

Finding the Goldilocks Zone: Where Else Could Life Exist in the Solar System?

Geology 1P

Mr. Traeger

Names: _____

Period: _____

Subject: _____

Purpose

One of the biggest questions that humanity has is "Are we alone?" The purpose of this investigation is to gain a more intimate understanding of the ingredients and conditions necessary for life on a solar system body (planet, moon, or asteroid) to exist.

Assignment

1. Complete the [Internet Investigation ESU701](#) titled "Could Mars Support Life?" on the back side of this sheet. Then, answer the following questions on this side.
2. What are the basic requirements for life on a planet (or moon)? Make sure you understand the definition of life. Life is not considered just humans. Life is considered to be as simple as single-celled bacteria. You should elaborate on the following ideas.

Major Abiotic Requirements for Life	Describe the correct conditions required for life to exist.
Size of planet	
Gravity of planet	
Presence of water in liquid form	
Distance from the host star	
Eccentricity of Orbit	
Tilt of rotation axis/seasons	
Length of Day	
Atmosphere	
Active Core/Magnetic Field	
Rock Types and Soils	
Presence of orbit stabilizing moon	
Size of host star	
Temperature of host star	
Other Abiotic Factors that you can think of? Name them below.	

3. What are the possible "seeds for life" on a solar system body?
4. What does it mean when life is said to live in extreme environments such as hot springs or deep sea vents? How could this expand the possibility of life on a solar system body?
5. Describe how the abiotic factors named above can affect the evolution of a species.
6. Use the sources listed on the Internet Investigations page and other sources that you may find to pick a solar system body other than Mars that might have the possibility of past, present, or future life to research in more detail. Remember that life can exist in all forms and in various stages of evolution. Name the solar system body, highlight space missions of the past, present, and future that have gone to your solar system body, and tell me what types of life may be present on that body. This should be in essay format written on a separate sheet of paper and it should be attached to this sheet when complete. Also make a short works cited telling me the sources you looked at.