

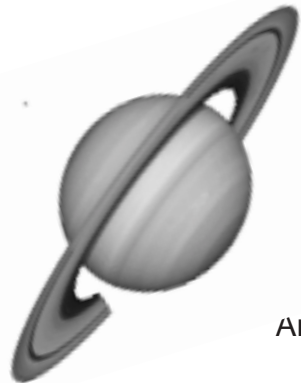
# Have you booked your field trip yet this year?

## Solar System Information (Fall 2003)



*Paulucci Space Theatre*

	Diamter (Miles)	Diameter (Earth=1)	Dist. From Sun (AU)*	Mass (Earth=1)	Density (g/cm <sup>3</sup> )	Surface Gravity (Earth=1)	Axial Tilt	Sidereal Period**	Orbital Period***	Number Moons
<b>Sun</b>	864,000	109.01	————	332,950	1.408	28	7.25°	25.449 d	250million y****	—
<b>Mercury</b>	3,032	0.38	0.387	0.0553	5.427	0.378	0.01°	58.65 d	88d	0
<b>Venus</b>	7,521	0.95	0.723	0.815	5.423	0.907	177.36°	243 d	225d	0
<b>Earth</b>	7,926	1.00	1.000	1.00	5.515	1.00	23.45°	23h 56m	365.24d	1
<b>Mars</b>	4,222	0.53	1.524	0.107	3.933	0.377	25.19°	24h 37m	687d	2
<b>Jupiter</b>	88,840	11.21	5.203	317.83	1.326	2.364	3.13°	9h 50m	11.9 y	61
<b>Saturn</b>	74,900	9.45	9.555	95.159	0.687	0.916	26.73°	10.656h	29.46 y	31
<b>Uranus</b>	31,760	4.01	19.218	14.536	1.27	0.889	97.77°	17.24d	84.01 y	28
<b>Neptune</b>	30,780	3.88	30.110	17.147	1.638	1.12	28.32°	16h 7m	164.8 y	13
<b>Pluto</b>	1,429	0.18	39.545	0.0021	1.75	0.059	122.53°	6.39d	248.0 y	1



\* An "Astronomical Unit" (AU) is the average distance between Earth and Sun, about 93,000,000 miles.

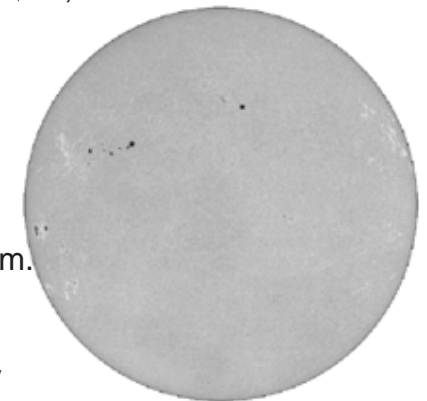
A sidereal period (day) is how long it takes a world to spin 360° on its axis. Earth's sidereal period is 23h 56m but it takes an extra 4m for the Earth to point back towards the Sun. This is a solar day.

An orbital period is how long it takes an object to revolve around the primary in a system.  
h = hours, m = minutes, d = days, y = years.

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Galaxy

It takes the Sun about 250 million years to go once around the center of the Milky Way



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## Definitions:

### **Sun**

The Sun is a star, a spherical body of mostly hydrogen gas which makes energy through nuclear fusion processes. The Sun is an average sized star and if empty could hold over a million Earth's or over 1000 Jupiter's.

### **Planets**

Planets are the major satellites orbiting around stars. There is no size definition so far for a planet. There are nine recognized planets of our Solar System although Pluto is sometimes considered to be a "Kuiper Belt Object." Jupiter is a planet and not a "brown dwarf." Jupiter would have to be about eighty times more massive in order to have any star-like fusion process occur. Some suggest an as yet unseen planet may be orbiting the Sun past Pluto but most astronomers discount this idea.

### **Moons**

Moons orbit planets and vary in size from a few miles across to thousands of miles across. Most moons in the Solar System are probably captured asteroids.

### **Asteroids**

Most asteroids orbit the Sun between the orbits of the planets Mars and Jupiter. The largest asteroid is named Ceres. Ceres was the first asteroid to be discovered - on January 1, 1801. It is about 600 miles across. There are over 50,000 asteroids with known orbits. The asteroids are small and rocky. If all the asteroids were stuck together they would make a body smaller than Earth's moon.

### **Kuiper Belt Objects**

Evidence suggests that there is a second asteroid belt in our Solar System, sometimes called the Kuiper Belt, after the astronomer who predicted its existence. This belt of icy debris left over from the formation of the Solar System lies beyond Neptune. The first KBO to be identified was found in 1992, although there are some reasons to suggest that Pluto (discovered in 1930) may be a member of this class of objects. Over 600 KBO's have been identified so far.

### **Comets**

Comets are small icy bodies that spend most of their time far from the Sun. A small gravitational nudge may send the body on an orbit to bring it near the Sun. Warmed by the Sun, the comet loses some of its ice and dust, leaving a long tail stretched out behind it. If a comet passes near a planet it may be pulled into a different orbit. Short period comets (like Halley's Comet) orbit the Sun less than every 200 years may have originated from the Kuiper Belt.

### **Extra-Solar Planets**

Planets have been discovered around other stars in our galaxy. These planets have not yet been seen, but their presence is inferred by the effect they have on their star. The planets discovered this way so far are Saturn or Jupiter sized. Over 100 extra-solar planets have been discovered with more being announced almost monthly.