



The ancestors of
Homo sapiens sapiens

Sahelanthropus tchadensis

Lived: 6-7 million years ago
[Oldest hominid]

Range: Chad

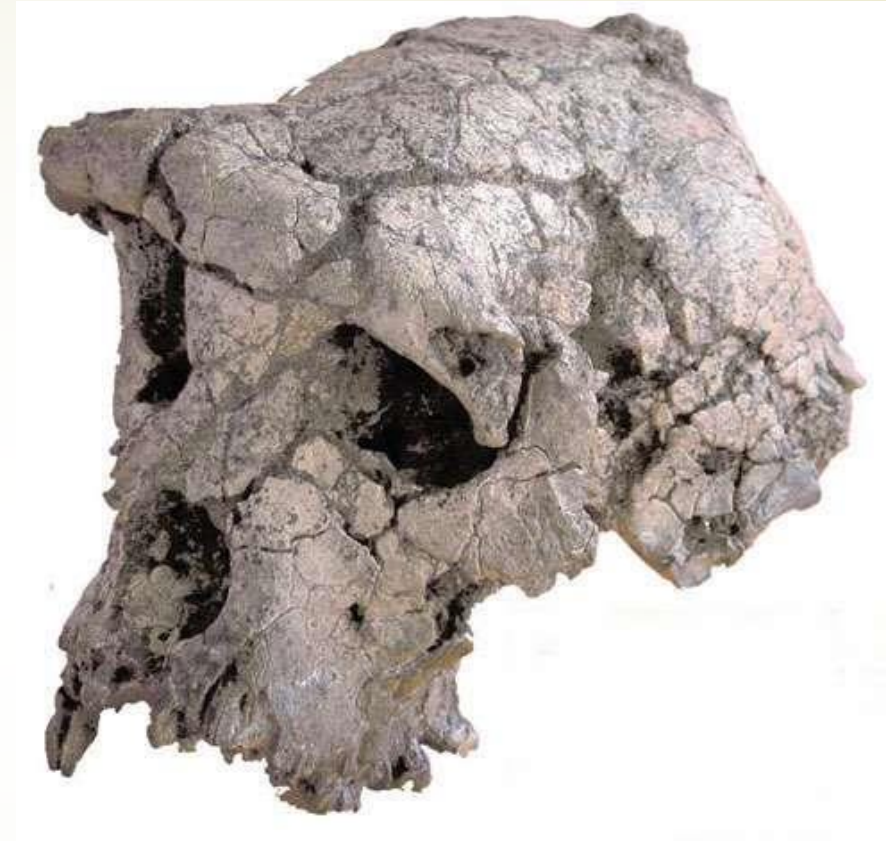
Diet: more plants, less fruit
than chimpanzee

Jaw: Large canines, large molars;
protruding jaw

Size: less than 100 cm ??

Cranium: 25% the size of a modern brain
has sagittal crest

Tools: none



Ardipithecus ramidus

Lived: 4.4 million years ago.

Range: East Africa

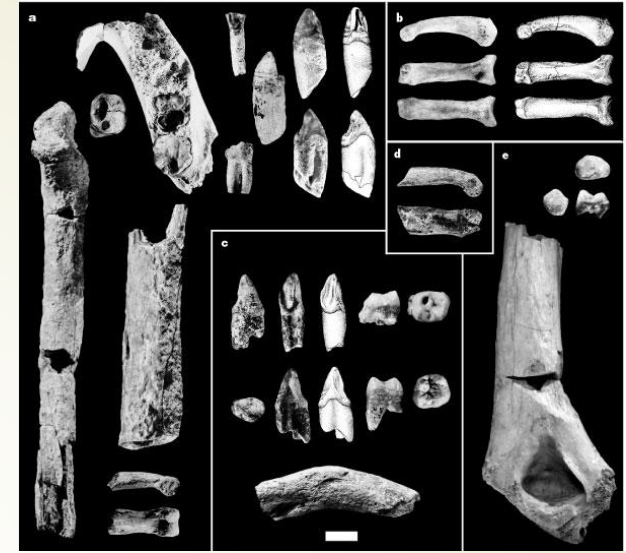
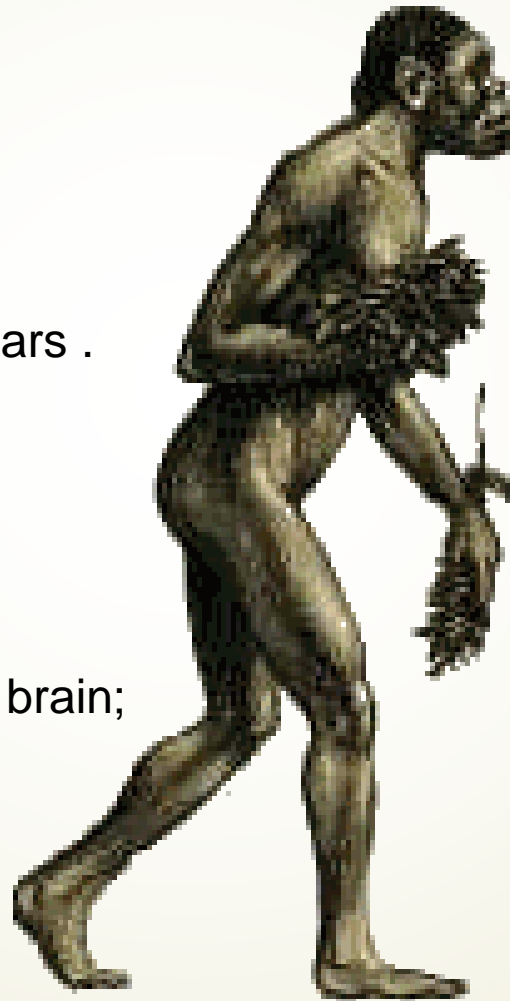
Diet: Herbivore and insectivore

Jaw: medium canines, large molars .
protruding jaw

Size: ~120 cm sexes differ 10 cm

Cranium: 30% the size of normal brain;
no crest

Tools: none



Australopithecus anamensis

Lived: 4.2 - 3.9 million years ago

Range: East Africa

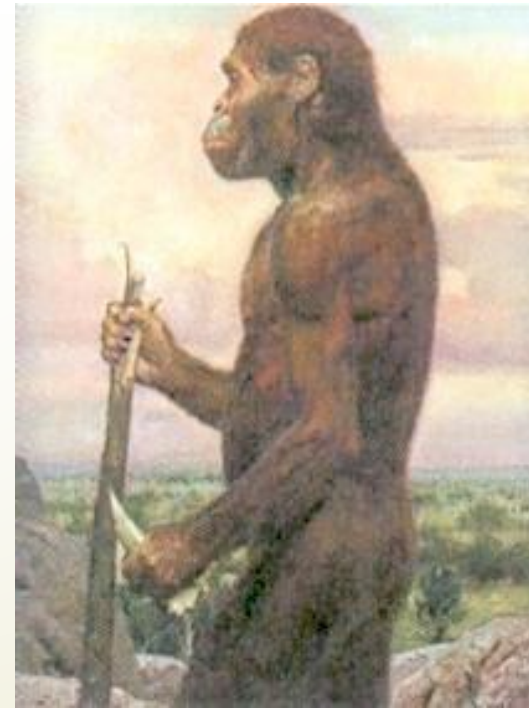
Diet: Fruit, nuts, seeds,
tubers and insects.

Jaw: Small canines, large molars,
protruding jaw

Size: 150 cm; sexes differ 30 cm

Cranium: 30% the size of a modern brain;
no crest

Tools: none





Wooden tools used by chimpanzees in Tanzania to dig up tubers from under a tough soil

Australopithecus afarensis:

Lived: 3.9 - 3.0 million years ago.

Range: East Africa.

Diet: Soft fruit, nuts, seeds, tubers and bird eggs.

Jaw: Small canines, large molars;
protruding jaw

Size: 150 cm sexes differ 30
cm

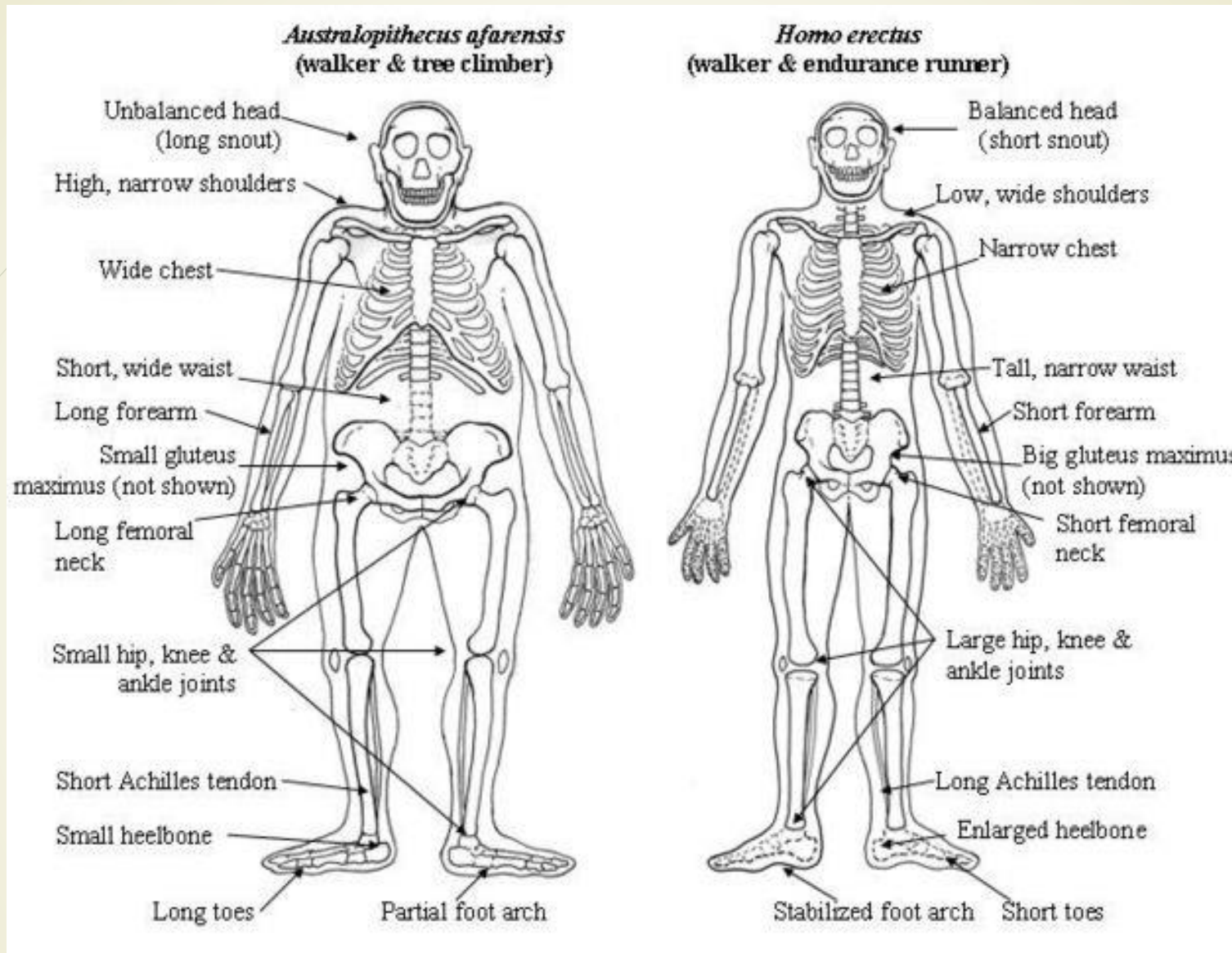
Cranium: 35% the size of a modern
brain; no crest

Tools: none ??





“Lucy” is the oldest skeleton we have



Comparing the skeleton of "Lucy" and us.



3.6 million year-old footprints of *A. afarensis*

Australopithecus africanus:

Lived: 3.0 – 2.4 million years ago.

Range: South Africa.

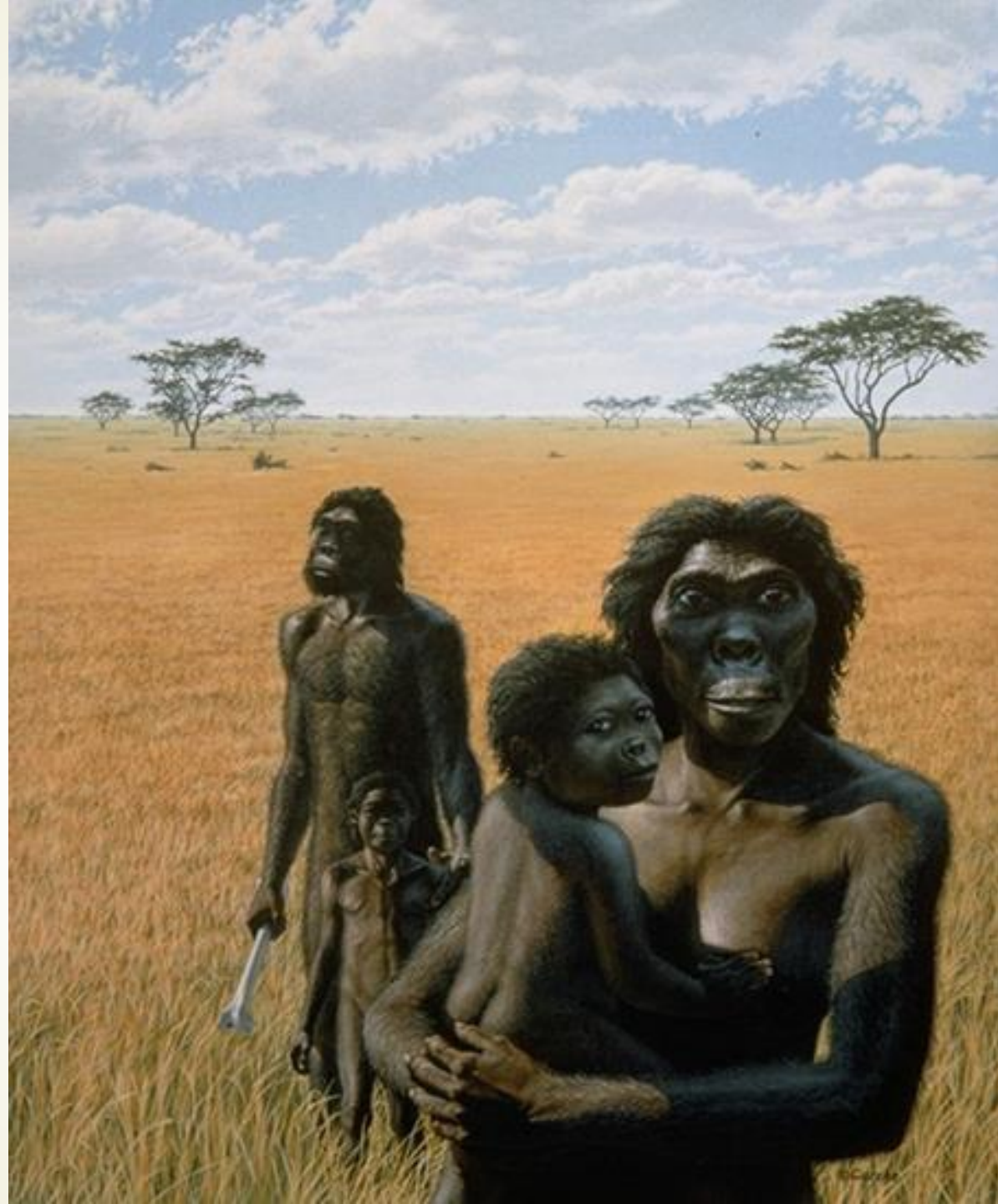
Diet: Soft fruit, nuts, seeds, insects and bird eggs.

Teeth: Small canines, large molars; protruding jaw

Size: 150 cm; sexes differ 20 cm

Cranium: 38% the size of a modern brain; no crest

Tools: simple rock flakes





Sagittal Crest

It had disappeared from the Australopithecus by 3.5 mya.



But at 2.7-1.0 mya we see the crest has returned!



Paranthropus sp [our chewing relative]



Paranthropus sp

Lived: 2.7 - 1.0 million years ago.

Range: East Africa

Diet: Probably nuts, seeds
papyrus roots

Jaw: No canines, massive molars
protruding jaw;

Size: 130 cm; sexes differ 40 cm

Cranium: 34% the size of a modern brain;
large crest

Tools: none



Homo habilis:

Lived: 2.2 - 1.6 million years ago.

Range: East & south Africa.

Diet: Omnivorous diet & bone marrow.

Teeth: chiseled incisors; medium molars

Size: 131cm; sexes differ 10 cm

Cranium: 47% the size of a modern brain
no crest.

Tools: hammers and flakes



Homo erectus:

Lived: - 1.9 million - c.100,000 years ago.

Range: Africa, Asia, one in Europe?

Diet: Omnivorous with quantities of meat.

Teeth: chiseled incisors; small molars

Size: 180 cm; sexes differ 20 cm

Cranium: 75% the size of a modern brain
no crest.

Tools: very complex, shaped stones for many purposes and fire





Turkana boy 1.6 mya

Homo neanderthalis:

Lived: 430,000 - 28,000 years ago.

Range: Europe, Central Asia, Middle East.

Diet: Relied heavily on meat.

Teeth: chiseled incisors; small molars

Size: 166cm; sexes differ 10 cm

Cranium: 105% size of a modern brain
no crest.

Tools: very complex stone, bone, antler
tools, wooden spears & fire

Other: some had red hair!

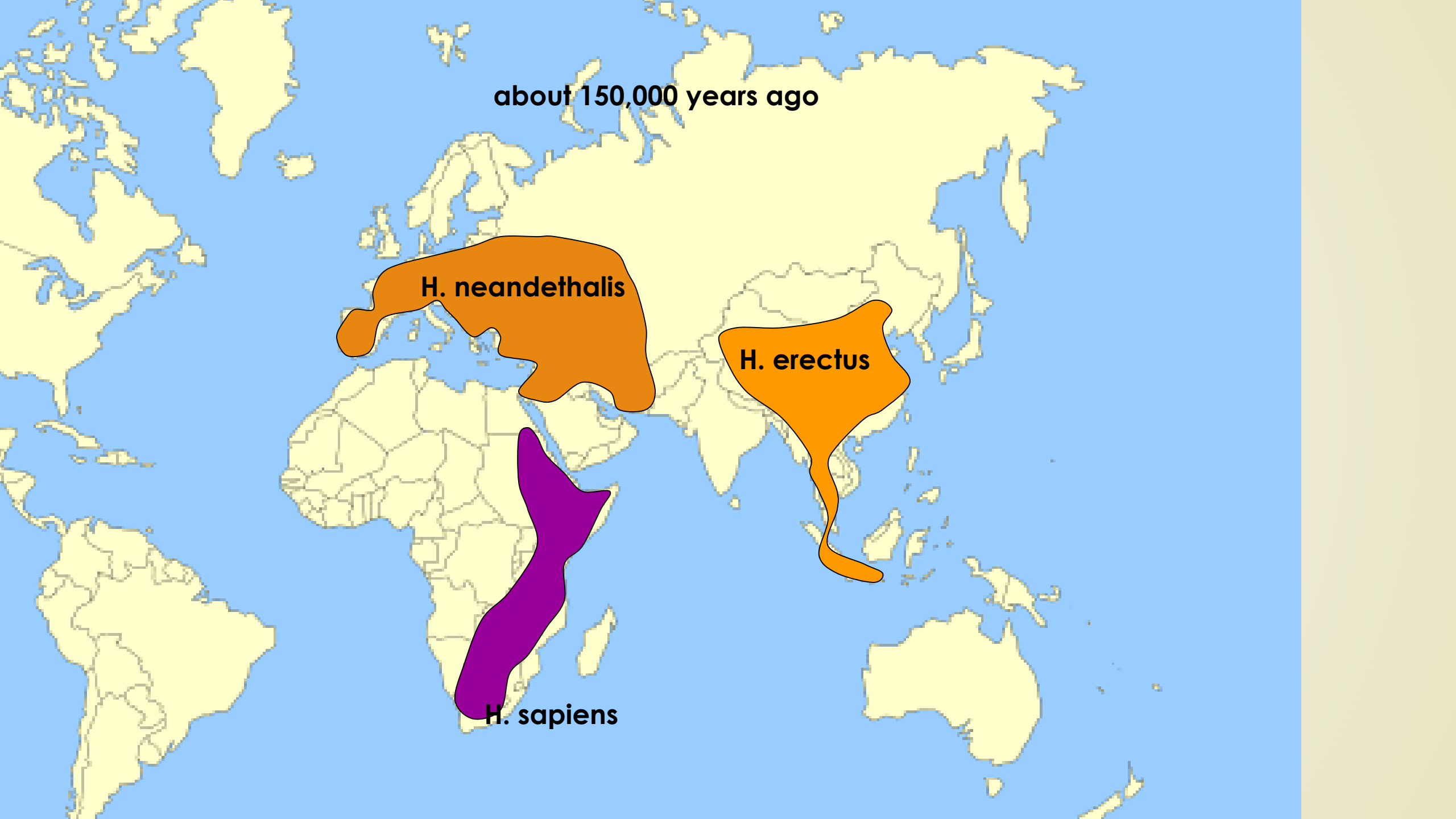


about 150,000 years ago

H. neandethalis

H. erectus

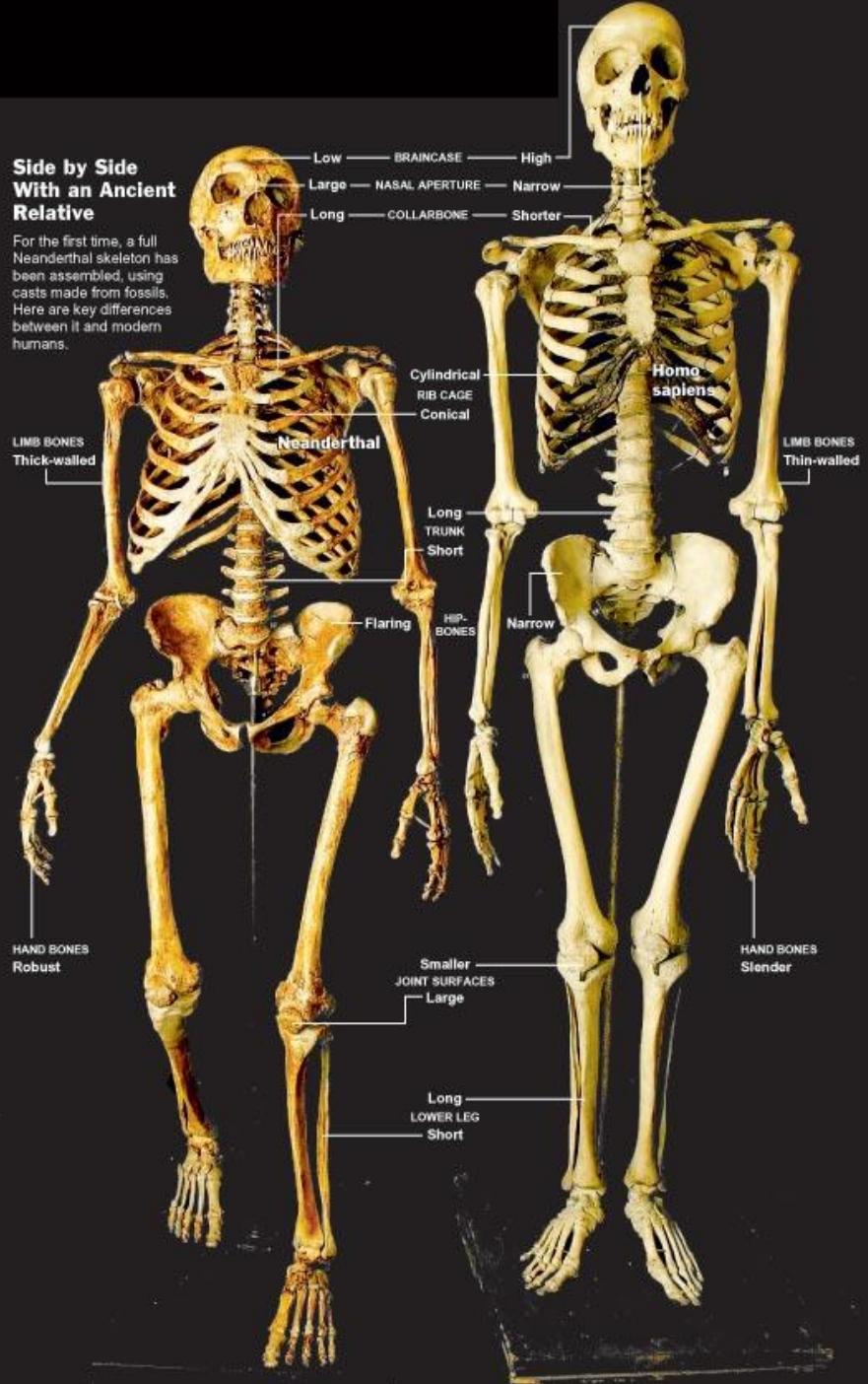
H. sapiens





Side by Side With an Ancient Relative

For the first time, a full Neanderthal skeleton has been assembled, using casts made from fossils. Here are key differences between it and modern humans.





Homo neanderthalis:

Several samples of *neanderthal* DNA have been analyzed

Mitochondrial DNA which is passed only through the mother

Nuclear DNA representing 1% of the whole genome

Results

Neanderthals and humans split 350,000 → 500,000 years ago
with little or no exchange of DNA since

Study of nuclear DNA shows some Neanderthal had red hair & lightly pigmented skin!

Homo sapiens idaltu

Lived: 160,000-??? years ago.

Range: East Africa

Diet: Omnivorous with reliance on meat.

Teeth: chiseled incisors; small molars

Size: 180cm; sexes differ 20 cm

Cranium: 100% size of a modern brain
no crest.

Tools: stone, wood, bone, antler tools
including bows and fire



164,000 year old red ochre specimens showing evidence of scraping

Found along coast of South Africa

At this time Africa was very dry and only the 'smart' survived and fishing was 'smart'!



Homo sapiens sapiens

Lived: 100,000 years
Difference from *Homo sapiens idaltu*?

Tools, culture art?

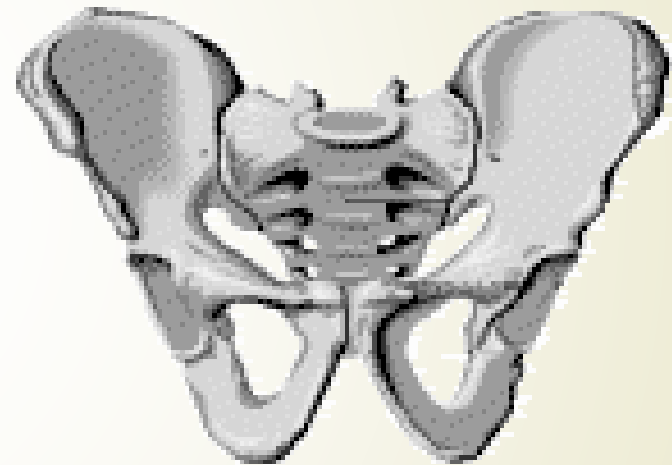
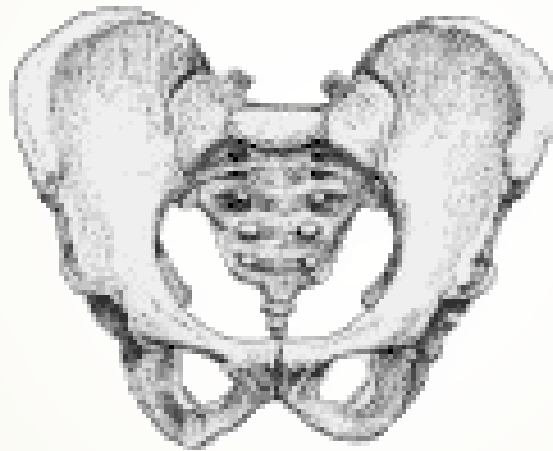
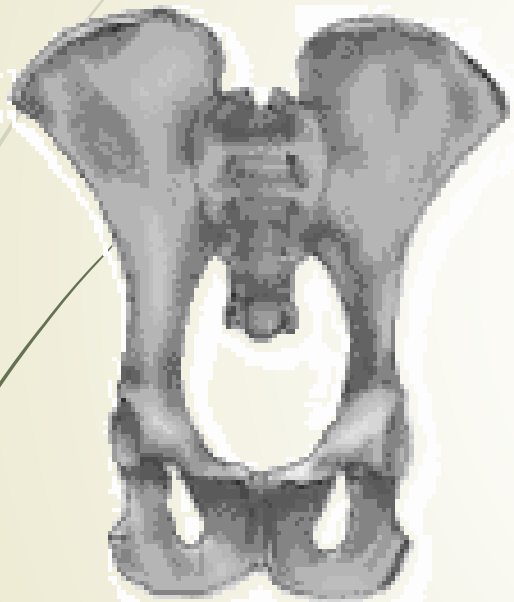




Cooking vs hunting

Other changes in Hominids over time

The pelvis **broadened** as our ancestors became bipedal

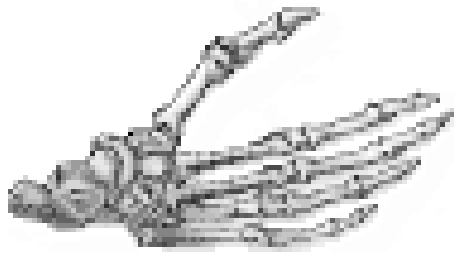


The feet became longer,

with the toes less widely spaced

and with a broader heel to assist bipedalism

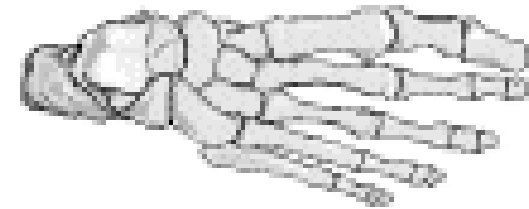
chimpanzee



Australopithecus africanus



Homo sapiens





Note: there are many dead-ends in the cladogram [species that are related to us BUT are NOT our direct ancestors]

There are three major groups of Hominids:
Australopithecus;
Parathropus and *Homo*

Note: there are often more than one species of Homind around at the same time