





Clark Planetarium Solar System Fact Sheet 2005

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 May be freely copied by professional educators for classroom use only. The known satellites of the Solar System shown here next to their planets with their sizes (mean diameter in km) in parenthesis. The planets and satellites (with diameters above 1,000 km) are depicted in relative size (with Earth = 0.500 inches) and are arranged in order by their distance from the planet, with the closest at the top. Distances are not to scale.

Mercury  (no natural satellites)	Venus  (no natural satellites)	Earth  Moon (3,475)	Mars  • Phobos (22.2) • Deimos (12.4)	Jupiter 1- Metis (43) 2- Adrastea (16.4) 3- Amalthea (166.9) 4- Thebe (98.6) 5- Io (3,643.2) 6- Europa (3,121.6) 7- Ganymede (5,262) 8- Callisto (4,820.6) 9- Themisto (8) 10- Leda (20) 11- Himalia (170) 12- Lysithea (36) 13- Elara (86) 14- S/2000 J 11 (4) 15- S/2003 J 20 (3) 16- S/2003 J 12 (1) 17- Euporie (2) 18- S/2003 J 3 (2) 19- S/2003 J 18 (2) 20- Orithoe (5) 21- Euanthe (3) 22- Harpalyke (4.4) 23- Praxidike (6.8) 24- Thyone (4) 25- S/2003 J 16 (2) 26- Iocaste (5.2) 27- S/2003 J 21 (2) 28- Hermype (4) 29- S/2003 J 22 (2) 30- S/2003 J 6 (4) 31- Ananke (28) 32- S/2003 J 15 (2) 33- Eurydome (3) 34- S/2003 J 1 (4) 35- S/2003 J 17 (2) 36- Pasithee (2) 37- S/2003 J 10 (2) 38- Chaldene (3.8) 39- Isonoe (3.8) 40- Erinome (3.2) 41- Kale (2) 42- Aitne (3) 43- Taygete (5) 44- S/2003 J 9 (1) 45- Carne (46) 46- Sponde (2) 47- Megacite (5.4) 48- S/2003 J 5 (4) 49- S/2003 J 19 (2) 50- S/2003 J 23 (2) 51- Kalyke (5.2) 52- Pasiphae (60) 53- S/2003 J 1 (3) 54- S/2003 J 4 (2) 55- Sinope (38) 56- S/2003 J 8 (3) 57- S/2003 J 13 (2) 58- S/2003 J 7 (4) 59- S/2003 J 14 (2) 60- S/2003 J 11 (2) 61- Autonoe (4) 62- Callirhoe (8.6) 63- S/2003 J 2 (2)	Saturn 1- Pan (20) 2- S/2005 S 1 (7) 3- Atlas (32) 4- Prometheus (100.2) 5- Pandora (83.8) 6- Epimetheus (119) 7- Janus (177.6) 8- Mimas (397.2) 9- S/2004 S 1 (3) 10- S/2004 S 2 (4) 11- Enceladus (498.8) 12- Calypso (19) 13- Telesto (24) 14- Tethys (1,059.8) 15- Dione (1,118) 16- Helene (32) 17- Rhea (1,528) 18- Titan (5,150) 19- Hyperion (266) 20- Iapetus (1,436) 21- Kiviuq (14) 22- Ijiraq (10) 23- Phoebe (220) 24- Paaliaq (19) 25- Skadi (6.4) 26- Albiorix (26) 27- S/2004 S 11 (6) 28- Erriapo (8.6) 29- Siarnaq (32) 30- Tarvos (13) 31- S/2004 S 13 (6) 32- S/2004 S 17 (4) 33- Mundilfari (5.6) 34- Narvi (6.6) 35- S/2004 S 15 (6) 36- S/2004 S 10 (6) 37- Suttung (5.6) 38- S/2004 S 12 (5) 39- S/2004 S 18 (7) 40- S/2004 S 7 (6) 41- S/2004 S 9 (5) 42- S/2004 S 14 (6) 43- Thyrr (5.6) 44- S/2004 S 8 (6) 45- S/2004 S 16 (4) 46- Ymir (16)	Uranus 1- Cordelia (40.2) 2- Ophelia (42.8) 3- Bianca (51.4) 4- Cressida (79.6) 5- Desdemona (64) 6- Juliet (93.8) 7- Portia (135.2) 8- Rosalind (72) 9- S/2003 U 2 (35) 10- Belinda (60.6) 11- S/1986 U 10 (20) 12- Puck (182) 13- S/2003 U 1 (5) 14- Miranda (471.6) 15- Ariel (1,157.8) 16- Umbriel (1,189.4) 17- Titania (1,577.9) 18- Oberon (1,522.8) 19- S/2001 U 9 (12) 20- Caliban (98) 21- Stephano (20) 22- Trinculo (10) 23- Sycorax (190) 24- S/2003 U 3 (11) 25- Prospero (30) 26- Selebos (30) 27- S/2001 U 2 (12)	Neptune 1- Nereid (66) 2- Thalassa (82) 3- Despina (150) 4- Galate (176) 5- Larissa (194) 6- Proteus (420) 7- Triton (2,706.8) 8- Nereid (340) 9- S/2002 N 1 (48) 10- S/2002 N 2 (48) 11- S/2002 N 3 (48) 12- S/2003 N 1 (28)	Pluto • Charon (1,207.2)
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All four Jovian planets or "gas giants" have rings, though only Saturn's can be seen from Earth.

		Mercury	Venus	Earth	Moon	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto	Sun
Average Distance from Sun	Millions of Kilometers	57.91	108.21	149.60	3844 from Earth	227.94	778.30	1,429.39	2,875.04	4,504.45	5,915.80	39.95 trillion km to nearest star
	Light Travel Time	3 ^m 13 ^s	6 ^m 1 ^s	8 ^m 19 ^s	1.3 ^s from Earth	12 ^m 40 ^s	43 ^m 16 ^s	1 ^m 19 ^m 28 ^s	2 ^h 39 ^m 50 ^s	4 ^h 10 ^m 25 ^s	5 ^h 28 ^m 53 ^s	4.22y to nearest star
	Astronomical Units	0.3871	0.7233	1.0000	0.0026 from Earth	1.5237	5.203	9.555	19.218	30.110	39.545	267,032 to nearest star
Length of Year	Period of Orbit	87.969d	224.701d	365.256d	27.32d to orbit Earth	1.8809y	11.862y	29.458y	84.022y	164.774y	248.0y	226 million y to orbit galaxy
Length of Day	Period of Rotation	58 ^h 15 ^m 31 ^s	243 ^d 0 ^h 26 ^m R	23 ^h 56 ^m 04 ^s	27 ^h 7 ^m 43 ^s	24 ^h 37 ^m 23 ^s	9 ^h 55 ^m 30 ^s †	10 ^h 39 ^m 22 ^s †	17 ^h 14 ^m 24 ^s R†	16 ^h 6 ^m 36 ^s †	6 ^h 9 ^m 18 ^s R	25-35d†
	y=years d=days h=hours m=minutes s=seconds R=retrograde †=Depending on latitude ?=Exact value not known											
Average Orbital Velocity	Kilometers per second	47.87	35.02	29.79	1.023	24.13	13.06	9.66	6.81	5.44	4.75	217.35 around center of galaxy
	Kilometers per hour	172,339	126,074	107,225	3,683	86,865	47,029	34,781	24,527	19,595	17,096	782,460 around center of galaxy
Equatorial Diameter	Kilometers	4,879.4	12,103.6	12,756.28	3,474.8	6,792	142,984**	120,536**	51,118**	49,528**	2,390	1,392,000
	Sun = 1	0.0035	0.0087	0.0092	0.0025	0.0049	0.1027**	0.0866**	0.0367**	0.0356**	0.0017	1.0
	Earth = 1	0.383	0.949	1.0	0.2724	0.532	11.209**	9.449**	4.007**	3.883**	0.187	109
Mass	Earth = 1	0.0553	0.8150	1.0	0.0123	0.1074	317.83	95.163	14.536	17.149	0.0022	332,946
Volume	Earth = 1	0.0562	0.857	1.0	0.0203	0.151	1,404.70	763.59	63.09	57.72	0.0066	1,300,000
Mean Density	Grams per cubic centimeter Water = 1	5.43	5.24	5.515	3.35	3.94	1.33	0.69	1.27	1.64	2.0	1.41
Surface Gravity	Earth = 1	0.378	0.905	1.0	0.166	0.379	2.53	1.07	0.905	1.14	0.062	27.96
Escape Velocity	Kilometers per second	4.25	10.36	11.18	2.38	5.02	59.5	35.5	21.3	23.5	1.2	617.6
	Kilometers per hour	15,300	37,303	40,249	8,553	18,080	214,300	127,700	76,700	84,600	4,300	2,223,000
Temperature Extremes	High °C	425	462	58	127	17	20,000*	12,000*	6,000*	6,000*	-210	15,000,000*
	High K	698	735	331	400	290	20,000*	12,000*	6,000*	6,000*	63	15,000,000*
	Low °C	-173	462	-88	-173	-143	438**	407**	346**	347**	-235	4,000**
	Low K	100	735	185	100	130	711**	680**	619**	620**	38	4,000**
*Core **At 1 atmosphere (altitude where barometric pressure equals Earth's barometric pressure at sea level—1,1013 mb)												
Atmosphere	Principal Gases	O ₂ , Na, H ₂ , He	CO ₂ , N ₂	N ₂ , O ₂	none	CO ₂ , N ₂ , Ar	H ₂ , He	H ₂ , He	H ₂ , He, CH ₄	H ₂ , He, CH ₄	CH ₄ , N ₂ , CO	H ₂ , He
# of Known Satellites		0	0	1	0	2	63 plus rings	46 plus rings	27 plus rings	12 plus rings	1	9 planets
Eccentricity of Orbit	Circular Orbit = 0	0.2056	0.0068 *	0.0167	0.0549	0.0934	0.0485	0.0555	0.0464	0.0095	0.2491	—
Inclination of Equator	To Planet's Orbital Plane	0.01°	177.36°	23.44°	6.68°	25.19°	3.13°	26.73°	97.77°	28.32°	119.6°	7.25° Sun's equator to ecliptic
Inclination of Orbit to Ecliptic		7.0°	3.39°	0 (by definition)	5.2°	1.85°	1.31°	2.49°	0.77°	1.77°	17.15°	—