

# **ANDROMEDA GALAXY**

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The Andromeda galaxy is a spiral galaxy that is 2,538,000 light years away from earth. The Andromeda galaxy is a galaxy in the Andromeda constellation and is also referred to as messier 31, m31, or ngc 224. The Andromeda galaxy is the nearest spiral galaxy to our milky way galaxy, but not the closest galaxy overall. It gets its name from the area of the sky in which it appears, the constellation of Andromeda, which was named after the mythological princess Andromeda. The Andromeda galaxy is the largest galaxy in the local group which includes the milky way galaxy, the triangulum galaxy, and about 30 other different galaxies. The 2006 observations by the spritzer space telescope revealed that the Andromeda galaxy contains one trillion stars, at least twice the number of stars in the milky way galaxy which is estimated to be 200-400 billion. The Andromeda Galaxy is estimated to be 710 billion solar masses. In comparison a 2009 study estimated that the Milky Way and M31 are about equal in mass, while a 2006 study put the mass of the Milky Way at ~80% of the mass of the Andromeda Galaxy. The two galaxies are expected to collide in 3.75 billion years, eventually merging to form a giant elliptical galaxy. Mass estimates for the Andromeda Galaxy's halo (including dark matter) give a value of approximately 1.2 trillion solar masses compared to 1.9 trillion solar masses for the Milky Way. Thus the Andromeda galaxy may be less massive than our own galaxy, although the error range is still too large to say for certain. Even so, the masses of the Milky Way and Andromeda galaxy are comparable, and the Andromeda galaxies spheroid actually has a higher stellar density than that of the Milky way.

**The Andromeda galaxy appears to have significantly more common stars than the Milky Way, and the estimated luminosity of M31, is about 25% higher than that of our own galaxy. Based on its appearance in visible light, the Andromeda Galaxy is classified as an SAS galaxy in the de Vaucouleurs–Sandage extended classification system of spiral galaxies. However, data from the 2MASS survey showed that the bulge of M31 has a box-like appearance, which implies that the galaxy is actually a barred spiral galaxy like the Milky Way, with the Andromeda Galaxy's bar viewed almost directly along its long axis.**

**In 2005, astronomers used the Keck telescopes to show that the tenuous sprinkle of stars extending outward from the galaxy is actually part of the main disk itself. This means that the spiral disk of stars in the Andromeda galaxy is three times larger in diameter than previously estimated. This constitutes evidence that there is a vast, extended stellar disk that makes the galaxy more than 220,000 light-years (67,000 pc) in diameter. Previously, estimates of the Andromeda Galaxy's size ranged from 70,000 to 120,000 light-years across. The Andromeda galaxy is fun to look at and the cool thing about it is that you can see it with the naked eye.**

**These are some cool things about the Andromeda galaxy, and I chose this topic because of my fascination about Astronomical objects. It's very exotic like some other fascinating topics, you just have to have a clear night and be in a spot where there is no tall things blocking your view. Since I like astronomy, I thought it would be nice to incorporate that liking into this essay. This is also a unique topic because not many people have heard of other galaxies such as the Andromeda galaxy, the Triangulum galaxy, the pinwheel galaxy, the bodes galaxy, the cartwheel galaxy, and so on. There are about 49 other galaxies that are pretty close to us, speaking in light years. I only talked about the Andromeda galaxy but there is a lot more to talk about, and who knows maybe I'll do another essay next on another galaxy!**