

Stromatolites and the Earth's spheres.



Stromatolites, without a doubt, are the physical remains of “survivors” in Earth history! Stromatolites represent some of the earliest fossilized life on our planet, and they have managed to cling tenaciously to certain environments even in modern times, such as in Shark’s Bay, Australia.

In this assignment you will further investigate these Earth survivors. Is an ancient stromatolite a “body fossil?” Why or why not? Some people refer to stromatolite organisms as “blue-green algae.” Is this accurate? How does the time range of stromatolite organisms compare with the time range for humans? For mammals? For fish? In which environments do stromatolites exist today? How does this compare with their environments of the past? Is there any variation in stromatolite structure? Where are fossilized stromatolites found? (Are they found in our state?) From “humble stromatolite beginnings,” HUGE changes occurred on our planet.

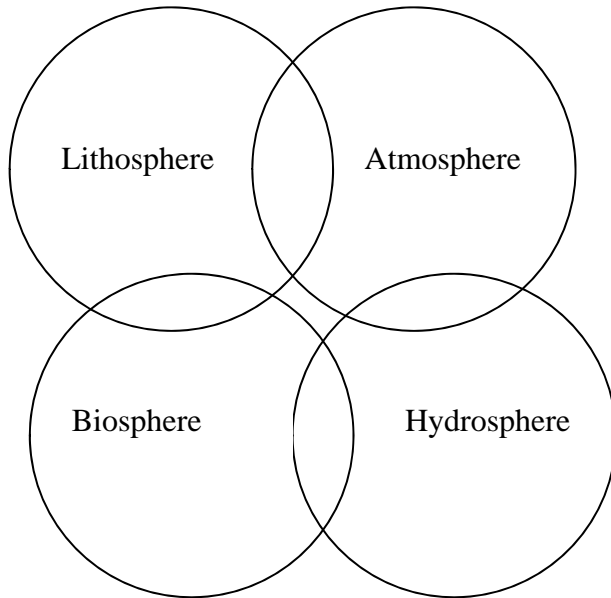
YOUR ASSIGNMENT:

Stromatolites are long-lived Earth heroes, whose metabolism changed the Earth forever. Your task is to research stromatolites. You may focus on a particular aspect of stromatolites, answer some of the questions above, or upon a general “timeline” of stromatolite history.

You should address at least **three** “spheres” in system Earth that stromatolites affect, or have affected. (Remember our interactive systems? These include the hydrosphere, atmosphere, lithosphere, biosphere, and, if you include humans, the technosphere.)

Use at least **three** additional reference sources (other than those provided to you by your textbook, and the sources listed at the end of this assignment). The quality of the paper is more important than the number of pages, but your report should be a minimum of three pages, double-spaced, with Times New Roman size 12 font.

Assemble your knowledge in a graphic! You can use either a concept map, or a Venn diagram.



This research investigation is due _____ and is worth 100 points, with the paper constituting 70% of your score, and the graphic 30%.

Possibly useful websites:

- <http://microbes.arc.nasa.gov/movie/large-qt.html>
- <http://www.ucmp.berkeley.edu/bacteria/cyanofr.html>
- http://www.fossilmuseum.net/Tree_of_Life/Stromatolites.htm
- <http://www.nature.com/news/2008/080125/full/news.2008.529.html>
- http://nai.arc.nasa.gov/students/this_month/page2.cfm

Stromatolite research paper rubrics.

Student name: _____

CATEGORY	Category weight	4	3	2	1
Quality of information	X3	Information clearly relates to the topic, is accurate, and addresses three spheres. Several supporting details and/or examples.	Information clearly relates to the topic, is accurate, and addresses three spheres, with one to two supporting details and/or examples.	Information clearly relates to the topic, is mostly accurate, and addresses three spheres. No details and/or examples are given.	Information has little or nothing to do with the topic.
Amount of information	X2	All topics are addressed and all questions answered with sufficient detail about each.	All topics are addressed and most questions answered with some detail about each.	All topics are addressed, and most questions answered a little detail about each.	One or more topics were not addressed.
Organization	X1	Information is very organized with well-constructed paragraphs and subheadings.	Information is organized with well-constructed paragraphs.	Information is organized, but paragraphs are not well-constructed.	The information appears to be disorganized.
Sources	X1	All references present. All sources (information and graphics) are accurately documented in correct format.	All references present. All sources (information and graphics) are accurately documented, but some are not in correct format.	Two references present. All sources (information and graphics) are accurately documented, but many not in correct format.	Only one reference. Some sources are not accurately documented.

Score ____/28

CATEGORY	4	3	2	1
Accuracy	95% or more of the information is represented accurately.	94-85% of the information is represented accurately.	75-84% of the information is represented accurately.	Less than 75% of the information is represented accurately.
General Formatting	Unlined paper is used. The drawing is large enough to be clear. Figure caption included, with relevant information.	Unlined paper is used. The drawing is large enough to be clear.	Unlined paper is used. The drawing is a little too large or a little too small.	Lined paper is used AND/OR the drawing is much too small or much too large.
Labels	Every item is clearly described or labeled with sufficient detail.	Almost all items (90%) are clearly described or labeled with sufficient detail.	Most items (75-89%) are clearly described or labeled with good detail.	Less than 75% of the items are described clearly.

Score ____/12