

A Walk Through The Solar System

	Astronomical Object	Scale-model item	Steps between stops	Commentary Ideas
Starting Point	Sol, Our Sun, The Sun	an 8" playground ball or a FIFA size 4 (youth) soccer ball	START HERE	There are roughly 20 BILLION stars like ours in the Milky Way. And...about 20% of those stars have planets.
Inner Planets	Mercury Venus Earth <i>The Moon</i> Mars	a pin head a peppercorn (or an allspice seed) a peppercorn (or an allspice seed) <i>a candy sprinkle 6 cm from Earth</i> a pin head	15 13 11 21	Mercury is about the same size as Mars. Venus is about the same size as Earth. For cricketers: the scaled distance is about the length of the pitch. For baseball fans: if the Sun is home plate, then Earth is nearly at first base. Remember, we have several robot explorers orbiting Mars and exploring the surface. In our scale model, the inner planets need just a bit more space than a baseball field (or a cricket infield).
Asteroid Belt	Inner edge of "core" Queen of the Asteroid Belt: dwarf planet Ceres Outer edge of "core"	<i>time to begin pretending to dodge asteroids</i> a grain of salt...or a pin tip <i>no point pretending to dodge asteroids any more</i>	21 28 20	In reality, you wouldn't really need to dodge--although there are a half-million asteroids, they are in a huge region of space. Ceres is the closest of the dwarf planets About 93% of the asteroids lie in this doughnut-shaped "main belt"
Outer Planets	Jupiter Saturn Uranus Neptune	a small "jacks" ball, or a walnut* a large round candy--or a large acorn* or hazelnut* a jellybean, peanut*, or coffee bean a jellybean, peanut*, or coffee bean	77 173 385 434	You're now more than the length of a football field out. We also have a robot explorer studying Saturn right now! This is about a one-third-km walk It's a half-km walk to this outermost planet. <i>Decide now whether to stop here and point out more-distant objects or to make the trek to Pluto first.</i>
* avoid using nuts as models if any participants may be hyper-allergic				

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Kuiper Belt Home of key dwarf planets & source of the short-period comets Inner edge King of the Kuiper Belt: dwarf planet Pluto <i>closest to the sun</i> <i>A stop to make on the way "home"</i> average distance a pin tip or a grain of salt or fine sand <i>farthest from the sun</i> <i>An extra distance for high-energy explorers</i> Outer edge			- Note that the Kuiper belt begins just past Neptune (392) <i>On the way BACK, count off these steps from Pluto's average distance--and notice that you end up inside the orbit of Neptune.</i> 376 New Horizons spacecraft flies by Pluto July 14th, 2015. 375 <i>You've now walked a kilometer.</i> 245 Pluto wanders nearly to the far edge of the Kuiper belt!
Our Robot Explorers <i>Launched in 1973:</i> <i>Launched in 1977:</i> <i>Launched in 1972:</i> <i>Launched in 1977:</i>	<i>You probably don't have time to walk further, but you can look ahead and point out more distant destinations.</i> Pioneer 11, last contacted in 1995 Voyager 2 Pioneer 10, last contacted in 2003 Voyager 1	1,398 572 247 668	<i>This is about a 1.5 km walk.</i> <i>Voyager 2 overtook Pioneer 11 a few years ago.</i> <i>This is about 2km from the start.</i> <i>Voyager 1 is the first robot explorer to exit the Heliopause.</i>
The Heliopause <i>The Sun's bow wave as it moves through space at 52,000 miles per hour -- 83,700 kph</i>		227	<i>This is about 2.5 km out--point out a local landmark about that far from your starting point.</i>
The Oort Cloud <i>The last of the objects under the Sun's gravitational influence--including the long-period comets-- orbit the sun in this sperical shell.</i> Inner edge Outer edge	This would be 75 miles away! This would be 1500 miles from start!	194,000 3,789,867	<i>Imagine walking from Nagoya to Osaka in Japan.</i> <i>Imagine a hike halfway across Australia.</i>
Beyond our Solar System: Proxima Centauri, the nearest star The black hole at the center of the Milky Way Andromeda, the biggest Local Group galaxy	(Its light takes just over 4 years to get here--4,000 miles in our model.) (It gets closer every millenium--we're on a collision course)	6,710,000 66,800,000,000 6,340,000,000,000	<i>Imagine walking from Paris to New Delhi</i> <i>Imagine walking around the planet...a thousand times</i> <i>5 trillion steps--like walking to Neptune...5 billion times!</i>