

CLASSIFICATION OF ORGANISM

- Classifying organisms is called **Taxonomy**
- The modern taxonomic system was developed by the Swedish botanist Carolus (Carl) Linnaeus (1707-1788).

It is in hierarchical order:

1. Kingdom
2. Phylum
3. Class
4. Order
5. Family
6. Genus
7. Species

FIVE KINGDOMS

Five kingdoms of classification was proposed by **RH Whittaker** in 1969.

All organisms are divided into five Kingdoms:

1. Animal Kingdom (Animalia)
2. Plant Kingdom (Plantae)
3. Fungi Kingdom (Fungi)
4. Protist Kingdom (Protista)
5. Moneran Kingdom (Monera)

Animal Kingdom (Animalia or Metazoa)

- Animals are **eukaryotic**, **multicellular** and **heterotrophic** organisms.
- They have multiple cells with Mitochondria and they depend on other organisms for food.

Some important groups are listed below:-

Phylum Porifera - They are primitive organisms, most of them are salt-water sponges. They do not have organs or nerve cells or muscle cells. e.g. Sycon, Euspongia, Spongilla.

Phylum Coelenterata (Cnidaria) - This group is composed of jelly-fish and other lower aquatic animals. e.g. Aurelia, Adamsia.

Phylum Platyhelminthes - This group consists of flatworms. They inhabit both marine and freshwater habitats and they are mostly endoparasites found in animals. e.g. Taenia, Fascicola.

Phylum Aschelminthes - It is a group of roundworms, most of them are parasites.

Phylum Annelida - They are present in aquatic, terrestrial and are free-living or parasitic in nature. This phylum comprises segmented worms. e.g. Earthworm, Leech etc.

Phylum Arthropoda - This is the largest phylum which consists of insects. e.g. Locusts, Butterfly, Scorpion, Prawn.

Phylum Mollusca - It is the second largest phylum. They are terrestrial and aquatic. e.g. Pila, Octopus.

Phylum Echinodermata - This consists of sea stars and sea urchins. e.g. Asteria, Ophiura.

Phylum Chordata - Animals of this phylum have a characteristic feature of presence of notochord. Within this phylum advanced group called vertebrates which include fish, amphibians, reptiles, birds and mammals.

Animal Kingdom	Easy Explanation	Examples
Porifera	Simplest animals that live in water and have porous bodies . They are stationary and filter feeders.	Sponges
Cnidaria (Coelenterata)	Animals with stinging cells , used for defense, for the capture of prey and anchorage. They have simple body structures and can be stationary or free-swimming. Tentacles on the body.	Jellyfish, sea anemones, corals, Hydra, Adamsia
Platyhelminthes	Flatworms with soft, flattened bodies . These organisms are bilaterally symmetrical and are characterized by their flattened, ribbon-like bodies. They are found in marine, freshwater, and damp terrestrial environments. They can be free-living or parasitic .	Planarians, tapeworms
Nematoda	Thread-like roundworms with long, cylindrical bodies . They can be found in various habitats and some are parasites. Aschelminthes are commonly known as roundworms	Roundworms

Annelida	Segmented worms with a distinct body consisting of repeated segments. They can be found in terrestrial or aquatic habitats.	Earthworms, leeches,
Mollusca	Soft-bodied animals with a muscular foot and often a protective shell . They have diverse forms and can be found in marine and terrestrial environments.	Snails, clams, octopuses, squids
Arthropoda	Largest animal phylum with jointed legs, segmented bodies , and exoskeletons. They have diverse forms and inhabit various habitats.	Insects, spiders, crustaceans
Echinodermata	Marine animals with spiny skin and a unique water vascular system. They have radial symmetry and a network of tube feet.	Starfish, sea urchins, sea cucumbers
Chordata	Animals with a notochord (a flexible rod) at some stage in their life. They possess a dorsal nerve cord and may have a backbone.	Fish, amphibians, reptiles, birds, mammals

Plant Kingdom (Plantae)

The Kingdom Plantae can be defined as **multicellular, autotrophic, eukaryotes**, which conduct photosynthesis.

Some important groups are listed below:

Phylum Bryophyta - These are non-vascular land plants, which do not contain any conducting tissues. e.g. Mosses, Liverworts, Hornworts, etc.

Phylum Pteridophyta - These are seedless vascular plants, which contain vascular tissues but do not produce seeds. e.g. horsetails, ferns and club mosses.

Phylum Angiosperms - These are flowering plants, which develop the seeds within a protective structure. e.g. trees, shrubs, vines and flowers.

Phylum Gymnosperms - These are nonflowering plants with undeveloped seeds, which are present in an enclosed structure. e.g. palms, carpet lawns, etc.

Fungi Kingdom (Fungi)

- Fungi are eukaryotic organisms.
- They are non-vascular organisms.
- They reproduce by means of spores.
- They are typically non-motile.
- The vegetative body of the fungi may be unicellular or composed of microscopic threads called hyphae.
- The fungi cell walls are composed of chitin.

Protist Kingdom (Protista)

- They are single-celled, eukaryotes and mainly aquatic.
- It includes diatoms, golden algae, euglena and protozoa like amoeba, paramecium Plasmodium, etc.
- In this kingdom, cell walls form two thin overlapping shells.
- Walls are embedded with silica.

- Mostly marine & photosynthetic.

Some important groups are listed below:-

Protozoans – Animals like single-celled organisms. e.g. amoeba, foraminifera, paramecium, plasmodium

Algae – Plant like single or multi-celled organisms. e.g. green algae, red algae, brown algae, golden algae, fire algae

Monera Kingdom (Monera)

- The kingdom consists of very small and one-celled organisms.
- They are prokaryotes, which includes species such as bacteria, archaebacteria, cyanobacteria and Mycoplasma.
- They are present almost everywhere around us.
- They are unicellular organisms with no specific mode of nutrition.
- They are both aerobic and anaerobic.
- Reproduction is through binary fission.

Archaebacteria – these are microbes that live in extreme and harsh conditions, they are known as extremophiles.

These are three major groups of bacteria based on their habitat i.e., thermophiles, halophiles and methanogens.

Eubacteria – These are true bacteria. The characteristic feature is the presence of rigid cell walls and if present a motile flagella that aids in locomotion.