

Taxonomy

In biology, classification is the process of arranging organisms, both living and extinct, into groups based on similar characteristics. The science of naming and classifying organisms is called taxonomy.

THE BENEFITS OF ANIMAL CLASSIFICATION ARE AS FOLLOWS :

1. Studying the different animals becomes easy when they are placed under different groups.
2. When few representative animals of the particular group are being studied then the idea about other animals belonging to that group also becomes clear.
3. Animal evolution becomes easier to follow after studying classification.
4. The identification of animals can be done accurately.
5. Relationship of the different animals with each other and with other groups can be understood clearly.
6. Habitat of each animal and its role in nature is understood by classification.
7. Various adaptations are understood by learning classification

animal kingdom classification was developed by Swedish botanist Carolus (Carl) Linnaeus in the 1700's. The Linnaeus Method, also known as Linnaean Taxonomy, as well as binomial nomenclature that gives each animal species a two-word scientific name. This method of giving scientific names to animals is typically rooted in Latin by combining the genus and species. For example, humans are classified as *homo sapiens* while wolves are *canis lupus*.

Binomial Nomenclature

Common Name

Tiger



Scientific Name

Panthera tigris



Genus

Species

LEVELS OF CLASSIFICATION

The classification system commonly used today is based on the **Linnean system** and has seven levels of taxa, from the most general to the most specific, these are kingdom, phylum, class, order, family, genus, and species. Animals have been categorized into two primary categories in the animal kingdom based on the presence or absence of a backbone or spinal column.

Following are overviews of each taxonomic level in modern biological classification:-

KINGDOM

the kingdom ranked as the highest taxonomic level in classification. Most scientists today recognize six kingdoms: Archaea, Bacteria, Protista, Fungi, Plantae (plants), and Animalia (animals).

PHYLUM

The phylum ranks below the kingdom and above the class in taxonomy. Scientists generally use the term *phylum* for archaea, bacteria, protists, fungi, and animals, but they substitute the term *division* for plants.

CLASS

The class ranks below the phylum and above the order in taxonomy. Members of a class share more characteristics with each other than they do with other organisms in the same phylum. [Amphibians](#) and [reptiles](#) both belong to the Phylum Chordata, but each belongs to a different class.

ORDER

The order ranks below the class and above the family in the taxonomic hierarchy. The groups in an order have more in common with each other than they do with other members of the same class.

FAMILY

In taxonomy, the family ranks below the order and above the genus. Members of the same taxonomic family are more closely related to each other than they are to other members of the same order.

GENUS

The genus is the taxonomic rank between family and species. The groups of organisms in a genus share many structural similarities and are very closely related. Members of a genus are more closely related to each other than they are to other genera in the same family.

SPECIES

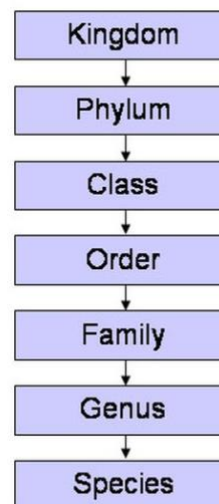
The species is the most fundamental unit in taxonomy and ranks at the base of the biological classification hierarchy. Members of the same species share the same evolutionary history and are more closely related to each other than they are to any other organisms, including other members of the same genus.

Zoological Classification of Sheep and Goats

- Kingdom: Animal
- Phylum: Chordata
- Class: Mammalia
- Order : Artiodactyla
- Family: Bovidae
- Genus and species
 - Ovis Aries
 - Capra Hircus



Linnaeus's System of Classification

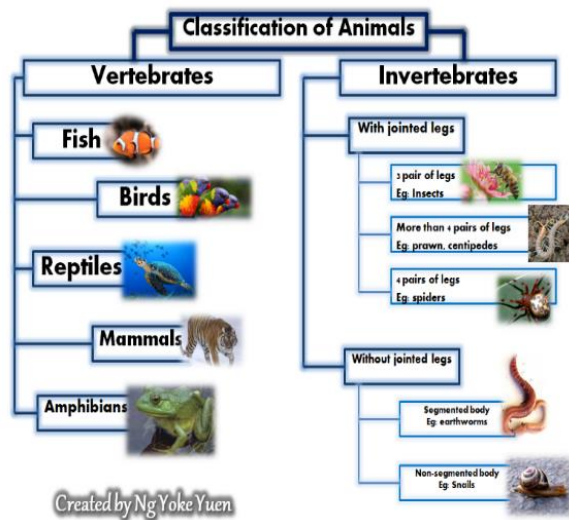


Animal kingdom

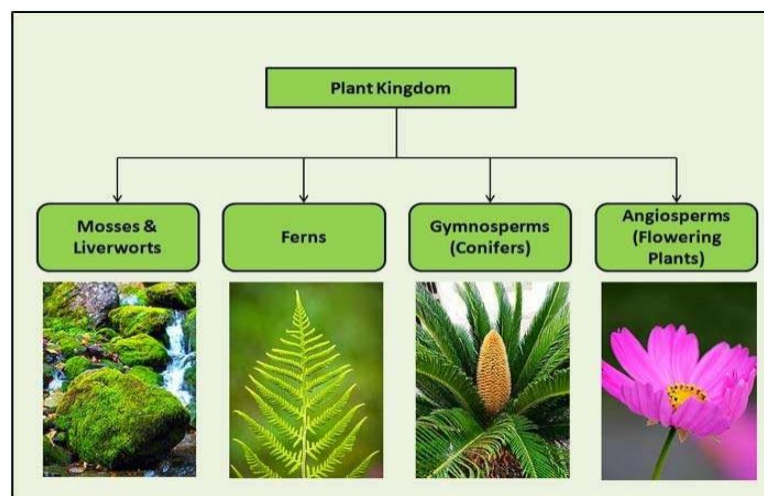
All living organisms can be placed in one of six different animal kingdom classifications. The characteristics of each animal kingdom are:

1. **Animal** – A kingdom of complex multi-celled organisms that do not produce their own food. This kingdom contains all living and extinct animals.

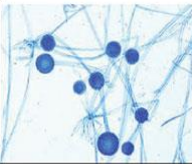
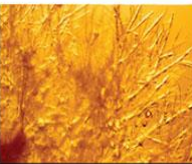

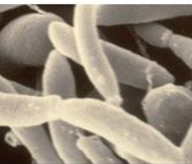
Examples include elephants, whales, and humans. Amongst the all kingdoms, the largest kingdom is the animal kingdom. However, like plants, they do not possess chlorophyll or a cell wall. Therefore, members of the animal kingdom exhibit a heterotrophic mode of nutrition. If we take a closer look at kingdom Animalia, we can see that biologists have classified this kingdom into two different groups: **Vertebrates** and **Invertebrates**



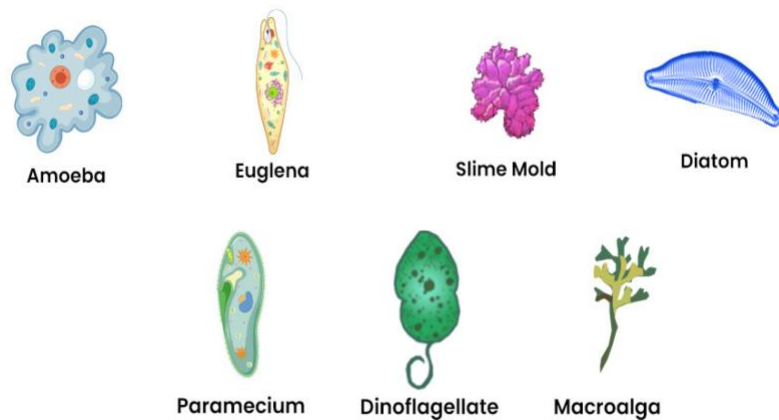
2. **Plants** – Complex and multi cellular autotrophic organisms, meaning they produce their own food through photosynthesis. Examples include trees, flowers, and grass.



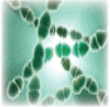


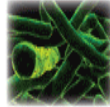
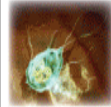

3. **Fungi** – Multi-celled organisms that do not produce their own food, unlike plants. Examples include molds, mushrooms, and yeast.

Phycomycetes (Lower Fungi)	Ascomycetes (Sac Fungi)	Basidiomycetes (Club Fungi)	Deuteromycetes (Fungi imperfecti)
<ul style="list-style-type: none"> • Saprolegnia • Rhizopus • Mucor • Albugo • Pythium 	<ul style="list-style-type: none"> • Yeast • Aspergillus • Pencillium • Neurospora • Peziza 	<ul style="list-style-type: none"> • Agaricus • Polyporus • Puccinia • Ustilago • Lycoperdon 	<ul style="list-style-type: none"> • Cercospora • Collectotrichum • Trichoderma • Pyricularia • Fusarium
			
Rhizopus	Neurospora	Agaricus	Fusarium

4. **Protista** – Single celled organisms with more complexity than either eubacteria or archaebacteria. Examples include algae and amoebas



5. **Eubacteria** – Single celled organisms found in everything from yogurt to your intestines. This kingdom contains all bacteria in the world not considered archaeobacteria.


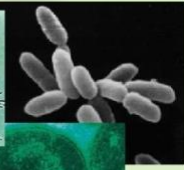
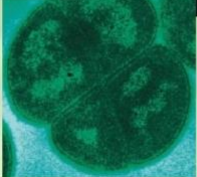
KINGDOM EUBACTERIA						
P h y l u m						
	CHLOROFLEXI Greek khloros, pale green, Latin flexilis, to bend	PROTEOBACTERIA Greek proteos, first bacterion, like stick	SPIROCHAETA Latin spirax, rot; Greek khaira, long hair	CYANOBACTERIA Greek kyanos, dark blue	ENDOSPORA Greek endos, within; spora, seed	ACTINOBACTERIA Greek aktis, ray; bacterion, like stick
	Although not much is known about this phylum, Chloroflexi are a group of bacteria that are capable of producing food through photosynthesis. They get their name because of their pale green color and their ability to be very flexible as they move around in a gliding motion. Although they live through photosynthesis, they do not produce oxygen and the entire process is different than what plants do. Careful analysis has shown that they had a very unique origin.	Proteobacteria are large, slimy-producing, gliding bacteria. Most take oxygen and after breathing it produce water. They can be one-celled organisms or they can be very complex with stalks and tails. Some proteobacteria live in the intestines of humans and animals and are known to cause diseases. Different proteobacteria have different sources of energy. Some use nitrogen, carbon, or sulfur as a source of food.	Spirochetes look like coiled snakes and can move very easily. They can live in salt and fresh waters, muddy sediments at the bottom of lakes and oceans, and the intestines of animals. Because of their corkscrew shape they can move through thick liquids very easily. Some spirochetes are known for their ability to live in the intestines of wood-eating insects, where they help them digest the wood they eat. This phylum is very difficult to study in the lab because we know so little about their needs.	For a very long time these bacteria were thought to be plants because of their green color and their ability to photosynthesize their food. Although they look very similar to algae and plants, they are still considered bacteria. They are extremely important to us and even more so they are responsible for the majority of the food that other organisms feed on. They have the ability to change solar energy and carbon dioxide into organic matter that other organisms can use. Most of these bacteria can produce oxygen.	Most organisms that belong to this phylum are able to move freely with the use of flagella in long strands that move back and forth allowing the organisms to move through liquids. Many of the endospores are useful to humans because of their ability to produce antibiotics. Most can produce acids, and all can metabolize sugar. Some live in environments that contain oxygen while others live without having to breathe oxygen. Those that do not need oxygen are known for their ability to ferment.	The actinobacteria can be single-celled, or multicellular. Those that are multicellular, for a long time were often confused with fungi because of their appearance. Some of these bacteria are well known because of their ability to produce streptomycin and other antibiotics. Most of the actinobacteria tend to be symbiotic, living together with other plants helping them fix nitrogen.

6. **Archaeobacteria** – The oldest known living organisms. Single-celled and found in hostile and extremely hot areas like thermal vents or hot springs

Kingdom Archaeobacteria

The archaeobacteria kingdom consists of organisms that are:

- unicellular
- prokaryotic
- autotrophic or heterotrophic
- able to reproduce asexually

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