Page 450

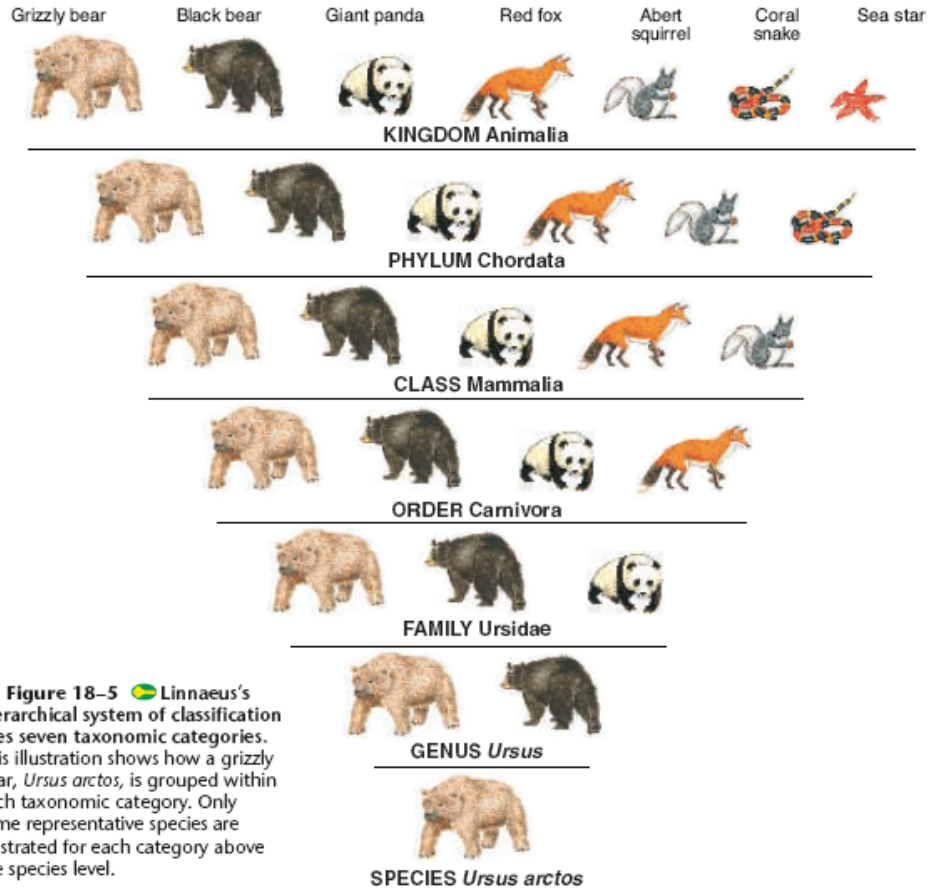
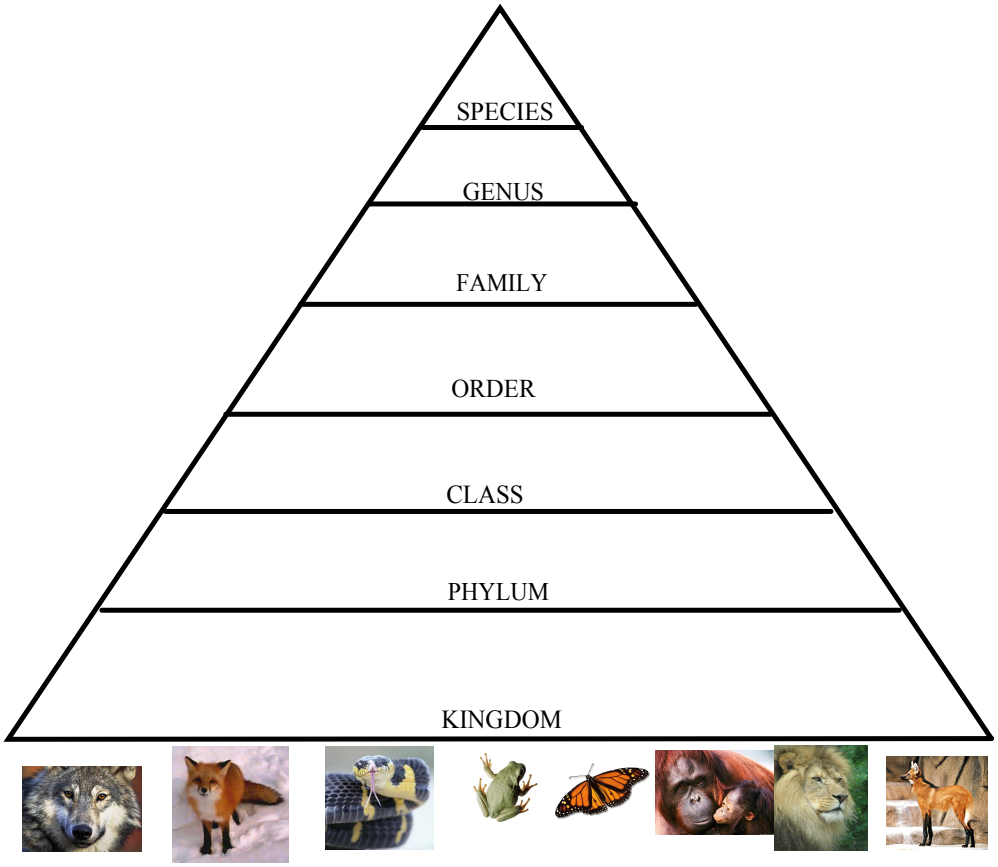


Figure 18–5 Linnaeus's hierarchical system of classification uses seven taxonomic categories. This illustration shows how a grizzly bear, *Ursus arctos*, is grouped within each taxonomic category. Only some representative species are illustrated for each category above the species level.

The kingdom is the largest and most inclusive of Linnaeus's taxonomic categories.

The species is used as the base identification level.


SPECIES
GENUS
FAMILY
ORDER
CLASS
PHYLUM
KINGDOM

	Dandelion	**Human**	**Housefly**
Kingdom	Plantae	Animalia	Animalia
Phylum	Tracheophyta	Chordata	Anthropoda
Class	Angiospermae	Mammalia	Insecta
Order	Asterates	Primates	Diptera
Family	Compositae	Hominidae	Musidae
Genus	*Taraxacum*	*Homo*	*Musca*
Species	*officinate*	*sapiens*	*domestica*

Changing Number of Kingdoms

First Introduced	Names of Kingdoms					
1700s	Plantae					Animalia
Late 1800s	Protista			Plantae		Animalia
1950s	Monera		Protista	Fungi	Plantae	Animalia
1990s	Eubacteria	Archaebacteria	Protista	Fungi	Plantae	Animalia

Page 458 - Fig 18-11

The Three-Domain System
(Page 458)

A new taxonomic category or level is now recognized by many scientists. The domain is a more inclusive category than any other.

The three domains are the domain **Eukarya**, which is composed of protists, fungi, plants and animals; the domain **Bacteria**, which corresponds to the kingdom Eubacteria; and the domain **Archaea**, which corresponds to the kingdom Archaebacteria.

Domain Bacteria

The members of the domain **Bacteria** are unicellular and prokaryotic. Their cells have thick, rigid cell walls that surround a cell membrane. The cell walls contain a substance known as peptidoglycan. The domain Bacteria corresponds to the kingdom **Eubacteria.** These bacteria are ecologically diverse, ranging from free-living soil organisms to deadly parasites. Some photosynthesize, while others do not. Some need oxygen to survive, while others are killed by oxygen.

Domain Archaea

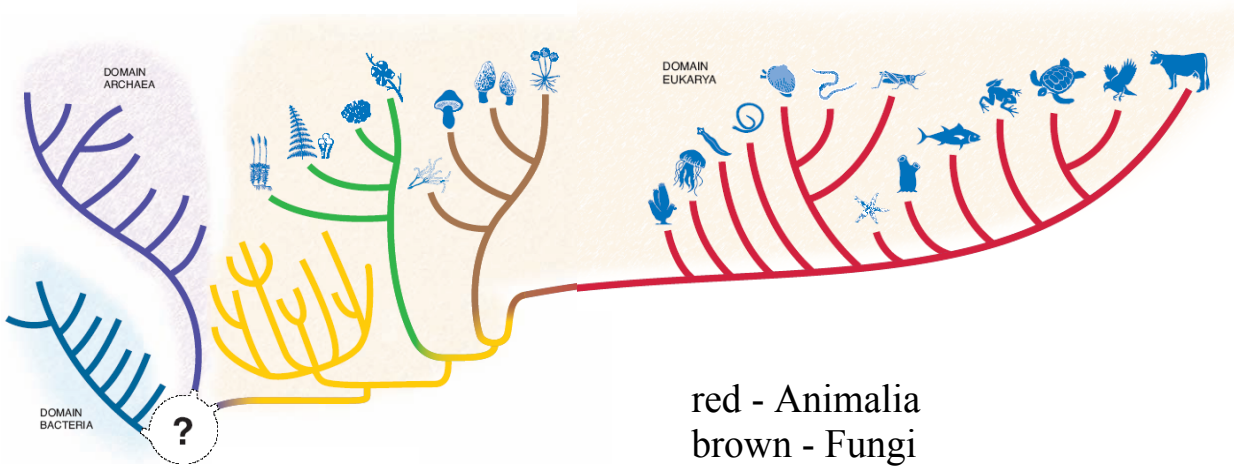
Also unicellular and prokaryotic, members of the domain **Archaea** live in some of the most extreme environments you can imagine—volcanic hot springs, brine pools, and black organic mud totally devoid of oxygen. Indeed, many of these bacteria can survive only in the absence of oxygen. Their cell walls lack peptidoglycan, and their cell membranes contain unusual lipids that are not found in any other organism. The domain Archaea corresponds to the kingdom **Archaebacteria.**

Domain Eukarya

The domain **Eukarya** consists of all organisms that have a nucleus. It is organized into the four remaining kingdoms of the six-kingdom system: Protista, Fungi, Plantae, and Animalia, as shown in **Figure 18–13.**

Page 459-460

Page 460 - 470



red - Animalia
brown - Fungi
green - Plantae
yellow - Protista

Classification of Living Things

DOMAIN	Bacteria	Archaea	Eukarya			
KINGDOM	Eubacteria	Archaebacteria	Protista	Fungi	Plantae	Animalia
CELL TYPE	Prokaryote	Prokaryote	Eukaryote	Eukaryote	Eukaryote	Eukaryote
CELL STRUCTURES	Cell walls with peptidoglycan	Cell walls without peptidoglycan	Cell walls of cellulose in some; some have chloroplasts	Cell walls of chitin	Cell walls of cellulose; chloroplasts	No cell walls or chloroplasts
NUMBER OF CELLS	Unicellular	Unicellular	Most unicellular; some colonial; some multicellular	Most multicellular; some unicellular	Multicellular	Multicellular
MODE OF NUTRITION	Autotroph or heterotroph	Autotroph or heterotroph	Autotroph or heterotroph	Heterotroph	Autotroph	Heterotroph
EXAMPLES	*Streptococcus, Escherichia coli*	Methanogens, halophiles	*Amoeba, Paramecium*, slime molds, giant kelp	Mushrooms, yeasts	Mosses, ferns, flowering plants	Sponges, worms, insects, fishes, mammals

Page 459

▼ **Figure 18–12** Organisms are grouped in three domains. There is a simple relationship between the three domains and the six kingdoms. This table summarizes key evidence used in classifying organisms into these major taxonomic groups.