

Meet A Mission Engineer — Ms. Cathy Peddie, NASA Goddard Space Flight Center



What do you do? Right now I am the Deputy Project Manager for the Lunar Reconnaissance Orbiter (LRO) Mission. That means that I oversee the entire project. I make sure that we meet our technical goals when we are designing the instruments and the spacecraft, that we meet our budget goals, and that the people on the project — the scientists and engineers and technicians and support people — have everything they need, when they need it, to do their jobs. I did not start as a Deputy Project Manager. I began working at NASA over 20 years ago as an engineer on a project. I grew into my position today by experiencing different projects and getting training all along the way.

The best things about my job are that I am always learning, I get to work on exciting and challenging projects, and I get to work with really cool people. I mean, how exciting is it to design a spacecraft to go to the Moon? And to only have 3 or 4 years to do it?!

How did you get to be doing what you are doing? When I was a little girl in Hawaii, I wanted to work in space. I liked math and was encouraged to be a math teacher. One of my math teachers suggested that I go into the Air Force because they offered scholarships that would pay for my schooling, and a guaranteed job. The Air Force also offered real experiences using what I learned — and they worked in space. One of my jobs was working on satellites. When I left the military, the experience helped me to get a job at NASA. My first job was figuring out how to put satellites into the space shuttle and then, once the shuttle was in space, get the satellites out and into orbit. All through my career I have had to use math and engineering. All those boring classes that I had to take when I would have preferred to be surfing really paid off! I am always using what I learned in school!

What is the greatest engineering challenge about putting an outpost on the Moon? The most challenging — and most interesting — part of putting an outpost on the Moon is that there is still so much we don't know about our Moon! The Moon is so close. We have astronomers studying it, and we have visited it, and yet we know so little. This is a huge challenge to designing an outpost. We need to know what the land is like and what materials and resources are there. We are pioneers again. Missions like LRO and the Lunar Crater Observation and Sensing Satellite (LCROSS) mission and others will help us learn so much more, building on what we know from the Apollo missions 40 years ago.

Engineers will work with the scientists to figure out what resources are where on the Moon. We'll know if there is water, and what metals and other resources might be available to build an outpost. Once we have picked the best site for an outpost, the engineers will determine how to use the resources available, what equipment is needed to gather and make use of the resources, and what we still need to bring from Earth. They will design and build roads, bridges, transportation, and buildings that are suited for the location.

Why should we return to the Moon? At least for me, the Moon is our natural next step to exploring our universe — and there is so much to explore! When people ask “Why do it?” I want to say “Why not?!” But there are also benefits to be discovered. Our society has benefited so much from the space program — the materials that make my glasses lightweight and flexible, the products in my house like cordless tools and computers — all resulted from the space program. Who knows what will be discovered as we venture to the Moon? If someone wants to be an engineer, what should they do? It is really important that students consider going into science and engineering careers. We need people who are good at these jobs for our future exploration of the Moon and Mars and other places in our solar system. I love a challenge and I love problem solving. If a student likes to solve puzzles, have fun, work with neat people on challenging problems that require imagination, then science and engineering are for them! They should focus on science and math and listen to their teachers. I met many great teachers who wanted to help me learn and succeed. Believe it or not — and they may not! — they will use much of what they learn. I have!

[Hear about the LRO Mission from Cathy.](#)