

# #9092

## DESTINATION COSMOS: EPISODE #8

# "MYSTERIOUS MOONS"

LANDMARK MEDIA

1998

Grade Levels: 5-10

10 minutes

1 Instructional Graphic Enclosed



### DESCRIPTION

Highlights the limited information scientists have about the many moons in our solar system. Presents theories of origin and composition. Mixes graphics with pictures taken from spacecrafts.

### ACADEMIC STANDARDS

#### Subject Area: Science

- Standard: Understands the composition and structure of the universe and the Earth's place in it
  - Benchmark: Knows characteristics and movement patterns of the nine planets in our Solar System (e.g., planets differ in size, composition, and surface features; planets move around the Sun in elliptical orbits some planets have moons, rings of particles, and other satellites orbiting them)
  - Benchmark: Knows characteristics and movement patterns of asteroids, comets, and meteors

### INSTRUCTIONAL GOALS

1. To explain how moons are believed to have been formed.
2. To describe the atmosphere and surfaces of some of the moons of Saturn, Neptune, and Jupiter.
3. To explain how scientists approximate the ages of planetary rings.

### VOCABULARY

- |                      |                      |
|----------------------|----------------------|
| 1. exotic            | 7. plunges           |
| 2. sculptured        | 8. geysers           |
| 3. turmoil           | 9. eclipse           |
| 4. nitrogen          | 10. spurs out        |
| 5. infrared pictures | 11. tantalizing      |
| 6. methane           | 12. extraterrestrial |

### BEFORE SHOWING

1. Review the names, locations, and sizes of the nine planets in the solar system. (See INSTRUCTIONAL GRAPHICS.)
2. Display pictures of the surfaces of planets and moons. Discuss their similarities and differences.

## DURING SHOWING

### Discussion Items and Questions

1. View the video more than once, with one showing uninterrupted.
2. How were the moons of the planets most likely formed?
3. Which two moons of Mars are probably asteroids?
4. Titan is a moon of which planet?
5. Describe the atmosphere and surface of Titan.
6. Which moon of Saturn has a huge scar on its surface?
7. What is one possible explanation for the formation of planetary rings?
8. Why do scientists think that Saturn's rings are probably young?
9. Which planet has older rings which are darker in color?
10. Which spacecraft visited Neptune in 1989?
11. What caused the black stain on Titan?
12. Jupiter has about 20 moons. How many of them are large?
13. Which early scientist was able to see the moons of Jupiter using a telescope?
14. Name one moon of Jupiter.
15. During an eclipse, what can be seen on Io's surface?
16. Describe the active surface of Io.
17. What is probably at the core of Io?
18. Which of Jupiter's moon could possibly support extraterrestrial life?
19. Describe the surface of Europa.
20. Which do scientists think could be beneath Europa's ice surface?

## AFTER SHOWING

### Applications and Activities

1. Design 3-D models of the nine planets and their moons. Shape, carve, and paint their surfaces to fit their actual physical characteristics.
2. Make diagrammatic models of the sun and the planets.
  - a. Use a model of the Earth that is  $\frac{1}{4}$  inches in diameter.
  - b. Research the actual dimensions of the planets and use proportion to calculate the diameters of the model planets.
  - c. Set up a distance scale in which 1 inch represents 20 million miles.
  - d. Research the actual planetary distances and use proportion to determine the distance of the model planets from each other.
3. Create a slide show presentation of the moons mentioned in the video.
4. Report on spacecraft that have been involved in studying the moons of the planets.
  - a. Voyager I and II
  - b. Galileo
  - c. Cassini
5. Create an informational chart about the moons mentioned in the video.
  - a. Who discovered it?
  - b. When was it discovered?
  - c. Who was it named after?
  - d. How big is it?
  - e. What does its surface look like?

## RELATED RESOURCES



### Captioned Media Program

- Bill Nye the Science Guy: Planets #3577
- Journey Through the Solar System #2618
- Our Solar System #8849
- Robot Explorers #3170



### World Wide Web

The following Web sites complement the contents of this guide; they were selected by professionals who have experience in teaching deaf and hard of hearing students. Every effort was made to select accurate, educationally relevant, and "kid safe" sites. However, teachers should preview them before use. The U.S. Department of Education, the National Association of the Deaf, and the Captioned Media Program do not endorse the sites and are not responsible for their content.

- **THE NINE PLANETS**

<http://seds.lpl.arizona.edu/nineplanets/nineplanets/>

Contains information about the history, mythology, and current scientific knowledge of each of the planets and their moons. Includes text, images, sounds, movies, and references to other Web sites.

- **JUPITER**

<http://www.enchantedlearning.com/subjects/astronomy/planets/jupiter/>

Contains a general description of the planet, information about its atmospheric and planetary composition, description of its rings and moons, and statistical data. Includes a quiz, an interactive puzzle, and animation of Jupiter's major moons.

- **SATURN**

<http://www.enchantedlearning.com/subjects/astronomy/planets/saturn/weblinks.shtml>

Includes a general description of the planet and explains about its rings and moon. Contains a quiz, a coloring page, an interactive puzzle, and a page of Saturn facts.

- **URANUS**

<http://www.enchantedlearning.com/subjects/astronomy/planets/uranus/>

Contains general information about Uranus including facts about its rings and moons. Contains links to interactive activities and other resources.

- **NEPTUNE**

<http://www.enchantedlearning.com/subjects/astronomy/planets/neptune/>

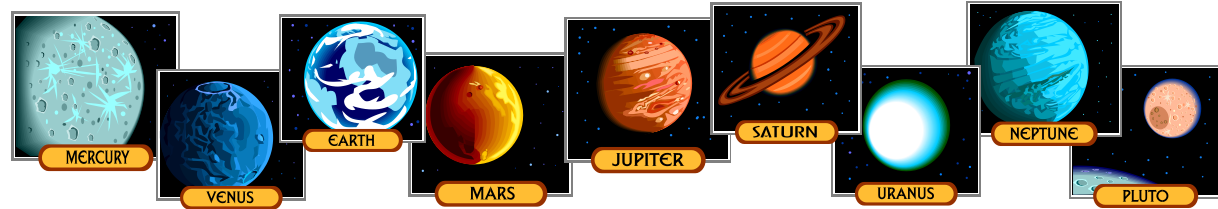
Includes a general description of the planet, as well as information about its rings and moons. Contains links to activities and other references about the planet.



## INSTRUCTIONAL GRAPHIC

- THE NINE PLANETS IN THE SOLAR SYSTEM

# The Nine Planets in the Solar System



Directions: Complete the table.

Name of Planet	Distance from Sun	Distance from Earth	Diameter	Number of Moons	High/Low Temperatures	Description of Surface
<b>Mercury</b>						
<b>Venus</b>						
<b>Earth</b>						
<b>Mars</b>						
<b>Jupiter</b>						
<b>Saturn</b>						
<b>Uranus</b>						
<b>Neptune</b>						
<b>Pluto</b>						