

SPACE ADDRESS

We can describe our location in many ways. We can identify our political regions such as the town, city, state, and country we live in. We can also identify our geographical area such as the Western, the Northern Hemisphere, or the continent of North America. A third way to identify where we are is to describe our astronomical location.

Do you know how to describe your astronomical location? Our planet is in a solar system. The solar system is made up of the Sun and everything that moves around it, including the planets and their moons, comets, asteroids, meteoroids, and more. The solar system is a small part of a larger system known as the Milky Way Galaxy. There are 100's of billions of galaxies in the universe.

Objects in space are very far from one another. The Sun, for example, is the closest star to Earth, but it is 93 million miles away = 1 A.U. = 1 Astronomical Unit. Larger distances (bigger than our solar system) in space are measured in light-years. Light travels at the rate of 186,282 miles per second. A light-year (lr) is the distance that light travels in one year. The Milky Way is much larger, approximately 100,000 light years across. Scientists have not yet determined the size of the universe, except that it is expanding.

1. On the lines below, describe your location in the universe, from closest to farthest:  
room \_\_\_\_ in the \_\_\_\_\_ wing at \_\_\_\_\_, in \_\_\_\_\_,  
\_\_\_\_\_ county, \_\_\_\_\_, \_\_\_\_\_,  
\_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_,  
( \_\_\_\_\_?)

2. Compare the size of the universe, Milky Way Galaxy, and our solar system.  
\_\_\_\_\_ > \_\_\_\_\_ > \_\_\_\_\_

3. Light travels 186,282 miles per second. Use this information to calculate:

<u>Light-minute</u> : how far does light travel in one minute	
<u>Light-hour</u> : how far does light travel in one hour	
<u>Light-day</u> : how far does light travel in one day	
<u>Light-year</u> : how far does light travel in one year	

Diameter of Milky Way Galaxy is \_\_\_\_\_



## A SPECIAL STAR

Long ago, people believed Earth was at the center of the universe and that other planets revolved around it. At this early time in history, they hadn't yet discovered the concept of the solar system, so they used the word universe, not solar system, as the outer space world that surrounded our planet. This theory was set forth by Ptolemy, a Greek astronomer, around 150 A.D.

In 1543, Polish astronomer Nicolas Copernicus suggested that the Sun is the center of "the universe", and that all planets move around the Sun. Religious leaders of that time opposed this theory. During the 1600's, an Italian astronomer name Galileo Galilei expounded upon Copernicus' theory and was sentenced to prison because his beliefs went against church teaching. Later discoveries eventually convinced people that the planets orbit the Sun.

The Sun is a mass of hot burning gases, mostly hydrogen and helium. Other common elements present in the Sun include iron, calcium, magnesium, and sodium. Many people mistakenly believe the Sun is still while the planets move around it. Actually, the Sun is constantly in motion. It rotates about once every 25 days, and it revolves around the center of the rotating Milky Way Galaxy in roughly 230 million years.

The Sun is vital to life on Earth. Life as we know it could not exist without solar energy, the heat and light from the Sun. Light is required for photosynthesis, the food-making process in plants. Our weather is also greatly affected by the Sun.

Scientists have been able to break up light from the Sun into a spectrum. Six (not seven) colors appear in the spectrum: red, orange, yellow, green, blue, and violet (no more indigo).

S \_\_\_\_\_ the center of our solar system.

O \_\_\_\_\_ a planet's path around the Sun.

L \_\_\_\_\_ a major ingredient in the process of photosynthesis.

A \_\_\_\_\_ a scientist who studies heavenly bodies.

R \_\_\_\_\_ another word to describe the motion of "orbiting".

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E \_\_\_\_\_ our planet.

N \_\_\_\_\_ Polish astronomer who suggested the Sun is the center (first and last name).

E \_\_\_\_\_ iron, calcium, for example...

R \_\_\_\_\_ the spinning motion of a planet.

G \_\_\_\_\_ the Milky Way is one of these.

Y \_\_\_\_\_ a color in the spectrum.