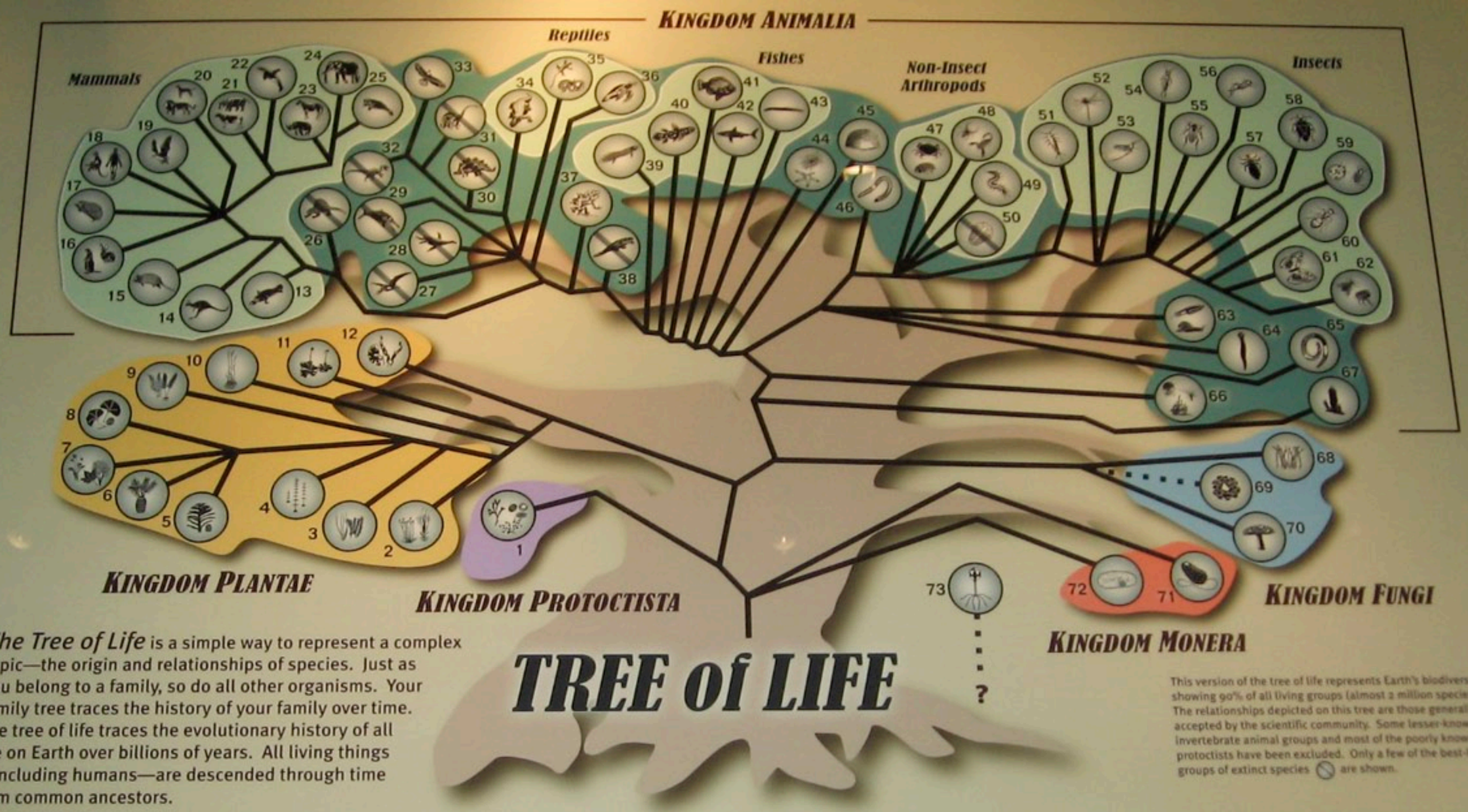


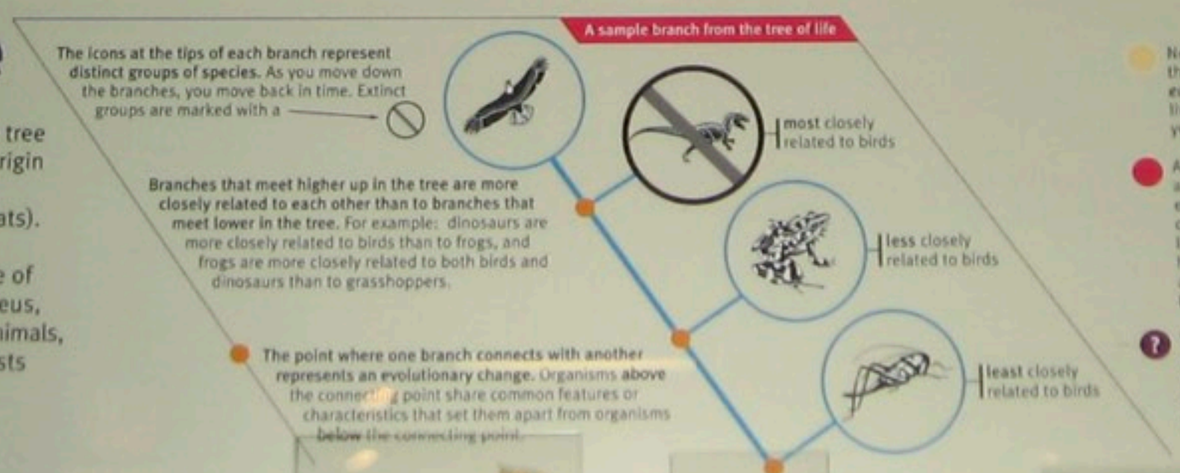
TREE of LIFE

The Tree of Life is a simple way to represent a complex topic—the origin and relationships of species. Just as you belong to a family, so do all other organisms. Your family tree traces the history of your family over time. The tree of life traces the evolutionary history of all life on Earth over billions of years. All living things —including humans—are descended through time from common ancestors.

This version of the tree of life represents Earth's biodiversity, showing 90% of all living groups (almost 2 million species). The relationships depicted on this tree are those generally accepted by the scientific community. Some lesser-known invertebrate animal groups and most of the poorly known protoctists have been excluded. Only a few of the best-known groups of extinct species ⊘ are shown.

Reading the Tree

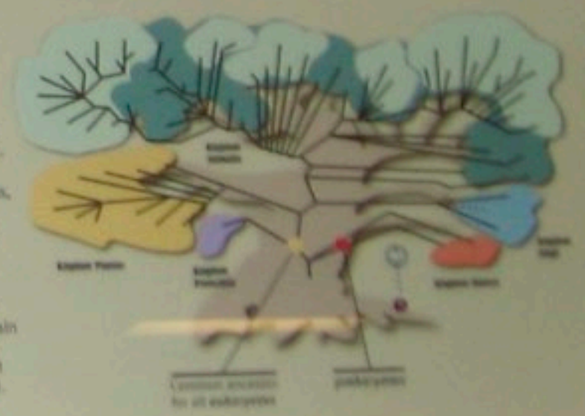
This version of the tree of life traces the origin of all *eukaryotes* (you-CARE-ee-oats). Eukaryotes are organisms made of cells with a nucleus, such as plants, animals, fungi and protoctists (pro-TOCK-tists).



Near the base of the tree are the common ancestors of all *eukaryotes*. These organisms lived more than 2.5 billion years ago.

Also near the base of the tree are the *prokaryotes* (pro-CARE-ee-oats). Prokaryotes are organisms without a cell nucleus, like bacteria. Technology is helping scientists learn more about the classification of bacteria than ever before.

Viruses are not connected to the tree, since no one is certain where they fit in (viruses are not made of cells and are not considered living organisms).



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