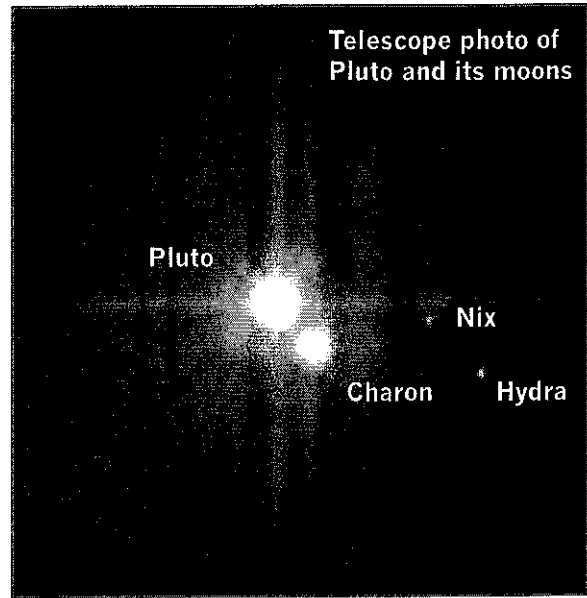


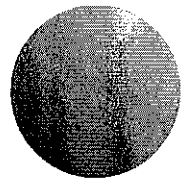
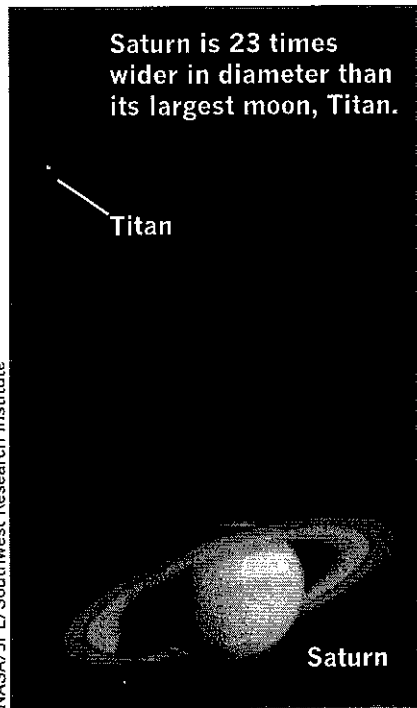
PLUTO AND CHARON

Pluto is not classified as a planet anymore. Some call it a dwarf planet, but it has one thing in common with most of the true planets in the Solar System: it has moons. Scientists have observed five moons, but there may be more. Pluto's largest Moon, Charon, is different from other moons in the Solar System in a few important ways. In fact, it is so different that some scientists say that Pluto and Charon are more like a double-dwarf planet instead a dwarf planet with a moon.



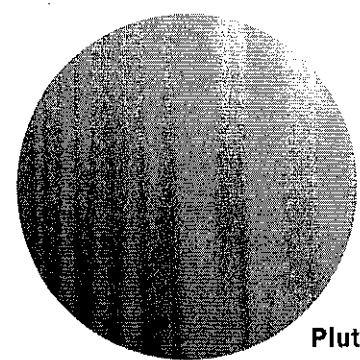
NASA, ESA, H. Weaver (JHUAPL), A. Stern (SwRI), and the HST Pluto Companion Search Team

Charon's size and mass, in comparison with Pluto, make it special. The diameter of Charon is just over half the diameter of Pluto. Even though that makes it smaller than Pluto, it means that Charon is big for a moon. No other moon in the Solar System is so similar in size to the planet that it orbits. For example, Saturn's largest moon, Titan, is only about 1/23rd the diameter of Saturn itself. Charon's mass is about 1/8th of the mass of Pluto. That is a much smaller mass, but the masses of Pluto and Charon are more similar to each other than the masses of any other pair of planets and moons. Saturn is about 4,300 times more massive than Titan.



Charon

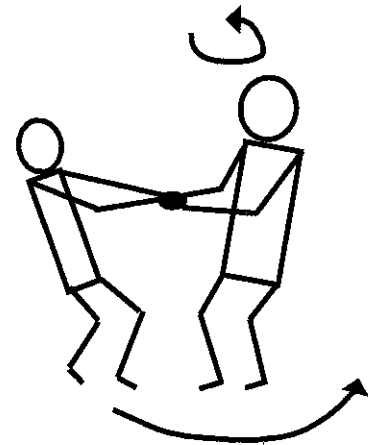
Pluto is only about twice as wide in diameter as its largest moon, Charon.



Pluto

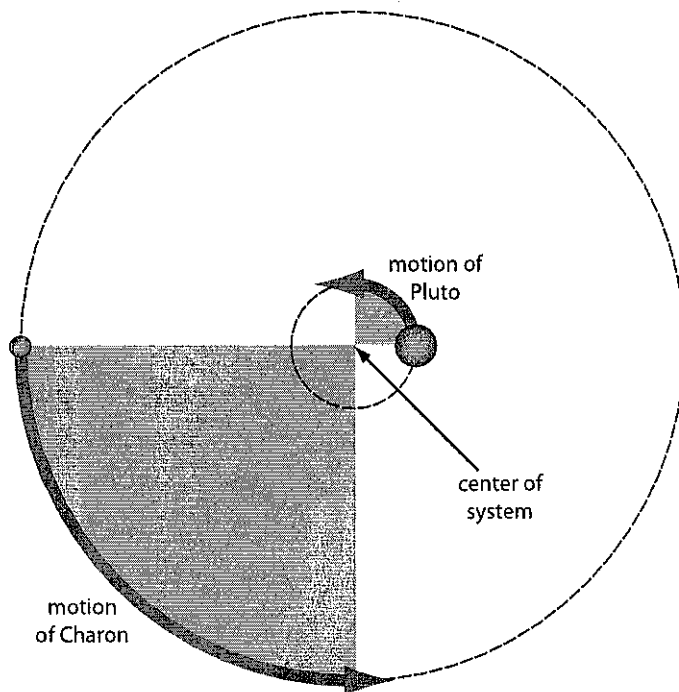
The similarity of the masses of Charon and Pluto make them orbit in an unusual way. You could say that Charon does not really orbit Pluto—they orbit around each other! The center of the Pluto–Charon system is somewhere between the two.

Think of Pluto and Charon as two people, a heavier one and a lighter one, holding their hands and turning. Their arms and hands are like the gravity that hold Pluto and Charon in orbit around each other. The lighter person will move around the heavier person, but the heavier person will move around, too. They will both orbit a spot near where their hands meet, but closer to the heavier person.



It's the same with Pluto and Charon. They are always pulling toward each other with the force of gravity, and they orbit a spot that is between them that is about 2,000 kilometers from the center of Pluto.

Other objects and their moons affect each other in a similar way, but with an important difference. For instance, Earth and the Moon both orbit a spot that is between the center of the Moon and the center of Earth, but that spot is actually inside Earth. That is the way with all other moons and planets in the Solar System. They orbit a spot between their centers, but that spot is always inside the planet because the planet is much bigger and heavier.



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