

Pluto and the Kuiper Belt

We have all learned that Pluto is the planet farthest from the sun in our solar system. Since it was discovered in 1930, astronomers have grouped it with the outer planets. However, Pluto has not been a perfect fit in this group. Unlike the other outer planets, which are large and gaseous, Pluto is small and made of rock and ice. Pluto also has a very elliptical orbit that is unlike its neighboring planets. These and other factors once fueled a debate as to whether Pluto really is a planet and how it should be classified.

Kuiper Belt

In 1997, astronomers discovered a belt of comets outside the orbit of Neptune. The belt was named the Kuiper Belt in honor of Gerard Kuiper, a Dutch-born American astronomer. So what does this belt have to do with Pluto? Given its proximity to Pluto, some astronomers thought Pluto may actually be a large comet that escaped the Kuiper Belt.

Comet?

Comets are basically dirty snowballs made of ice and cosmic dust. Pluto is about 30 percent ice and 70 percent rock. This is much more rock than is in a normal comet. Also, at 2,200 km in diameter, Pluto is much larger than a comet. For example, Halley's comet is only about 20 km in diameter. Even so, Pluto's orbit is very similar

to that of a comet. Both have orbits that are very elliptical.

Escaped Moon?

Pluto and its moon, Charon, have much in common with Neptune's moon, Triton. All three have atmospheres made of nitrogen and methane, which suggests that they share a similar origin. And since Triton has a "backward" orbit compared with Neptune's other moons, it may have been captured by Neptune's gravity. Some astronomers thought Pluto might also have been

likely continue to debate the issues. To date, however, Pluto is still officially considered a planet. This decision is firmly grounded by the fact that Pluto has been called a planet since its discovery.

You Decide

Do some additional research about Pluto, the Kuiper Belt, and comets. Write a one page report to explain what each of these objects are. Then explain where you think Pluto best fits and why?



Figure 1 - A composite drawing of Pluto, Charon, Triton, and Halley's Comet

captured by Neptune but broke free by some cataclysmic event.

New Category of Planet?

Some astronomers suggested that perhaps we should create a new subclass of planets, such as the ice planets, to add to the Jovian and terrestrial classification we currently use. Pluto would be the only planet in this class, but scientists think we are likely to find others.

As there are more new discoveries, astronomers will