

CLARK PLANETARIUM SOLAR SYSTEM FACT SHEET

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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 from moon to planet are not listed.

<p>Mercury </p> <p>(no natural satellites)</p>	<p>Venus </p> <p>(no natural satellites)</p>	<p>Earth </p> <p>Moon </p> <p>(3,475)</p>	<p>Mars </p> <p>• Phobos (22.2) • Deimos (12.4)</p>	<p>Ceres </p> <p>(975 km, 2.77 AU) (Dwarf Planet)</p>	<p>Jupiter</p> <ul style="list-style-type: none"> • 1- Metis (44) • 2- Adrastea (16) • 3- Amalthea (168) • 4- Thebe (98) • 5- Io (3,643.2) • 6- Europa (3,121.6) • 7- Ganymede (5,262) • 8- Callisto (4,820.6) • 9- Themisto (9) • 10- Leda (18) • 11- Himalia (160) • 12- Lysithea (38) • 13- Elara (78) • 14- S/2003 J 11 (4) • 15- Carpo (3) • 16- S/2003 J 3 (2) • 17- S/2003 J 12 (1) • 18- Euporie (2) • 19- S/2003 J 18 (2) • 20- Orthosie (2) • 21- Euanthe (3) • 22- Thyone (4) • 23- S/2003 J 16 (2) • 24- Mneme (2) • 25- Harpalyke (4) • 26- Hermippe (4) • 27- Praxidike (6.8) • 28- Thelixinoe (2) • 29- Helike (4) • 30- Iocaste (5.2) • 31- Ananke (28) • 32- S/2003 J 15 (2) • 33- Herse (2) • 34- S/2003 J 9 (1) • 35- S/2003 J 19 (2) • 36- Eurydome (3) • 37- Arche (3) • 38- Autonoe (4) • 39- Pasithee (2) • 40- Chaldene (3.8) • 41- Kale (2) • 42- Isonoe (3.8) • 43- Aitne (3) • 44- S/2003 J 4 (2) • 45- Erinome (3.2) • 46- Taygete (5) • 47- Carne (46) • 48- Sponde (2) • 49- Kalyke (5.2) • 50- Pasiphae (58) • 51- Eukelade (4) • 52- Megacite (6) • 53- Sinope (38) • 54- Hegemone (3) • 55- Aeode (4) • 56- Kallichore (2) • 57- S/2003 J 23 (2) • 58- S/2003 J 5 (4) • 59- Callirhoe (7) • 60- S/2003 J 10 (2) • 61- Cyllene (2) • 62- Kore (2) • 63- S/2003 J 2 (2) 	<p>Saturn</p> <ul style="list-style-type: none"> • 1- S/2009 S 1 (1) • 2- Pan (26) • 3- Daphnis (7) • 4- Atlas (32) • 5- Prometheus (100.2) • 6- Pandora (83.8) • 7- Epimetheus (119) • 8- Janus (177.6) • 9- Aegaeon (1) • 10- Mimas (397.2) • 11- Methone (3) • 12- Anthe (1) • 13- Pallene (4) • 14- Enceladus (498.8) • 15- Telesto (24) • 16- Tethys (1,059.8) • 17- Calypso (19) • 18- Dione (1,118) • 19- Helene (32) • 20- Polydeuces (4) • 21- Rhea (1,528) • 22- Titan (5,150) • 23- Hyperion (266) • 24- Iapetus (1,436) • 25- Kiviuq (14) • 26- Iirua (10) • 27- Phoebe (220) • 28- Paaliaq (19) • 29- Skathi (6.4) • 30- Albion (26) • 31- S/2007 S 2 (6) • 32- Bebhionn (6) • 33- Erriapo (10) • 34- Siamaq (40) • 35- Skoll (6) • 36- Tarvos (15) • 37- Tarqeq (7) • 38- Greip (6) • 39- Hyrokkin (8) • 40- S/2004 S 13 (6) • 41- S/2004 S 17 (4) • 42- Mundilfari (7) • 43- Jamsaxa (6) • 44- S/2006 S 1 (6) • 45- Narvi (7) • 46- Bergelmir (6) • 47- Suttungr (5.6) • 48- S/2004 S 7 (6) • 49- S/2004 S 12 (5) • 50- Hati (6) • 51- Bestla (7) • 52- Farbauti (5) • 53- Thrymr (7) • 54- S/2007 S 3 (5) • 55- Agir (6) • 56- S/2006 S 3 (6) • 57- Kari (7) • 58- Fenrir (4) • 59- Surtur (6) • 60- Ymir (18) • 61- Loge (6) • 62- Fornjot (6) 	<p>Uranus</p> <ul style="list-style-type: none"> • 1- Cordelia (40.2) • 2- Ophelia (42.8) • 3- Bianca (51.4) • 4- Cressida (79.6) • 5- Desdemona (64) • 6- Juliet (93.6) • 7- Portia (135.2) • 8- Rosalind (72) • 9- Cupid (24) • 10- Belinda (80.6) • 11- Perdita (20) • 12- Puck (162) • 13- Mab (10) • 14- Miranda (471.6) • 15- Ariel (1,157.8) • 16- Umbriel (1,169.4) • 17- Titania (1,577.8) • 18- Oberon (1,522.8) • 19- Francisco (22) • 20- Caliban (72) • 21- Stephano (32) • 22- Trinculo (18) • 23- Sycorax (150) • 24- Margaret (20) • 25- Prospero (50) • 26- Setebos (47) • 27- Ferdinand (21) 	<p>Neptune</p> <ul style="list-style-type: none"> • 1- Naiad (86) • 2- Thalassa (80) • 3- Despina (148) • 4- Galate (158) • 5- Larissa (192) • 6- S/2004 N 1 (207) • 7- Proteus (416) • 8- Triton (2,706.8) • 9- Nereid (340) • 10- Halimede (61) • 11- Sao (40) • 12- Laomedeia (40) • 13- Psamathe (38) • 14- Neso (60) 	<p>Pluto </p> <p>(Dwarf Planet)</p> <ul style="list-style-type: none"> • Charon (1186) • Nix (607) • Hydra (507) • Kerberos (13-347) • Styx (??) <p>Haumea </p> <p>(1150 km, 51 AU) (Dwarf Planet)</p> <ul style="list-style-type: none"> • Namaka (114) • Hi'iaka (310) <p>Makemake </p> <p>(1500 km, 59 AU) (Dwarf Planet)</p> <p>Eris </p> <p>(2800 km, 97 AU) (Dwarf Planet)</p> <ul style="list-style-type: none"> • Dysnomia (150)
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All four Jovian planets, or "gas giants" have rings.

		Mercury	Venus	Earth	Moon	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto <small>(included here for historical reasons)</small>	Sun
Average Distance from Sun	Millions of Kilometers	57.91	108.21	149.60	3844 <small>from Earth</small>	227.94	778.30	1,429.39	2,875.04	4,504.45	5,915.80	39.95 trillion km <small>to nearest star</small>
	Light Travel Time	3 ^m 13 ^s	6 ^m 1 ^s	8 ^m 19 ^s	1.3 ^s <small>from Earth</small>	12 ^m 40 ^s	43 ^m 16 ^s	1 ^h 19 ^m 28 ^s	2 ^h 39 ^m 50 ^s	4 ^h 10 ^m 25 ^s	5 ^h 28 ^m 53 ^s	4.22y <small>to nearest star</small>
	Astronomical Units	0.3871	0.7233	1.0000	0.0026 <small>from Earth</small>	1.5237	5.203	9.555	19.218	30.110	39.545	267,032 <small>to nearest star</small>
Length of Year	Period of Orbit	87.969d	224.701d	365.256d	27.32d <small>to orbit Earth</small>	1.8809y	11.862y	29.458y	84.022y	164.774y	248.0y	226 million y <small>to orbit galaxy</small>
Length of Day	Period of Rotation	58 ^h 15 ^m 31 ^s	243 ^h 0 ^m 26 ^s R	23 ^h 56 ^m 04 ^s	27 ^h 7 ^m 43 ^s m	24 ^h 37 ^m 23 ^s	9 ^h 55 ^m 30 ^s †	10 ^h 47 ^m 06 ^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 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/K	425 / 698	462 / 735	58 / 331	127 / 400	17 / 290	20,000*	12,000*	6,000*	6,000*	-210 / 63	15,000,000*
	Low °C/K	-173 / 100	462 / 735	-88 / 185	-173 / 100	-143 / 130	438 / 711**	407 / 680**	346 / 619**	347 / 620**	-235 / 38	4,000**
*Core **At 1 atmosphere (altitude where barometric pressure equals Earth's barometric pressure at sea level—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	-	2	63 <small>plus rings</small>	62 <small>plus rings</small>	27 <small>plus rings</small>	13 <small>plus rings</small>	5	8 planets 5 dwarf 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° <small>Sun's equator to ecliptic</small>
Inclination of Orbit to Ecliptic		7.0°	3.39°	0 <small>(by definition)</small>	5.2°	1.85°	1.31°	2.49°	00.77°	1.77°	17.15°	—