

ESSENTIAL UPDATES

The Six Kingdoms

When Linnaeus developed his system of classification, there were only two kingdoms, plants and animals. But with the invention of the microscope, new organisms were discovered, as well as amazing differences between cells. Now, organisms are placed into their kingdoms depending on:

- Their cell type, whether it is complex or simple
- Their ability to make food
- The number of cells in their body

Because of these discoveries, the two-kingdom system was no longer useful. Today the system of classification begins with 3 domains, which are divided into 6 kingdoms.

- Domain Bacteria contains:
Kingdom Eubacteria
- Domain Archaea contains:
Kingdom Archaeobacteria
Until recently, Kingdoms Eubacteria and Archaeobacteria were considered the single Kingdom Monera.
- Domain Eukarya contains:
Kingdom Protista
Kingdom Fungi
Kingdom Plantae
Kingdom Animalia

Each kingdom is further divided into the familiar Phylum, Class, Order, Family, Genus, and *specie*.

Plants

You are probably quite familiar with the members of this kingdom as it contains all the plants that you have come to know - flowering plants, mosses, and ferns. Plants are all multicellular and consist of complex cells. They are also **autotrophs**, organisms that make their own food.

With over 250,000 species, the plant kingdom is the second largest kingdom. Plant species range from tiny green mosses to giant trees. Without plants, life on Earth would not exist! Plants feed almost all the **heterotrophs**, organisms that eat other organisms on Earth. Wow!

Animals

The animal kingdom is the largest kingdom, with over 1 million known species. All animals consist of many complex cells. They are also heterotrophs. Members of the animal kingdom are found in the most diverse environments in the world.

Archaeobacteria

In 1983, scientists took samples from a spot deep in the Pacific Ocean, where hot gases and molten rock boiled into the ocean from the Earth's interior. To their surprise they discovered **unicellular** (*one cell*) organisms in the samples. Archaeobacteria are found in extreme environments such as hot boiling water and thermal vents, under conditions with no oxygen or highly acid environments.

Eubacteria

Like Archaeobacteria, Eubacteria are one-celled. They are classified in their own kingdom because their chemical makeup is different. Most of them are helpful, like the ones that produce vitamins and foods like yogurt. But some can give you strep throat!

Fungi

Mushrooms, mold and mildew are all examples of organisms in the kingdom Fungi. Most of them are **multicellular**, consisting of many complex cells. Some fungi taste great and others can kill you! Fungi are organisms that biologists once confused with plants. However, unlike plants, fungi cannot make their own food. Most of them obtain their food from parts of plants that are decaying in the soil.

Protists

Slime molds and algae are Protists. Sometimes they are called the odds and ends kingdom, because its members are so different from one another. Protists include all microscopic organisms that are **not** bacteria, **not** animals, **not** plants and **not** fungi. Most of them are **unicellular**. Because Protists are complex cells, unlike bacteria, they are not classified in the Archaeobacteria or Eubacteria kingdoms.