

# Light Years, Galaxies, and the Universe

If a friend asked you how far Provo is from Salt Lake City, would you tell them it is 2,534,400 inches? Or, would you say it is 211,200 feet? This is a little better, but you would most likely tell your friend Provo is about 40 miles south of Salt Lake. Now, imagine you lived near the star Proxima Centauri. Would you tell a friend living on Earth that it is 24,689,699,202,000 miles away? Or, would you say it is about 265,480.637 AU away? This is a little better, but is still a very large number. More likely, you would tell



them it is about 4.2 light years away.

So what is a light year? A light year represents the distance light travels in one year. So how much is this? Do the math... Light travels about 186,000 miles per

second. How far does it travel in one minute? In one hour? In one day? In 30 days? In 365.25 days?

Now that you know how far a light year is, consider the fact that the diameter of our Solar System is approximately

7,440,000,000 miles, 80 AU, or about .00127 light years. That actually makes it sound small!

The closest star to our Solar System is Proxima Centauri in the Alpha Centauri star system, which is about 4.4 light years away. The largest star within ten light years is Sirius. It is about 8.6 light years away. If we were traveling as fast as the Voyager probe, at about 34,800 miles per hour, it would take us 165,837 years to reach Sirius.

If that sounds like a long trip, just imagine how long it would take to reach the center of the Milky Way galaxy, which is about  $1.7 \times 10^9$  AU from our sun, or about 26,881.86 light years.

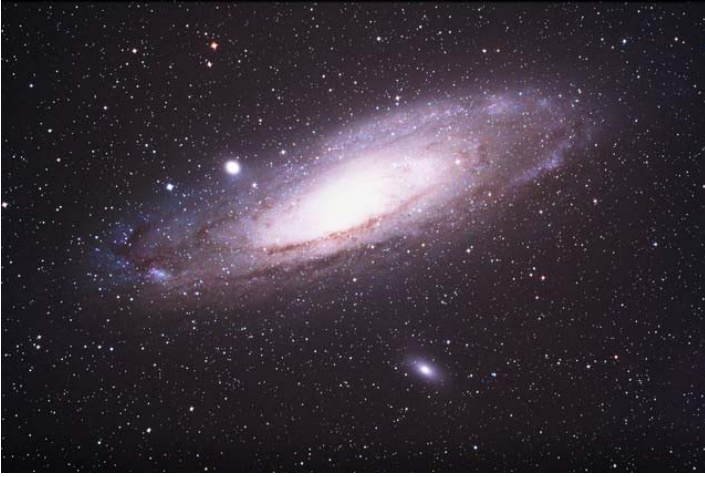


360-degree photographic panorama of the entire galaxy, from the viewpoint of our solar system.

The entire Milky Way galaxy is about 80,000 to 100,000 light years in diameter and about 250,000 to 300,000 light years in circumference. The Milky Way consists of 200 to 400 billion stars. The Milky Way is one of billions of galaxies in the known universe.

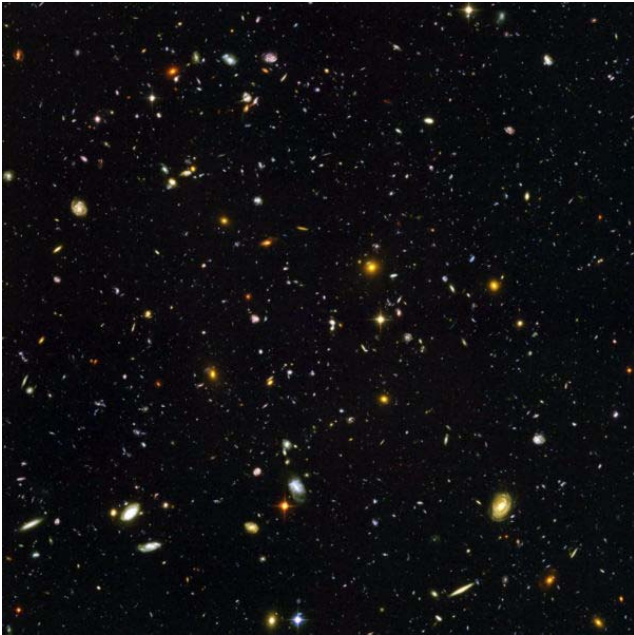
One of the closest galaxies to our own is Andromeda Galaxy. Andromeda is about 2.5 million light years away and contains about 1 trillion stars. This shows us that our

galaxy is not even close to being the largest galaxy in the universe. Our galaxy is about average size.



Andromeda Galaxy

Very little is known about the size of the universe. It may be trillions of light years across, or it may even be infinite in size.



The deepest visible-light image of the cosmos, the [Hubble Ultra Deep Field](#).

Sources:

Milky Way article:

[http://en.wikipedia.org/wiki/Milky\\_Way\\_galaxy](http://en.wikipedia.org/wiki/Milky_Way_galaxy)

Andromeda Galaxy article:

[http://en.wikipedia.org/wiki/Andromeda\\_galaxy](http://en.wikipedia.org/wiki/Andromeda_galaxy)

Solar System article:

[http://en.wikipedia.org/wiki/Solar\\_System](http://en.wikipedia.org/wiki/Solar_System)

Universe article:

<http://en.wikipedia.org/wiki/Universe>