

A Blue, Windy Giant

What is known about Neptune?

Neptune (NEP•toon) is the most distant planet from the sun. It is located 30 times farther from the sun than Earth is. So, sunlight on Neptune is 900 times fainter than sunlight on Earth is. High noon on Neptune may look much like twilight on Earth.

Neptune Is a Blue Ice Giant

Neptune is practically a twin to Uranus. Neptune is almost the same size as Uranus. It also has an atmosphere that is composed of hydrogen and helium, with some methane. The planet's bluish color is caused by the absorption of red light by methane. But because Neptune does not have an atmospheric haze like Uranus does, we can see deeper into the atmosphere. So, the blue color is much deeper.

When *Voyager 2* flew by Neptune in 1989, there was a huge, dark area as large as Earth in the planet's atmosphere. This storm, which was located in Neptune's southern hemisphere, was named the *Great Dark Spot*. However, in 1994, the Hubble Space Telescope found no trace of this storm. Meanwhile, other spots that may grow larger with time have been sighted in the atmosphere.

Distance from the sun	30.1 AU
Period of rotation	16 h 7 min
Period of revolution	164.8 y
Tilt of axis	28.5°
Diameter	49,528 km
Density	1.64 g/cm ³
Mean surface temperature	-220 °C
Surface gravity	112% of Earth's
Number of satellites	15



Visualize It!

14 Predict The wind speeds recorded in Neptune's Great Dark Spot reached 2,000 km/h. Predict what kind of destruction might result on Earth if wind speeds in hurricanes approached 2,000 km/h.

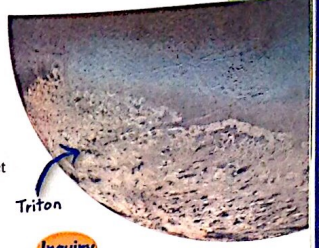
Neptune Has the Strongest Winds

Where does the energy come from that powers winds as fast as 2,000 km/h? Neptune has a warm interior that produces more energy than the planet receives from sunlight. Some scientists believe that Neptune's weather is controlled from inside the planet and not from outside the planet, as is Earth's weather.

Neptune's Moon Triton Has a Different Orbit Than Neptune's Other Moons

Triton (TRYT'in) is the largest moon of Neptune. Unlike the other moons of Neptune, Triton orbits Neptune in the opposite direction from the direction in which Neptune orbits the sun. One explanation for this oddity is that, long ago, there were several large moons that orbited Neptune. These moons came so close together that one moon was ejected. The other moon, Triton, remained behind but began traveling in the opposite direction.

Triton's days are numbered. The moon is slowly spiraling inward toward Neptune. When Triton is a certain distance from Neptune, the planet's gravitational pull will begin pulling Triton apart. Triton will then break into pieces.



Inquiry

15 Conclude Complete the cause-and-effect chart by answering the question below.

Triton spirals inward toward Neptune.

The gravitational pull of Neptune causes Triton to pull apart.

Triton breaks into pieces.

What do you think will happen next?

A category 5 hurricane on Earth has sustained wind speeds of 250 km/h. Some effects of the winds of a category 5 hurricane can be seen in this image.

