Geography & Mission Planning
Student Version

Adapted from "The Exploration of Mars: NASA Educational Brief"

Why should your team do this activity?

If you were planning a mission that would land a spacecraft on the surface of Mars, where would you choose to land? Why? What kinds of factors would be most important to you in making this decision? NASA scientists must consider these same questions every time they send a mission to Mars. This activity will help your team understand how missions are planned and landing sites chosen.

Background Information

Although a number of U.S. spacecraft flew past Mars in the 1960's and in the early 1970's, it was not until 1975 that the United States launched two orbiters / landers to explore the red planet in greater detail. Arriving at Mars in the summer of 1976, Viking 1 and Viking 2 began sending back a wide variety of data to scientists, including information about Martian weather, soil, and terrain.

The chart below includes the Martian latitudes and longitudes of locations that were considered as possible landing sites for the Viking spacecraft. The actual landing sites chosen are also indicated.

Latitude	**Longitude**
22 N	48 W (Viking 1 landed near here)
20 N	108 E
44 N	10 W
46 N	110 W
46 N	150 E (Viking 2 landed near here)
7 S	43 W
5 S	5 W

The Necessities

- ★ Large world map with altitude and longitude markings
- ★ Idaho TECH Lab Notebook
- ★ Pen or pencil
- ★ Optional: an atlas

Directions

Using your world map and your brainpower (and atlas if you have one available), work together as a team to answer the following questions and record your answers in the Lab Notebook

1. If MASA (Martian Aeronautics and Space Administration) sent spacecraft to land on Earth at each of the same latitudes and longitudes as NASA considered for Mars, where would each spacecraft land?

2. What hazards would be encountered at each landing site? What would happen to the spacecraft? Would it detect water? Life? Human life?

3. If you were working for MASA, which two sites would you select for a landing on Earth? Why? For each site you select, identify the hazards that your spacecraft lander would have to survive.

4. What would you expect to find at each landing site that you selected?