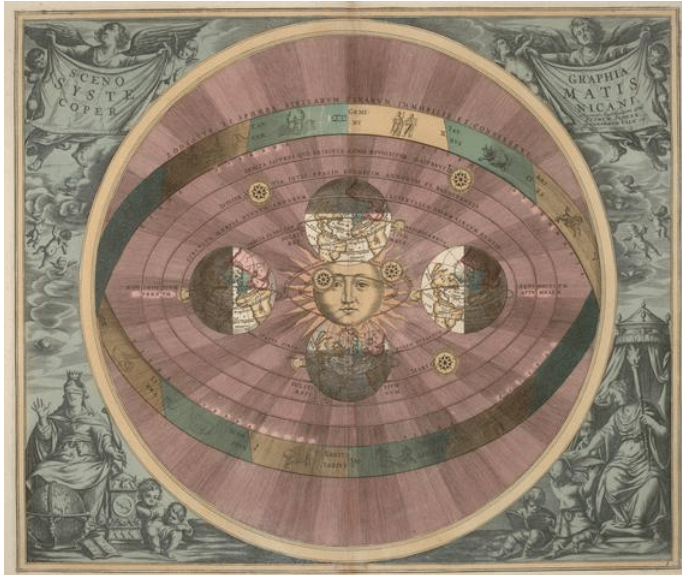


5.3: Sizing Up

Sizing Up

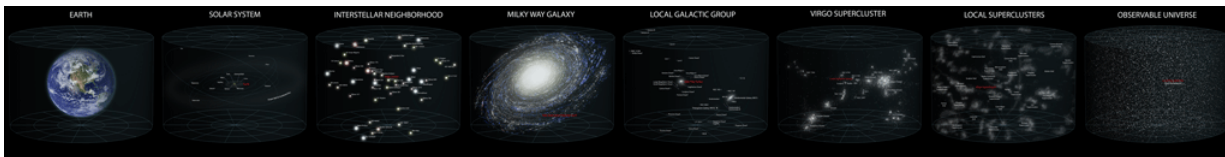
Once the notion of Earth orbiting the Sun was settled in most arenas, scientists turned in earnest to distances between these bodies. Some of the early notions pictured the stars on glass spheres which turned around Earth; stars beyond the Sun were not pictured to be that far away.



An early Solar System model, based on the Copernican Heliocentric Solar System. [Heliocentric](#) by Andreas Cellarius is in the [Public Domain](#)

The distance between Earth and the Moon is about 238,855 miles. You might know someone who has put 235,000 miles on their car; perhaps you have done that yourself. So, imagining 235,000 miles isn't too much a stretch, even though it is a big number. Yet, consider the distance from Earth to the Sun: an average of about 93,000,000 miles. That is 93 million miles – about 400 times further than the distance from Earth to the Moon. Many of us have a bit more of a challenge imagining 93,000,000 miles.

So how far is 93,000,000 miles? Light travels at 186,000 miles per **second**, the fastest speed possible. Our fastest spacecraft are around 75,000 miles per **hour**. Sunlight reflected from the Moon to us seeing it here on Earth takes about 1 ¼ second. When light and energy leave the Sun and heads toward Earth, it takes 8 minutes and 20 seconds to get here. And remember the Sun is the closest star. The next closest? Proxima Centauri — and it takes around 4 ¼ years for the light from Proxima Centauri to get to Earth. The term space is very appropriate when talking about the distances between the stars, between galaxies, and yes, even between the planets in our own Solar System. ⁽¹⁾



Various segments of the Universe, shown to scale. [Earth's Location in the Universe](#) by Andrew Z. Colvin is licensed under [CC BY-SA 3.0](#)

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