



Kingdoms

Less Specific
(More Inclusive)

Eukarya

Animalia

Cnidaria

Hydrozoa

Anthoathecata

Hydridae



Classification

with the Amoeba Sisters

Before the Kingdom Classification

- The widest least specific classification in taxonomy is the domains.
- In biological taxonomy, a domain, also known as superkingdom, is the highest taxonomic rank of organisms in the three-domain system of taxonomy devised by Carl Woese et al. in 1990.
- Carl Richard Woese (July 15, 1928 – Dec 30, 2012) was an American microbiologist and biophysicist. Woese is famous for defining the Archaea (a new domain of life) in 1977.





Before the Kingdom Classification

- According to this system, the tree of life consists of three domains: Archaea, Bacteria, and Eukarya.
- The first two are all prokaryotic microorganisms, or mostly single-celled organisms whose cells have no nucleus.
- All life that has a cell nucleus and eukaryotic membrane-bound organelles is included in Eukarya.
- Non-cellular life is not included in this system.

Prokaryote vs Eukaryote Cells

Biology

PROKARYOTIC

EUKARYOTIC





Non-Cellular Life

- The three-domain system does not include any form of non-cellular life.
- The primary candidates for non-cellular life are viruses. Some biologists consider viruses to be living organisms, but others do not.
- Their primary objection is that no known viruses are capable of autonomous reproduction: they must rely on cells to copy them.
- Stefan Luketa proposed (not accepted yet) a five-domain system in 2012, adding Prionobiota (acellular and without nucleic acid) and Virusobiota (acellular but with nucleic acid) to the traditional three domains.

Current Taxa...

The background of the slide features a light blue gradient. On the left, there is a large, semi-transparent purple sphere with a smaller, darker purple sphere inside it. In the center, two brown, textured cylindrical structures are positioned diagonally. On the right, a white DNA double helix structure is visible, curving upwards and to the right.

The eight levels of taxa today are

- domain
- kingdom,
- phylum,
- class,
- order,
- family,
- genus, and
- species.

Current Taxa

- The example to the right shows the organization of a plant and animal:

Taxa	Human	Red Clover
Kingdom	Animalia	Plantae
Phylum	Chordata	Magnoliophyt a
Class	Mammalia	Magnoliopsida
Order	Primates	Fabales
Family	Hominidae	Fabaceae
Genus	Homo	Trifolium
Species	sapiens	pratense




Kingdoms

All Six of them and how to distinguish between them!

Kingdom	Characteristics	Examples
Archaeobacteria	<ul style="list-style-type: none">• Simple organisms• No nucleus• Live everywhere• Do not cause disease• Do not contain the polymer peptidoglycan	thermophiles
Eubacteria	<ul style="list-style-type: none">• Simple organisms• No nucleus• Can reproduce asexually• Found everywhere• Can cause disease• Contain the polymer peptidoglycan	bacteria

Kingdom	Characteristics	Examples
Protista	<ul style="list-style-type: none">• Most are single celled• Some have a nucleus• Can be autotrophs, heterotrophs, or both• Reproduce sexually and asexually• Live in aquatic or wet habitats	algae and protozoa
Fungi	<ul style="list-style-type: none">• Most are multicellular• All are heterotrophs• Reproduce sexually and asexually• Most live in terrestrial habitats	mushrooms



Kingdom	Characteristics	Examples
Plantae	<ul style="list-style-type: none">• All are multicellular• Most are autotrophs• Reproduce sexually and asexually• Most live in terrestrial habitats	plants
Animalia	<ul style="list-style-type: none">• All are multicellular• All are heterotrophs• Most reproduce sexually• Live in terrestrial or aquatic habitats	animals