

Select Readings, Second Edition Upper-Intermediate, Chapter 12 Test

Read the passage and answer the questions that follow.

Life on Saturn's Moon?

In 2005, a fountain of water vapor¹ was discovered coming from the planet Saturn's moon Enceladus, and it has intrigued scientists ever since. An analysis of data recently collected by the Cassini spacecraft now shows that the water in the fountain is full of organic molecules², and may increase the possibility of life in the Saturn system.

Experts are not entirely clear how life actually begins, but they guess it requires chemicals like those detected by the Cassini: a little water, and some unknown 'spark'³. It seems that this new information contains enough new data to really stir up previous ideas about life in space.

Cassini made its observations during a high-speed pass 30 miles above Enceladus, and recorded the highest temperatures yet detected on the icy moon's southern pole. What this means is that Enceladus' surface temperatures may be higher than previously thought. It is still awfully cold, but the higher surface temperature means that it has to be even warmer under the surface of that ice, and raises the possibility of water below.

The surprising thing is that the chemistry of Enceladus—what's coming out from inside—is similar to that of a comet. However, Enceladus is not a comet. In fact, it is very different from a comet. Comets have tails and orbit the sun; Enceladus does not have a tail, and it orbits Saturn. Enceladus' activity is powered by internal heat, while comet activity is powered by sunlight.

It appears that in addition to carbon dioxide, carbon monoxide⁴ and other compounds—organic molecules from gases such as methane, propane, acetylene, and formaldehyde—were detected in Enceladus' icy fountains. Enceladus' mixture is like carbonated water with an essence of natural gas.

Many scientists are now saying that the moon Enceladus could be one of the most important and staggering places in the solar system. Many believe that all the ingredients for life could be present just below the rough surface of Enceladus.

Enceladus has warmth, water, and organic chemicals—the three basic requirements to provide a minimum for the origin of life. There is one catch⁵, however: still more data is needed to verify that *liquid water*, a key element to the origin of life, exists on the moon, rather than just *steam*.

¹ **water vapor** steam

² **molecules** tiny units of atoms joined together

³ **spark** a tiny particle that can cause something to catch on fire

⁴ **carbon dioxide** = CO₂ **carbon monoxide** = CO

⁵ **catch** an unseen problem

At this point, there is still no evidence that Enceladus contains liquid water. Likewise, even if it is confirmed, we still do not know if that water may be a habitat for life. However, future exploration by the Cassini plans to focus on just those questions. With five more journeys planned for the next two years, the proof of celestial company may just be closer than we ever thought possible.

1. What did scientists discover in 2005?
 - A. A new moon in the Saturn system
 - B. Water on Saturn
 - C. Steam coming from one of Saturn's moons
 - D. Live molecules on Enceladus
2. In paragraph 2, it can be inferred that the Cassini spacecraft has _____.
 - A. provided significant new data in the search for life in outer space
 - B. proven that previous theories about life in space are wrong
 - C. revealed the substances needed for life to form in space
 - D. made scientists feel more certain about the existence of life in space
3. All of the following are true about the recent Cassini observations except _____.
 - A. it recorded temperatures below the icy surface of Enceladus
 - B. it came as close as 30 miles from the surface of Enceladus
 - C. it recorded the highest temperatures yet observed on Enceladus
 - D. it did not discover water below the surface of the southern pole of Enceladus
4. Which of the following is most surprising to scientists about Enceladus?
 - A. It is actually a comet, not a moon.
 - B. It is not powered by sunlight.
 - C. It does not have a tail.
 - D. The chemical makeup is like a comet's.
5. The steam coming from Enceladus seems to be the most similar to _____.
 - A. carbon dioxide and carbon monoxide
 - B. methane, propane, acetylene, and formaldehyde
 - C. organic water molecules
 - D. carbonated water and natural gas
6. Where do scientists most likely expect to find evidence of life on Enceladus in the future?
 - A. Around its southern pole
 - B. Under its rough surface
 - C. In its water vapor
 - D. Throughout the Saturn system
7. Which key life-giving ingredient still hasn't been discovered on Enceladus?
 - A. Water vapor
 - B. Liquid water
 - C. Warmth
 - D. Organic chemicals
8. In the last paragraph, the word 'habitat' is closest in meaning to _____.
 - A. an unusual place
 - B. a workplace
 - C. a natural home
 - D. an outdoor setting
9. In the last paragraph, it can be inferred that _____.
 - A. Scientists see further exploration of Enceladus as a high priority.
 - B. Scientists are sure they will find water on Enceladus.

- C. If water is found, life will be possible on Enceladus.
 - D. Water must be found on Enceladus within two years to continue research.
10. The author's purpose in writing this article is to _____.
- A. justify research money spent on exploring Saturn's moons
 - B. describe recent discoveries that could eventually lead to finding life in space
 - C. persuade politicians to invest more heavily in the space program
 - D. argue that discoveries on Enceladus do not prove that there is life in space