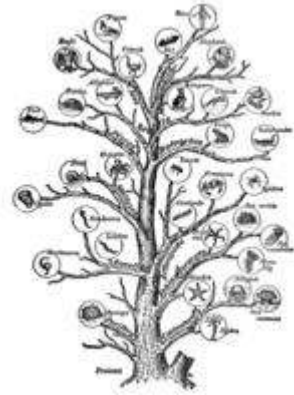


Six Kingdoms

By Cindy Grigg

¹ The first scientist to try to classify organisms was the Greek scholar Aristotle. He classified living things as either plants or animals. Then he divided each of these large groups into smaller groups called subgroups. For example, plants were divided into trees, shrubs, or herbs. Animals were classified by how they moved. Animals that could fly were put into one subgroup. Animals that could swim were in another subgroup. Animals that walked, crawled, or ran were lumped into another subgroup.



² Nearly two thousand years later, the Swedish biologist Carolus Linnaeus created a different classification system. His idea was to group animals and plants based on similarities in their structures. For example, Linnaeus placed animals into groups based on whether or not they had a backbone. Like Aristotle, Linnaeus divided living things into two large groups - plants or animals. He called these groups "kingdoms." But today's scientists have tools and technology available to them that have allowed them to study organisms more closely. Scientists now realize that some organisms don't quite fit into the plant or animal group. As a result, several other kingdoms of organisms are now used. Today's scientists look at cell structure, how the organism moves, gets food, and reproduces.

³ This is an explanation of the six kingdom classification system. First is the **animal** kingdom. Members of the animal kingdom are made up of many cells. Their cells have a nucleus that is contained inside a membrane. All animals get their food by eating other organisms. Animals are divided into two large subgroups: invertebrates (those without backbones) and vertebrates (those with backbones). Examples of vertebrates are fish, frogs, lizards, eagles, dogs, and people. Invertebrate animals include sponges, jelly fish, coral, insects, worms, and sea stars.

⁴ The **plant** kingdom's members are made of many cells that have an outer cell wall. They also have a membrane-bound nucleus. All plants make their own food by photosynthesis. Some groups of plants are ferns, mosses, conifers, and flowering plants. Mosses and ferns reproduce by spores. Conifers make seeds in cones. Flowering plants make seeds in their flowers. Some examples of plants are maple trees, pine trees, ferns, dandelions, moss, roses, and potatoes.

⁵ The **fungi** kingdom contains single-celled or many-celled organisms that

reproduce by spores. Fungi have cells that are surrounded by cell walls, like plants. In fungi, however, the cell walls are made of a different material. Fungi's cell walls are made of chitin, while plants' cell walls are made of cellulose. Fungi are different in another way from plants. Plants make their own food by photosynthesis by using chlorophyll. Fungi have no chlorophyll and so they cannot photosynthesize. Fungi must get their food by feeding on living or dead organisms. Many fungi are decomposers in the food chain. Examples of one-celled (unicellular) fungi are yeasts and some molds. Other fungi are mushrooms and puffballs.

⁶ The **protist** kingdom is made up of one-celled (unicellular) organisms and simple many-celled (multicellular) organisms. The nucleus of a protist's cell is enclosed in a nuclear membrane. Some protists, such as the one-celled amoeba and paramecium, feed on other organisms. Others, such as the one-celled euglena or the many-celled algae, make their food by photosynthesis. Other examples of the protist kingdom are diatoms and slime molds.

⁷ The **archaebacteria** kingdom includes single-celled organisms. The name means "ancient bacteria." Scientists think that these were like the first life forms on Earth billions of years ago. Their genetic material is not contained inside a nucleus. These cells are called prokaryotes. They lack other structures found in the cells of eukaryotes. Even though bacterial cells are lacking a nucleus and other structures, they still are able to perform all the tasks necessary for life. They use energy, grow and develop, respond to their environment, and reproduce. Some of the archaebacteria have been found in extremely hot water in geysers. They have been placed into a separate kingdom because their chemical makeup is different from the eubacteria. The way their genetic material reproduces is different as well.

⁸ The sixth kingdom is the **eubacteria**. These, along with the archaebacteria kingdom, once made up the kingdom monera in the five-kingdom system of classification. Like the archaebacteria, eubacteria are one-celled and lack a nuclear membrane. Some are able to make their own food, and some must find food, also like the archaebacteria. Chemically they are similar to the other kingdoms, unlike the archaebacteria.