

A Walk Through The Solar System

	Astronomical Object	Scale-model item	Steps between stops	Commentary Ideas
Starting Point	Sol, Our Sun, The Sun	an 8-9" playground ball or a FIFA size 4 or 5 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 <i>a candy sprinkle 2 3/8" from Earth</i> a pin head		15 Mercury is about the same size as Mars. 13 Venus is about the same size as Earth. 11 For baseball fans: if the Sun is home plate, then Earth is nearly at first base. For cricketers: the scaled distance is about the length of the pitch. 20 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 In reality, you wouldn't really need to dodge--although there are a half-million asteroids, they are in a huge region of space. 27 Ceres is the closest of the dwarf planets 20 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		74 You're now more than the length of a football field out. 168 We also have a robot explorer studying Saturn right now! 374 This is about a quarter-mile walk 421 It's a half-mile 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 <i>Home of key dwarf planets & source of the short-period comets</i> 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 (381) <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> 365 The New Horizons spacecraft flies by Pluto July 14, 2015 364 <i>Does anyone really want to walk this far? Pluto wanders nearly to the outer edge of the Kuiper belt!</i> 237 This is nearly a mile from your starting point.	
Our Robot Explorers <i>Launched in 1973:</i> <i>Launched in 1977:</i> <i>Launched in 1972:</i> <i>Launched in 1977:</i>	Pioneer 11, last contacted in 1995 Voyager 2 Pioneer 10, last contacted in 2003 Voyager 1	1,358 555 240 649	This is about a one-mile walk. Voyager 2 overtook Pioneer 11 a few years ago. This is 1 1/2 to 1 3/4 miles away from start Voyager 1 will be the first robot explorer to exit the Heliopause.	
The Heliopause	<i>The Sun's bow wave as it moves through space at 52,000 miles per hour -- 83,700 kph</i>	354	This is about 2 miles out--point out a local landmark about 2 miles from your starting point.	
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!	185,369 3,679,553	Imagine walking from London to Stonehenge Imagine a hike from Dallas to New York City
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)	6,512,114 64,897,911,823 6,151,592,011,106	Imagine walking across the USA, from San Jose to Washington D.C. and THEN hiking south to Miami. Imagine walking around the planet...a thousand times 6 trillion steps--like walking to Neptune...5 billion times!