

The Diversity of Life

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Introduction

In the not so distant past, all living organisms were classified into two kingdoms, the animals and the plants. As our knowledge of the characteristics of the various types of organisms on earth developed and, as goals of classification placed greater emphasis on reflecting phylogenetic (evolutionary) relationships, the system of classification has changed.

Objectives

- Become familiar with the characteristics of the kingdoms of living organisms.
- Be aware of some of the different views regarding the relationships between the kingdoms

From the two kingdom system utilized fifty years ago to the five kingdom system employed twenty years ago, now, most biologists classify organisms into six kingdoms. These kingdoms are; the Kingdom Archaeobacteria, the Kingdom Eubacteria, the Kingdom Protista, the Kingdom Fungi, the Kingdom Plantae and the Kingdom Animalia.

Two Kingdom System

Animal Kingdom animals & animal-like protists	Plant Kingdom plants, fungi, plant-like protists, bacteria & archaea
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Five Kingdom System

Animalia animals	Plantae plants	Fungi fungi	Protista all protists	Monera bacteria & archaea
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Three Domain System

Domain Eukarya				Domain Eubacteria	Domain Archaeobacteria
Animalia animals	Plantae plants	Fungi fungi	Protista all protists	bacteria	archaea

Activity 18b.1 **Exploring Life's Diversity**

You are to visit two websites to complete this lab exercise. These websites link to many pages of information that you may find useful in the course.

The first website to visit is:
http://tolweb.org/Life_on_Earth/1

Here you will find a web site that organizes organisms according to the classification used by its authors. By clicking on the group's name, you can go to a page with information about these organisms, view pictures of these organisms and see how this group is further divided.

The major groups of organisms are arranged in what can be called a phylogenetic tree (also illustrated below). This is a graphical representation of how the groups of organisms are thought to be evolutionarily related. As you might guess, different people may have different views as to how the

groups are related. Consequently, as you view information from different sources you will most likely see different representations of the respective phylogenetic trees.

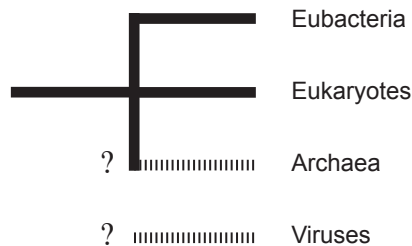
Note the different trees illustrated on this website. How does this compare to the one shown in your textbook?

The second website to visit is:
<http://www.ucmp.berkeley.edu/exhibits/historyoflife.php>

You will find similar information at this site but here you will also find information about extinct organisms and links to a lot of information about the group's evolutionary history.

Visit and explore these two web sites. After doing so, complete the questions and table in the Results Section.

Possible Phylogenetic Tree



Results Section

Activity 18b.1
Exploring Life's Diversity

In the space below, sketch out the phylogenetic trees shown on these web pages (A phylogenetic tree is a diagram with a branching pattern to show evolutionary relationships). Mark any differences you observe between the two.

Do these trees, as well as other information from the websites, suggest there are alternative ways to organize a phylogenetic tree? Explain.

Why do you think viruses are not linked to the other groups in the tree at the tolweb site?

After reading looking through these web sites and completing the assigned reading, complete the following table. Identify how the organisms obtain their food. For the others, indicated if the characteristic is present or absent.

	cell wall	nucleus	multicellular	sexual reproduction	asexual reproduction	food source
Archaeobacteria						
Eubacteria						
Protista						
Fungi						
Plantae						
Animalia						