



## **Conditions on Mars: Atmosphere (content, density, sky appearance)**

By: Elisabeth Ambrose

Mars has a very thin atmosphere. With a mass of only about  $2.4 \times 10^{19}$  grams, it is about 200 times less massive than the atmosphere of the Earth. Of the entire planet, only about 4 parts out of 100 million are in the atmosphere. The surface pressure on Mars due to the atmosphere is only 7 millibars, or about 0.007 times the pressure of one atmosphere on Earth. Mars' atmosphere is made up of 95.3% carbon dioxide, 2.7% nitrogen, 1.6% argon, 0.13% oxygen, 0.07% carbon monoxide, and about 0.03% water vapor. Mars has 70 times more carbon dioxide than the Earth.

It would not be possible for a person to survive by breathing the Martian atmosphere. The atmosphere is too thin and does not contain enough oxygen to sustain human life. Any astronauts present on the surface would need life support equipment such as space suits to survive. Space suits would also protect the astronauts from harmful radiation that can reach the surface through the thin atmosphere, and from the extremely cold temperatures.



Sunset on Mars. NASA, JPL.

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

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

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<http://www.edb.utexas.edu/missiontomars/index.html>  
Benchmarks content author: Elisabeth Ambrose,  
Department of Astronomy, University of Texas at Austin  
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University of Texas at Austin

