

HOW BIG IS OUR SOLAR SYSTEM?

You may have heard that the earth is 93 million miles away from the sun. That's a long distance! But, how far is that, really? It's hard to imagine 93,000,000 miles. If you drive around the I-270 outer belt, that's only 55 miles. Columbus to Los Angeles is only 2243 miles. Can you try and imagine 93,000,000 miles? You would have to go from Columbus to Los Angeles and back 223 times to travel even 1,000,000 miles!

Here's an activity to help visualize how far the earth, and the other planets in our solar system, are from the sun.

The table below contains information that was partly determined, over the course of many years, by observations of the planets moving across our night sky. In the last 50 years or so, many probes have traveled to the planets to learn more about them.

	Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto
Mean Distance from Sun (millions of miles)	36.0	67.1	92.9	141.5	483.4	886.7	1782.7	2794.3	3666.1
Diameter (miles)	3,031	7,521	7,926	4,221	88,734	74,566	31,566	30,199	1,864
Mass (Earth = 1)	0.055	0.814	1.000	0.107	317.8	95.16	14.55	17.23	0.0026
Rotation Period (days)	58.65	243.0	0.9973	1.026	0.410	0.427	0.45	0.67	6.3867
Revolution around the Sun	88.0 days	224.7 days	365.25 days	687.0 days	11.86 years	29.46 years	84.01 years	164.8 years	247.7 years
Gravity (Earth = 1)	0.38	0.90	1.00	0.38	2.53	1.07	0.92	1.19	
1 million-mile paces	36	31	26	48	342	404	896	1012	872
2 million-mile paces	18	16	13	24	171	202	448	506	436
5 million-mile paces	7	6	5	10	63	81	179	202	174

This exercise will need a lot of room, such as a really long sidewalk. If you want to get as far as Jupiter, you will need almost two tenths of a mile! What you're going to do is to walk paces that will represent one million miles each, to walk off relative distances of each planet. You can use sidewalk chalk to mark your planet locations. We'll start by looking at the numbers in the first row.

Start at one end of your sidewalk by marking a circle for the sun. Then walk 36 paces and make a mark for Mercury. Then walk (67 - 36) or 31 paces more to reach Venus. Then 26 more paces to reach Earth. Make a mark for each planet as you go. To get from Earth to Mars, walk 48 more paces. The next planet, Jupiter is really far! You must walk 342 more paces. Next, if you have room, it's 404 more paces to Saturn, then 896 more to Uranus, then 1012 more to Neptune, and 872 more to get to Pluto. If you use an average pace length of 2 feet, that would be just over a mile to Neptune from where you started. And remember, each one of your paces represents 1,000,000 miles!

If you want to get an idea of the sizes of the planets compared to each other, use the numbers for planet diameter in row 2. But instead of thousands of miles, think of these numbers as feet. Imagine Mercury as 3 feet, 7.5 feet for Venus, 7.9 feet for Earth, and so on. But remember, their actual sizes are 5280*1000, or about 5 million times as large!