

• Reading Comprehension 6 Level 11

Directions: Read the passage. Then answer the questions below.

A new discovery has prompted astronomers to rethink one of their most basic assumptions regarding the types of solar systems that can support life. Previously, astronomers believed that any solar system containing more than one sun would produce an orbit too **volatile** to support an Earth-like planet. However, recent images from the Kepler spacecraft have uncovered evidence of a two-star system—what astronomers call a binary system—with a stable orbit containing at least one planetary body.

Questions

- 1) The target audience for this passage would most likely include a(n)
 - A. scientist who wants to evaluate a peer's recent research
 - B. dentist who has a general interest in science and astronomy
 - C. third grade student who is learning the basics of astronomy
 - D. government official who is assessing the success of the Kepler project
 - E. aviator worried about impending atmospheric conditions

- 2) As used in the passage, it can be inferred that **volatile** belongs to which of the following word groups?
 - A. dangerous, hazardous, troubling
 - B. explosive, charged, detonative
 - C. irregular, abnormal, weird
 - D. unstable, unpredictable, uneven
 - E. reckless, wild, irresponsible

- 3) Based on information presented in the passage, it can be concluded that
 - A. solar systems must mirror our own in order to support life
 - B. life likely exists outside our own solar system
 - C. binary solar systems may harbor life
 - D. the Kepler space program has been largely successful
 - E. life in solar systems other than our own is likely to be hazardous

Answers and Explanations

1) **B**

To answer this question, we need to analyze the type of information the passage provides and how this information might fit the audience's particular interests and abilities. The passage provides general information about astronomers' unexpected discovery of a two-star planetary system. The passage contains details that are not overly specialized or technical, making it accessible to the general public. Some people, like a dentist who already has an interest in science, would likely be able to comprehend the information presented in the passage and also find it of interest. Therefore **(B)** is correct. A scientist who wants to evaluate a peer's recent research would expect a much higher level of detail than what is provided in the passage. Research would likely include detailed technical data from the Kepler spacecraft so that the scientist could make his or her own judgments about the significance of this discovery. This passage does not provide this type of data, so **(A)** is incorrect. The passage uses terms such as "orbit" and "planetary body" that assume a basic familiarity with astronomy. The author does not explain or define these terms, so the reader can infer that the passage was not likely intended for a third grade student who is still learning the basics of astronomy. A student this young would probably have difficulty understanding the passage. Therefore **(C)** is incorrect. A government official who is assessing the success of the Kepler project would expect a much higher level of detail than what is provided in the passage. He or she would probably want to see detailed technical data from the Kepler spacecraft to make his or her own judgments about the significance of this discovery. This passage does not provide this type of data, so **(D)** is incorrect.

2) **D**

volatile (*adjective*): tending to change suddenly; unstable; unsteady.

Towards the middle of the passage, the author writes, "Previously, astronomers believed that any solar system containing more than one sun would have an orbit too volatile to support an Earth-like planet." The author then explains how a new discovery contradicts this belief: "However, recent images from the Kepler spacecraft have uncovered evidence of a two-star system—what astronomers call a binary system—with a stable orbit containing at least one planetary body." Whereas astronomers expected a two-star system to have a "volatile" orbit, the system they discovered actually has a "stable" orbit. Since the new discovery contradicted astronomers' expectations, the reader can infer that *volatile* means the opposite of "stable." This means that, as used in the passage, *volatile* must belong to a word group that includes words that have meanings similar to *unstable*, *unpredictable*, or *uneven*. Therefore **(D)** is correct. While something that is hazardous may be unstable, something that is volatile more nearly means unpredictable than dangerous or troubling. Choice **(A)** is incorrect. *Explosive*, *charged*, *detonative* are words that are too strong to be necessarily associated with volatile, and moreover are often associated with chemical properties. Therefore **(B)** is incorrect. *Irregular*, *abnormal*, *weird* are not words synonymous with uneven or unstable. A weird personality is not necessarily unstable, and an irregular heartbeat is not necessarily unpredictable. Choice **(C)** is incorrect. *Reckless*, *wild*, *irresponsible* are words describing behavior that is too random and too strong to refer to an orbit or planetary system. Choice **(E)** is incorrect.

3) **C**

The author begins by telling us that an old assumption about the types of solar systems that can support life is being reconsidered. The author says, "Previously, astronomers believed that any solar system containing more than one sun would produce an orbit too volatile to support an Earth-like planet." Given that an Earth-like planet would likely support life, just as Earth does, we can infer that astronomers used to think that a solar system with more than one star could not support life. In the next sentence, the author begins with the conjunction, "However," letting us know that he or she intends to contradict this idea. The author continues to say that recent images show a solar system with more than one star (a binary system) that has a stable orbit. What is more, this solar system "contains at least one planetary body." Given that the orbit is stable, and there is a planetary body present, we can conclude that binary solar systems may contain Earth-like planets, and therefore may harbor life, just as Earth does. The author does not imply that it is necessarily likely, merely that it is possible. Therefore **(C)** is correct. As we can infer from the first sentence, "one of the old assumptions" that astronomers have been prompted to "rethink" is that solar systems must mirror our own in order to support life. This makes **(A)** incorrect. Since the "new discovery" has taken place, it would not be unreasonable to conclude that the likelihood of life existing outside our own solar system is higher. However, it is too extreme to conclude from these findings that life *likely* exists outside our own solar system. This statement is too strong, making **(B)** incorrect. The passage does not contain enough information to draw conclusions about the success of the Kepler space program. While the program may be responsible for this new discovery, we have no way of knowing about the other successes or failures it has sustained. Since we cannot draw an overall conclusion about the program, **(D)** is incorrect. The passage does not suggest anything about the risk of danger or hazard associated with life in other solar systems. The author merely speculates about the possibility of life in other solar systems, not what life would be like there. This makes **(E)** incorrect.