

## 6.4: What is a Planet?

The International Astronomical Union (IAU) ruled in August 2006 that to be a planet an object must meet three criteria:

1. It must have enough mass and gravity to gather itself into a sphere
2. It must orbit the sun
3. It must reign supreme in its own orbit, having “cleared the neighborhood” of other competing bodies

### Is there a controversy?

Yes. This ruling demoted Pluto from a planet to a dwarf planet. According to the new rule, Pluto has not ‘reigned supreme in its own orbit, ‘clearing the neighborhood’ of other competing bodies.

The International Astronomical Union (IAU) has sanction over astronomical definitions and rules. Most of these are minor decisions, like adding leap seconds to a year. The decision – stating what a planet is – is a major decision. The *Pluto Planet* debate had been brewing for several years.

Yet this was not the IAU’s first vote on the subject. One week prior to the “final” planet definition vote, the IAU’s Planet Definition Committee endorsed the following:

1. It must have enough mass and gravity to gather itself into a sphere
2. It must orbit the sun

What were the implications of this *first definition*?

Pluto was still a planet, so was its moon **Charon**, the asteroid **Ceres**, and the recently discovered Eris. For about a week, the solar system would have had twelve planets instead of nine. The IAU rejected this definition and the now-infamous definition accepted.

What are the implications of the *new planet definition*?

There are now **eight planets** in our solar system, along with a new classification of objects called **Dwarf Planets**. Currently there are three Dwarf Planets: Pluto, Ceres (previously classified as an asteroid), and Eris. A subclass of Dwarf planets is called the **Plutoids** ; these ice dwarfs are trans-Neptunian (past the planet Neptune) planets that orbit the Sun and are large enough to be somewhat spherical in shape. It’s important to **note that these rulings only apply to our solar system, not to other stellar systems with planets**.

This decision is still hotly contested some ten years later. With the arrival of the **New Horizons** spacecraft at Pluto and its five known moons in 2015, astronomers will take a closer look at this icy world.



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