

## Seeking the Edge of the Solar System

How big is our solar system? If you answered that it ends with Pluto's orbit (an average of 5,913,520,000 kilometers or 3,647,200,000 miles from the Sun), you're in for a surprise! The power of our sun actually extends at least twice that far. Our solar system is more than just the space between the planets. Solar winds from our Sun form a sort of bubble that surrounds the nine planets and goes beyond them. Scientists call the area inside the bubble the heliosphere. They measure the size of our solar system as the volume inside the bubble.

The heliopause is the outer edge of the heliosphere. You can remember these two similar words by thinking about the bubble as a ball or sphere (heliosphere). The outer boundary is where our solar system stops (or pauses). Scientists believe the heliopause is 8 to 22 billion kilometers (5 to 14 billion miles) from the Sun. That's where the solar system ends and interstellar space (where the other stars are) begins.

The two Voyager spacecraft will probably be the first human-made objects to approach the heliopause. Before they cross into interstellar space, though, the two craft will pass through an area called the termination shock. At that point, solar winds should drop from more than 1,600,000 kilometers (1,000,000 miles) per hour to a very breezy 400,000 kilometers (250,000 miles) per hour. That's still fast enough to blow your homework into the next galaxy. Once Voyagers 1 and 2 fly through the termination shock, they still probably won't cross the heliopause for another 10 to 20 years. So you may read about it with your kids!

Two other spacecraft are also expected to cross the heliopause—Pioneer 10 and Pioneer 11. These four spacecraft will provide scientists with lots of information about the very outer edges of our solar system. To learn more about the Voyager spacecraft, visit The Space Place at [spaceplace.nasa.gov/vgr\\_fact3.htm](http://spaceplace.nasa.gov/vgr_fact3.htm).

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*Image caption:*

*Voyagers 1 and 2 are headed towards the outer boundary of the solar system in search of the heliopause, the region where the Sun's influence fades and interstellar space begins.*

