Is There Life on Mars?

**Introduction**

Life as we know it has certain minimal requirements, including liquid water. In this exercise, you will look at the conditions on another planet and explain whether they might support life.

**Task**

Research the evidence for life on Mars, in the present or past. Write a position paper explaining whether you think Mars supports or supported life and why.

**Resources and Process**

1. Consider the needs of living organisms on Earth. Investigate what we know about conditions on Mars. Before you can evaluate the scientific evidence for or against life on Mars, you should answer the following questions.
   * What do Earth organisms need to live and reproduce? Are these requirements likely to be essential for life on any planet?
   * How do organisms survive in extreme environments on Earth? Do they give reason to think that organisms could exist in rigorous conditions on other planets?
   * What evidence do we have about an atmosphere, surface temperatures, water, and other conditions on Mars that would support life? Have the Mars missions discovered signs of life?
2. To find out what Earth organisms need to live, check this site.
   * [Search for Life on Mars Will Start in Siberia](http://science.nasa.gov/science-news/science-at-nasa/1999/ast27may99_1/)
3. To find out more about conditions on Mars, check these sites.
   * [NASA's Mars Exploration Program](http://mars.jpl.nasa.gov/)
   * [Solar System Exploration—Mars](http://solarsystem.nasa.gov/planets/profile.cfm?Object=Mars)
4. To find what scientists think about life on other planets, check these sites.
   * [Life on Mars?](http://nssdc.gsfc.nasa.gov/planetary/marslife.html)
   * [NASA Astrobiology Institute (NAI)](http://astrobiology.nasa.gov/nai/)

**Learning Advice**

* Did you use information from multiple sources?
* Did you cross-check the information that you found?
* Did you compare information from different sources?

**Conclusion**

* If you think there was or is life on Mars, would it resemble life on Earth? Explain your answer.

**Rubric for Web Quest**

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|  | Poor (1 pt.) | Fair (2 pts.) | Good (3 pts.) | Exemplary (4 pts.) |
| **Content** | Shows very little or no research done. | Shows minimal research done. No synthesis of information from more than one source. | Synthesis of information from more than one source. | Outstanding synthesis of information from several sources. |
| **Writing** | Numerous errors in spelling and/or sentence structure make the assignment almost impossible to read. | Many errors in spelling and/or sentence structure. | Few errors in spelling and/or sentence structure. | Almost no errors in spelling and/or sentence structure. |
| **Task** | Chosen position about life on Mars is not supported with facts. | Chosen position about life on Mars is supported with few facts. | Chosen position about life on Mars is supported with several facts. | Chosen position about life on Mars is supported with numerous facts. |