

## Astronomy for Kids - Neptune

### A Windy, Cold Blue World

Neptune is the eighth planet from the Sun and, at this distance, the Sun looks a whole lot like the other stars that would be visible from this planet. Actually, there are times when Neptune is the furthest planet from the Sun. Pluto, which has a very elliptical orbit, is sometimes closer to the Sun than Neptune for a period of time, but, for the most part, Neptune is closer to the Sun than Pluto. Neptune was also the last planet visited by Voyager 2 before it left our solar system. Before the arrival of the Voyager mission in 1989, we knew very little about this planet because of its great distance from us. As usual, though, Voyager's visit gave us a lot of surprises. We found out that it was a very cold, windy place with very interesting clouds and a moon that actually had "geysers" something like the ones we have here on Earth. In addition, the history-making mission discovered an additional six moons that were unknown to us. All in all, Neptune turned out to be a big surprise to almost everybody.

### Neptune's Turbulent Surface

The images that Voyager sent back to Earth showed us that the giant gas planet has a very turbulent atmosphere, much like that on Jupiter and Saturn. This was a big surprise, since all we could see from Earth was a small blue disk. Scientists named the large darker blue area that you see in the picture at right the Great Dark Spot. You can also see darker cloud bands at the bottom of the picture.

Although the Great Dark Spot was named because it resembled the Great Red Spot on Jupiter, it proved to be not nearly as long-lasting. Images from the Hubble Space Telescope show us that it has since disappeared, although other features seem to have taken its place.

### Hot on the Inside, Cold on the Outside

Although the "surface" of Neptune is very cold, over two hundred degrees below zero, the center of the planet is apparently very warm, since the planet gives off more heat than it receives from the Sun.

When you add this temperature difference between the interior and exterior of the planet to the fact the Neptune rotates at a very fast speed, one of the results is a surface wind that blows at over a thousand miles per hour. The high winds are what generate the interesting cloud patterns you see in the picture at the right. Continuing observations from the Hubble Space Telescope show us that the surface of the planet changes on a pretty regular basis.

#### Neptune Facts

<b>Distance from Sun</b>	Approximately 2.8 billion miles
<b>Number of Moons</b>	At least 11
<b>Diameter</b>	Approximately 31,000 miles
<b>Length of Day</b>	16 Earth hours
<b>Length of Year</b>	165 Earth years
<b>Name</b>	Roman god of the sea.
<b>Visited by</b>	Voyager 2

#### Neptune from Voyager



A picture of Neptune taken by the Voyager 2 spacecraft.

#### The Clouds of Neptune



The clouds of Neptune taken by the Voyager 2 spacecraft.

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Neptune's Rings Before Neptune was visited by Voyager, astronomers on Earth had hints that the planet had a very faint set of rings, but the images that Voyager sent back gave them absolute proof. Neptune has a set of about four rings, all of them too faint to be seen directly from Earth.

As you can see in the picture at right, one of the rings appears to be "braided", in much the same way that one of Saturn's rings appears to be. This effect may be caused by a couple of very tiny moons acting in concert, but we don't know for sure.



Image courtesy of: NASA

### "Geysers" on Triton!

As if it was saving the best for last, one of the last discoveries that Voyager made while it was at Neptune was the fact the Triton, Neptune's largest moon, had what appeared to be geysers on its surface. The moon is much too cold to have hot water geysers like we have here on Earth. These "geysers" are actually eruptions of nitrogen that originate deep inside the moon. What causes these eruptions is still very much a mystery and will likely remain a mystery until another mission visits Neptune for extended study.



### Find Out More About Neptune

#### [Neptune Page at the Nine Planets Site](#)

The Neptune section of the Nine Planets site has more detail about this pale blue world.

#### [The Voyager Mission](#)

The Voyager mission sent back almost all of the pictures of Neptune that we have used in this section.

## Astronomy for Kids - The Clouds of Neptune

### Neptune from Voyager 2

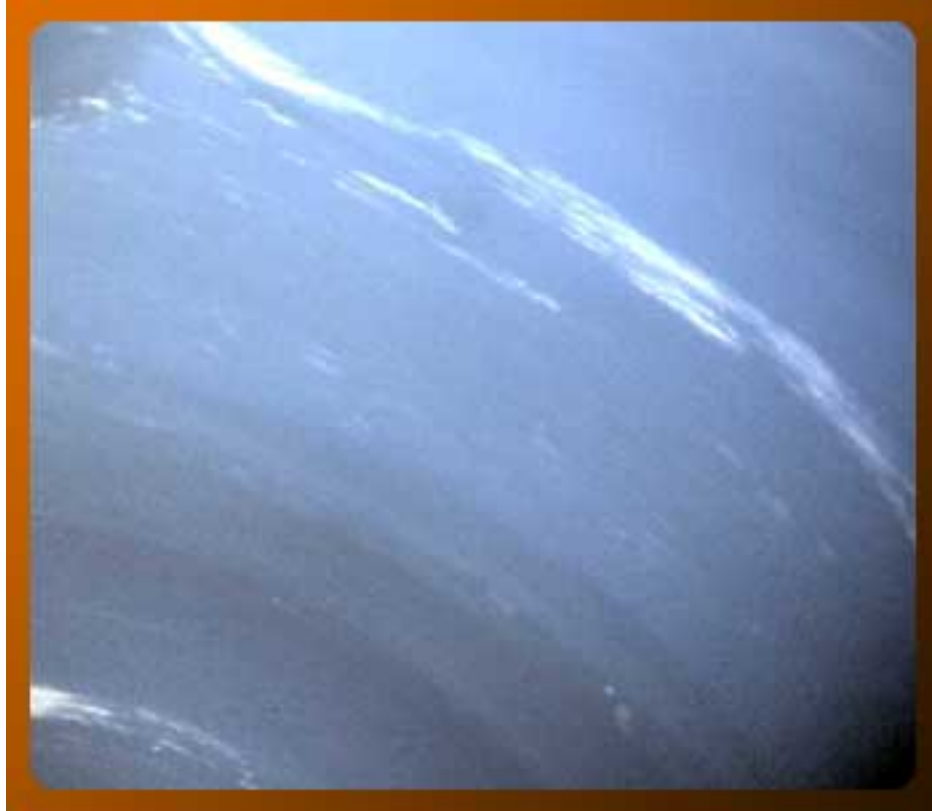


Image courtesy of: NASA, Voyager 2 Mission

This image from the Voyager 2 mission shows some of the high bands of white clouds that were visible when the spacecraft flew by. There are bands of clouds around the planet's equator as well as its south pole.

## Astronomy for Kids - Neptune from Voyager 2

### Neptune from Voyager 2

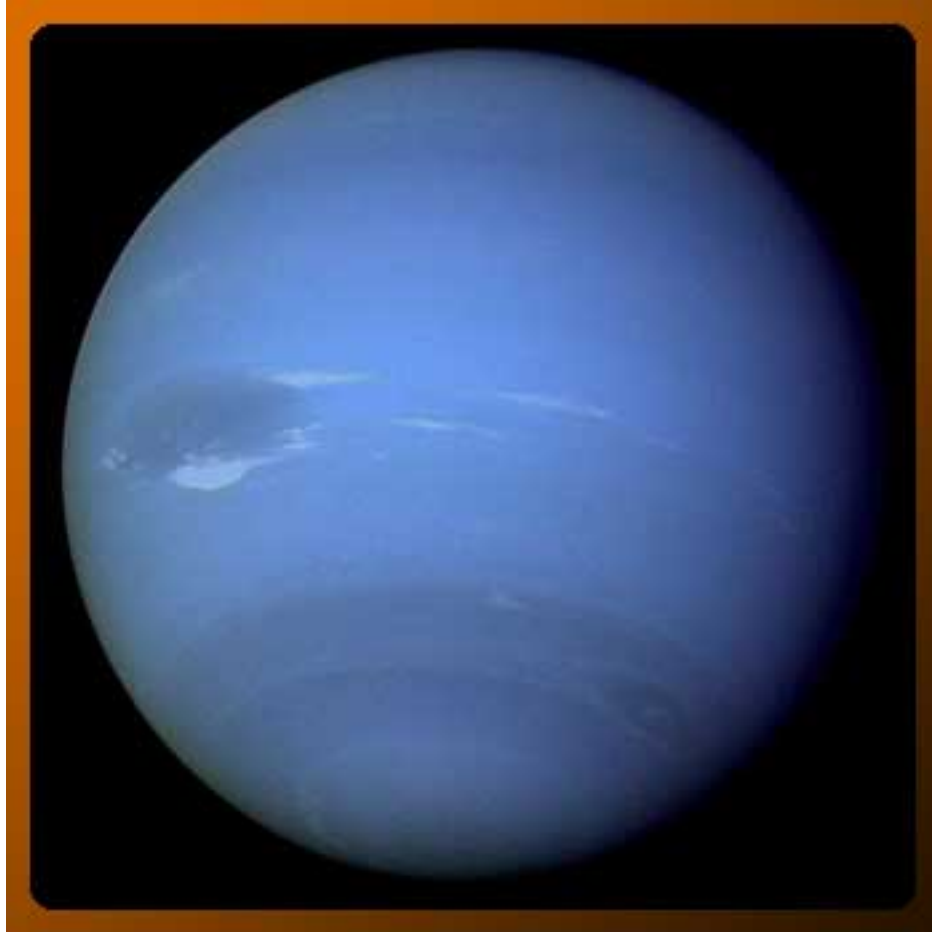


Image courtesy of: NASA, Voyager 2 Mission

This image from the Voyager 2 mission clearly shows the Great Dark Spot as well as different-colored cloud bands.

## Astronomy for Kids - Geysers on Triton

### Geysers on Triton

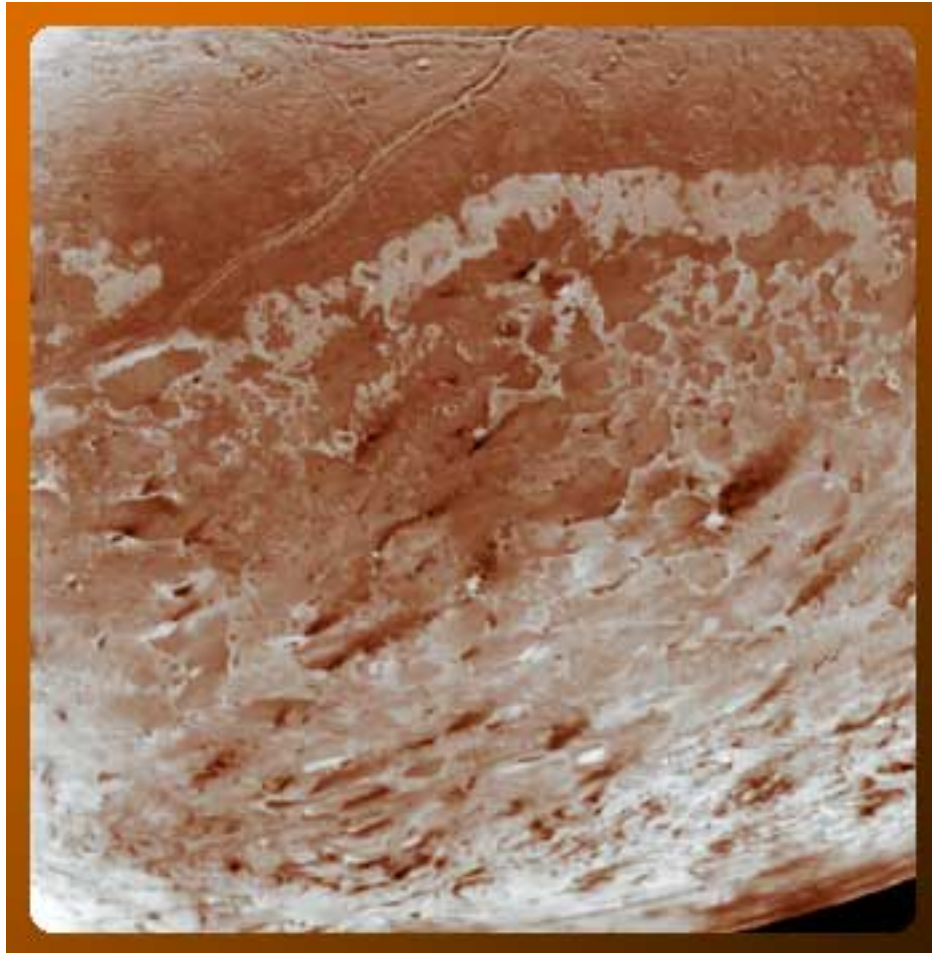


Image courtesy of: NASA, Voyager 2 Mission

This remarkable picture clearly shows the dark smudges that are the result of the "geysers" erupting on Triton.