

# Class 11 Biological Classification

The second chapter of class 11 Biology syllabus focuses on delving into the concept of Biological Classification. Through relatable examples and the sequential presentation of concepts mentioned in the chapter, students will understand how the animals we may encounter in daily lives are classified as per biology. Since class 11 Biological Classification chapter is a detailed one, we are here to help you with simplified study notes to get the foundational and conceptual understanding of how living organisms are classified and subdivided into categories based on basic similarities and dissimilarities between them.

## THIS BLOG INCLUDES:

1. Class 11 Biological Classification Overview
2. History of Biological Classification
  1. Kingdom Monera
3. Kingdom Protista
  1. Sub-Grouping of Protista:
4. Kingdom Fungi
5. Kingdom Plantae
6. Kingdom Animalia
7. Virus, Viroid, Prions, and Lichens
8. Class 11 Biological Classification: Important Questions

## Class 11 Biological Classification Overview

The identification of characteristics among living organisms and grouping them on the basis of their features is called biological classification. The study of the classification of living organisms is important because it assists us:

- To study only one or two organisms under each classified category to learn about the common features of the group. In the absence of classification, it would become impossible to study each and every organism by itself.
- To understand the origin and evolution of the classified species.

- To know the correlation between various groups of organisms.
- To identify new organisms and classify them easily.

## **Biology Project for Class 11**

### **History of Biological Classification**

Aristotle was the first person to explore the classification of animals. His process of classification was based on mere observation of morphological characteristics among animals. The two major groups were formed based on whether the organism had red-blood cells or did not have any red blood cells. Carolus Linnaeus introduced the Two Kingdom system of classification, namely; Plantae Kingdom and the Animalia Kingdom. This classification made it easy to classify plants and animals. However, there were some organisms that did not fit either of these categories.

R.H. Whittaker proposed the division of organisms into five main kingdoms, namely, Kingdom Monera, Protista, Fungi, Animalia, and Plantae. The criteria for classification was based on *cell structure, mode of nutrition, reproduction, body organisation, and phylogenetic relationships*.

Let us now take a detailed look at the kingdoms mentioned in class 11 biological classification chapter

### **Kingdom Monera**

The bacteria which is found almost everywhere around is the only member of Kingdom Monera:

- Bacteria can survive in extreme weather conditions and can be found in snowy areas, deep oceans, and hot springs. They even have the capacity of surviving on other living organisms such as parasites
- The bacteria have a very simple structure. However, their behaviour is complex
- They are grouped as per their shape; spherical Coccus (cocci), rod-shaped Bacillus (bacilli), comma-shaped Vibrium (vibrio), and spiral Spirillum (spirilla)
- Bacteria are either autotrophic or heterotrophic. Autotrophic bacteria are capable of making their own food from inorganic substances. Heterotrophic bacteria depend on other living organisms or dead matter for food
- The archaebacteria are unique bacteria due to their cell wall structure. Methanogens, a type of archaebacteria live in the gut of ruminating animals

- The eubacteria 'true-bacteria' are single-celled prokaryotic microorganisms capable of producing their own food. Some of them play important roles like; helping milk curdle, recycling nutrients, fixing nitrogen in roots of legumes, etc.

## Courses in Biology After 12th Except MBBS

### **Kingdom Protista**

They are single-celled eukaryotes and are found in aquatic regions.

- A well-defined nucleus and organised membranes form their cell body
- Some types of Protista possess flagella or cilia
- Through cell fusion and formation of the zygote, they reproduce both sexually and asexually

### **Sub-Grouping of Protista:**

As per class 11 biological classification chapter, the Protista Kingdom is further divided into:

#### Chrysophytes

Diatoms and golden algae fall under this group. They can be spotted in freshwater areas and marine environments. They are photosynthetic in nature.

#### Dinoflagellates

They are marine organisms and possess photosynthetic properties. Depending on the cell pigment, they appear yellow, green, brown, blue, or red in colour. Their cell walls are stiff with cellulose plates on the outer surface.

#### Euglenoids

They are usually freshwater organisms and can be spotted in stagnant water. In the presence of sunlight, they make use of their photosynthetic nature. On being deprived of sunlight, they feed on smaller organisms.

#### Slime Moulds

They are saprophytic in nature and feed on decaying twigs, leaves, and organic matter. They survive for a long time even under adverse conditions.

#### Protozoans

All protozoans are predators and feed on parasites. They are classified into four types, namely; Amoeboid protozoans, Flagellated protozoans, Ciliated protozoans, and Sporozoans.

## Kingdom Fungi

As per class 11 biological classification chapter, Fungi can be found in air, water, soil, plants, and animals and some of their major characteristics are:

- They are heterotrophic organisms and absorb nutrients from dead substrates
- Most fungi are multicellular with yeast as an exception
- Their bodies are long and slender, and the thread-like structure is called hyphae. A network of hyphae forms the mycelium
- Sub-grouping of Fungi includes; Phycomycetes, Ascomycetes, Basidiomycetes, and Deuteromycetes

## Kingdom Plantae

All organisms under Plantae contain chlorophyll and prepare food on their own.

- Being Eukaryotes, their cells are covered in a nuclear envelope and are made with cellulose.
- The insectivorous plants (Venus flytrap) and parasites (Cuscuta) are an exception and are partly heterotrophic in nature.
- This Kingdom commonly includes all algae, bryophytes, pteridophytes, gymnosperms, and angiosperms.
- Plants have two life cycle stages termed as, diploid gametophyte stage and haploid sporophyte stage. The duration of diploid and haploid phases varies between different groups of plants. This experience is termed as alternation of generation.

### The Living World Class 11 Notes

## Kingdom Animalia

According to class 11 biological classification, Animalia is heterotrophic in nature and cannot prepare their own food.

- Being eukaryotic, the nucleus is protected by a nuclear envelope.
- They are multicellular but don't have a cell wall

- They depend on plants for food, either directly or indirectly
- Their digestion happens in a cavity inside the body, and they store food in the form of glycogen or fats
- Their growth pattern is defined in which animals grow into adults having defined shape, size, and structure
- Some have elaborated sensory and neuromotor mechanisms

## **Virus, Viroid, Prions, and Lichens**

The five-kingdom mentioned in biological classification chapter for class 11 does not specify the categorisation of some acellular organisms such as Viruses, Viroid, Prions, and Lichens.

### **Viruses**

These are non-cellular organisms containing nucleic acid, which is enclosed by a protein coat. Viruses contain genetic materials, either RNA or DNA (never both). They cause a number of diseases in plants and animals.

### **Viroid**

It is a new infectious organism even smaller than the virus and lacks RNA or a protein coat.

### **Prion**

They are of similar size as the virus and consist of abnormally folded proteins. They cause neurological diseases such as mad cow diseases (cattle) and Cr–Jakob disease.

### **Lichens**

They have a mutual association of algae and fungi. The algae form is phycobiont (autotrophic), and the fungal form is mycobiont (heterotrophic).

## **Class 11 Biological Classification: Important Questions**

As we are done with the explanation of important concepts of class 11 biological classification chapter, here are some important exam questions for this chapter:

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1. How have biological classification systems undergone changes over a period of time?
2. What are the features of heterotrophic bacteria and archaebacteria?
3. Explain how viroids are different from viruses?
4. Describe four important groups of Protozoa.
5. Name some plants that are partially heterotrophic.
6. What is the basis of classifying living organisms into its five-kingdom classification?

Thus, we hope that through this blog about class 11 biological classification, we have helped you get a hold of one of the most essential topics of Biology. Get in touch with our career experts at Leverage Edu and we will guide you the best in getting directed towards your dream career path. Sign up for a free e-meeting now.

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