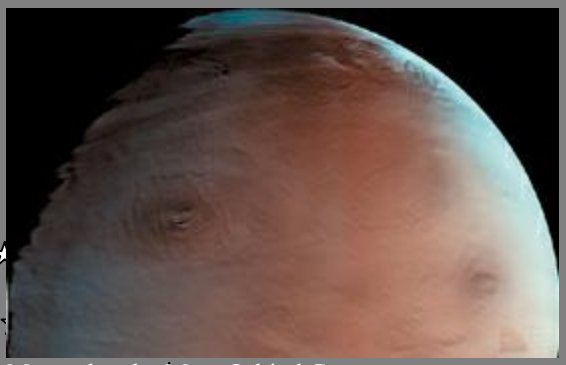
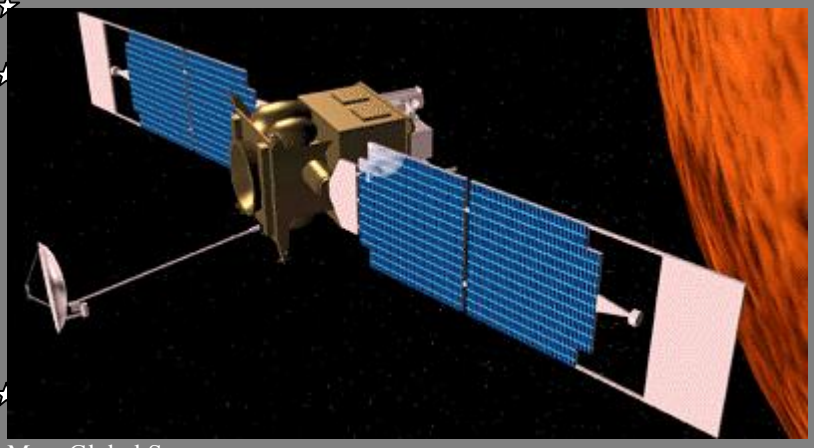
Mars and Beyond!



Mars taken by Mars Orbital Camera

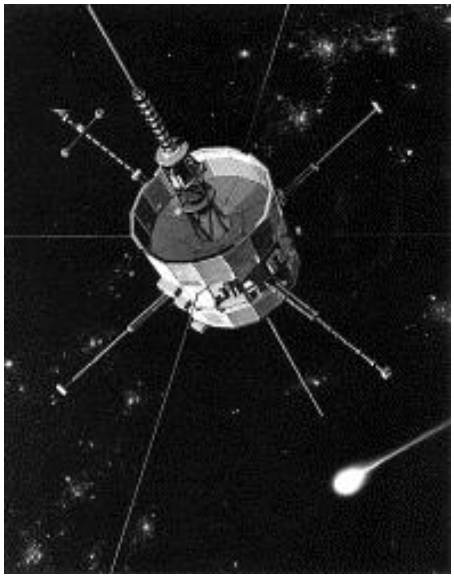
Family Portrait of Jupiter's Great Red Spot and the Galilean Satellites



Mars Global Surveyor

By Nancy Wilkinson

Mars and Beyond
Lesson 8
The Planets and Your Weight



ISEE-3/ICE - 12 Aug 1978 - Comet Giacobini-Zinner and Halley Flyby

Objective:

1) Students will use a table to describe and represent patterns.
2) Students will solve proportions

Materials Needed:

1) Table on the page 42. (You might want to make an overhead of this table.)
2) Worksheet Lesson 8. (To save copying costs, students can copy the chart on their own paper).

Opening Activity:

1) Place the table on page 42 on the overhead
2) Have the students place the planets in order from lowest surface gravity to highest surface gravity.

Activity:

1) Ask the students to tell you their weight.

2) Ask the students how much they think they would weigh in space. *(They would not weigh anything because there is no gravity)*

3) Ask the students how much they think they might weigh on Jupiter.

4) Read the following excerpt to the students:

> The surface gravity is what holds you down to the planet. The numbers in the chart compare the amount of gravity versus the Earth's. For example, Mercury has only 39% gravitational pull as compared to the Earth's. Our weight is based on gravitational pull. To find our weight on other planets, we would multiply our weight times the surface gravity. For example, a 100-pound person would only weigh 39 pounds on Mercury. (100 • .39 = 39)

5) Have the students complete Worksheet Lesson 8. It is self-explanatory. Students may do it by themselves or as a class.

Closure:

Have students share what they wrote on Worksheet Lesson 8.

Mars and Beyond
Worksheet Lesson 8
The Planets and Your Weight

Name _____ Period _____

Directions: The surface gravity is what holds you down to the planet. The numbers in the chart compare the amount of gravity versus the Earth's. For example, Mercury has only 39% gravitational pull as compared to the Earth's. Our weight is based on gravitational pull.

1) To find our weight on other planets, we would multiply our weight times the surface gravity. For example, a 100-pound person would only weigh 39 pounds on Mercury. (100 • .39 = 39) Fill in the chart below to tell how much you would weigh on each planet.

Planet	Surface Gravity	Weight on Each Planet
Mercury	0.39	
Venus	0.91	
Earth	1	
Mars	0.38	
Jupiter	2.6	
Saturn	1.07	
Uranus	0.9	
Neptune	1.15	
Pluto	0.05	

2) Write what you would think we would look like on Pluto. Would we be taller or wider? Why?

_____
_____
_____

3) Write what you would think we would look like on Jupiter. Would be taller or wider? Why?

_____
_____
_____

Mars and Beyond
Worksheet Lesson 8 - Answers
The Planets and Your Weight

1) To find our weight on other planets, we would multiply the surface gravity times our weight. For example, a 100-pound person would only weigh 39 pounds on Mercury. Fill in the chart below to tell how much you would weigh on each planet.

Answers will vary. The chart below shows how much an 80 pound person would weigh on each planet.

Planet	Surface Gravity	Weight on Each Planet
Mercury	0.39	31.2
Venus	0.91	72.8
Earth	1	80
Mars	0.38	30.4
Jupiter	2.6	208
Saturn	1.07	85.6
Uranus	0.9	72
Neptune	1.15	92
Pluto	0.05	4

2) Write what you would think we would look like on Pluto. Would we be taller or wider? Why?

Because you would weigh so much less on Pluto, you would probably be taller. Astronauts often come back inches taller. They soon shrink back to their normal size when they are on the Earth for a few days.

3) Write what you would think we would look like on Jupiter. Would be taller or fatter? Why?

Because you would weigh more than twice as much on Jupiter, you would probably be a lot shorter. The increased gravity would pull you down.

Viking 2 – 9/9/1975 - Mars Orbiter and Lander

