

## **Abstract**

### **Could Pluto be a Planet? – Yes!**

What if Pluto was a planet? By reviewing Solar system data, we can find out whether Pluto, and other celestial objects in the solar system, could be considered planets. Under NASA's definition, three main characteristics need to be identified: The object must orbit the sun, have sufficient mass to have a roughly spherical shape from its own gravity, and clear its orbital neighborhood. Under this definition, Pluto is not a planet since its orbital neighborhood is not clear. However, we want to identify these objects based solely on their own physical characteristics: mass, size, shape, and density. After comparing these traits using scatter plots, a trend was discovered between size and mass of objects that could be used to build a new definition of planet, as well as why mass is the key characteristic to look for. The objects in our data pool and their traits were then compared using a Kepler Mapper algorithm to cluster together similar objects, and what other objects would also have to be considered planets if Pluto was considered a planet under this new definition. The final analysis agreed with our own conclusion of only one other object fitting the description: Eris.