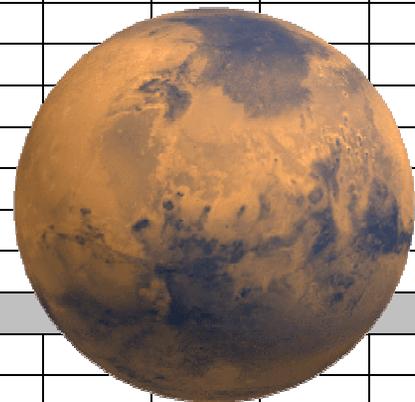
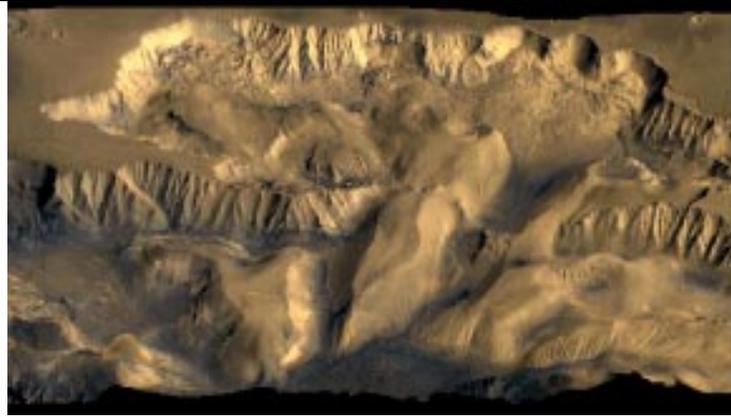


Fast Facts About Mars

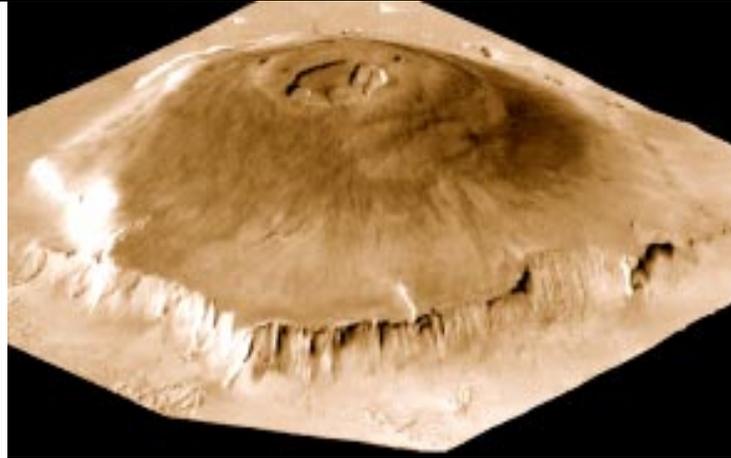
Planetary Parameters		Ratio (Mars/Earth)								
Planet Type	Terrestrial (i.e., a solid, rocky planet like Earth)									
Average Distance from Sun (kilometer)	227,940,000 as compared to Earth's 149,600,000	1.52								
Equatorial Diameter (kilometer)	6,794 as compared to Earth's 12,756	0.53								
Mass (10 ²⁴ kilogram)	0.6419 as compared to Earth's 5.9736	0.11								
Volume (10 ¹⁰ kilometer ³)	16.32 as compared to Earth's 108.321	0.15								
Average Density (gram/centimeter ³)	3.93 as compared to Earth's 5.52	0.71								
Surface Gravity (meter/second ²)	3.69 as compared to Earth's 9.78	0.38								
Magnetic Field (gauss-Rh ³)	0.00002 as compared to Earth's 0.3076	0.00007								
Orbital Parameters										
Year Length (One Orbit Around the Sun)	687 Earth days									
Day Length (One Rotation on its Axis)	24.6 Earth hours									
Inclination of Axis (degrees)	25.19 as compared to Earth's 23.45									
Atmosphere and Climate										
Average Surface Temperature (C)	-63 as compared to Earth's 14.8									
Maximum Temperature (C)	24 as compared to Earth's 47									
Minimum Temperature (C)	-143 as compared to Earth's -33									
Atmospheric Pressure at Surface	6 .9-9 millibar (Earth = 1,014 millibar). This pressure exerts a force of 0.02 kg/m ³ as compared to Earth's atmosphere that exerts a force of 1.217 kg/m ³ at sea level.									
Major Atmospheric Gasses	95% Carbon Dioxide, 2.7% Nitrogen, 1.6% Argon, 0.13% Oxygen, 0.03% (210 ppm) Water Vapor, 0.07% Carbon Monoxide									
Summary of Water	Currently no surface water. Channels and ancient shorelines suggest past surface water. A layer of permafrost exists under most, if not all, of the Martian surface.									
Summary of Climate	No water cycle. Each Spring, the South Pole's carbon dioxide sublimates, creating tremendous winds that cause dust storms and global atmospheric circulation.									
Planetary Features										
General Overview	Mars has the solar system's largest volcano, dust storms, canyons, flood channels, and craters. With virtually no atmosphere or water cycle, there is no erosion. So unlike Earth, once Mars solidified, changes to the surface remain forever. While the hot core generates some heat, the mantle is solid and thus, there is no plate tectonics.									
Composition of Poles	North is water ice, South ice covered with frozen carbon dioxide.									
Core Composition	Molten core of 85% iron and nickel and 15% sulfur									
Known Moons/Rings	2 moons, 0 rings									
Visits to Mars										
1950-69	1965: Mariner 4 (US), flyby, made first close-up pictures of the surface; 1969: Mariner 6 and 7 (US) flybys, high resolution images of equatorial and southern region									
1970-89	1971: Mariner 9 (US) , orbiter, first satellite to orbit another planet; 1973: Mars 3 and Mars 5 (USSR), failed attempts to land; 1976: Vikings 1 and 2 (US), two orbiters and two landers, two years of detailed images and data returned. 1988: Phobos (USSR), detailed images of Phobos.									
1990-99	1996: Mars Global Surveyor (US), orbiter, high-resolution mapping; 1996: Mars Pathfinder (US), lander, images and data; 1998: Mars Climate Orbiter (US), orbiter, climate; 1999: Mars Polar Lander (US), climate & water inventory.									



Some Views of Planet Mars



1) The 300 x 200-km Ophir Chasma (top) is the size of Ohio, yet it is just a *side* canyon of Vallis Marineris, Mars' 4,000-km long rift valley. This region bulged up 11 km, opening long cracks and forming canyons which have been further widened by landslides.



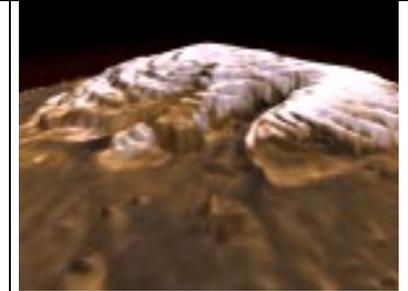
5) At 800-km across and 26-km tall, Olympus Mons is the solar system's largest volcano. By comparison, Earth's largest volcano, Mauna Loa, is 120-km across and 9-km tall. Olympus Mons is one of many volcanoes sitting on Mars' 11-km bulge, suggesting that a magma plume rose to the surface in this region, deforming it by bulging it outward. Where the magma broke through, it created volcanoes. Mars still has a molten core, though it has cooled so much that the Martian crust is very thick. There are no plate tectonics on Mars. However, the internal heat may be enough to melt the permafrost and maintain underground oceans or aquifers.



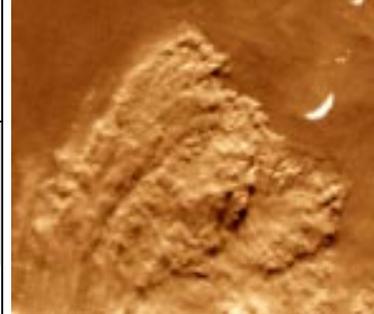
2) The 50-m tall Twin Peaks are 1 km from Pathfinder's landing site. Pathfinder's rover studied several rocks in the foreground.



3) Coprates Chasma is a section of Vallis Marineris. The frame is 400 km across and shows several parallel fractures.



4) The height in this computer-generated image of the North Pole is exaggerated 22 times. Portions of the pole have melted away.



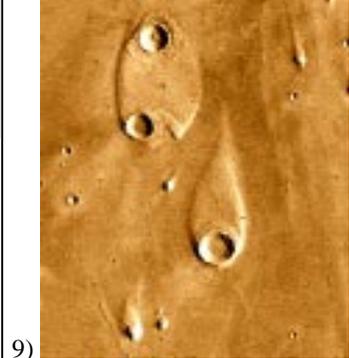
6) Temperature differences between the southern ice cap and the nearby land surface created this 270-km wide dust storm.



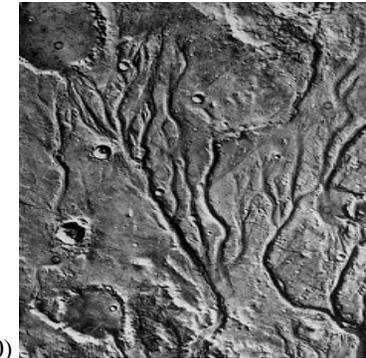
7) The meteorites creating these 30-km craters landed in permafrost, melting the ice and turning the ground into mud.



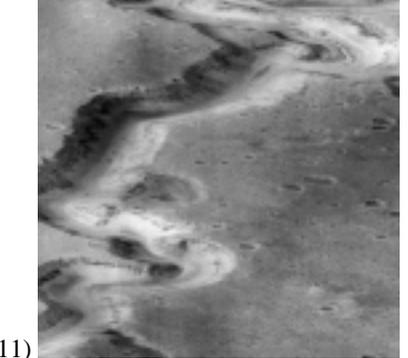
8) These bacteria-like structures were found inside a rock from Mars, suggesting that Mars may once have been teeming with life.



9)



10)



11)

Features related to flowing water suggest that Mars once had a warmer, wetter climate. Supporting the idea that water once flowed freely on Mars are features such as streamlined "islands" (45-km long), channel networks (frame is 125-km tall), and meandering channels (2.5-km wide) which suggest long term flows.