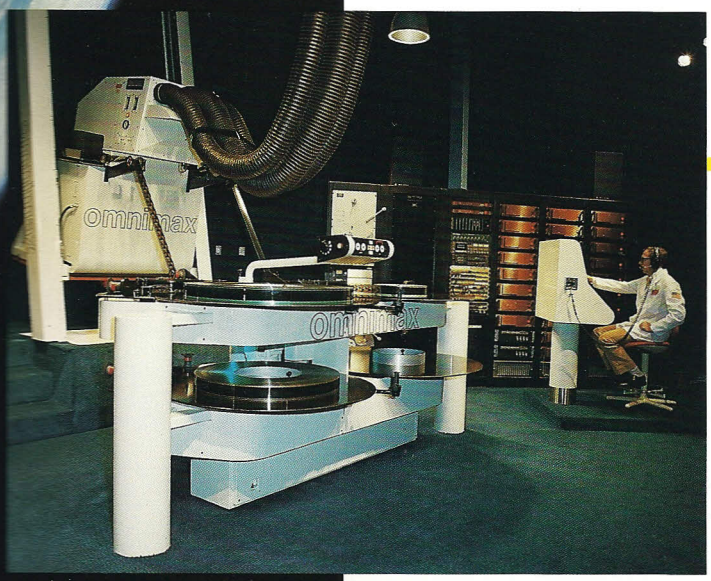
• *The dream of America's future in space is one that hasn't any age limit. Group attendance at The Space and Rocket Center is very diverse; from grade school children to senior citizens.*

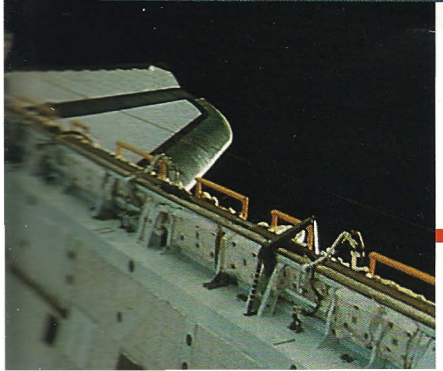
There you are, leaning back into your chair, the countdown is ticking

SPACEDOME

away and suddenly your senses are rumbling with the thunder from the shuttle's rocket engines as you are lifted through the atmosphere and enter space. No, you're not onboard the shuttle but you are experiencing the sights and sounds of The Space and Rocket Center's Spacedome Theater. The 67 ft. hemispherical screen provides viewers the breathtaking panoramas of space as experienced by our shuttle astronauts and brings the rigors of astronaut training into heart-pounding reality.





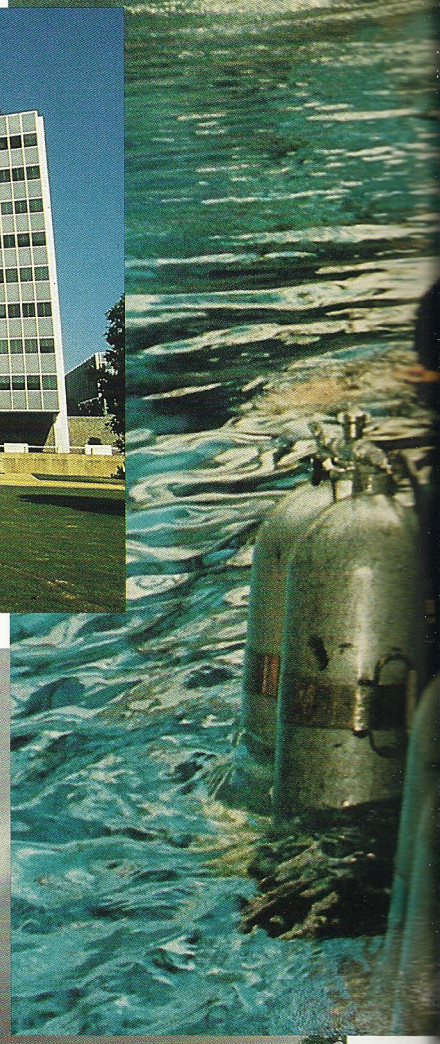


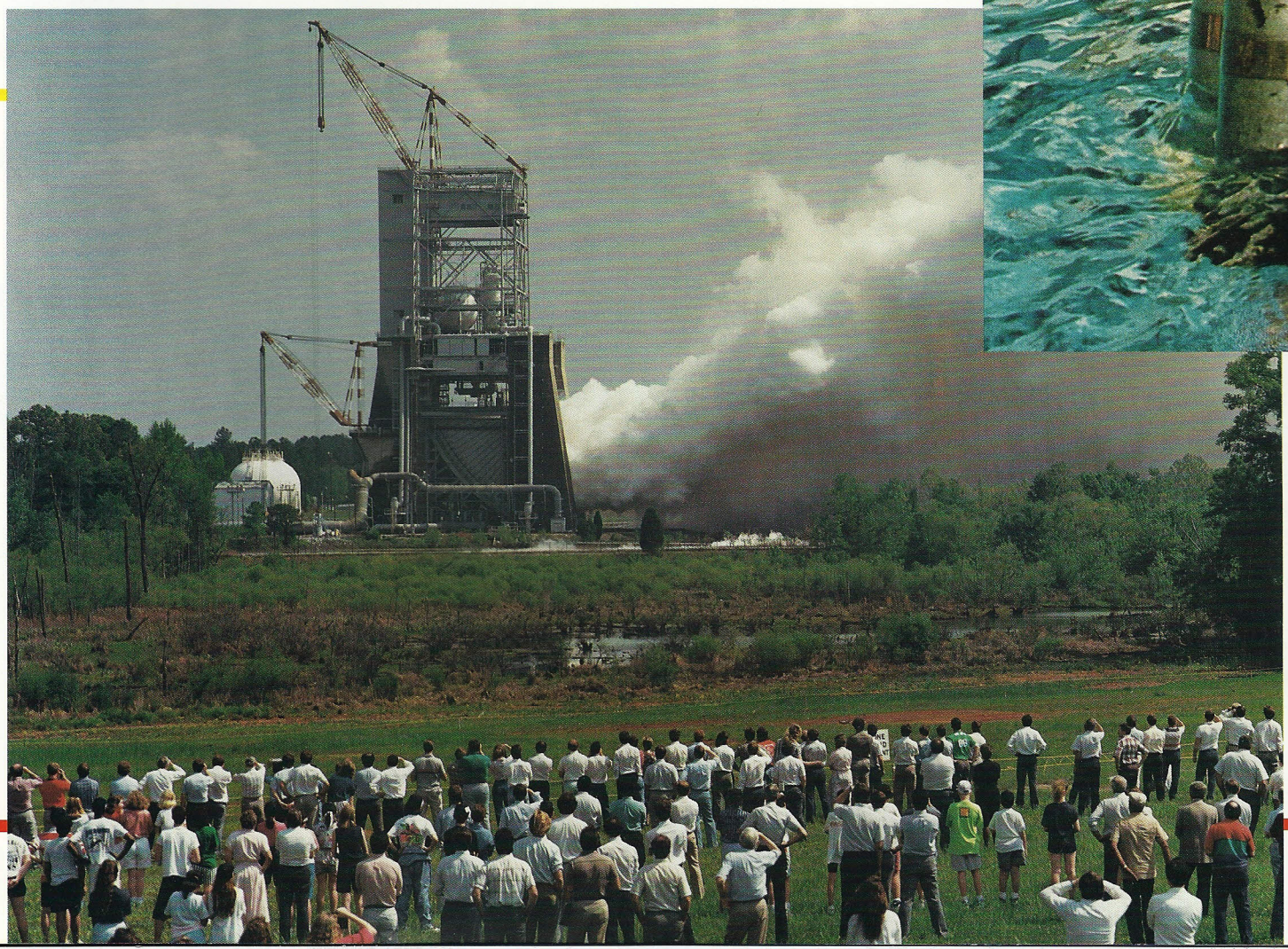
• *Electrifying visuals present theater guests a veritable feast for the eyes. "The Dream is Alive" launches viewers on a startlingly real journey aboard the shuttle orbiter and provides an unprecedented perspective inside the cargo bay. The Spacedome Theater features a spectacular 70 mm Omnimax projection system which may be viewed by those waiting to enter the theater.*

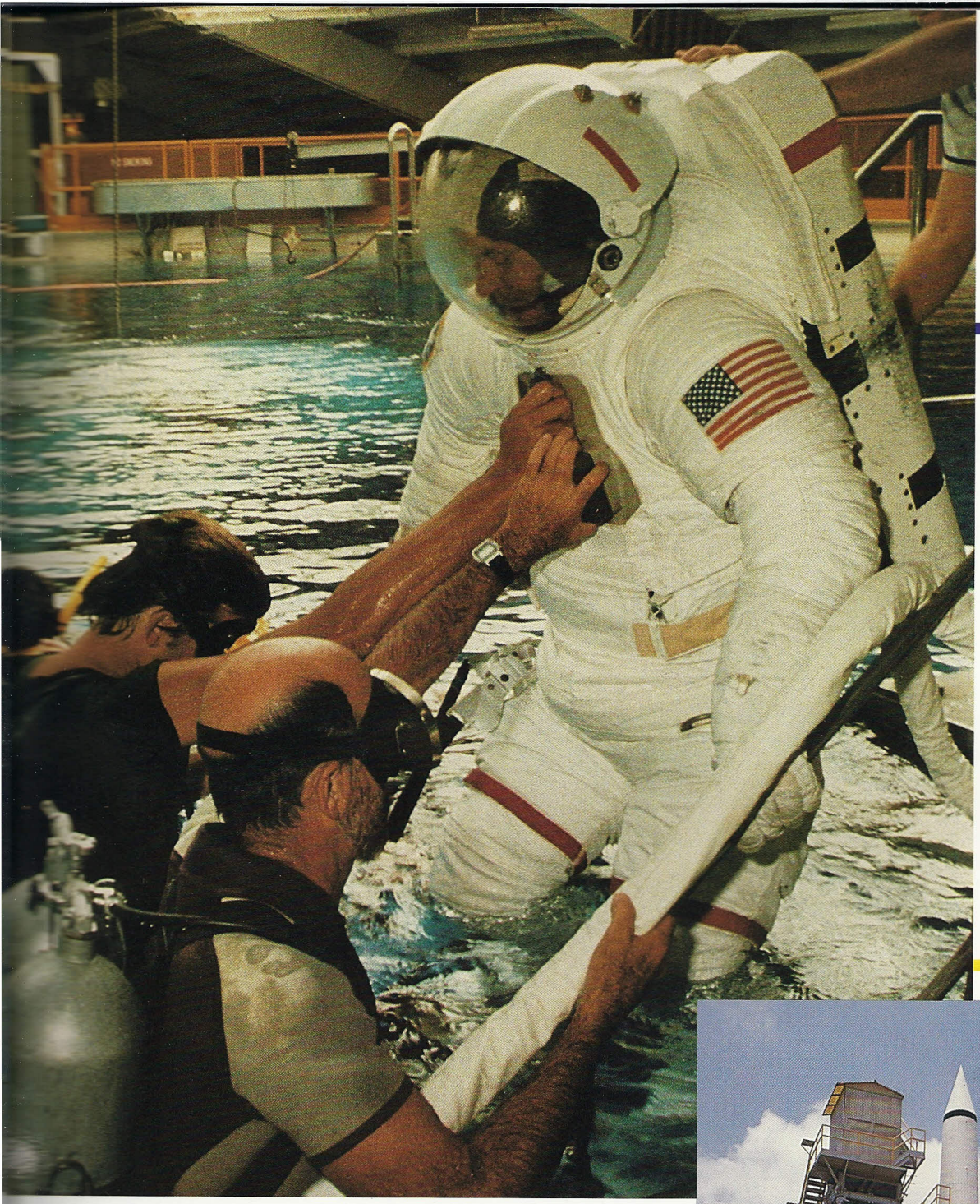
The George C. Marshall Space Flight Center traditionally is

MARSHALL

NASA's lead center for propulsion development. While the center is still heavily involved in propulsion, it has diversified its projects to include extensive work on Space Station Freedom's Habitation Modules, the Hubble Space Telescope, the Orbital Maneuvering Vehicle (a type of "space tug") and numerous other programs.

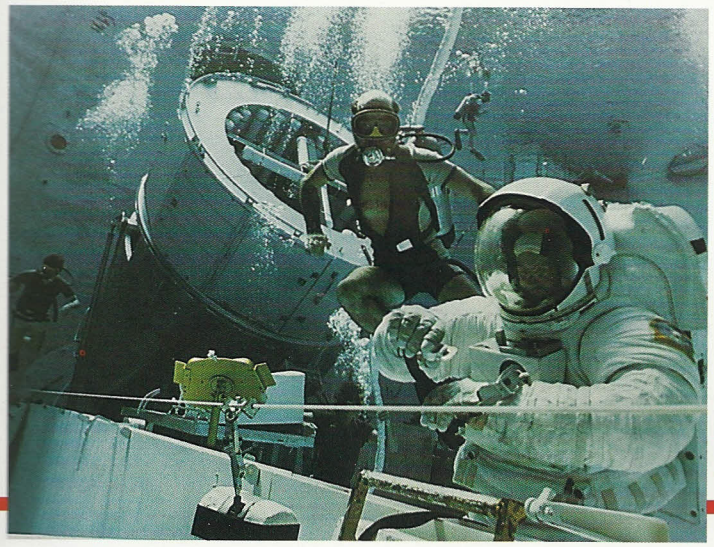






• *Left: The Neutral Buoyancy Simulator at Marshall Space Flight Center is used for astronaut training and project development. The simulator is approximately 70 ft. in diameter and has a depth of 40 ft. It takes about 1.25 million gallons of water to fill these dimensions. Below Center: Even though he is not an astronaut, Space and Rocket Center Director Edward O. Buckbee takes the opportunity to "get into the swim of things."*

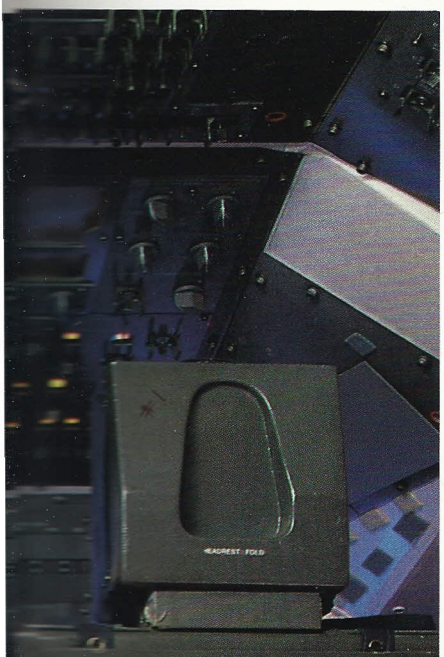
• *Below: From the Redstone historical test stand to current shuttle main engine testing (far left), visitors to Marshall Space Flight Center may see NASA's ongoing commitment to improve propulsion efficiency and safety. Visitors on the NASA bus tour receive a narrated, behind-the-scenes glimpse of current projects, as well as a historical perspective of Marshall's role in the U.S. manned space flight program.*



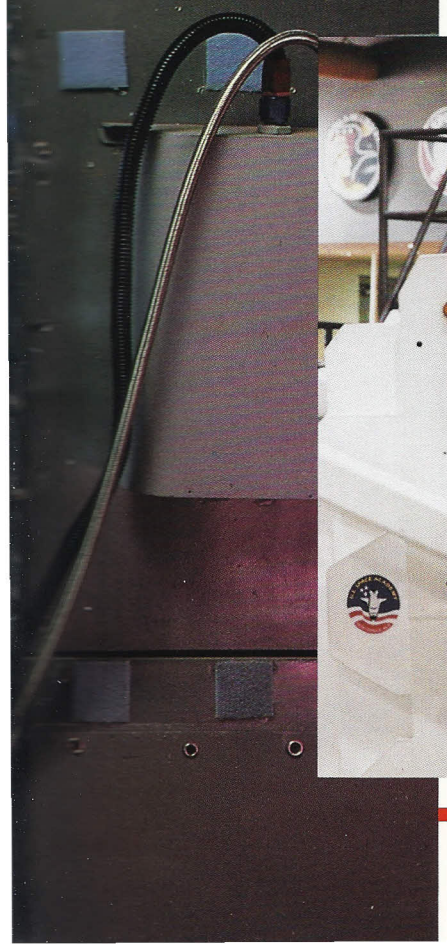
U.S. SPACE CAMP and U.S. SPACE ACADEMY use the excitement

SPACE CAMP

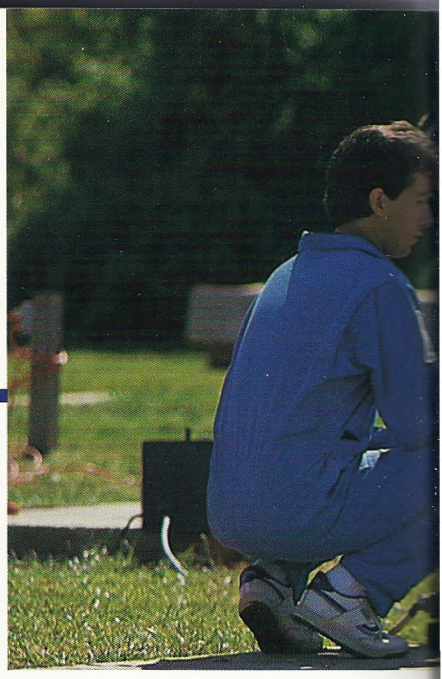
of the space program to motivate young people to achieve in math and science throughout their formal education. Through hands-on exercises, computer lessons and lectures, trainees are encouraged to explore their potential as future engineers, astronauts, scientists and educators. Since its inception in 1982, the U.S. SPACE CAMP program has grown dramatically to include more programs, a longer season and a larger audience. Growth has gone beyond the addition of new programs and increased availability; a satellite campus in



• *U.S. SPACE CAMP and ACADEMY offer trainees a variety of training methods, from narrated tours to simulations training to computer-aided classroom lectures. Simulations exercises shown include: (Far Left) the Microgravity or Moonwalk simulator which reduces trainees to 1/6 of their usual weight. This simulation was used during the Apollo program to train astronauts for walking on the moon. (Left:) The Atlantis Shuttle Cockpit lets Academy Level II trainees experience shuttle crew operations. (Above:) The Five Degrees of Freedom Simulator is a spacewalk simulator. The 5-DF floats on air bearings a fraction of an inch above the floor, giving trainees freedom to move forward, backward and side-to-side, plus the movements of pitch, roll and yaw. (Below:) Using a 5-DF and Grounded Manned Maneuvering Unit, ACADEMY trainees build a space structure.*



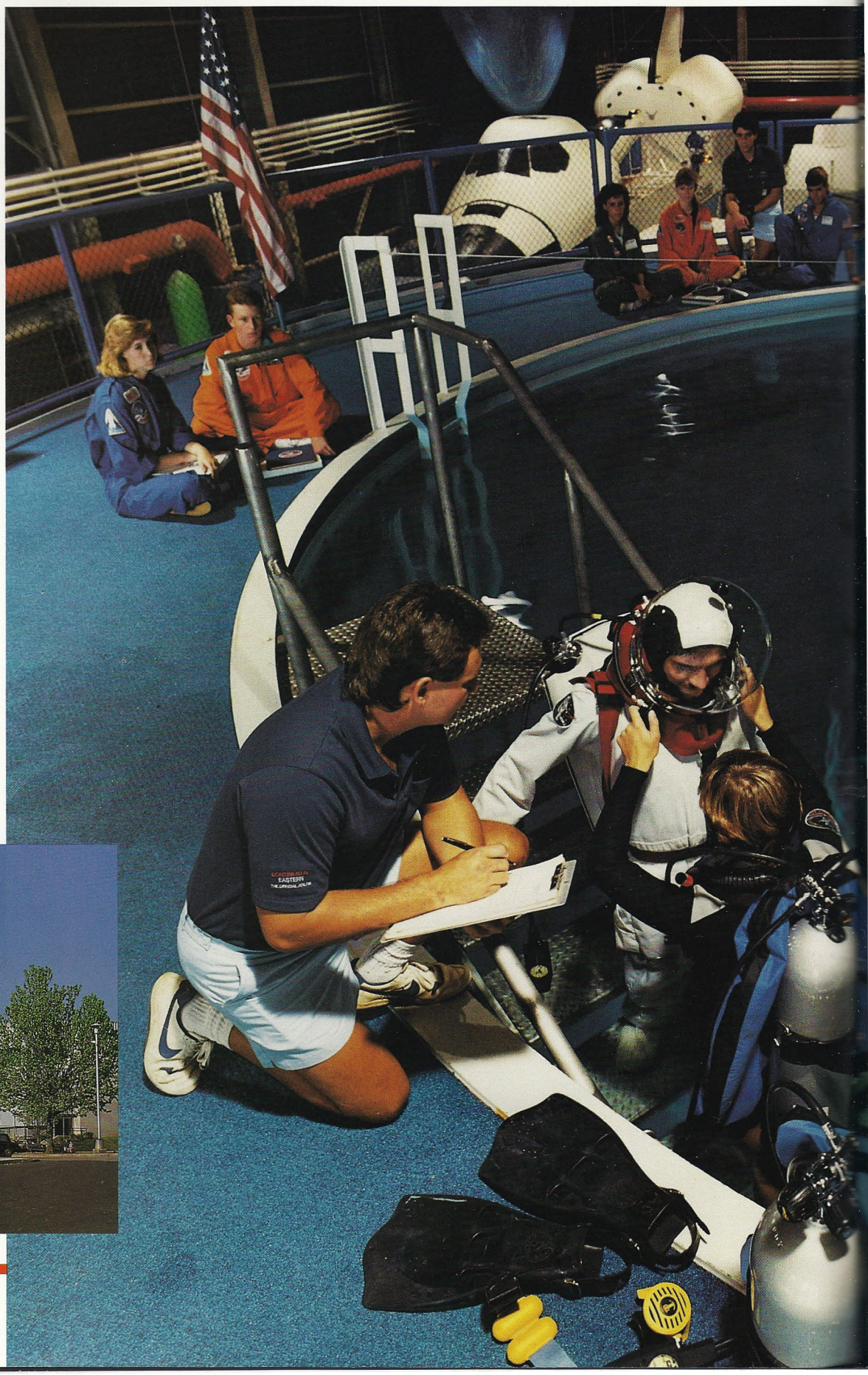
Titusville, Florida, was created in 1988 to satisfy public demand. U.S. SPACE CAMP's attraction is not regional in nature with trainees hailing from all 50 states and 30 other countries and U.S. possessions. Interest on an international basis led the U.S. SPACE CAMP Foundation to issue a license for the creation of SPACE CAMP Japan which will open at Kitakyushu in 1990. Youth programs offered at the Huntsville campus include: U.S. SPACE CAMP is a week-long program for young people completing grades 4 - 6. Each day at SPACE CAMP begins

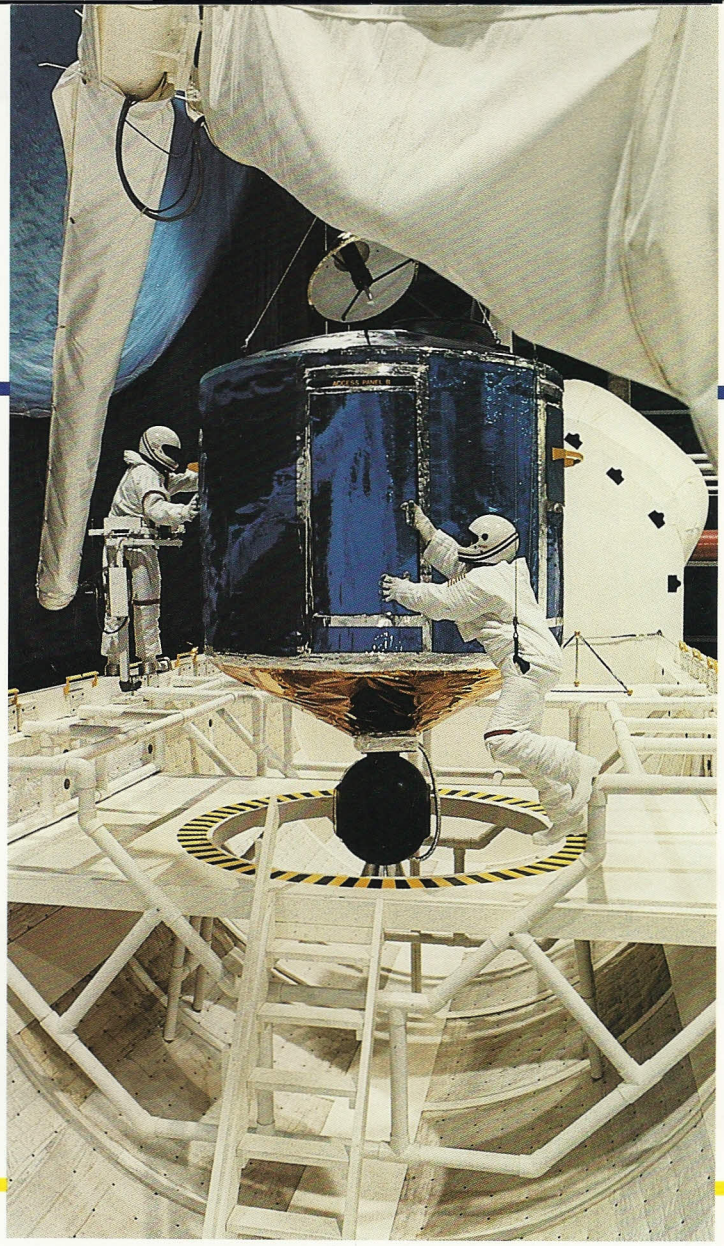


• Left: Apollo 11 astronaut Buzz Aldrin with U.S. SPACE CAMP trainees. Below: U.S. SPACE CAMP trainees man a six-person Mission Control. Positions include Flight Director, Launch/Landing Director, Orbiter Systems Officer, Tracking Officer, Mission Scientist and Principal Investigator.

• *Above: U.S. SPACE CAMP studies regarding rocketry and propulsion have a hands-on application. Trainees construct and launch their own model rockets, complete with "cricketnaut" payload. Left: You can bet this trainee is thinking, "Some day..." as he suits up and poses for a snapshot.*

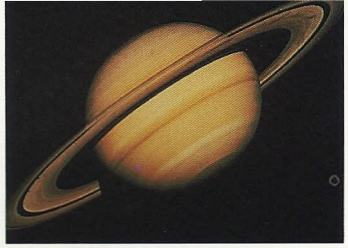
with an interactive computer lesson in the topic for the day, such as rockets, propulsion or microgravity. Astronaut training in microgravity and disorientation devices, underwater assembly of space hardware, model rocket launch and mission training round out the trainees' week. U.S. SPACE ACADEMY I is a week-long program for youth completing grades 7 - 9. The program for Level I focuses on individual achievements leading to teamwork and increases the intensity of academic study and astronaut/mission training. Trainees spend two days in missions, reversing roles on the ground and in space. U.S. SPACE ACADEMY II is a college accredited, 10-day program which

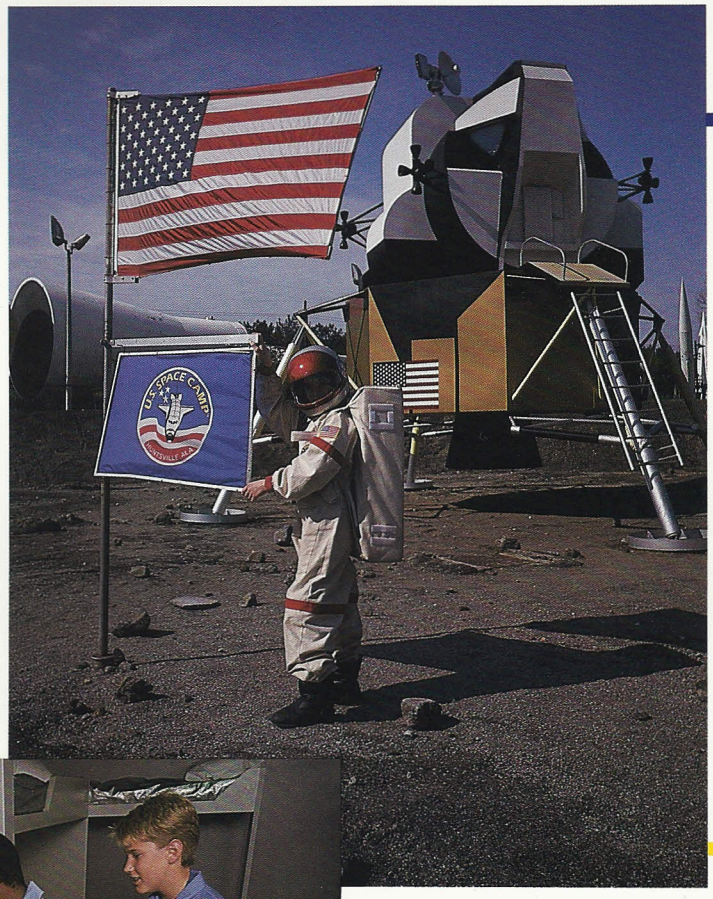


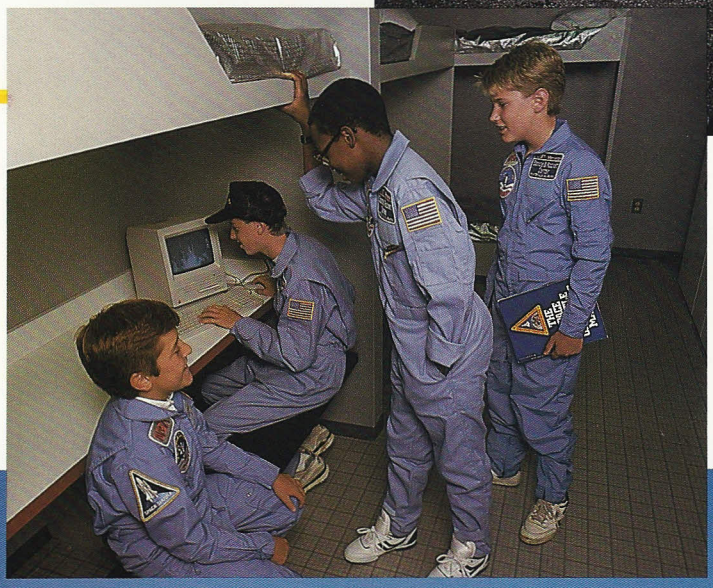


• *SPACE ACADEMY Level II training allows participants to concentrate on one of three tracks of study: technology, engineering or aerospace. Both the engineering and technology tracks include SCUBA training. Aerospace track focuses upon the foundations required by positions such as shuttle commander and pilot, aerospace engineer and aviation careers. Right: Mission Specialists from the Engineering track repair a communications satellite. Below: Teachers conduct experiments inside the Space Station module.*

emphasizes the academic foundation for space-related careers. Level II is structured for advanced studies in astronaut training activities and living and working in space. In addition to youth programs, adult curricula is also available. Three day sessions include highlights from SPACE ACADEMY and operate in the fall. Additionally, TEACHING THE FUTURE, a 5-day program for professional educators, allows participants to earn three hours of graduate credit in earth science or education.







• Above: A slight twist is added to the Apollo story as a U.S. SPACE CAMP flag is planted into the moon's surface. Left and Below: The U.S. SPACE CAMP Habitat, designed with a Space Station motif, provides trainees with a unique living space. Each room accommodates 6 trainees. Right: The U.S. SPACE CAMP Training Center.


United States
Discovery
DISCOVERY
Atlantis

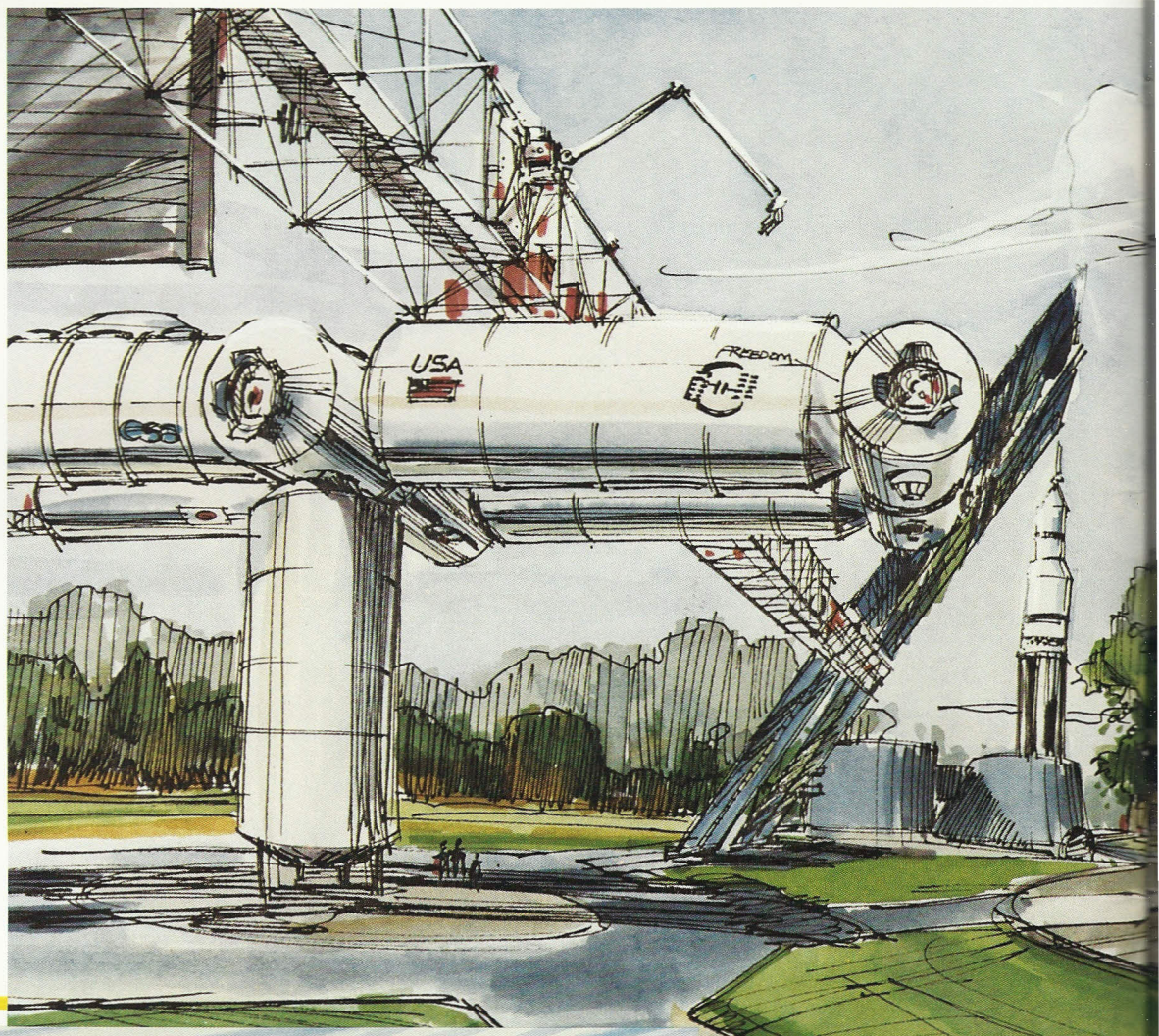
As the U.S. space program grows and changes, so must The Space and

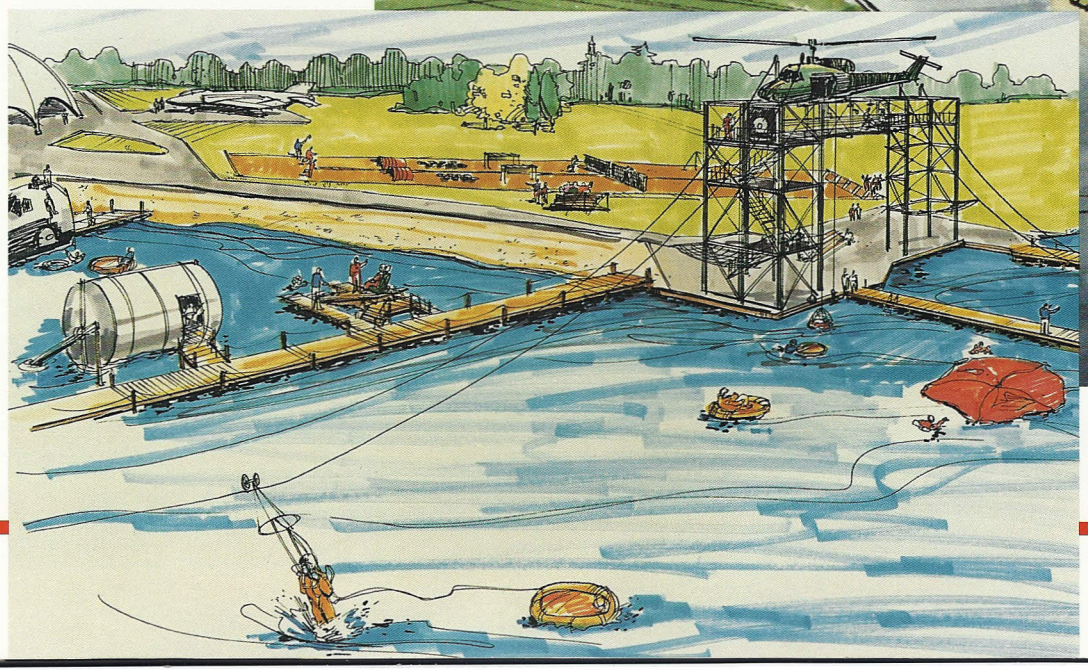
OUR FUTURE

Rocket Center grow in order to offer the public a viable glimpse of America's manned space program. From new youth programs to new exhibits, many intriguing projects are currently underway for your enjoyment. Keep the dream alive and share the future. Hope to see you again at

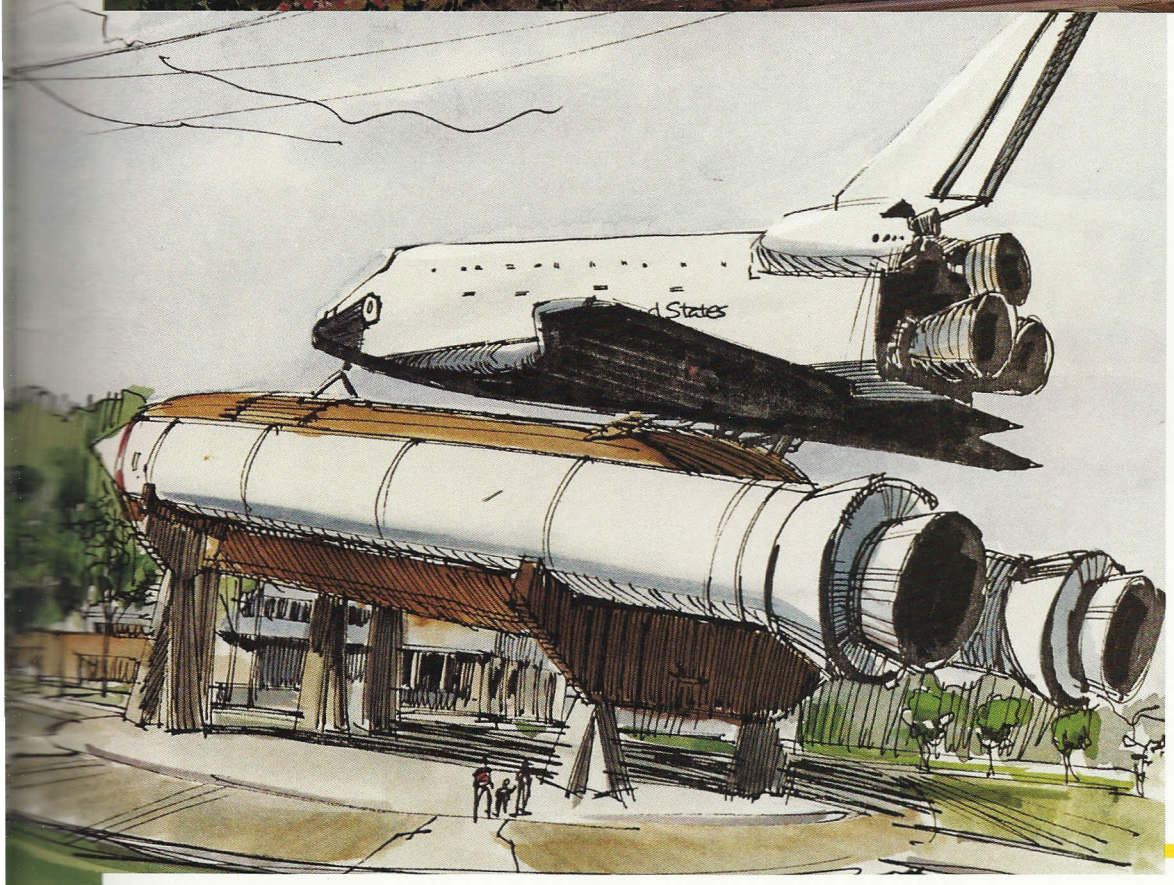
The Space & Rocket Center.

• Phase III of The Space and Rocket Center's expansion campaign is under way with new exhibits, new public programs and new youth programs anticipated. Right: Additions to Shuttle Park include a full-scale model of America's Space Station, Freedom. Below: AVIATION CHALLENGE, a program designed for high school aged youth, offers the would-be aviator physical, as well as mental challenges. Far Bottom Right: A state-of-the-art motion and visual simulator is planned to provide the public with a new spaceflight experience.

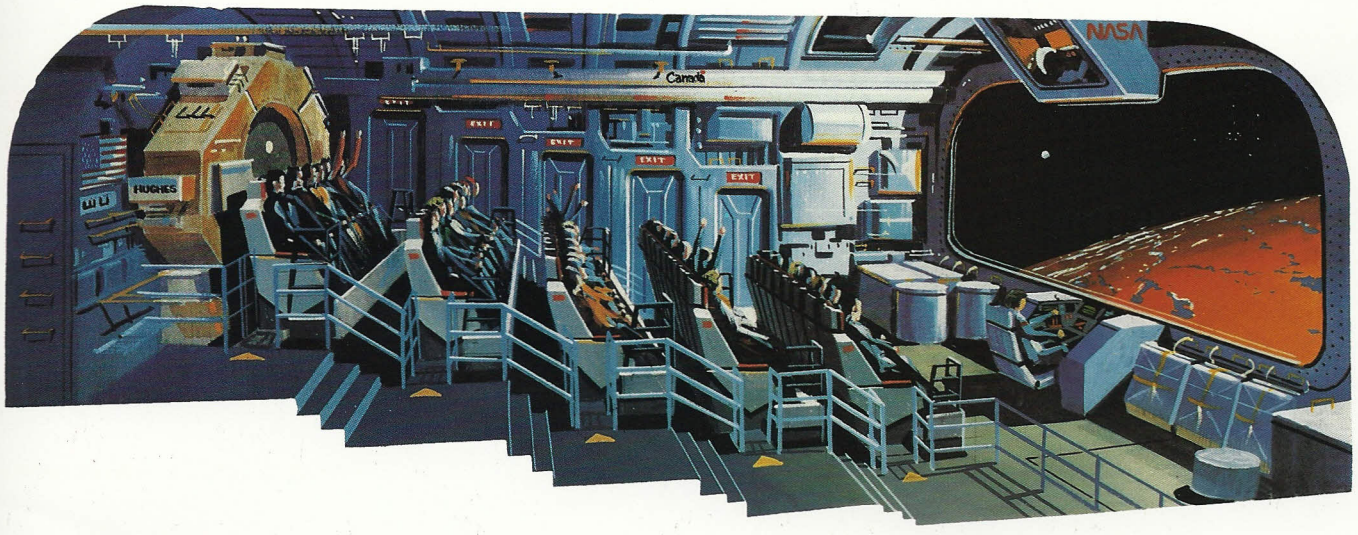




• Photo credits: Bob Gathany and John McCarthy. Additional photography by: Mike Mercier, Jennifer Bagwell, and the Threshold Corporation.



• Above: Hundreds of miles away, U.S. SPACE CAMP Florida is undergoing great changes with the building of their permanent facilities. A joint project of the U.S. SPACE CAMP Foundation and the Mercury 7 Foundation (primarily comprised of the surviving Mercury astronauts), U.S. SPACE CAMP Florida will be joined with The U.S. Astronaut Hall of Fame. Project Mercury, America's first manned space flight program, will be showcased in this tribute to our space pioneers. These facilities are scheduled to open in the spring of 1990.



The Space & Rocket Center

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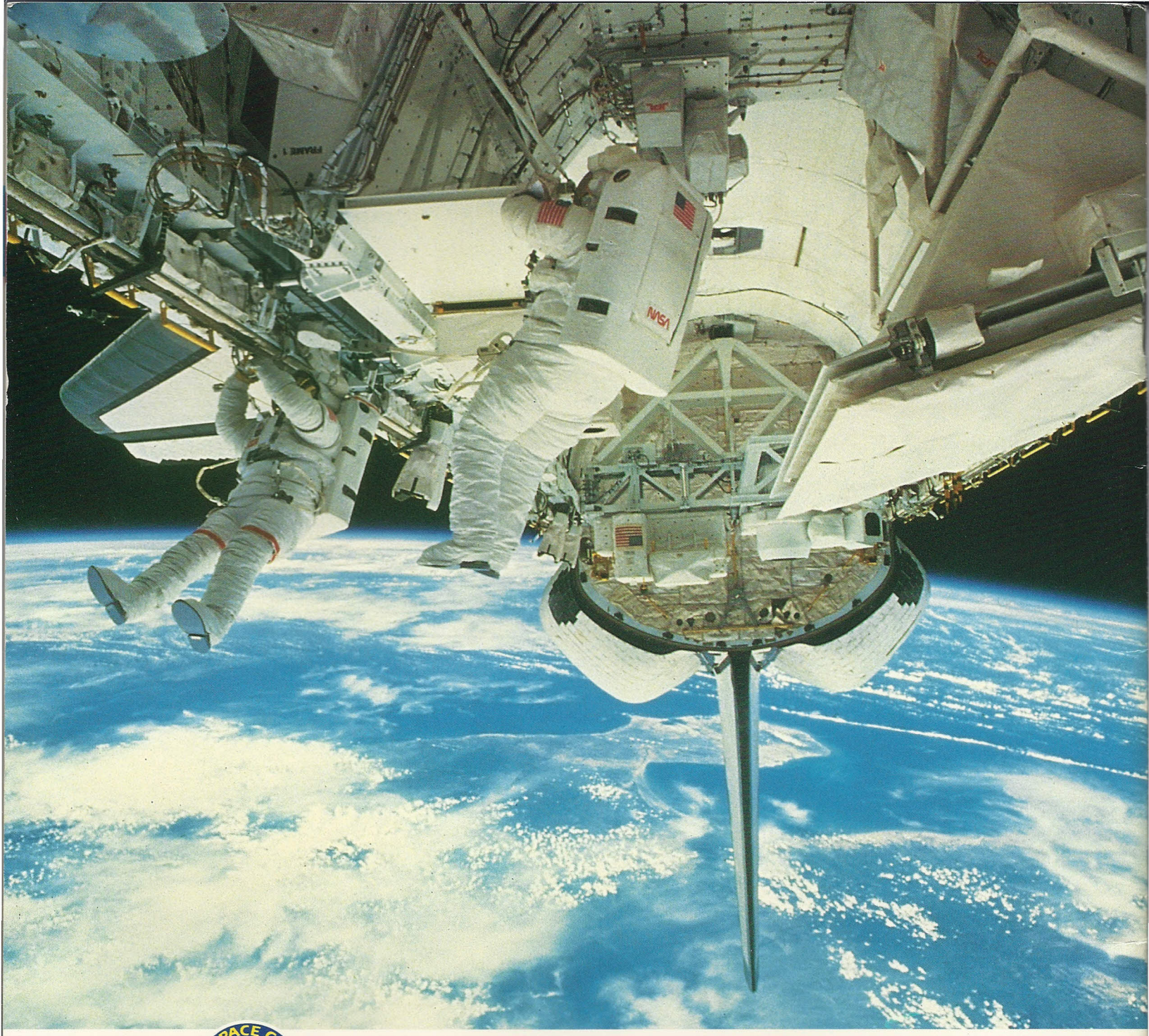
ROCKET PARK
LUNAR ODYSSEY CENTRIFUGE
MILITARY ROCKETS
The Space & Rocket Center
LEGEND
MEN'S RESTROOM
WOMEN'S RESTROOM
PARKING
FOOD & REFRESHMENT
MEN'S & WOMAN'S RESTROOMS
WATER FOUNTAIN
PUBLIC TELEPHONE
DIRECTIONS & INFORMATION



The Space & Rocket Center

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For more information about the Space Center, group tours, or for a free brochure on U.S. SPACE CAMP/U.S. SPACE ACADEMY, write *The Space & Rocket Center, One Tranquility Base, Huntsville, AL 35807* or call toll-free at ***1-800-63 SPACE***. For a free Space Gear catalog of exciting space related merchandise call toll-free ***1-800-533-7281***. The Space & Rocket Center is open every day except Christmas. Hours of operation are 9 a.m. to 6 p.m. Fall, Winter, and Spring and from 8 a.m. to 7 p.m. Summer. (The ticket desk closes one hour prior to closing.)

Many thanks to Fuji Photo Film USA for providing the services of photographer J. McCarthy.
Fuji Film is the offical film of U.S. SPACE CAMP