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BEST
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DR. ELLEN OCHOA

Standing Up for STEAM



cover
story

Dr. Ellen Ochoa: Standing Up for STEAM

By Brady Rhoades





When NASA Hall of Famer Ellen Ochoa encourages young people to reach for the sky, she's not just using a figure of speech.

It's literal.

Ochoa became the first Latina astronaut to venture into space when she went up in 1993. She served four tours and 1,000 hours in the cosmos from 1993 to 2002.

Johnson Space Center in Houston, Texas.

Ochoa, who is retiring this May after 30 years with NASA, said NASA has done a good job of hiring Latinas and other minorities, but more can be done to urge minorities into STEAM fields.

"I plan to continue after retirement to encourage kids and adults—and especially women and minorities who are under-represented in STEM/STEAM fields—to reach for the stars!" she said.

"There are a lot of interesting and exciting careers when you study math and science and related technology fields," she said. "For me, the key was really my education, so I tell people that it's important to study and continue to take science and math classes throughout high school. I tell them to graduate from high school and go on to college. That will really give you a lot of options. I realize that a lot of the students I speak to may not end up as an astronaut or

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—Dr. Ellen Ochoa

"I believe a good education can take you anywhere on Earth and beyond," she said.

After her trips to outer space, Ochoa served as Johnson Space Center's director of flight crew operations and deputy director before becoming the head director in 2013. She is the first Latina and second female to lead the

Even as she was making history as the second woman and first Latina in space, Ochoa's focus was laser-sharp, her goals stratospheric.

She has a message for Hispanics, especially those held back by poverty and prejudice: STEAM is freeing.

may not be completely interested in those fields, but I want them to at least make sure that they have options in their careers and that they think about setting high goals for themselves. People who become astronauts are very similar to a lot of these kids. They put in a lot of hard work, a lot of dedication

and they set high goals for themselves. That's something that anybody can apply."

Ochoa, married to Coe Miles and mother to two sons, was born in 1958 and raised in La Mesa, California. Her grandparents on her father's side were Mexican.

Ochoa, a flautist who considered majoring in music, earned her bachelor's degree in physics at San Diego State University in 1980, a Master of Science degree from Stanford University in 1981 and her doctorate in electrical engineering from the same university in 1985.

In 1983, Sally Ride became the first woman in space. That sparked a new passion for Ochoa, and she applied to NASA's astronaut program. She tried three times before being accepted and worked at Sandia National Laboratories and the NASA Ames Research Center. In 1990, Ochoa was accepted into the astronaut program.

Aboard the space shuttle Discovery in April 1993, Ochoa became the first Latina in space.

The nine-day mission was sent to study the effect of solar activity on the Earth's climate and environment. Ochoa served as a mission specialist and used the robotic arm to deploy and capture the SPARTAN-201 satellite, which studied the solar corona.

She went on to serve as the payload commander aboard the space shuttle Atlantis in 1994, a 10-day mission to further study the sun's energy output and the Earth's atmosphere. She also served as the flight engineer and mission specialist in the 1999 and 2002 missions to the International Space Station.

After retiring from flying, she took to her directorial role at Johnson right away.

"Leadership provides the ability to influence the things you care about most," she said.

And what does she care about?

"I care deeply about NASA's mission and its value to our nation—expanding scientific knowledge, engaging globally, providing both economic benefits and technology transfer applied to issues on Earth, and especially serving as a source of inspiration and pride," she said.

Retirement is just a word. Ochoa's work continues. She's vested in the next generation of women and Hispanics.

Her message?

"Go for it!" she said. "There are many interesting, challenging, and rewarding careers associated with STEAM. Often, you have the opportunity to work as part of a team, solving problems and fostering new discoveries. As the tag line for the International Space Station says, we are working 'off the Earth, for the Earth.'

"As a center director, 'accomplish the



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NASA Johnson Space Center's External Relations and International Space Station Program Offices were recognized with the Best of Silver Anvil Award



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mission' is expanded to mean not only today's mission but also tomorrow's mission, ensuring that we have the appropriate workforce, facilities, and processes to lead human exploration well into the future. Taking care of our people has many aspects—recruiting a diverse group of people, ensuring they have career development and training opportunities, and focusing on an atmosphere of respect for each other where people feel valued."

Ochoa has earned many awards and honors, including NASA's highest award, the Distinguished Service Medal. She has also received the Presidential Distinguished Rank Award, the NASA Outstanding Leadership Medal, and the Women in Aerospace Outstanding Achievement Award.

Ochoa won the 1995 Hispanic Heritage Leadership Award and was the Hispanic Engineer National Achievement Awards

Corporation Engineer of the Year in 2008. She has six schools named after her.

She was inducted into the Astronaut Hall of Fame in May 2017.

"I'm honored to be recognized among generations of astronauts who were at the forefront of exploring our universe for the benefit of humankind," Ochoa said at the time.

Ochoa is a double pioneer: She's one of an elite number of people who've meandered among the stars, and she broke ground for Hispanics while doing it.

She said she always looked at her heritage as a positive.

"It has added a whole dimension, I think, to my job," she said. "When I originally applied to be an astronaut, I wasn't really thinking about the whole sort of role model aspect of it. I was doing it because I was fascinated by space. I was studying to be a research engineer

and realized you could do a lot of unique and interesting experiments in space. And so it was really wanting to be part of America's space program and being able to apply my research."

Along the way, she saw firsthand how important inclusiveness is—to a profession, to society. It makes sense to draw from a broad talent pool of Hispanics, African Americans, Asian Americans, Caucasians, females, males, you name it.

She started off working in STEM, for instance, and that's evolved into STEAM, to include the arts. Bringing many unique perspectives to the table—be it with regard to culture, ethnicity and thought (let's bring some artists onboard!)—is almost always a successful methodology, in her experience.

"We'd like to have all kinds of minds involved in our challenges, as well as in telling our story," she said.



NASAKIMI SHIFLETT

Ochoa is presented with her Hall of Fame medal.



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