

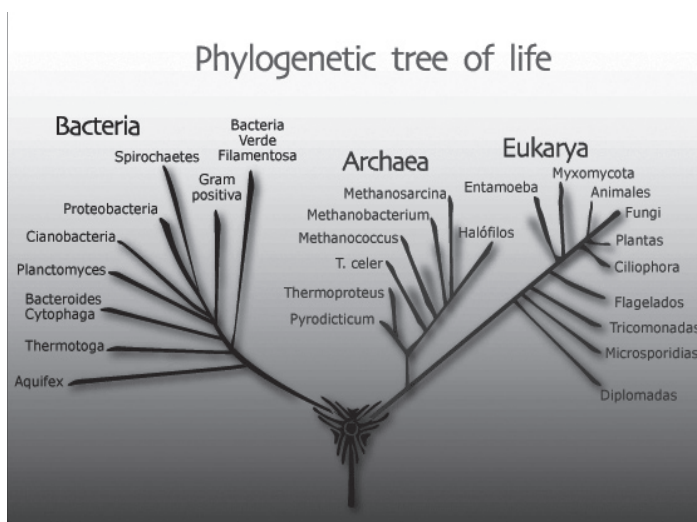
How are species related?

The Tree of Life is a way to organize or "classify" all life. By placing living beings in different branches, we can understand how closely or distantly related they are.

"...the great Tree of Life, which fills with its dead and broken branches the crust of the earth, and covers the surface with its ever branching and beautiful ramifications."

Charles Darwin

The base of the tree of life is divided into three main domains: Archaea, Bacteria and Eukaryota (other classifications).



Bacteria: unicellular organisms with no nucleus (prokaryotes). Previously, they were classified in the kingdom Monera. They are the oldest of organisms (3500 million years). There are bacteria that synthesize their own food from carbon dioxide, such as cyanobacteria, green sulfur bacteria and some purple bacteria. Others use nitrogen or sulfur.

Archaea: unicellular organisms that, like bacteria, have no nucleus (prokaryotes, blue-green algae). Previously, they were included in the kingdom Monera, along with bacteria; however, recent studies show differences with bacteria and similarities with the eukaryota domain. They differ from bacteria in the composition of their cell wall and in some of their organelles and genetic processes.

Eukaryota: organisms which have a cell nucleus. Includes protozoa, unicellular algae, fungi, plants and animals, originally composed of four different realms (Protista, Fungi, Plantae, and Animalia).

Domains are divided into kingdoms, and thereafter into phyla (singular phylum), class, order, family, genus and species. In plants and fungi, the phyla category has the name "division". Examples of phyla are: Molluscs (snails, clams, and octopuses), Echinoderms (starfish and urchins) and Arthropods (insects, spiders, and crabs). Examples of divisions are the: Bryophyta (mosses), pteridophyta (ferns), Magnoliophyta (flowering plants).

Classification systems of living organisms						
2 Kingdoms	3 Kingdoms	2 Empires	4 Kingdoms	5 Kingdoms	6 Kingdoms	3 Domains
		Prokaryota	Monera	Monera	Eubacteria	Bacteria
	Protista		Protistas	Protista	Arqueobacteria	Arquea
		Eukaryota		Fungi	Fungi	
Vegetables	Plants		Plants	Plants	Plants	Eukarya
Animals	Animals		Animals	Animals	Animals	
Linnaeus 1735	Haeckel 1866	Chatton 1937	Copeland 1956	Whittaker 1969	Woese et al. 1997	Woese et al. 1990