

Living Organisms and Their Surroundings

Class 6 Science

Complete Study Notes

Learning Objectives

In this chapter, students will understand the characteristics of living organisms and distinguish them from non-living things. They will learn about life processes such as movement, growth, respiration, nutrition, reproduction, sensitivity, and excretion. Students will also explore different habitats, understand the concept of adaptation, and discover how plants and animals survive in various environments.

Introduction to Living Organisms and Their Surroundings

Living organisms are found all around us, from tiny insects to large trees and animals. Every living organism performs certain life processes that help it survive, grow, and reproduce. These characteristics make living things different from non-living objects like rocks, tables, and buildings.

This chapter explains the basic characteristics of living organisms and how different plants and animals adapt themselves to survive in their natural surroundings.

Characteristics of Living Organisms

Living organisms show several important characteristics. They grow, move, breathe, obtain food, reproduce, respond to changes in their surroundings, and remove waste materials from their bodies.

Animals usually move from one place to another in search of food and shelter, while plants remain fixed in one place but show movement through the growth of roots, stems, and leaves. Living organisms also respond to external stimuli, such as a touch-me-not plant folding its leaves when touched or humans blinking when dust enters their eyes. These characteristics help us easily distinguish living organisms from non-living objects.

Nutrition, Respiration, Growth, and Reproduction

All living organisms require food to obtain energy for growth and survival. Green plants prepare their own food through photosynthesis, while animals depend on plants or other animals for nutrition.

Respiration is the process by which living organisms obtain energy from food using oxygen. Plants exchange gases mainly through tiny pores called stomata, whereas animals use different respiratory organs such as lungs or gills. Living organisms grow throughout different stages of life and reproduce to produce young ones of their own kind, ensuring the continuation of their species.

Habitats and Surroundings

Definition of Habitat: The natural place where an organism lives is called its habitat. A habitat provides food, water, shelter, and suitable conditions for survival and reproduction. Habitats are mainly classified into terrestrial (land), aquatic (water), and aerial (air) habitats.

Forests, deserts, mountains, rivers, lakes, ponds, seas, and oceans are all examples of different habitats that support different kinds of living organisms. Every habitat has unique environmental conditions, and only organisms adapted to those conditions can survive successfully.

Adaptations in Plants and Animals

Adaptation is the process through which living organisms develop special features that help them survive in their habitats.

- **Desert plants** such as cacti have thick stems for storing water, deep roots to absorb moisture, and leaves modified into spines to reduce water loss.
- **Fish** have streamlined bodies, fins, scales, and gills that help them swim and breathe in water.
- **Mountain animals** like yaks have thick fur to protect themselves from cold weather, while birds have hollow bones and wings that help them fly.

Importance of Biodiversity

The Earth supports a great variety of living organisms, each playing an important role in maintaining ecological balance. Plants provide oxygen and food, animals help in pollination and seed dispersal, and microorganisms recycle nutrients. Protecting habitats and conserving biodiversity are essential for maintaining healthy ecosystems and ensuring the survival of future generations.

Practice Questions

1. Name any five characteristics of living organisms.
2. What is a habitat?
3. What is adaptation? Give one example.
4. How are desert plants adapted to survive?
5. Differentiate between living and non-living things.

Answer Key

- **ANSWER 1:** Five characteristics of living organisms are movement, growth, respiration, nutrition, reproduction, sensitivity, and excretion.
- **ANSWER 2:** A habitat is the natural place where an organism lives and obtains food, water, shelter, and suitable conditions for survival.
- **ANSWER 3:** Adaptation is a special feature or behavior that helps an organism survive in its habitat. For example, a cactus has thick stems and spines to conserve water in the desert.
- **ANSWER 4:** Desert plants have thick water-storing stems, deep roots, and leaves modified into spines to reduce water loss and survive in hot, dry conditions.
- **ANSWER 5:** Living things grow, breathe, reproduce, respond to stimuli, and require food, whereas non-living things do not perform these life processes.