**Strange New Planet Student Data Sheet**

**A. Pre-Launch Reconnaissance - Earth-bound observations**

1)  Estimate your distance from the planet: (feet or meters).

2)  Using your viewer (with blue cellophane attached to simulate Earth's atmosphere) observe the planet. What types of things do you observe? Record any observations (shape of planet, color, size, etc.)

3)  Discuss all of the observations with your team members while at Mission Control. Record any team observations that differ from yours.

4)  As a team, write questions to be explored in the future missions to the planet. What else do you wish to know and how will you find that information out (special features of the planet, life of any kind, etc.)  a. b. c. d.

**B. Mission 1: The Fly-by** (Mariner 4, 6, 7 - 1965,1969,1969)

Using their viewers (with the cellophane removed), each team will have a turn at walking quickly past one side of the planet. A distance of five feet needs be maintained from the planet. Teams will then meet back at Mission Control with their backs to the planet until all teams have completed their fly-by of the planet.

1)  Record your observations of the planet. What did you see that was the same as your Earth observations? What did you see that was different? Can you hypothesize (make a science guess) as to why there were any differences?

2)  Record any similarities or differences that your team observed.

3)  List the team ideas as to what you want to observe on your next orbiting mission.

**C. Mission 2: The Orbiter** (Mariner 9, 1971-72; Viking I and 2 Orbiters, 1976-80; Mars Global Surveyor, 1996-present)

Using a viewer, each team takes a total of two minutes to orbit (circle) the planet at a distance of two feet. Divide the two minutes by the number of team members to get the time each person gets to orbit the planet. After your observation, return to Mission Control.

1. Record your observations of the planet. What did you see that was the same as your Earth or fly-by observations? What did you see that was different? Can you hypothesize (make a science guess) as to why there were any differences?

2)  Record any similarities or differences that your team observed.

3)  As a team, develop a plan for your landing expedition onto the planet's surface. a. Where will you go and why? How did your team decide where to land?  b. What are the risks or benefits of landing there? C. What specifically do you want to explore at this site?d. What type of special equipment or instruments would you need to accomplish your exploration goals? (Remember, anything you bring has be small and light enough to bring on a spacecraft!)

**D. Mission 3: The Lander** (Viking 1 and 2, 1976-1982; Mars Pathfinder 1 1997)

Each team will approach their landing site and mark it with a push pin or masking tape. Each team member will take a turn observing the landing site through their viewer. Field of view (the area that you can see through your viewer) is kept constant by aligning the viewer with the push pin located inside and at the top of their viewers. Each team has a total of five minutes to view the landing site. After each member views the landing site, return to Mission Control.

1) Now that you have landed, what do you think you can accomplish at this landing site?

2) How long (in days) will it take you to get the job accomplished?

3) Was your mission successful? Why or why not?

4) What were the greatest challenges of this mission (Personally and as a team)? What would you change for the next mission?

5) List the members of your team.