

## **Mars Geography:**

### **Volcanoes**

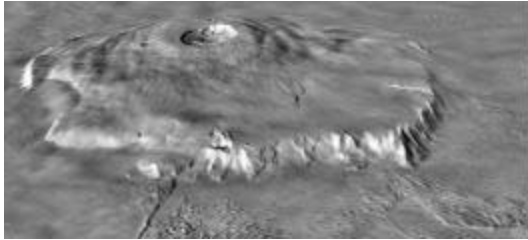
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There is no known current active volcanism on Mars. All of the volcanoes on Mars appear to be extinct. Mars also lacks plate tectonics. Both volcanic and plate tectonic activity are caused by heat flowing from the interior of a planet toward the surface. Because Mars is much smaller than the Earth (about half its diameter), and is much less massive (about 1/10 the mass of Earth), the planet cooled off very quickly. There is no more heat to escape from the interior of the planet, and therefore all plate tectonic and volcanic activity has stopped.

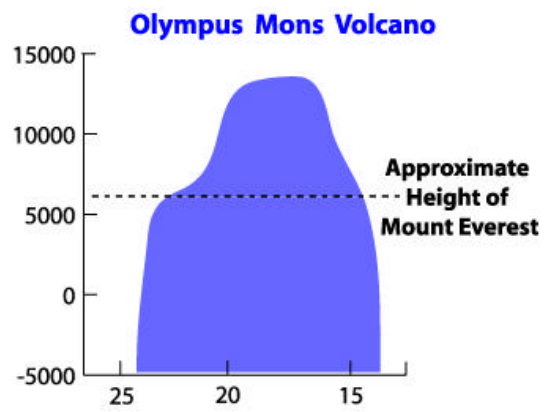
The best known volcano on Mars is Olympus Mons, which is the largest volcano in the Solar System. It is a shield volcano, meaning that it has broad, gentle slopes that were formed from the eruption of lava. It rises 24 km (78,000 ft.) above the surrounding plains – much higher than Mt. Everest here on Earth. Its base is more than 700 km in diameter, which is bigger than the state of Missouri. It is rimmed by a cliff 6 km (20,000 ft) high. The last time Olympus Mons erupted was about one billion years ago.



Olympus Mons. NASA/JPL.



Oblique view of Olympus Mons. NASA/JPL.



Elevation of Olympus Mons.

**The Benchmark Lessons were developed with the help of the following sources:**

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JPL's Planetary Photojournal, <http://photojournal.jpl.nasa.gov/>

Mars Pathfinder Science Results Directory,  
<http://mars.jpl.nasa.gov/MPF/science/science-index.html>

The NASA Image Exchange, <http://nix.nasa.gov/>

Zeilik, Michael, Gregory, Stephen A., and Smith, Elske v. P. *Introductory Astronomy and Astrophysics*. Saunders College Publishing, Harcourt Brace Jovanovich C College Publishers, Austin, 1992.

Mission to Mars: Project Based Learning: Dr. Anthony Petrosino, Department of Curriculum and Instruction, College of Education, University of Texas at Austin,  
<http://www.edb.utexas.edu/missiontomars/index.html>  
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