

A3. Living vs. Non-Living Things

Living and Non-Living Things: Exploring the Wonders of Systems

The world around us is filled with an incredible variety of things, some of which are living, while others are not. These living and nonliving things interact and create a fascinating system. In this passage, we will dive into the concept of living and non-living things, their characteristics, and how they interact within a system.

Living things are organisms that have life within them. They can grow, reproduce, and respond to their environment. Let's explore their characteristics:

Growth and Development

Living things have the amazing ability to grow and change. From tiny seeds to towering trees or from tiny caterpillars to beautiful butterflies, living things undergo incredible transformations throughout their lives.

Reproduction

Living things can produce offspring of their own kind. Plants reproduce through seeds or spores, while animals give birth to their young or lay eggs. This ensures the continuation of their species.

Response to Stimuli

Living things respond to their environment. They can sense changes and react accordingly. For example, a plant will turn its leaves toward the sunlight, and an animal might run away from a loud noise.

Need for Energy

Living things require energy to grow, move, and carry out their life processes. Plants obtain energy through photosynthesis, while animals get energy by eating plants or other animals.

Adaptation

Living things can adapt to their surroundings. They have special features or behaviors that help them survive in their specific habitats. For example, a polar bear has thick fur and a layer of fat to keep warm in icy conditions.

Non-living things are objects or substances that do not possess life. They have never been alive and cannot grow, reproduce, or respond to their environment. Let's explore some examples:

Natural Non-Living Things

Rocks, water, air, and soil are examples of non-living things found in nature. While they may undergo physical and chemical changes, they do not have the characteristics of living organisms.

Human-Made Non-Living Things

Many objects around us are human-made non-living things. This includes toys, books, cars, buildings, and even technology like computers and smartphones. They serve various purposes but do not have life.

Living and nonliving things interact within a system. Let's understand how they interact

Dependence on Non-Living Things

Living things depend on non-living things for their survival. Plants need water, sunlight, and nutrients from the soil, while animals need air to breathe and water to drink.

Influence of Living Things on Non-Living Things

Living things can have an impact on non-living things. For example, animals can dig burrows in the ground, plants can break down rocks with their roots, and humans can build structures using materials from the environment.

Balance in Systems

The interactions between living and nonliving things in a system contribute to its balance. When these interactions are disrupted, it can affect the well-being of both living and nonliving components of the system.

Let's test your knowledge!

1. What are living things?
 - A) Things that have never been alive
 - B) Objects made by humans
 - C) Organisms that are alive or were once alive
 - D) Non-living elements in nature
2. What is a characteristic of living things?
 - A) They do not grow or change
 - B) They do not need energy to survive
 - C) They can reproduce and have offspring
 - D) They cannot respond to their environment
3. How do living things respond to stimuli?
 - A) They ignore changes in their environment
 - B) They run away from loud noises
 - C) They do not have the ability to sense their surroundings
 - D) They do not react to changes in temperature
4. What do living things need to grow and carry out life processes?

- A) Energy
 - B) Air and water
 - C) Rocks and soil
 - D) Human-made objects
5. What is an example of a non-living thing?
- A) A tree
 - B) A rock
 - C) A bird
 - D) A flower
6. What are some examples of natural non-living things?
- A) Cars and buildings
 - B) Water and air
 - C) Toys and books
 - D) Computers and smartphones
7. How do living things depend on non-living things?
- A) They depend on non-living things for their survival
 - B) They do not need non-living things
 - C) They can make their own energy
 - D) They can change non-living things into living things
8. What can living things do that non-living things cannot?
- A) Respond to stimuli
 - B) Undergo physical and chemical changes
 - C) Build structures and objects
 - D) Produce energy through photosynthesis
9. How can living things influence non-living things?
- A) They can dig burrows and break down rocks
 - B) They depend on non-living things for survival
 - C) They can reproduce and have offspring
 - D) They can respond to changes in temperature
10. What happens when interactions between living and nonliving things are disrupted?
- A) The balance in systems is affected
 - B) Living things become non-living things
 - C) Non-living things become living things
 - D) Living things lose the ability to reproduce

ANSWERS & EXPLANATIONS:

1. C) Organisms that are alive or were once alive
 - Living things include organisms that are currently alive, such as plants and animals, as well as those that were once alive, like fossils.
2. C) They can reproduce and have offspring
 - One characteristic of living things is their ability to reproduce and have offspring of their own kind.
3. B) They run away from loud noises
 - Living things respond to stimuli, such as running away from loud noises, turning towards sunlight, or reacting to changes in their environment.
4. A) Energy
 - Living things require energy to grow and carry out their life processes, such as obtaining nutrients, moving, and reproducing.
5. B) A rock
 - A rock is an example of a non-living thing as it does not possess life and has never been alive.
6. B) Water and air
 - Water and air are natural non-living things found in nature. They are essential for the survival of living things.
7. A) They depend on non-living things for their survival
 - Living things depend on non-living things, such as water, air, and sunlight, for their survival and well-being.
8. A) Respond to stimuli
 - Living things have the ability to respond to stimuli or changes in their environment, which is a characteristic that non-living things do not possess.
9. A) They can dig burrows and break down rocks
 - Living things, such as animals and plants, can influence non-living things by digging burrows, breaking down rocks with their roots, or building structures using materials from the environment.
10. A) The balance in systems is affected
 - When interactions between living and nonliving things in a system are disrupted, it can affect the balance within the system and impact the well-being of organisms and the environment.