



STEM CAREERS

FMA Live! was developed in partnership by Honeywell and NASA to inspire students to pursue careers in Science, Technology, Engineering, and Math (STEM).

CAREER VIDEO DISCUSSION GUIDE

Several hundred people make the Mars Exploration Rover Mission possible. Introduce your students to some of the engineers who work on NASA's *Curiosity* mission to Mars. Filmed on location at NASA's Jet Propulsion Laboratory (JPL) in Pasadena, California, the engineers share their stories about how they became part of the NASA team and offer students advice for exploring their interest in science and engineering. This guide includes a discussion question for each interview to help you get the conversation started. The interviews are available for online viewing at fmalive.com (log-in required).



Bobak Ferdowsi A flight director on the *Curiosity* mission exploring Mars, Ferdowsi explains how his team sent a rover from Earth to a precise location more than a million miles away on Mars and describes how the rover analyzes rocks on the red planet.

- **Discussion Question:** Ferdowsi encourages students to pursue a career doing what they love and explains how all kinds of talents contribute to the success of an engineering team like the one at NASA. Ask students to suggest ways their special talents or interests might lead them to a career in engineering.

Matt Heverly A mobility systems engineer, Heverly remotely drives the *Curiosity* rover around the surface of Mars. He explains how NASA applied Newton's Law of Gravity to create a smaller version of the rover for test drives on Earth, and how scientists and engineers work together on the *Curiosity* mission.

- **Discussion Question:** Heverly says that asking questions is the key to understanding science, and he encourages students to investigate how things work to develop the skills for a career in engineering. Ask students how they would find out how a cell phone, a flat-screen TV, or a GPS navigator works. What questions would they ask? What steps would they follow to get answers?

Jessica Samuels The engineering operations team chief, Samuels takes students into the Dark Room at JPL, where engineers track all the data from every NASA mission. She explains the importance of teamwork for the success of the *Curiosity* mission and how women are playing a larger role in engineering.

- **Discussion Question:** Samuels recalls how her interest in science kits and science projects led to her career as an engineer. Ask students how their hobbies could develop into an engineering career. Have they been excited by school projects that might indicate a career path for their future?

Jennifer Trospen The mission operations manager for the Mars Science Laboratory, Trospen relays the commands that tell *Curiosity* what to do on Mars. She explains how the hundreds of scientists and engineers involved in the mission must work as a team every day to coordinate all their objectives into a single set of commands.

- **Discussion Question:** Trospen says she grew up as a farm girl, and had an interest in math, science, and music. Talk with students about how stereotyping can limit our horizons — who would have ever thought that a farm girl could lead a mission to Mars? Have students imagine they have made a similar transition and ask them to write stories describing how they found a career in engineering.

Daniel Maas A digital animator, Maas has created animations that show the *Curiosity* mission in flight to Mars and the *Curiosity* rover exploring the planet. He explains how he gathers data from scientists and engineers to ensure the accuracy of his animations, and how his fascination with Hollywood special effects led to his career at NASA.

- **Discussion Question:** This interview includes animations that Maas created while still in high school. Ask students what they have created — or would like to create — that could lead to a career in engineering.

CURIOUS ABOUT NASA'S MARS EXPLORATION PROGRAM AND THE ROVER CURIOSITY?

Learn more about the mission and Curiosity at mars.jpl.nasa.gov/