



PATHFINDER®



Program Description

Pathfinder is a shorter version of the weeklong camps. Designed to accommodate groups, the Pathfinder program is a three-day program including a shuttle mission, space history and astronaut training.

Activities

Space History (4 hours)

NSTA Standard: History and Nature of Science: Science as a Human Endeavor, History of Science

In a program started by rocketry pioneer Wernher Von Braun, it is not surprising that Pathfinder trainees learn much about the history of the space program. The classroom for these lessons is the U.S. Space and Rocket Center museum, the home of one of the world's largest collections of actual space hardware. In this engaging setting, trainees discover that the space program, like other scientific endeavors, requires the efforts of a wide variety of people and that its accomplishments were the result of incremental tests and experiments.

Mercury	Trainees discover how NASA chose the first seven astronauts and what they accomplished.
Gemini	Here trainees learn the steps that NASA took to test the many maneuvers and procedures that would eventually take us to the moon.
Apollo	This session chronicals some of the most exciting moments in the space race. Trainees find out how NASA recovered from the tragic Apollo 1 fire, how engineers designed the vehicles that transported men to the moon and what astronauts and scientists discovered from these trips.
Shuttle Exhibit	Trainees explore the new Space and Rocket Center shuttle exhibit and discuss the highlights of twenty years of shuttle flights.
Rocket Park/Shuttle Park	Trainees participate in a scavenger hunt in Rocket Park, a collection of the launch vehicles America used to launch astronauts into space including the largest rocket ever launched, the Saturn V and a full size Space Shuttle model.
Museum Hunt	Another scavenger hunt allows the trainees to explore all of the space memorabilia inside the Space and Rocket Center museum including a moon rock, an Apollo capsule and last remaining fragment of Skylab.
Space Bowl	These game show style sessions review the information the trainees have learned throughout the week.



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Astronaut Training (14 hours)

NSTA Standard: Physical Science; Motions and Forces

This component of Pathfinder utilizes the excitement of astronaut training to teach scientific concepts. Pathfinder trainees can define acceleration, gravity and Newton's Laws of Motion in terms of their own experiences on a wide variety of training simulators.

1/6 th Chair	The trainees find out how it would feel to walk on the moon, where there is only one sixth of the Earth's gravity, in this simulator inspired by the Apollo program.
Multi-Axis Trainer	This simulator, modeled after a trainer used in the Mercury program, allows the trainees to experience the disorientation astronauts would feel if a capsule went into a tumble spin.
Manned Maneuvering Unit (MMU)	Shuttle astronauts tested a jet pack known as the MMU in 1984. Trainees learn the six degrees of freedom as they test our MMU simulator.
5DF Chair	This simulator simulates the five degrees of freedom, forward, backward, side-to-side, roll, pitch and yaw. Performing these movements simulate what it would be like to work in the frictionless environment of space during an EVA. They also demonstrate Newton's Third Law of Motion.
G Force	This simulator is designed to prepare trainees for the forces of acceleration experienced by astronauts during launch, the times the force of Earth's gravity.
Space Shot	This exciting simulator launches the trainees 140 feet in 2.5 seconds allowing them to feel four times the force of Earth's gravity and 2-3 seconds of freefall.
Mars Simulator	This motion-based simulation features a jaunt through a fictional Martian theme park.
Climbing Wall	Although trainees do not undergo the intense physical training of astronauts, they do test their strength on the Mars Climbing Wall.
Crew Systems	Part of astronaut training is learning how to sleep, eat and work in space. This session answers commonly asked questions about how astronauts perform everyday activities in microgravity.
IMAX	Trainees experience two Omnimax films during the week.



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Rocket Construction and Launch Pathfinder trainees discover how rockets function by creating and launching their own Estes rocket.

Mission Patch Every NASA crew since Gemini 8 has created their own mission patch. In this session the trainees work together to design a mission patch that describes them as a group.

Missions (5 hours)

NSTA Standard: Science and Technology; Understanding about Science and Technology

The mission is the highlight of the time at camp, and missions are better than ever in the new Mission Center Complex. During a mission, the trainees take on the role of a member of mission control or a member of a shuttle flight crew. Throughout the experience, trainees discover that the technological designs have constraints and that its development and use requires the combined efforts of many people.

Shuttle Orientation This presentation is designed to teach trainees the basic systems of the Space Shuttle. The emphasis is placed on the vocabulary and concepts the trainees will need to understand the simulated mission.

Mission Training Pathfinder trainees experience a 2-hour mission. Each member of the team will be trained in a specialized role in Mission Control or the Orbiter and Space Station simulators.

Mission The trainees work together to launch the shuttle to the International Space Station, to complete experiments that approximate those conducted in space and to return the crew to Earth in each two-hour mission. Problem solving and communication is key as problems, or anomalies, arise.