



NATURAL HISTORY MUSEUM OF DENMARK  
UNIVERSITY OF COPENHAGEN

FACT SHEET

# THE HUMAN ANIMAL

An online resource for practical human evolution learning

## Chimpanzee *Pan troglodytes*

**Distribution time/space** The chimpanzee only lives in Central Africa. Two living species exist, chimpanzee (*Pan troglodytes*) and pygmy chimpanzee/bonobo (*Pan paniscus*). Both species evolved from an ancient common ancestor that lived approximately 2 million years ago. The chimpanzee evolutionary lineage split from the last common ancestor of the human lineage about 5 million years ago.

**Way of life** Chimpanzees mostly eat sweet fruits, leaves, insects, and sometimes small mammals. The chimpanzees have a range of highly developed facial expressions. Combined with several kinds of sounds and gestures, their facial expressions allow for a complex communication among the species. Chimpanzees are highly social and territorial. This often leads to violent territorial battles, occasionally ending in death. Chimpanzees use tools such as stones for cracking nuts, and modify sticks for pulling out termites from their nests.

**Key finds** Chimpanzee fossils are extremely rare. In fact, only three fossil teeth have been found in Kenya. The teeth are between 500,000 and 300,000 years old.

### Unresolved questions

What happened during the evolution of chimpanzees 500,000 years ago, before the time of the first fossils?

Did chimpanzees' four-legged gait develop from a two-legged gait?





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## *Australopithecus afarensis*

**Distribution time/space** *Australopithecus afarensis* lived between 4 and 3 million years ago. Several *A. afarensis* fossils have been found in Eastern Africa, including Ethiopia, Kenya, and Tanzania.

**Way of life** *Australopithecus afarensis* walked upright like modern humans, and could easily climb trees with their long arms and grasping hands. Studies of their teeth show that they mainly ate plant-based food such as leaves, fruits, nuts, and roots. They may very well have found some of their diet in trees, and they probably also used the trees as shelter from danger on the ground. Although *A. afarensis* was adapted to life on the ground and several recent finds indicate that they manufactured and used stone tools, there are no signs of them controlling fire. The males were up to fifty percent larger than the females.

**Key finds** A very famous and particularly well preserved female fossil named *Lucy* was discovered in 1974, in Ethiopia. Considering her age, *Lucy* is incredibly well preserved as nearly forty percent of her skeleton remains intact. In 1975, in Ethiopia, researchers discovered the remains of seventeen adults and young *Australopithecus afarensis* lying close to each other. In 1978, in Tanzania, 3.5 million year old footsteps were found. They are believed to be *A. afarensis* footsteps. Since then, hundreds of *A. afarensis* fossil remains have been discovered in Eastern Africa.

### Unresolved questions

*Australopithecus afarensis* lived at a time of great climate- and environmental change, but there are no signs that they adapted to these changes. Why?

*A. afarensis*' strong jaws and teeth seem adapted for eating tough food. However, studies show that they most likely ate fruits and soft food. How can this be?





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## *Homo erectus*

**Distribution time/space** *Homo erectus* lived between 1.8 million and 140,000 years ago. Fossil evidence show that *H. erectus* most likely emerged in Asia, from where it migrated to large parts of Africa, Indonesia, and Europe.

**Way of life** Like modern humans, *Homo erectus* was adapted for upright walking. Evidence of controlled use of fire and tools has been found, and *H. erectus* was probably the first human species to cook food. *H. erectus* developed an advanced material culture, called the Acheulian culture, famously known for its production of the teardrop-shaped hand axe. Thousands of these axes have now been found. The manufacturing of such advanced tools can only take place if the recipe has been learned and passed down from generation to generation. Controlled fire and tools meant that *H. erectus* was able to make use of a wide variety of food sources, besides plant-based food. The energy rich protein from meat and bone marrow paved the way for the development of a bigger brain, compared to earlier human species.

**Key finds** In the beginning of the 1890's, the "Java man" was discovered. The fossil is a *Homo erectus*. For many years *H. erectus* was the oldest known hominin of the human genus Homo, and had only been found in East and Southeast Asia (China and Java). In 1960, the first *Homo erectus* fossil was found in East Africa: a skull cap from Olduvai Gorge, in Tanzania, some 1.5-1.4 million years old. In 1984, a 1.53 million year old and almost complete

skeleton was found by the shores of Turkana Lake, in Northern Kenya. Between 1991 and 2005, the oldest known fossils of *H. erectus* were found in Dmanisi, Georgia: five skulls, about 1.8 million years old. The skulls show that the cranial shape of *H. erectus* was much more diverse than previously assumed.

### Unresolved questions

Do the fossils of East Africa and Georgia belong to the same species, *Homo erectus*?

Or, are they in fact different species we collectively call *Homo erectus*?

If *H. erectus* emerged in Asia more than 1.8 million years ago, what human species is the ancestor of *H. erectus*?

And when did this unknown ancestor migrate out of Africa?

How good was *H. erectus* at controlling fire, and to what extent did they use fire?

Can this tell us something about a shift in food preference for this species?





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## *Homo sapiens*

**Distribution time/space** The oldest anatomically modern human (*Homo sapiens*) fossils have been found in Africa and are approximately 195,000 years old. Modern humans dispersed out of Africa in more than one wave of migration. Some 70,000 years ago, the first modern humans migrated to Australia and New Guinea. Around 50,000 years ago, the next wave of migration went to Europe and Asia. America was colonized about 15,000 years ago, and during the past few thousand years, the islands in the Pacific Ocean were inhabited.

**Way of life** Modern humans make extensive use of spoken languages. Ancient cave paintings have evolved into written language. Complex rituals, including burial rituals, are an expression of religious awareness unique to modern humans. Food is mainly handled outside the mouth by use of tools, such as knife, fork, sticks, pots etc. Humans are completely dependent on tools and controlled fire, and all known groups or tribes of humans prepare their food. The diet is highly varied and mostly determined by local supply. Humans are probably the only true omnivorous species on Earth. During their migration, our ancestors met other human species, now extinct, with whom they had children.

**Key finds** The oldest *Homo sapiens* fossil find is about 195,000 years old.

### Unresolved questions

Did groups of *Homo sapiens* migrate out of Africa earlier than 70,000 years ago?

If they did, what became of these humans?

We only have very little fur, why?

How much did our modern human ancestors mix with other species?

And what genetic significance did this mixing impose on their descendants?

