

What it Means to be Human

Maropeng means 'returning to the place of origin' in Setswana. Join us for a series of articles brought to you by Maropeng, the Official Visitor Centre for the Cradle of Humankind World Heritage Site, to discover more about our origins. This month we explore the nine characteristics that define humanity no matter who you are.

Bipedalism

About seven million years ago, early hominids began to adapt to a climate that was cooling globally. Before this, Africa had been mostly covered in rainforest. But as the temperature cooled and dried, savannah replaced the forest. This meant tree-climbing apes had to become more adept at walking on land.

Our ancestors who ventured out into the savannah were rewarded with roots, shrubs and occasional animal carcasses, ensuring that those who walked on two legs were more likely to survive.

Bipedalism allowed hominids to free their arms, enabling them to make and use tools well, stretch for fruit in trees and use their hands to communicate. They could also see further over the savannah grass.

But even with these advantages, our ancestors probably spent time in trees as well, which we can tell by studying fossils of hands and feet, and how they were adapted to climbing. Although there is a popular idea that our ancestors slouched and stooped forward, the study of fossil hips, spines and feet suggest they always walked fairly upright.

Development of the Jaw and Diet

Our ancestors' diet changed over time. From eating mostly plants, they began to eat a mixture of meat and protein, along with plant matter. This helped their brains to develop, and in turn altered the shapes of their jaws. Over time, their jaws became less heavy or 'robust' and more slender or 'gracile'. The jaws of Australopithecus, for example, projected far more forward than ours, but as Homo developed, the jaw moved further back, under the growing braincase. Our teeth also became smaller as we developed the capacity to cut and grind food.

Development and Growth of the Brain

One of the defining characteristics of becoming human has been the growth and development of our brains. Australopithecus had an average cranial (brain) capacity of about 450 cc, about the size of an orange. Today, our brains are on average more than three times as big as that, at around 1400 cc.

But, bigger brains don't necessarily mean a species will survive. Neanderthals had brains, on average, between about 5% and 10% bigger than ours, and they became extinct about 20,000 years ago.

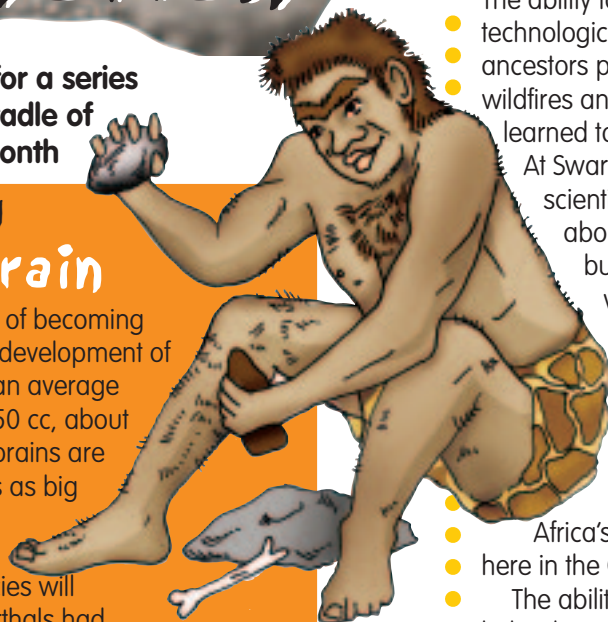
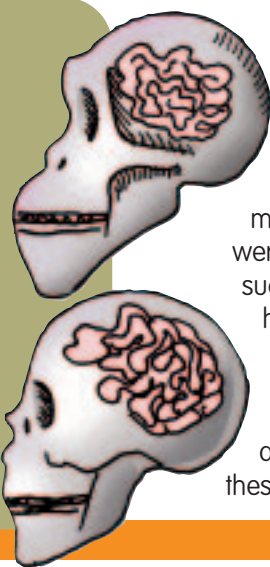
Stone Tools

The oldest stone tools so far dated, come from Ethiopia and are about 2,6 million years old. The first technology that our ancestors developed was the *Oldowan Industry*.

These tools were primitive and crude, and were mostly just pebbles or broken stones. There would not have been a specific choice of raw material compared to the Middle and Later Stone Age where specific raw materials would have been used for certain tools.

Next, came the *Acheulean Industry* (pronounced 'Eish-oo-lean'). Acheulean tools included large, rough hand-axes and cleavers, probably for chopping and mashing meat. Dozens of Acheulean tools, including hand-axes, have been found right here at Maropeng in an ongoing excavation.

The Acheulean was followed by the *Middle Stone Age* and *Later Stone Age*, during which tools became much smaller and more refined and were developed for specific tasks, such as skinning an animal, or hafting onto a wooden handle to make a spear. The Later Stone Age in South Africa lasted right up till about 200,000 years ago, and the San people knew how to make these tools right into historical times.



Control and Use of Fire

The ability to harness and use fire was a major technological step in human development. Our ancestors probably learnt to capture fire from wildfires and to keep it burning before they learned to make it.

At Swartkrans in the Cradle of Humankind, scientists have found a collection of about 300 bones which have been burnt at a consistent temperature, which is higher than the temperature of the average bushfire. These have been dated to 1,5 million years old.

This is the first evidence for controlled use of fire so far.

So, we can say that South

- Africa's first braai happened right here in the Cradle!
- The ability to control and use fire helped our ancestors to warm themselves and to cook food, thus helping to expand their diets. By cooking their food, it became easier to digest and bacteria would have been killed off.



Peopling the World

Our ancestors left Africa in two waves, known as "Out of Africa I" and "Out of Africa II"

Out of Africa I

Most palaeoanthropologists believe that our ancestors first left Africa about two million years ago and moved into Asia and Europe. This theory is known as "Out of Africa I" and is strongly supported by fossil evidence.

They probably left Africa in a gradual expansion, following food in small groups, rather than in a "mass migration".

Out of Africa II

"Out of Africa II" refers to the movement of modern humans out of Africa within the past 100,000 years.

They out-competed and replaced populations of other hominids outside Africa, such as the Neanderthals, with whom they could probably not interbreed. This theory is supported by fossil and genetic evidence.

Studies of DNA in modern human populations suggest that we all share common ancestors who lived in Africa some 200,000 years ago.

Development of Language

Scientists don't really know much about this, as our voice-boxes are made of soft tissue, and there is no fossil evidence of how they may have developed over time.

Some scientists say we may have acquired the ability to speak at the time of Homo habilis, two million years ago, while others say it is only modern Homo sapiens that have been able to speak, within the past 200,000 years.

Our sophisticated ability to communicate across time and space sets us apart from other animals, and has helped us to populate the

Earth and travel to its most inaccessible regions. It has better allowed us to gather food, to live in groups and to express ourselves.

Living with Others

Most primates, the family to which we belong, live in groups. Group living provides better defence.

A group can be more vigilant and challenging to predators than individuals on their own.

Groups can also be more efficient than individuals at discovering, gathering and defending sources of food; and at caring for young.



Creative Explosion

Finally, we are creative beings. Our creativity is the ultimate expression of our humanity.



OFFICIAL VISITOR CENTRE FOR THE CRADLE OF HUMANKIND WORLD HERITAGE SITE

info@maropeng.co.za tel: 014 577 9000

www.maropeng.co.za

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