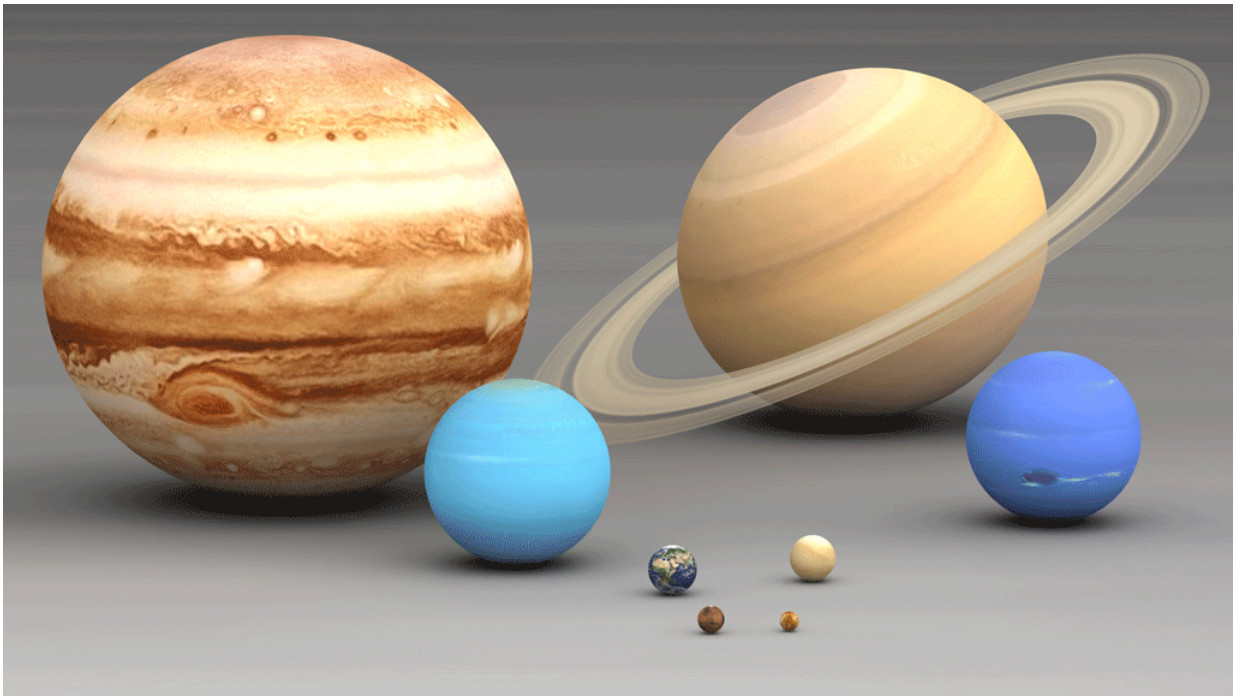
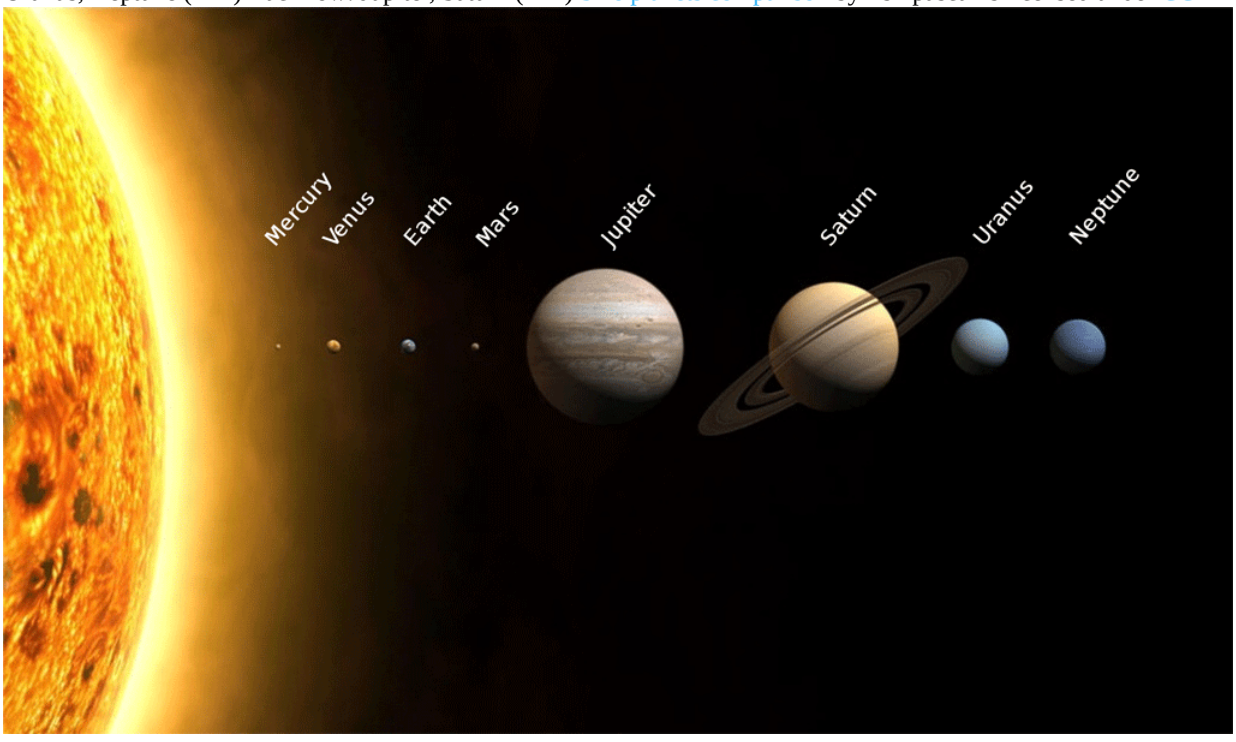
5.4: To Scale

To Scale

Scaling the sizes of the planets can also be dizzying. Let's call Earth a nice round figure: 8,000 miles in diameter. Comparing Earth to Jupiter, the largest planet in the Solar System, is fairly easy: Jupiter is about 11 times Earth's diameter, or about 88,000 miles. All of the other Solar System planets would fit inside Jupiter. The Sun is about 865,000 miles in diameter, about 10× Jupiter's diameter. And the Sun is an average-sized star — at best!



Model representations of the planet diameters to scale. 1 st row: Mars, Mercury (L-R) 2 nd row: Earth, Venus (L-R) 3 rd row: Uranus, Neptune (L-R) Back row: Jupiter, Saturn (L-R) Size planets comparison by Lsmpascal is licensed under CC BY-SA 3.0



A Solar System model, with planets and the Sun to scale, but not distances. By the way: what is wrong with this illustration? Planets2013 by PlanetUser is licensed under CC BY-SA 3.0

Add in to all of this the dizzying concepts of distant galaxies, objects in motion, and an expanding Universe and you can see why we call these numbers astronomical. Even when expressing distances in power of ten, such as the speed of light as 1.86×10^{5} miles per second or the distance to Proxima Centauri is 2.4961×10^{13} miles; that is 24,961,000,000,000 miles.

We best see the consequences of the Universe in motion here on Earth through experiencing the seasons due to the revolution of Earth around the Sun. With the rotation of Earth, we have our day and night. And, the revolution of the Moon around Earth allows us to watch the Moon go through its phases. (1)

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