

## **Passage 9 (B1 Level):**

### **Topic: Life on Other Planets**

The question of whether there is life beyond Earth has captivated human imagination for centuries. Are we alone in the vast universe, or could there be other forms of life on distant planets? Let's explore the possibility of life on other planets and the ongoing search for extraterrestrial life.

Scientists have identified thousands of exoplanets, which are planets orbiting stars outside our solar system. These exoplanets come in various sizes and exist within what is known as the habitable zone. The habitable zone is the region around a star where conditions may be suitable for the existence of liquid water, a key ingredient for life as we know it.

While the discovery of exoplanets has sparked excitement, detecting signs of life on them poses a significant challenge. Scientists primarily search for biosignatures, which are substances or phenomena that indicate the presence of life. For example, the detection of certain gases, such as oxygen or methane, in a planet's atmosphere could be a strong indication of biological activity.

In recent years, Mars has been a focus of intense exploration and speculation about the possibility of past or present life. Mars, our neighboring planet, shares some similarities with Earth and has shown evidence of water in its past. Several robotic missions, including rovers and landers, have been sent to Mars to investigate its geological history and search for signs of life, past or present.

Another intriguing possibility for finding life beyond Earth is the exploration of moons in our own solar system, such as Europa, one of Jupiter's moons. Europa is believed to have a subsurface ocean beneath its icy crust, raising the possibility of microbial life. Future missions are planned to study these icy moons and search for signs of habitability and potential life.

The search for extraterrestrial life also extends beyond our own solar system. The use of advanced telescopes and instruments allows scientists to analyze the atmospheres of exoplanets and search for biosignatures. Additionally, the development of new technologies, such as space-based observatories and future missions, will further enhance our ability to explore and investigate the potential for life on distant planets.

While the discovery of life on other planets would be a groundbreaking scientific achievement, it also raises profound questions about our place in the universe and the nature of life itself.

How similar or different would extraterrestrial life be? Could it be intelligent and capable of communication? These questions drive scientists to explore and unravel the mysteries of the cosmos.

Comprehension Questions:

1. What is the habitable zone?

- a) The region around a star suitable for the existence of liquid water
- b) The region around a black hole where life can exist
- c) The region on Earth with the highest biodiversity
- d) The region in our solar system where life originated

2. What are biosignatures?

- a) Substances or phenomena that indicate the presence of life
- b) Small organisms found in extraterrestrial environments
- c) Alien artifacts discovered on exoplanets
- d) Advanced telescopes used to detect signs of life

3. Which planet in our solar system has been a focus of exploration for signs of life?

- a) Mars
- b) Saturn
- c) Venus
- d) Jupiter

4. What is one of Jupiter's moons that is believed to have a subsurface ocean?

- a) Titan
- b) Io
- c) Ganymede
- d) Europa

5. How do scientists analyze the atmospheres of exoplanets?

a) By sending robotic missions to collect samples

b) By studying the geological history of the planet

c) By using advanced telescopes and instruments

d) By analyzing the composition of meteorites from the planet

(a-a-a-d-c)