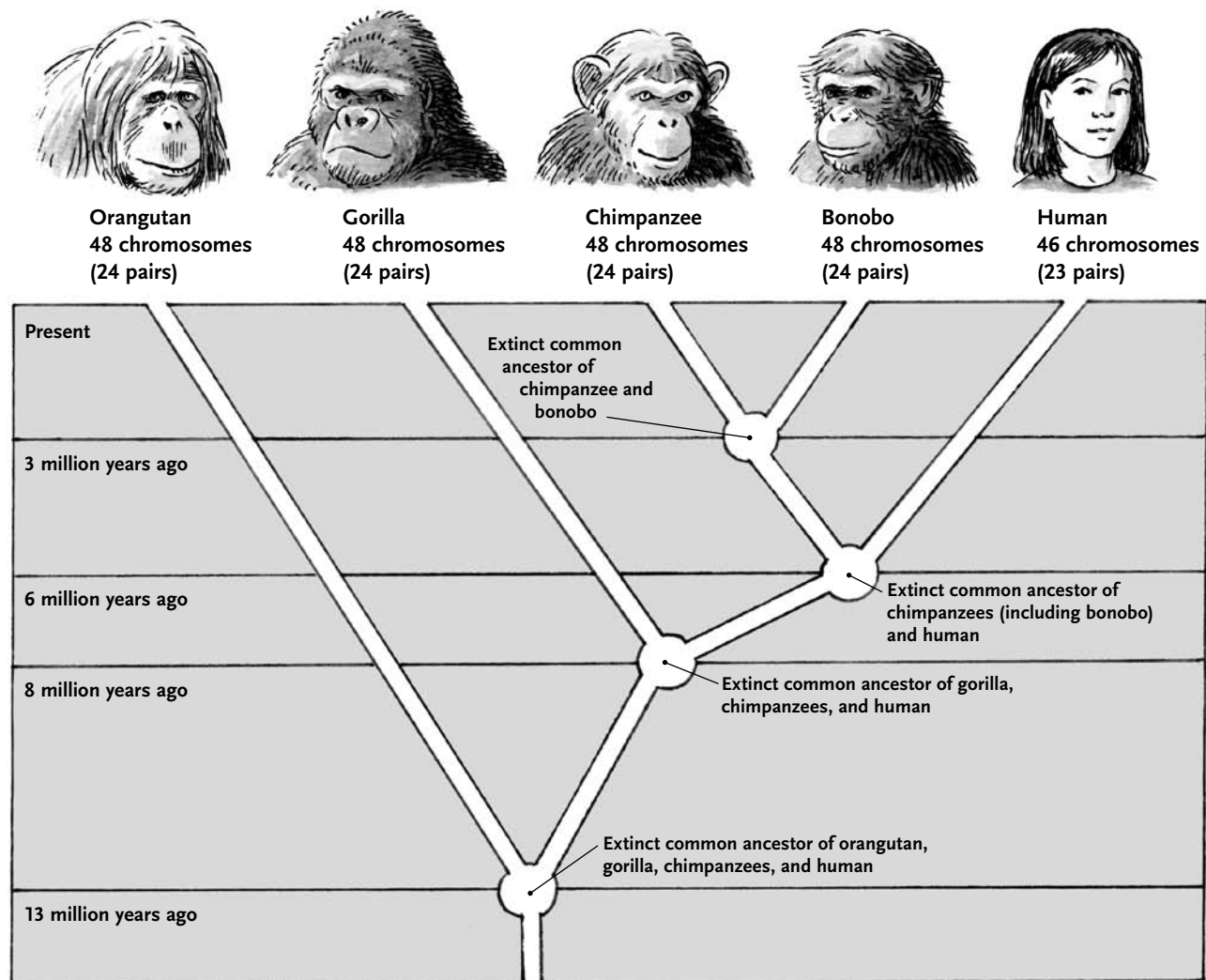


Hominidae Family Tree

This is a phylogenetic tree, which is a hypothesis of the evolutionary history of a group of organisms. This tree is known as the Hominidae family tree. It was created by comparing the DNA sequences of humans, chimpanzees, bonobos, gorillas, and orangutans. Each juncture in the tree represents when a species is estimated to have branched off. For example, the chimp and bonobo have the most recent common extinct ancestor, some three million years ago. The next-most-recent common extinct ancestor—the one shared by chimpanzees and humans—is at about six million years ago. The next-most-recent common extinct ancestor—the one shared by chimpanzees and humans—is at about six million years ago.

This tree also includes information about the number of chromosomes for each species. What do you notice about the similarities and differences in number of chromosomes among the species in this family? If humans and chimpanzees share an extinct common ancestor, why do they have a different number of chromosomes? With your team members, **develop two hypotheses** that—given a hypothetical extinct common ancestor—would explain why humans and chimpanzees have a different number of chromosomes. Include in your hypotheses how many chromosomes you think an extinct common ancestor would have had. Write your hypotheses on a separate sheet of paper.



Note: Dates are based on genomic analysis and are approximate. Dates are constantly being refined as scientists gain more information from fossil and molecular analyses and develop more sophisticated measuring techniques.