

Real-Life Application: When Will I Ever Use This?

For use with pages 17–25

Astronomical Units

Astronomers use different units of measure to calculate the distances that the planets are from each other and from the sun. They can use miles, kilometers, and light years. Another unit they use is the astronomical unit, abbreviated AU. One astronomical unit is equal to the average distance between the sun and Earth, which is 92,960,000 miles.

1. In the table, the distances of the planets from the sun are listed in astronomical units. On a number line, place each planet according to its distance from the sun. Let the sun's position on the number line be at point zero.

<i>Planet</i>	<i>Distance from the sun (in AUs)</i>
Earth	1
Jupiter	5.20
Mars	1.52
Mercury	0.39
Neptune	30.06
Pluto	39.44
Saturn	9.54
Uranus	19.18
Venus	0.72

2. Which planets are between Earth and the sun?
3. Which planet is closest to Earth?
4. Recently, NASA sent a probe to Mars. How far is Mars from Earth?
5. Which two neighboring planets are furthest apart?
6. The distance between Earth and the moon is 240,000 miles. Calculate the moon's distance from Earth in astronomical units.
7. Because the moon rotates around Earth, it is sometimes between Earth and the sun (solar eclipse) and other times Earth is between the moon and the sun (lunar eclipse). Use Exercise 6 to position the moon on your number line with respect to Earth and the sun during a solar eclipse and during a lunar eclipse.