

Hominid Evolution:

On The Origin of Humans



Hominid Evolution: On The Origin of Humans.

With your partner, discuss:

What makes humans unique as a species?

Hominid Evolution: On The Origin of Humans.

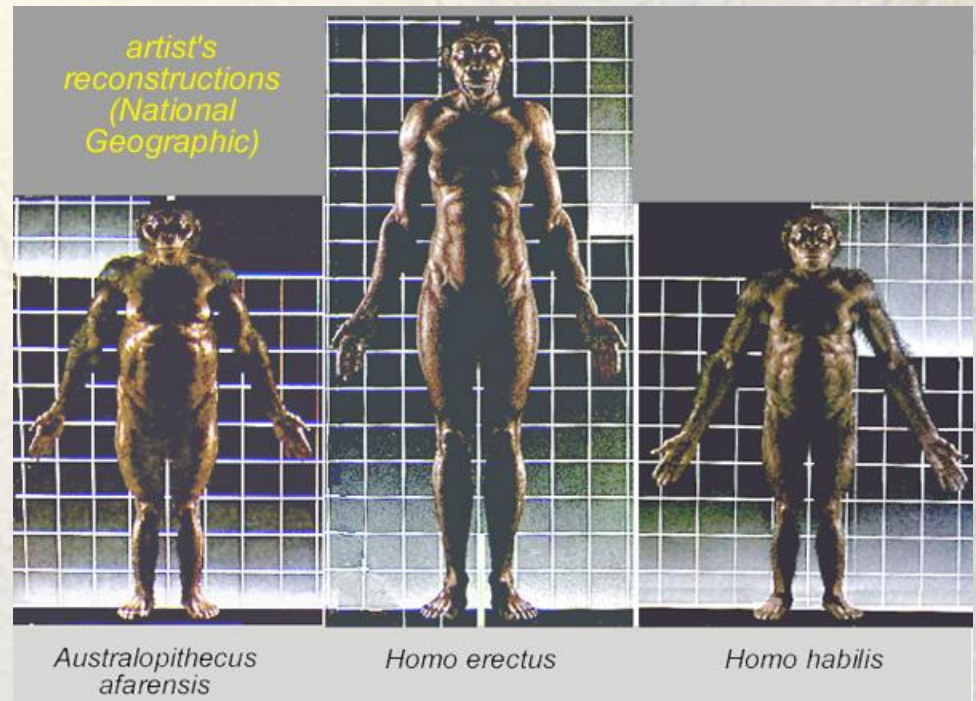
1. *Our ability to perform complex reasoning*
2. *Exceptional ability to learn*
3. *Make and use sophisticated tools*
4. *Communicate using complex language*
5. *Very large brain relative to body size*
6. *Hands are capable of fine manipulation/ coordination*
7. *We walk upright (bipedal)*

Questions to answer:

- What is a human?
- What is a hominid?
- What were early humans (hominids) like?
- How long have humans (hominids) been around?
- Where - and when - did modern humans (*Homo sapiens*) originate?
- How have we changed?
- How did we come to populate the entire earth?

What is a hominid?

- Any human-like species, including us.
- Bipedal (walks on two legs).
- Intelligent (large brain, uses tools).



Hominids are not the same as modern apes.

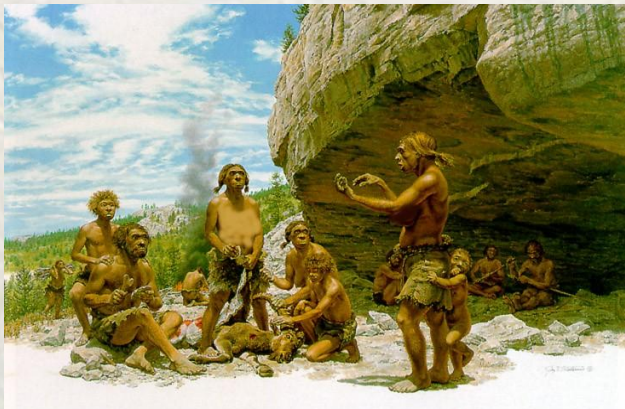
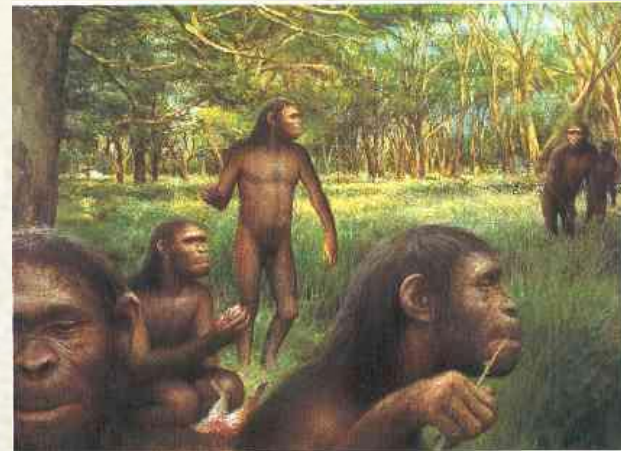
- Modern apes like chimpanzees, gorillas, orangutans are not bipedal.
- Modern apes do not have a large brain case compared to ours.
- Modern apes do not make tools.
- However, chimpanzees are our closest relative - our DNA is 98.8% similar to theirs!



There have been at least 12 different species of hominids over the last five million years or so!



Australopithecus africanus



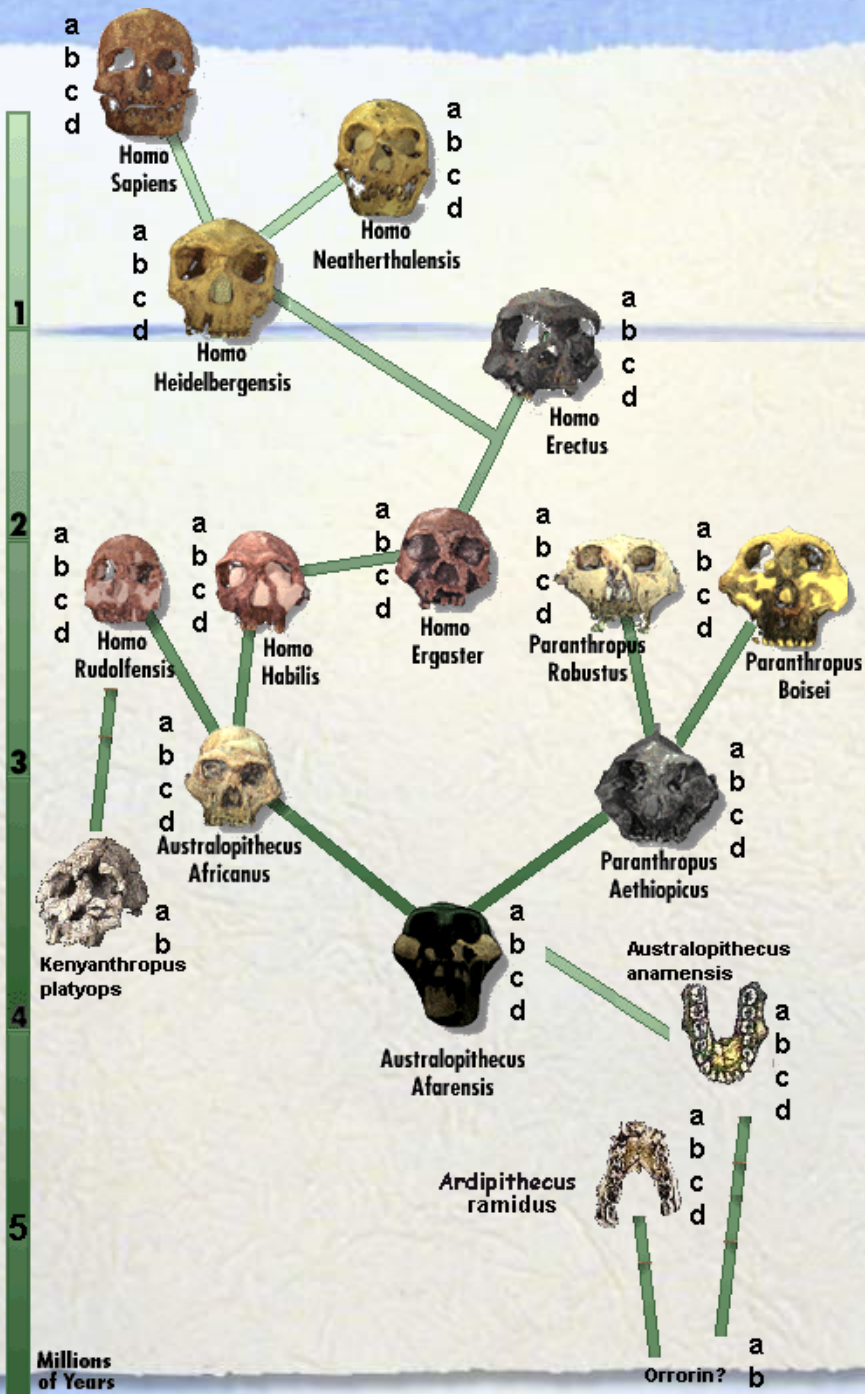
Since the first hominid fossils and artifacts were found, we have found literally hundreds of others.



www.bible.ca



(Australopithecus afarensis)



Anthropologists compare the skulls, teeth, bones, and tools.

Together they begin to show our family tree - how we evolved to who we are today.

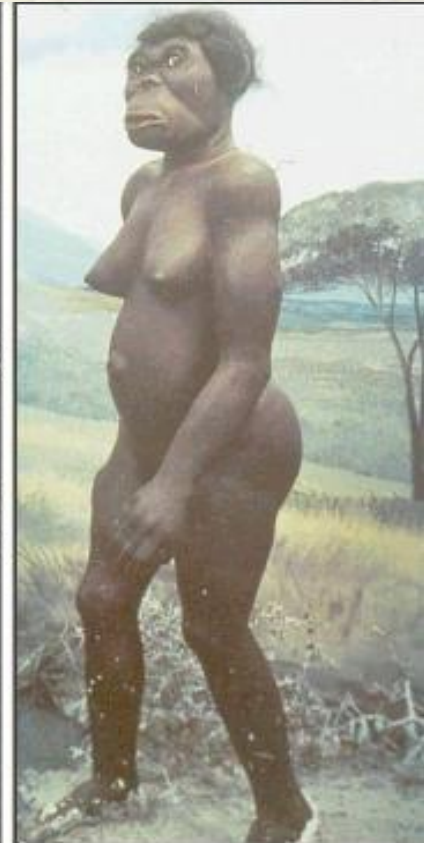
Most species have gone extinct - there are a lot of "dead ends".

We are still not exactly sure when the first bipedal hominids evolved, but an amazing discovery in 1974 proved that hominids were bipedal a lot earlier than previously believed.

Her name was Lucy.

“Lucy In The Sky With Diamonds.”

- Discovered in Ethiopia in 1974 (Dr. Donald Johanson)
- Dated at 3.2 million years old!
- 40% of her skeleton was found.
- Only four feet tall.
- Bipedal for certain. She walked upright.
- Her scientific name is *Australopithecus afarensis*, a distant ancestor to us, *Homo sapiens*.



A Reconstruction of Lucy

An even more impressive fossil was found in 1978, but there were no bones to it at all.

Huh?

This discovery proved that there were bipedal hominids even earlier than Lucy.

The Laetoli Footprints *found in Tanzania*



- 3.6 million years old.
- Even older than Lucy.
- Clearly bipedal.
- Also showed that these early hominids walked together.

So who were the “first” hominids? We still are not sure, but we have found more fossil fragments as early as five million years ago.



**And when did our species - *Homo sapiens* - first evolve?
And how did we come to dominate the earth?**



It is important to remember that there were several species in the genus *Homo* that came before *Homo sapiens*.

- *Homo habilis* is the earliest fossil discovered so far. (2.3 million years old)
- It means “handy man”.
- *Homo habilis* used very simple tools.



***Homo erectus* was a serious toolmaker and a fine hunter. Evidence also indicates that they were the first to use fire.**



Fossils of several other species in the genus *Homo* have also been found.



- *Homo ergaster*.
- *Homo heidelbergensis*.
- The most famous is *Homo neanderthalensis* (Neanderthal Man).
- Neanderthal Man lived in Europe.
- They too went extinct.
- Probably lived side-by-side with *Homo sapiens*.
- Possibly interbred with them.

And then there is...

Homo sapiens. Anatomically modern humans.

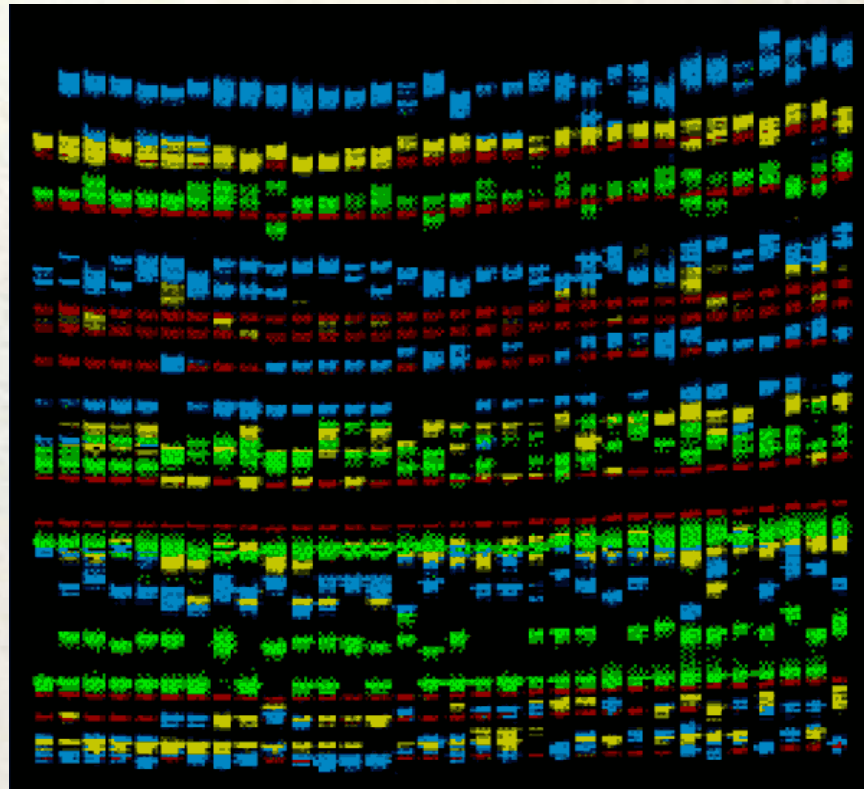
- Oldest fossils found so far are perhaps 195,000 years old.
- Found in Africa (in Ethiopia).



**Does that mean we all come from
Africa?**

Yes!

And recently, DNA analysis has proven this.

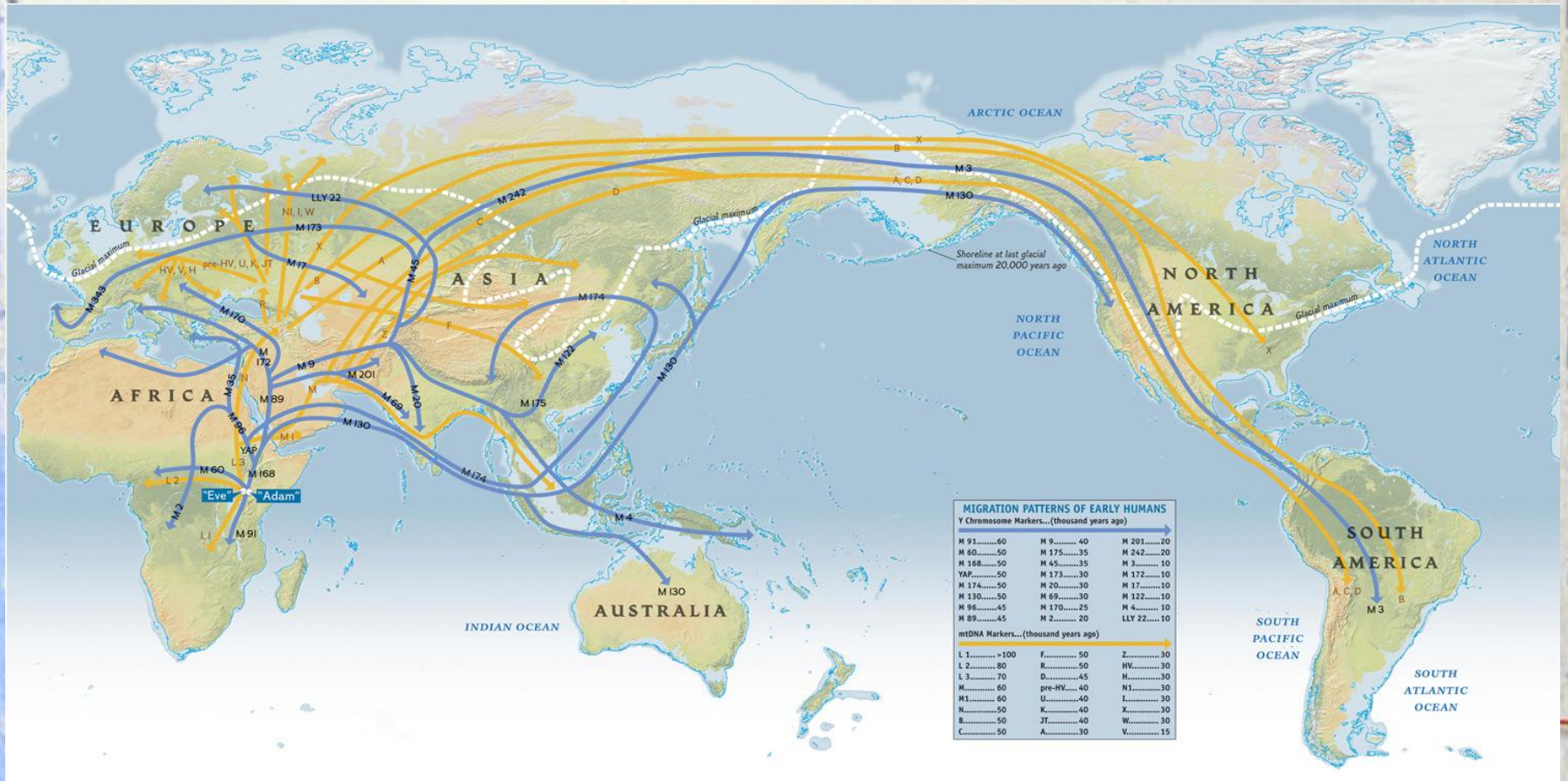


Does that mean we all come from Africa?



- DNA testing of thousands of humans today, using a simple saliva test kit, has created a “map” of human migration since modern humans first left Africa 80,000 years ago.

We now have an excellent “road map” of how humans evolved from Africa and migrated to populate the rest of the earth. This evidence matches the fossils and fills in the gaps.



Cultural Evolution

Human culture has influenced domesticated species by artificial selection and breeding.

After 300 000 generations *hunter-gatherers* the human population numbered no more than a few million

Our ability to direct the evolution of other species has allowed us to mass-produce foods and feed our own population (now about 8 billion!)

Only during the last 10 generations has our populations size skyrocketed



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