National Aeronautics and Space Administration

LRMARIC

MARIA CABALLERO

Consulting Engineer

Lexile Ranges
Level 1: Less than 810
Level 2: 810-1000L
Level 3: 1010-1200L
Level 4: 1210-1400L

Level 3

FLIGHT LOG ENDORSEMENT CODE: LRMARIC

Educational Product	
Educators & Students	Lexile Level: 1010-1200L

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If Maria Caballero could have one superpower, it would be to fly.

When she was young, Maria would lay in her yard, stare up at the California sky and dream she could design and build airplanes of the future. She wasn't sure how she would get there, or if she could do it. Maria was confident of only one thing. She knew she loved airplanes.

If ever there were any doubt about her affection for aviation, they disappeared on April 14, 1981, during a trip to Edwards Air Force Base in California. Astronauts John Young and Robert Crippen were coming back to Earth aboard the Space Shuttle Columbia to end the first shuttle mission. Standing on the dry lakebed a few thousand yards from the runway, Maria watched a tiny black and white speck turn into a beautiful winged spaceship. Two NASA chase planes escorted Columbia as it dropped like a brick toward the lakebed. Twin sonic booms announced Young and Crippen's arrival. Flying as a glider, Columbia's landing gear kissed the clay runway and soon rolled to a stop.

With Columbia resting still, having been moving 17,500 mph in Earth orbit just an hour before, Maria could see it represented the best of NASA research in space and aeronautics. She was hooked for good.

"Since I cannot fly, the next best thing is working for and being part of an agency that is involved with things that fly and blast through our atmosphere, such as airplanes and rockets," Maria said.

Fast forward more than 30 years. Today, Maria is an aerospace engineer working for NASA at the Armstrong Flight Research Center in California, the very place Columbia landed at all those years ago.

Maria is part of the Flight Safety and Mission Assurance Office at Armstrong. She is an Unmanned Aerial Vehicle Range Safety Risk Analyst. Her job is to help make sure no one in the public could get hurt if there were a problem with a remotely-piloted drone during a test flight. A big part of that job is to make sure it either remains in restricted airspace set up for the test, or doesn't accidentally fly over cities. And it's more than just plotting a course on a map. Part of her job is to determine how reliably an aircraft can operate on its own and

make the right decisions to prevent any danger to the public.

The path Maria took to get to her job today began in California, made a stop in Virginia on the U.S. east coast, and returned her to the California desert.

Maria grew up in a migrant family in the San Joaquin Valley in California.

From the age of 12 until she began attending college, she spent her summer days picking garlic and grapes with her family in California. During the school year she spent the evenings doing her homework, usually with little help from her parents who couldn't speak English.

But that was OK. Maria's parents gave her encouragement and love, which helped keep her going. Maria remembers how her father wanted her and her siblings to experience life working in the fields so they could see how hard life could be without an education.

Her hard work studying helped. After high school, Maria was accepted into the Honors Program at California State University in Bakersfield, California. Later she attended California Polytechnic State University in San Luis Obispo, where she majored in engineering.

As the first in her family to go to college, she didn't know what to expect. She signed up for calculus and physics, thinking, "How hard can this be?" Unfortunately, she hadn't taken any physics classes in high school. She had trouble learning the basics that her professor assumed she knew. Not knowing where to go for help, she quit the class.

However, she didn't give up. She found help, signed up for the class a second time, and earned an 'A.' Even though she had other ups and downs throughout her college experience, her hard work was rewarded.

Finding money to pay for college was another struggle. Maria earned some scholarships, but not enough to pay for everything. She took weekend jobs at school, and during the summer she went back to work in the fields.

Looking back, Maria knows now there are things she could have done to help herself. Working during the summer for an aerospace company

was one idea, but she didn't know how to get that kind of job. She also knows it would have been helpful for her to have a mentor she could look to for advice about doing well in school.

Maria said another thing she learned in college was how important it is to work hard at everything you do so you can do a good job. She said that even means working long hours and giving up doing something else that might be more fun. This kind of college experience prepares students for some of the things they will face during their careers.

After graduating with a Bachelor's Degree in Aeronautical Engineering, Maria accepted a job working as an electrical technician for the Army at Fort Hunter Liggett in California. While there, she worked on military tanks that were used in simulated warfare.

She also spent some time working for the NASA Sounding Rocket Program at the Wallops Flight Facility in Virginia. Sounding rockets are typically used to launch small science experiments into the upper atmosphere or to the edge of space.

One of Maria's favorite projects that she worked on was the first one she was assigned when she became a NASA employee. The project involved Helios, a 12-foot-long solar powered airplane with a 247-foot wingspan. When it flew in August 2011, the Helios Prototype aircraft reached 96,863 feet in altitude, setting a world record for a non-rocket powered aircraft flying in level flight.

Maria was sent to Hawaii as a NASA Safety Witness for the aircraft's flight termination test.

Back at Armstrong, Maria is active with Armstrong's education programs. She is the consulting engineer for Armstrong's Office of Education, and is involved with NASA's Engineering Design Challenge. Maria also teaches the Engineering Design Process to students of all ages, working with them to build rockets, gliders, rovers and satellites.

Maria also volunteers to speak at community schools and colleges about life as a rocket scientist, aerospace engineer, and her humble beginnings as a migrant kid who worked in the fields during her summer breaks. Maria also is active as a mentor at Armstrong, working with newly-hired employees and student employees.

Her hope is that her work at NASA will inspire kids with the excitement and wonder of aviation and space, just as she was.

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