

CBSE Class 9 Science Notes Chapter 7: In Class 9 Science, Chapter 7 is all about the many different living things on Earth. From tiny bacteria to big trees, there's a lot of variety.

We learn how scientists group these living things into categories based on how they look and behave. It's like organizing them into different groups.

There are five main groups called kingdoms. We also learn about giving each living thing a special name in science. This chapter helps us understand how diverse life on Earth is and how scientists study and organize it.

CBSE Class 9 Science Notes Chapter 7 Diversity in Living Organisms Overview

These notes for CBSE Class 9 Science, Chapter 7, 'Diversity in Living Organisms', are made by the subject experts of Physics Wallah. They help us understand the many different living things on Earth. The experts have made it easy to grasp the ideas in this chapter. They explain how scientists group living things based on how they look and behave.

By using these notes, students can learn about the classification system and the five main groups of living things. It's a great resource to learn about the amazing diversity of life.

CBSE Class 9 Science Notes Chapter 7 PDF

The PDF link below has CBSE Class 9 Science Notes for Chapter 7 about Diversity in Living Organisms. These notes help you understand all the different living things on Earth. They explain how scientists group them into categories, making it easy to learn.

[CBSE Class 9 Science Notes Chapter 7 PDF](#)

CBSE Class 9 Science Notes Chapter 7 Diversity in Living Organisms

Introduction to Taxonomy

Taxonomy is a crucial branch of science concerned with the classification of organisms. It provides a systematic framework for organizing and categorizing living things based on their similarities and evolutionary relationships. By studying taxonomy, scientists aim to understand the diversity of life forms and establish a standardized system for naming and categorizing them.

Diversity:

Diversity refers to the presence of various organisms within the same ecosystem or geographical location. It encompasses the rich variety of species, including plants, animals, fungi, and microorganisms, coexisting and interacting within a given environment. Diversity is essential for maintaining ecological balance and stability. It fosters resilience against environmental changes and enhances the overall health and functioning of ecosystems. Biodiversity, the term often used interchangeably with diversity, emphasizes the importance of preserving and protecting the variety of life forms on Earth.

Evolution:

Evolution is a gradual process through which organisms undergo genetic changes over time in response to their environment. It is driven by mechanisms such as natural selection, genetic mutation, and genetic drift. Evolution leads to the emergence of new species and the adaptation of existing ones to better suit their surroundings. Charles Darwin, an English biologist and naturalist, played a pivotal role in shaping our understanding of evolution.

His observations during his voyage on HMS Beagle to the Galapagos Islands in South America led to the formulation of his theory of evolution, detailed in his groundbreaking work "On the Origin of Species" published in 1859. Darwin proposed natural selection as the primary mechanism driving evolution, wherein organisms with advantageous traits are more likely to survive and reproduce, passing on their favorable characteristics to future generations. His theory revolutionized biological science and provided the foundation for modern evolutionary studies.

Taxonomy:

Taxonomy, as mentioned earlier, is the science of classification, wherein organisms are grouped into hierarchical categories based on shared characteristics and evolutionary relationships. This systematic arrangement enables scientists to organize the vast diversity of life into manageable and understandable groups.

Taxonomic classifications typically include categories such as kingdom, phylum, class, order, family, genus, and species. By classifying organisms into distinct groups, taxonomy facilitates the identification, study, and communication of biological information among scientists. It also provides insights into the evolutionary history and relationships among different organisms, aiding in biodiversity conservation and biological research.

Taxonomical Hierarchy

Taxonomical hierarchy refers to the systematic classification of living organisms into different groups or taxons based on their similarities and evolutionary relationships. This hierarchical arrangement helps scientists organize and understand the vast diversity of life on Earth, with each level representing a distinct category of classification.

The hierarchy begins with the broadest category, Kingdom, and progresses through increasingly specific categories, culminating in the Species level, which is the fundamental unit of classification.

Hierarchy of Classification

Organisms are grouped into hierarchical levels based on their similarities, with each level representing a broader or narrower category of classification. As we ascend the hierarchy, from lower to higher levels, the organisms within each group share fewer similarities. This hierarchical structure provides a systematic framework for organizing and studying living organisms, facilitating the identification, classification, and comparison of different species.

Kingdom:

The Kingdom is the highest level of classification in the taxonomic hierarchy. It encompasses a broad group of organisms sharing fundamental similarities in their overall organization and basic characteristics.

Each kingdom may contain multiple phyla or divisions (in the case of plants) with similar attributes. The classification at the kingdom level helps in broadly categorizing living organisms based on major differences in their anatomy, physiology, and life processes.

Phylum/Division:

Phylum or Division is the level of classification that comes below the Kingdom. It comprises a group of organisms exhibiting significant similarities in their structural and developmental characteristics. Within each phylum or division, there may be multiple classes sharing common features and evolutionary relationships. Phyla are primarily used for the classification of animals, while divisions are employed for plants.

Class:

Class is the next level of classification below the Phylum/Division. It encompasses a group of organisms sharing distinctive anatomical, physiological, and behavioral traits. Each class may contain several orders exhibiting similar characteristics and evolutionary histories. The classification at the class level provides a more detailed understanding of the diversity and relationships among different groups of organisms.

Order:

An Order is a higher category of classification comprising a group of related families with similar characteristics. Organisms within the same order share common evolutionary traits and ecological roles. The classification at the order level aids in organizing and studying the diversity of life within a broader taxonomic context.

Family:

Family is the level of classification below the Order and consists of a group of related genera sharing common ancestry and morphological features.

Each family may include multiple genera exhibiting similar reproductive structures and evolutionary relationships. The classification at the family level facilitates the identification and comparison of closely related organisms within a particular taxonomic group.

Genus:

Genus is a category of classification below the Family and comprises a group of species sharing fundamental similarities in their morphological, anatomical, and genetic characteristics.

Organisms within the same genus are closely related and share a common evolutionary lineage. The classification at the genus level allows scientists to organize and differentiate between closely related species based on their shared characteristics.

Species:

Species is the fundamental unit of classification in the taxonomic hierarchy. It represents a group of organisms that are capable of interbreeding and producing fertile offspring under natural conditions. Species exhibit the highest level of similarity among individuals within a taxonomic group, sharing common physical traits, genetic makeup, and ecological niche.

The classification at the species level helps in identifying and categorizing individual organisms based on their distinct characteristics and reproductive compatibility.

Nomenclature

Carolus Linnaeus: Carolus Linnaeus, a Swedish botanist and physician often referred to as the 'Father of Taxonomy,' made significant contributions to the field of biological classification. He introduced the concept of Binomial Nomenclature and established foundational principles that laid the groundwork for modern taxonomy.

Binomial Nomenclature: Binomial Nomenclature, devised by Linnaeus, is a systematic method of naming organisms in taxonomy. It consists of two parts: the Genus name, written with the first letter capitalized, and the species name, written in lowercase.

This standardized naming system allows scientists worldwide to communicate effectively about different species and eliminates confusion caused by multiple common names for the same organism.

Five Kingdom Classification

Five Kingdom Classification: The Five Kingdom Classification, proposed by R.H. Whittaker, is the most widely accepted system of classification. It addressed many challenges in taxonomy, particularly regarding the placement of bacteria and fungi.

The classification system categorizes organisms into five kingdoms: Monera, Protista, Fungi, Plantae, and Animalia, based on their cellular structure, mode of nutrition, and other characteristics.

Kingdom Monera:

Monera: The Kingdom Monera comprises all prokaryotic organisms, including bacteria and their ancient relatives, archaeobacteria. These organisms are unicellular and can be autotrophic or heterotrophic. Bacteria, the most well-known members of this kingdom, have a cell wall primarily composed of polysaccharides.

Archaea: Archaeobacteria, a category within the kingdom Monera, consists of organisms adapted to extreme environmental conditions, such as high temperatures. They are considered among the most ancient living organisms on Earth due to their ability to thrive in harsh environments.

Eubacteria: Eubacteria, another phylum within Monera, encompasses bacteria found in normal environmental conditions. This group includes both beneficial bacteria, essential for various ecological processes, and pathogenic bacteria responsible for causing diseases in humans and other organisms.

Gram-positive/negative bacteria: Some bacteria possess a thick cell wall that retains a violet color when stained with Gram stain, while others have a thin cell wall and appear pink upon staining. Gram-positive bacteria are often associated with pathogenicity, causing diseases in humans and animals, while Gram-negative bacteria have diverse ecological roles, including nitrogen fixation and decomposition.

Kingdom Protista

Protista: Kingdom Protista comprises eukaryotic unicellular organisms, excluding yeast. These organisms exhibit a diverse range of characteristics and lifestyles, contributing to the complexity of this kingdom.

Protozoan: Protozoans are unicellular eukaryotic organisms categorized under Kingdom Protista. They exhibit various modes of locomotion and nutrition. Examples of protozoans include Paramecium, Amoeba, Plasmodium, Euglena, and Leishmania. These organisms play crucial roles in various ecosystems and can have significant impacts on human health and the environment.

Fungi-like Protists: Kingdom Protista also includes unicellular fungi-like organisms such as yeast and molds. These organisms share some similarities with true fungi but are classified within the Protista kingdom due to their unicellular nature and unique characteristics.

Plant-like Protists: Some unicellular algae with photosynthetic capabilities are also classified under Kingdom Protista. These plant-like protists contribute to primary production in aquatic ecosystems and serve as essential components of food webs.

Kingdom Fungi

Fungi: Organisms belonging to Kingdom Fungi are predominantly saprophytic, playing vital roles in decomposition and nutrient cycling in ecosystems. This kingdom encompasses both multicellular and unicellular organisms, including molds, yeasts, and mushrooms. Many fungi have a cell wall composed of chitin, providing structural support and protection.

Kingdom Plantae

Plantae: All plants and trees fall under Kingdom Plantae, characterized by their ability to perform photosynthesis and produce their food using chloroplasts. These autotrophic organisms have cell walls primarily composed of cellulose, providing structural support and protection. The plant kingdom is classified into two major divisions: Cryptogams and Phanerogams, based on their reproductive structures and modes of reproduction.

Cryptogamae: Cryptogams, meaning "plants with hidden reproductive parts," are a division of the plant kingdom characterized by their mode of reproduction using spores rather than seeds. These plants lack flowers and fruits and include thallophytes, bryophytes, and pteridophytes.

Phanerogamae: Phanerogams are plants that reproduce via seeds. This division includes plants that produce seeds enclosed within fruits as well as those without flowers. Phanerogams are further classified into gymnosperms and angiosperms based on their reproductive structures and seed development.

Thallophyta: Thallophyta is the first division of the plant kingdom, comprising red, green, and brown algae. These plants lack well-differentiated structures and exhibit a range of morphological diversity. Examples include Spirogyra, Ulothrix, Cladophora, Ulva, and Chara.

Bryophyta: Bryophyta, the second division of the plant kingdom, includes mosses and liverworts. These plants exhibit simple structures with differentiated roots and shoots, representing an evolutionary advancement from thallophytes.

Pteridophyta: Pteridophyta, the third division of the plant kingdom, comprises ferns and horsetails. These plants exhibit well-developed roots, stems, and leaves, representing a significant advancement in plant evolution.

Gymnosperms: Gymnosperms, meaning "naked seeds," are the first group of seed-producing plants. They bear seeds that are not enclosed within a fruit. Examples include pines, cycads, and ginkgoes.

Angiosperms: Angiosperms represent the most advanced division of the plant kingdom and include flowering plants. They produce seeds enclosed within fruits, contributing to their widespread distribution and reproductive success. Examples of angiosperms include roses, mangoes, and wheat.

Benefits of CBSE Class 9 Science Notes Chapter 7 Diversity in Living Organisms

- **Structured Learning:** The notes provide a structured overview of the chapter, helping students understand the main concepts, classifications, and characteristics of living organisms.
- **Clarity and Simplification:** The notes simplify complex scientific concepts into easy-to-understand language, making it easier for students to grasp the fundamental principles of diversity in living organisms.
- **Comprehensive Coverage:** The notes cover all the essential topics and subtopics of the chapter, ensuring that students have a comprehensive understanding of the subject matter.
- **Enhanced Retention:** By presenting information in a concise and organized manner, the notes help students retain the material more effectively, aiding in long-term memory recall.
- **Supplementary Resource:** They can be used as supplementary study material alongside textbooks and classroom lectures, providing additional explanations and insights into the topic.
- **Preparation Aid:** The notes assist students in preparing for exams by highlighting important points, key terms, and concepts that are likely to be tested.
- **Self-Assessment:** Students can use the notes for self-assessment purposes, testing their knowledge and understanding of the chapter through review questions and quizzes included in the material.
- **Time-Saving:** Instead of going through lengthy textbook chapters, students can save time by referring to these concise notes, enabling them to focus on other subjects or activities.