**TEACHER KEY: Questions for the Group to Answer**

1. Where is NASA’s Jet Propulsion Laboratory located and which university oversees it? Pasadena, California and the California Institute of Technology
2. In two or three sentences, describe how JPL originally was started.

A Caltech professor did pioneering work in rocket propulsion experiments with his students. They later helped the Army to develop strap on rockets to provide jet assisted take off to help airplanes take off on short runways. They also helped with researching Germany’s guided missile (V-2) program in order to duplicate it.

1. What was the name of the spacecraft built by JPL that launch the United States into space exploration for the first time? What discovery did that spacecraft make?

The satellite Explorer 1 discovered the Van Allen Radiation Belt.

1. Which JPL spacecraft is credited for visiting the most planets?

Voyagers 1 and 2—the Voyager project.

1. Which comet did the Deep Impact mission interact with?

Tempel 1.

1. Name two instruments used in the Earth Observing System program. What does each instrument do?

**Microwave Limb Sounder**—studies chemistry of Earth’s upper atmosphere

**Multi-angle Imaging Spectro Radiometer**—studies the role of clouds in global climate

**Advanced Spaceborne Thermal Emission and Reflection Radiometer**—images Earth in various parts of the color spectrum

**Atmospheric Infrared Sounder**—relays data on temperature and humidity in the atmosphere to understand heat exchange

**Troposheric Emission Spectometer**—studies the troposphere, the lowest region of Earth’s atmosphere, and tracks trends in atmospheric chemistry globally

May mention: **Active Cavity Radiometer Irradiance Monitor**—measures the total output of the Sun’s optical energy and the **CloudSat satellite**—examines clouds globally

1. What is the goal of NASA’s Great Observatories Program? List two devices used in this program.

The goal is to study the universe at various wavelengths. Devices used were the Spitzer Space Telescope, the Hubble Space Telescope, the Chandra X-ray Observatory, and the Compton Gamma Ray Observatory. May mention: the Two Micron All-Sky Survey, or the Wide-field Infrared Survey Explorer.

1. On another piece of paper, list three people who work at JPL, their job title and a brief description of what they do.
2. **Questions for NASA Experts:**

List at least 10 questions that you would like to ask an expert at the Jet Propulsion Laboratory. You may direct them towards specific experts from one of the handouts or a more general question towards any expert that works at NASA. Place the questions in order of importance to your group. The Communicator should practice asking these questions.

Try to make sure questions are not general questions about Mars but that they questions are directed to the experts’ backgrounds or work. Appropriate questions include what they were like as students, what schools they attended, etc., or about their current work at JPL.

1. **Questions about videoconferencing and/or the *Mission to Mars*:**

List other questions that you have about videoconferencing and/or the *Mission to Mars*

1. **List two questions on an index card for the JPL Expert.** Be sure to put your name on this card and turn it in to your teacher. Be sure that the questions are appropriate.

**Return these cards to the students on the day of the mission.**