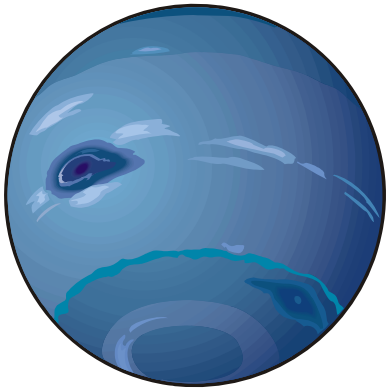

Planet Neptune

Scientists are like detectives who solve mysteries using clues that nature provides everywhere around us. No matter what a scientists wants to study, mathematics provides an important tool for understanding the relationships in nature. It was through the use of mathematics that astronomers with vision predicted the existence of a planet that they couldn't see with the telescopes that were available at the time. They predicted that an eighth planet was located a billion – yes, billion – miles further out in space than Uranus, the seventh planet from the Sun, and the furthest known planet.

In the 1840s an English astronomer, John C. Adams, and a French mathematician, Urbain J. J. Leverrier, were working separately on the same problem. The problem was that the orbit that Uranus was in did not match the orbit it should be taking if it was the last planet in the solar system. These researchers did the mathematical calculations that predicted the size and location of a new planet that would exert gravity on Uranus to give it the orbit that astronomers had observed. When astronomers looked in the location predicted by the mathematics they discovered Neptune in 1846.

Neptune is a large planet, with a diameter about four times that of Earth. Neptune is about 2.8 billion miles from the Sun and it takes the planet about 165 Earth years to revolve once around the Sun. Yet Neptune rotates so fast on its axis that a day is about 16 hours long. Like other planets in the outer area of the solar system, Neptune does not have a solid surface. The surface of Neptune is composed of hydrogen, helium, water, and silicates. Silicates are the mineral components of sand and some rocks. Scientists believe that Neptune has an inner core made of rock and ice. Neptune appears blue when photographed from space by the Voyager 2 space probe and the Hubble Space Telescope.

Astronomers have found eleven moons revolving around Neptune. The largest moon is called Triton. Astronomers believe that Triton was a comet that was captured by Neptune's gravity because it revolves around Neptune in the opposite direction of the planet's motion. Neptune has three major rings similar to Saturn but Neptune's rings are composed of dust particles.