

Chapter 6-5: The Classification Scheme

Scientists are aware of the existence of millions of different kinds of organisms. Because of this huge number, scientists need an elaborate classification scheme to organize them. The sciences of classifying and naming organisms is known as taxonomy. Linnaeus, who was perhaps the first taxonomist, was a Swedish biologist who lived in the mid-1700s. Over a period of many years, he developed the scheme of classification that is still used today. Binomial names are assigned to species; the names consist of the genus (one specific category of living things) to which the organism belongs (e.g., *Homo*) and an adjective describing the organism, which is called a specific epithet (e.g., *sapiens*). Thus, our binomial name is *Homo sapiens*. We will study the classification system in this plate.

This plate shows the categories used to classify organisms. The categories are arranged in a hierarchy from the broadest group, the kingdom, to the most specific group, the species.

Beginning in the 1920s, biologists recognized that all living things fall into five broad categories called kingdoms (A). These kingdoms are discussed in succeeding plates. They include the **Monera** (A₁), **Protista** (A₂), **Fungi** (A₃), **Plantae** (A₄), and **Animalia** (A₅). Human beings fall into the Kingdom **Animalia**, and we will begin our study with animals.

We will begin our study of classification by looking at human beings, which are categorized in the Kingdom **Animalia**. Note that this kingdom extends outward in the plate.

The Kingdom **Animalia** is subdivided into a number of categories called phyla. Within these phyla are animals that lack backbones, including sponges, hydras, flatworms, segmented worms, arthropods, and starfish. Humans are classified in the phylum **Chordata** (B), and this phylum projects outward in the plate. Some of the animals in the phylum chordata are vertebrates, and all of the members of this phylum have a dorsal nerve chord, a notochord, and a backbone. The other phyla (B₁) lack these properties.

The phylum chordata contains mammals (mammalia), birds (aves), reptiles (reptilia), amphibians (amphibia), and some classes of fishes (agnatha, placodermi, chondrichthyes, and osteichthyes). Humans belong to the class **Mammalia** (C), and this class extends outward. Mammals nurse their young with mammary glands and generally have hair on their body. The other classes (C₁) should be also colored.

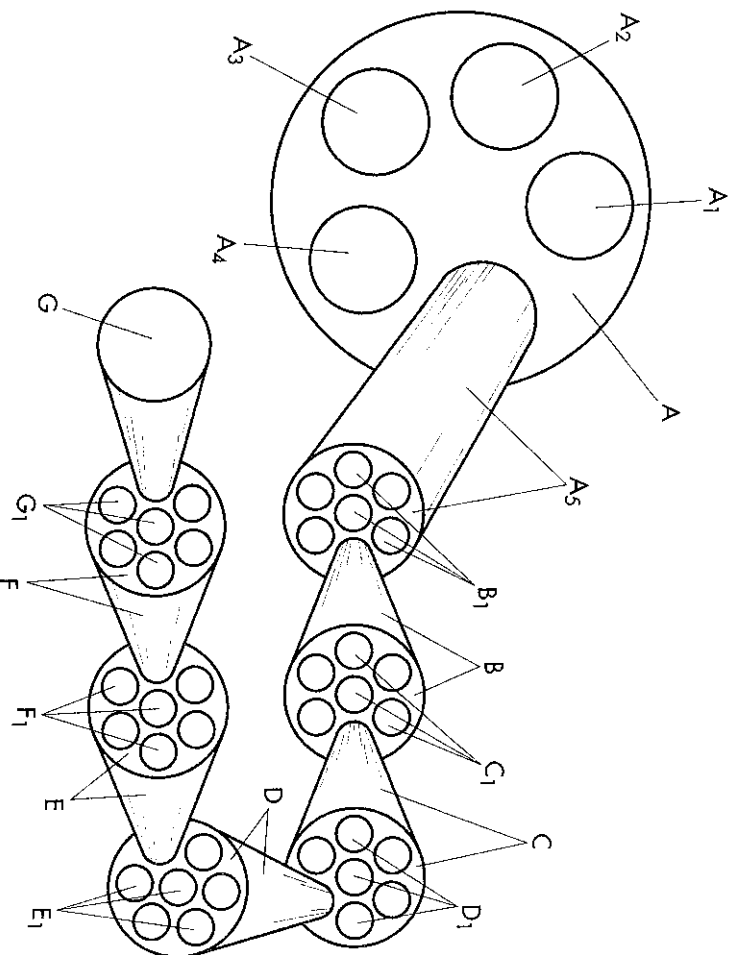
Within the class mammalia are several orders. For example, the order we belong to is the **order of primates** (D), which includes monkeys, apes, and humans. They have large brains, short snouts, and well-developed binocular vision, together with complex social behavior. The other orders (D₁) do not share these characteristics.

We have now progressed from the animal kingdom to the primate order. Each group is successively more specific than the previous one. We now come to the human species. Continue your reading below and color the plate as you proceed.

Within the primate order, there are several families. One of these is the family **Hominidae** (E). This family contains the members of the human family. These animals have (and had) larger brains than monkeys and other families (E₁) of the order primates.

The family Hominidae contains at least two genera of human beings and their ancestors. One is the genus **Homo** (F). This is the group to which modern species belong. The other genus is **Australopithecus**, an early hominid that shares many characteristics with modern humans. The plate on human evolution discusses this genus in more detail. Other genera (F₁) may exist in addition to **Australopithecus**, but they have not yet been identified.

Within the genus **Homo** is the species **Homo sapiens** (G). This is the modern human being. **Homo habilis** and **Homo erectus** are other species (G₁) in this genus. The plate on human evolution discusses these species in more depth. Now we have completed the classification of the human from the broadest category, the kingdom, to the most detailed category, the species.



6.5 The Classification Scheme

- What is the science of naming & classifying organisms?
- What Swedish biologist was probably the first taxonomist, & when did he live?
- What are the two parts of the binomial name?
- What were the five broad categories, or kingdoms, developed in the 1950's?
- Into what are kingdoms divided?
- Into what are phyla divided?
- Into what are classes divided?
- Into what are orders divided?
- Into what are families divided?
- To what phylum, class, order & family do humans belong?

- ☐ KingdomsA
- ☐ MoneraA₁
- ☐ ProtistaA₂
- ☐ Fungi.....A₃
- ☐ Plantae.....A₄
- ☐ AnimaliaA₅

The Classification Scheme

- ☐ Phylum ChordataB
- ☐ Other Phyla.....B₁
- ☐ Class MammaliaC
- ☐ Other Classes.....C₁
- ☐ Order Primata.....D
- ☐ Other OrdersD₁
- ☐ Family HomnidaE
- ☐ Other FamiliesE₁
- ☐ Genus HomoF
- ☐ Other GeneraF₁
- ☐ Species *Homo Sapiens* ..G
- ☐ Other Species.....G₁