

"If Mom catches us out here, we're really gonna get it!"

Evolution

Non-directional change through time

Evidence

Fossils- Skeletal remains can indicate cladistic and temporal relationships
Genetics- Genetic distance measured in terms of genetic differences

Natural selection

- High number of offspring
- Variation in traits
- Differential survival
- Traits Inherited



Human Evolution

Mammals

Primates

Hominoids

Hominids

Diversity

Mammals

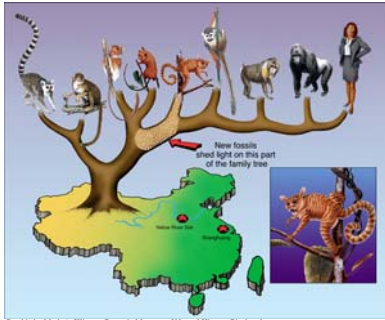
- Appear in fossil record ~200 million years ago
- Heterodont dentition- replaced only once
- Lactation and maternal care for young
- Fused jaw bone
- Hair/Fur
- ~4000 species



Hadrocodium

Primates

Appear in fossil record ~60 mya ~300 species



Graphic by Mark A. Klingler, Carnegie Museum of Natural History, Pittsburgh

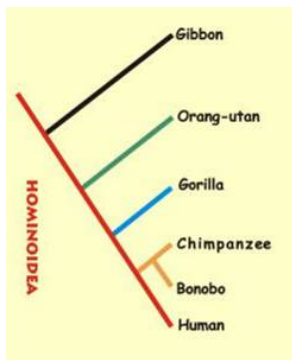
Prosimians (Lemurs)
Arboreal primates found only in Madagascar

Tarsoids (Tarsiers)
Small nocturnal primates of Indonesia

Eosimias link from lower to higher Primates

Anthropoids
(Monkeys & Hominoids)- New and Old World Monkeys; Apes and Humans

Hominoids



www.uia.ac.be/crc/food_morphologyv.html

The Lesser Apes

Pongids

The Great Apes

Hominids

Humans & ancestors

Laetoli Footprints



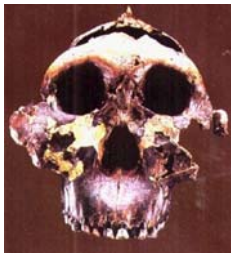
- 3.7 million years ago
- Discovered in 1978
- 3 sets of footprints
- Shows bipedal locomotion



“Lucy” *Australopithecus afarensis*

- 3.2 million years ago
- Discovered in 1974
- Bipedal- female, ~25yrs old
- 3.6 ft tall
- 500cc brain
- gracile

Zinjanthropus *Australopithecus bosei*



- 2.3-1.4 million years ago
- Multiple specimens (1959-93)
- Brain: 515cc
- Robust
- Olduvai gorge

Handy Man

Homo habilis

- 1.6-2.0 million years ago
- Multiple specimens
- Brain: 600-700cc
- Made stone tools
- Small teeth
- Olduvai gorge



Turkana Boy & Peking Man

Homo erectus

- 1.8mya-100kya
- Many specimens
- Brain: 750-1250cc
- Smaller teeth
- Tall and fully upright
- Africa, Asia, Indonesia, Europe

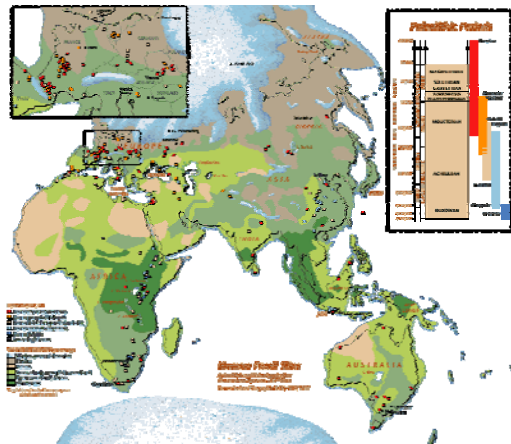


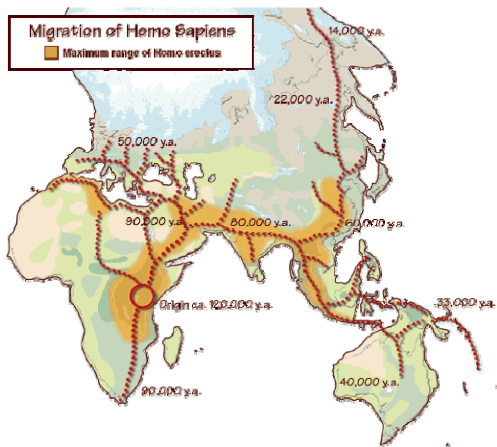
Neandertals

Homo neandertalensis

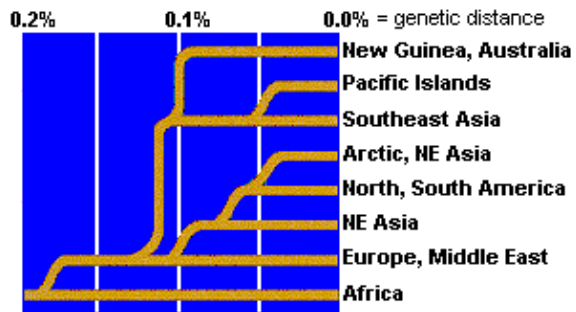
- 150-35kya
- Many specimens
- Brain: 1800cc
- Muscular, stocky
- Buried the dead
- Complex tools
- Hunted, cooked
- Europe, Middle East







Human Diversity



There is very little fossil evidence to support the multiregional hypothesis

There is **no** genetic evidence to support the multiregional hypothesis

Mainstream anthropologists contend that all Homo sapiens are one single species descended from a single hominid ancestor in Africa
