

Ministry of Higher Education and Scientific
Research

Al -Mustaqbal University

Collage of medical and health techniques

Department of medical laboratories techniques



6TH LECTURE

Kingdom of Animalia , classification

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Kingdom of Animalia

Features of the Animal Kingdom

Even though members of the animal kingdom are incredibly diverse, animals share common features that distinguish them from organisms in other kingdoms.

- All animals are eukaryotic, multicellular organisms, and almost all animals have specialized tissues.
- Most animals are motile, at least during certain life stages.
- Animals require a source of food to grow and develop. All animals are heterotrophic, ingesting living or dead organic matter. This form of obtaining energy distinguishes them from autotrophic organisms, such as most plants, which make their own nutrients through photosynthesis and from fungi that digest their food externally.
- Animals may be carnivores, herbivores, omnivores, or parasites.
- Most animals reproduce sexually: The offspring pass through a series of developmental stages that establish a determined body plan, unlike plants, for example, in which the exact shape of the body is indeterminate. The body plan refers to the shape of an animal.

Kingdom Animalia Classification

animal kingdom classification chart helps see clearly the different categories.

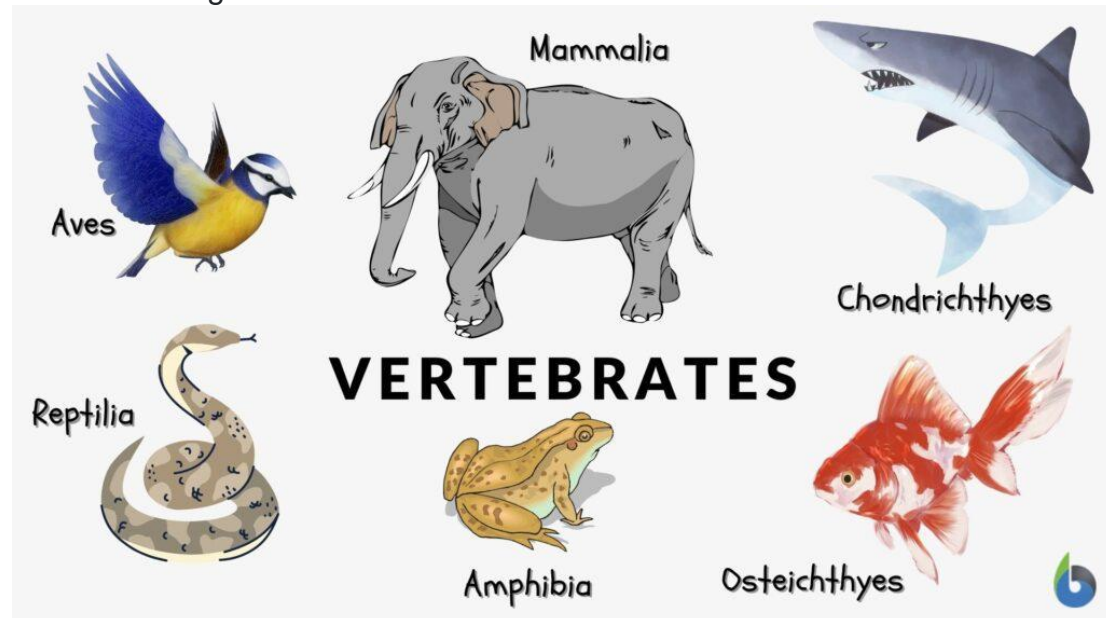
In general, animals are separated into two groups:

- **Vertebrates** (animals with a backbone)
- **Invertebrates** (animals without a backbone) (animals that lack a backbone)

They are, however, separated into various phyla, which will be examined in further depth below.

A. Vertebrates

Vertebrates are all creatures that belong to the Vertebrata subphylum. They are members of the Chordata phylum and have a backbone (where the spinal cord is located). In addition, they have an internal skeletal system (endoskeleton) to which muscles are joined. Examples of vertebrates are seen in Figure 1 below.



1. Mammalia

which produce milk for nourishing (nursing) their young in females, a neocortex (a portion of the brain), fur or hair, there are around 6,400 living mammalian species. Rodents, bats, The Primates which consist of humans, apes, monkeys, and others, the *Artiodactyla* which include cetacean the next three groups consisting of cats, dogs, others

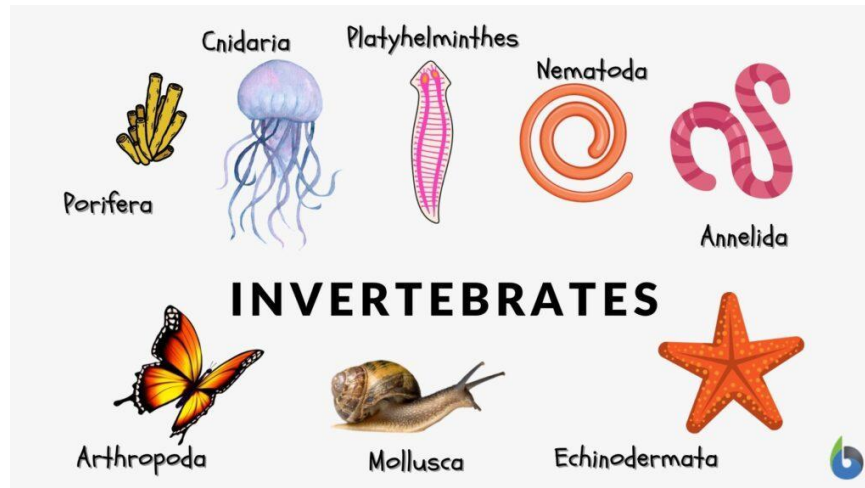
2. Reptilia

Reptiles are the creatures in the class Reptilia, (birds). Turtles, crocodilians, (lizards and snakes), are examples of living reptiles (tuatara). Classified separately from other reptiles.

B. Invertebrates

In contrast to cartilaginous or bony vertebrates, invertebrates are any animals that lack a vertebral column or backbone. Invertebrates account for more than 90% of all extant animal species. They are found all over the world and include species such as sea stars, sea urchins, earthworms, sponges, jellyfish, lobsters, crabs, insects, spiders, snails, clams, and squid. Invertebrates are particularly significant as agricultural pests, parasites, or agents for parasitic infection transfer to humans and other vertebrates.

Invertebrates provide food for humans, are essential components of food chains that feed birds, fish, and a variety of other vertebrate species, and play critical roles in plant pollination. Despite providing crucial environmental services, invertebrates are frequently overlooked in wildlife study and conservation, with large vertebrate studies taking precedence.



Levels of Organization

It is interesting to note that despite all animal kingdom species being multicellular, not all of their cellular arrangements abide by this rule. Animal levels of the organization are categorized into the following categories based on cellular organization patterns:

- **The Cellular Level of Organization:** Cells in animals with this kind of cell organization are grouped in loose cell aggregates.
- **Tissue Level Organization:** Animal cells exhibit divisions in cell activity. Cells that complete the same job are tissues.
- **Organ Level of Organization:** Tissues of a certain animal group that perform the same function are grouped together to create an organ. Each organ has a distinct purpose. Platyhelminthes is an example.
- **Organ System Level of Organization:** Organ system level of organization has been found in animals where organs have been coupled to create functional systems, each system concerned with a certain physiological function.



[Guide to animal diseases and disorders](#)

So which are the most dangerous zoonotic diseases and pathogens? In ascending order of deadliness, they are:

❖ **Leptospirosis**

The mortality rate for individuals with leptospirosis—caused by *Leptospira interrogans*—is 5.72%.³ In the majority of mammals, its clinical signs are liver or kidney failure. Although most often diagnosed in dogs, leptospirosis can affect cats as well.⁴ In horses, it typically manifests as ocular disease and in ruminants as a reproductive condition.

❖ **Tick-borne diseases**

Several tick-borne diseases combine for a human mortality rate of 7% to 30%, including Lyme disease all these zoonoses require a tick bite for transmission. They can be transmitted via tick bite or direct contact with the blood of an infected mammal.

❖ **Parasitic pathogens**

Toxoplasma gondii. These bad bugs have a mortality rate of up to 40% in humans. *T. gondii* was known as the parasite “that pregnant women get from cats.” Today, toxoplasmosis is a leading cause of foodborne-related death in the United States, but is nevertheless considered a “neglected parasitic disease

The parasite’s life cycle is a bit complicated. Initially, large numbers of unsporulated oocysts are shed in the cat’s feces, usually for 1 to 3 weeks. Humans can become infected by eating under-cooked meat, coming into contact with cat feces (changing the litter box), consuming contaminated food or water, handling contaminated soil

❖ Avian influenza A virus

Highly pathogenic A (H5N1) avian influenza has a mortality rate of 53% to 56% in humans.²⁰ Dabbling ducks are the origin of all influenzas and thus all influenzas are zoonotic.²¹ Since the early 2000s when canine flu emerged, veterinarians have joined the frontlines of influenza detection.

Conclusion

With such deadly zoonoses potentially sneaking into clinics, how can veterinarians and their staff stay healthy and avoid taking home unwanted bugs? These practical (and potentially obvious) tips have to do with the fact that most transmissions involve putting something disgusting in your mouth. So, to stay safe at work: