

Human Evolution

READ RETRIEVE CONNECT & USE

Next Generation Sunshine State Standard

SC.912.L.15.10: Identify basic trends in hominid evolution from early ancestors six million years ago to modern humans, including brain size, jaw size, language, and manufacture of tools.

Common Core Scientific Literacy Standard

Compare and contrast findings presented in a text to those from other sources, noting when the findings support or contradict previous explanations or accounts.

New Kenyan Fossils Challenge Established Views On Early Evolution Of Our Genus Homo

ScienceDaily (Aug. 13, 2007) — Two new fossils, described this week in the journal *Nature*, cast fresh light on a little understood and important period of human prehistory at the dawn of our own genus, *Homo*. The new fossils were discovered by the Koobi Fora Research Project, an international group of scientists directed by mother-daughter team Meave and Louise Leakey, and affiliated with the National Museums of Kenya (NMK).

Human evolution over the last two million years is often portrayed as a linear succession of three species: *Homo habilis* to *Homo erectus* to ourselves, *Homo sapiens*. Of these, *Homo erectus* is commonly seen as the first human ancestor which is like us in many respects, but with a smaller brain. The new fossils are significant because both their relative geological ages and their physical attributes directly challenge these views about our human ancestry.

One of the two fossils, an upper jaw bone of *Homo habilis* (KNM-ER 42703), dates from 1.44 million years ago, which is more recent than previously known fossils of that species. This late-survivor shows that *Homo habilis* and *Homo erectus* lived side by side in eastern Africa for nearly half a million years. “Their co-existence makes it unlikely that *Homo erectus* evolved from *Homo habilis*,” explains Meave Leakey, one of the lead authors of the paper. Instead, both species must have had their origins between 2 and 3 million years ago, a time from which few human fossils are known. “The fact that they stayed separate as individual species for a long time suggests that they had their own ecological niche, thus avoiding direct competition.”

The second fossil (KNM-ER 42700), found in the same region of northern Kenya, is an exquisitely preserved skull of *Homo erectus*, dated to about 1.55 million years ago. “What is truly striking about this fossil is its size,” says Fred Spoor, another lead author. “It is the smallest *Homo erectus* found thus far anywhere in the world.”

Significantly, the variation in size of East African *Homo erectus* fossils, from the petite new skull to a large specimen discovered previously at Olduvai Gorge in neighbouring Tanzania, almost rivals that shown by modern gorillas. “In gorillas males are much larger than females, and this sexual dimorphism is related to their strategy of having multiple mates,” observes co-author Susan Antón. “The new Kenyan fossil suggests that, contrary to common belief, this may have been true of *Homo erectus* as well.” Because great sexual dimorphism is thought to be a primitive, or ancestral, feature during human evolution, the diminutive new find implies that *Homo erectus* was not as human-like as once thought.

Both human fossils were found during fieldwork in 2000, in the Ileret region, east of Lake Turkana. The *Homo erectus* skull was exceptionally well preserved, because it was still almost entirely encased in sandstone when it was initially spotted by NMK researcher Fredrick Manthi. Painstaking laboratory preparation at the NMK by Christopher Kiarie was required to free the fossil from its sediment. To establish the age of the two fossils, the geological layers were studied by Patrick Gathogo, Frank Brown, and Ian McDougall.

NAME: _____ DATE: _____ PER: _____

1. Read the article, “New Kenyan Fossils Challenge Established Views On Early Evolution Of Our Genus Homo” After reading the article (5-10 minutes), write down everything you can remember in the box below. The process of recalling the information is important, so do not return to the article at this point.

2. Return to the article if necessary and answer the following questions. You may also need to draw from your knowledge of biology and you should feel free to use your text or other resource.

a) List sequentially (from earliest to most recent) five ancestors of modern humans.

b) Identify some characteristics (physical or behavioral) that distinguish different species of hominids.

c) Contrast skull and brain size among hominid species with modern humans.

d) How does information on human evolution in your text contrast with the information in the article? Why might there be these differences?
