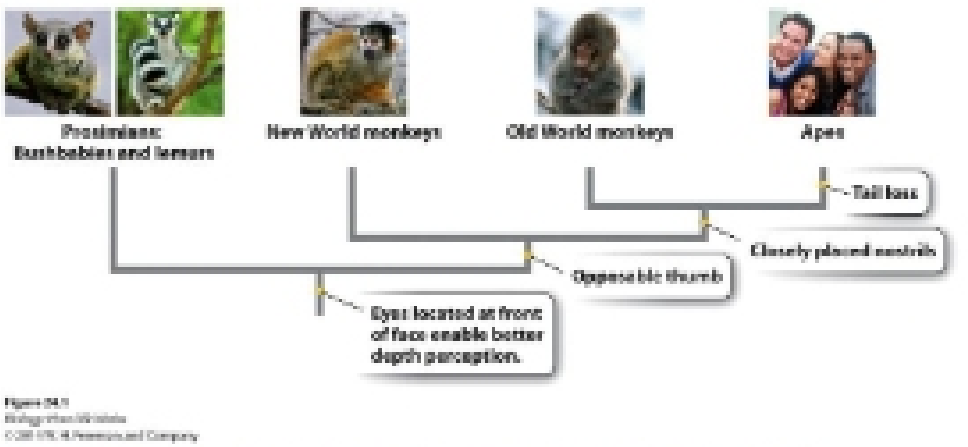
I. Human Origins and Evolution

A. 5-7 Billion years ago humans evolved from apes.

II. Primate Family Tree

A.



B. Nails instead of claws (human/ape similarities)

III. Ape Family Tree

A. 5-7 billion years ago

1. Humans didn't start walking on two hind legs.

IV. Earliest Hominin (Sahelanthropus tchadensis)

A.

B. Found in 2002

C. From about 75 million years ago

D. Shape of the skull varies from apes because of brow muscle

V. Important Early Hominins

A. Ardi (Ardipithecus ramidus)

1. 4.4 million years ago is when he lived

B. Lucy (Australopithecus afarensis)

1. 1974 found in Ethiopia
2. One of the most complete skeletons we've ever identified
3. First fully bipedal hominin to walk majorly on two feet
4. 3.2 million years old

C. **5.3 million years ago, humans believed to be BIPEDAL**

D. Humans have evolved, getting larger

E. Advantages of Bipedal

1. Able to use hands
2. Taller, able to see things better
3. Oxygen is not as shallow

VI. Hominin Lineages

A.

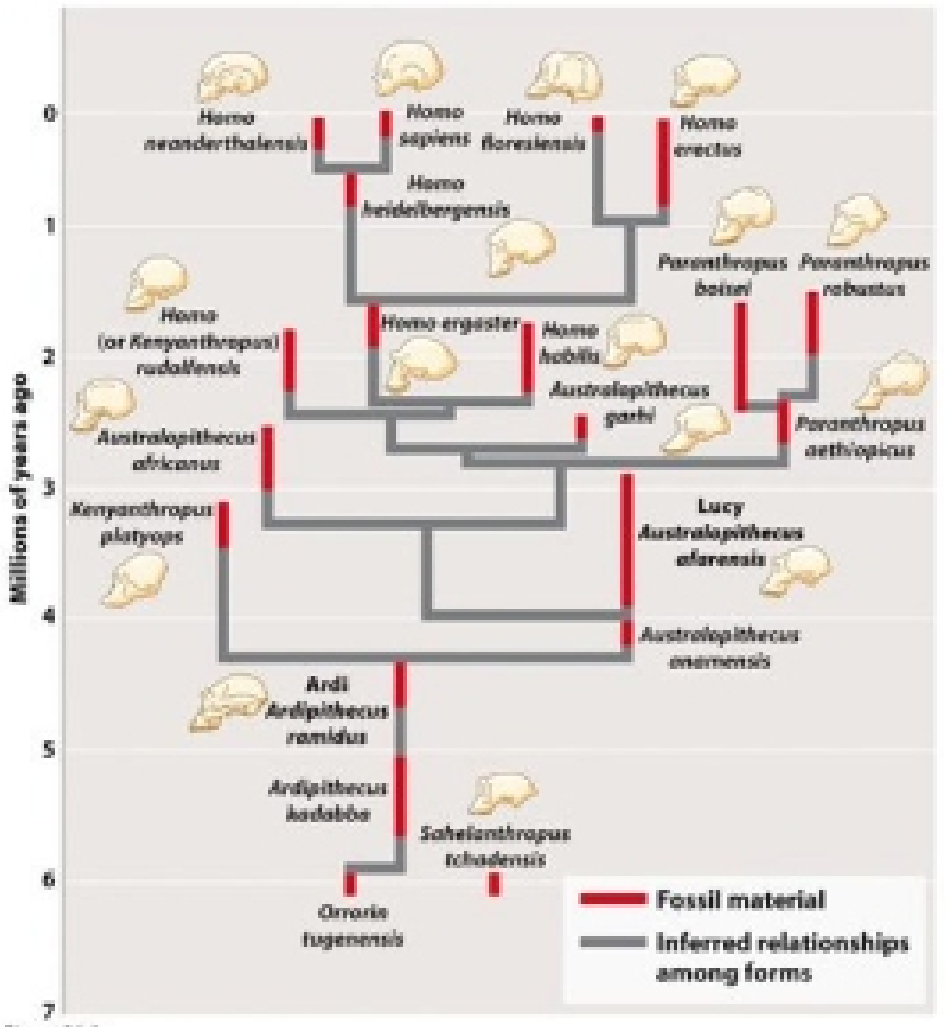


Figure 26.6
Biology: Nine Life Works
© 2014 W. H. Freeman and Company

B. Neanderthals were alive the same time homo sapiens, however Neanderthals disappeared

C. Homo ergaster was believed to have left the African continent 2 million years ago.

1. They are believed to be the first.

VII. Origins

A. Multiregional Hypothesis

B. Out-of-Africa Hypothesis

VIII. Variation in restriction sites in human populations

A. Analysis of mitochondrial DNA

B. Digested with different restriction enzymes

1. Enzymes that cut DNA at a specific sequence

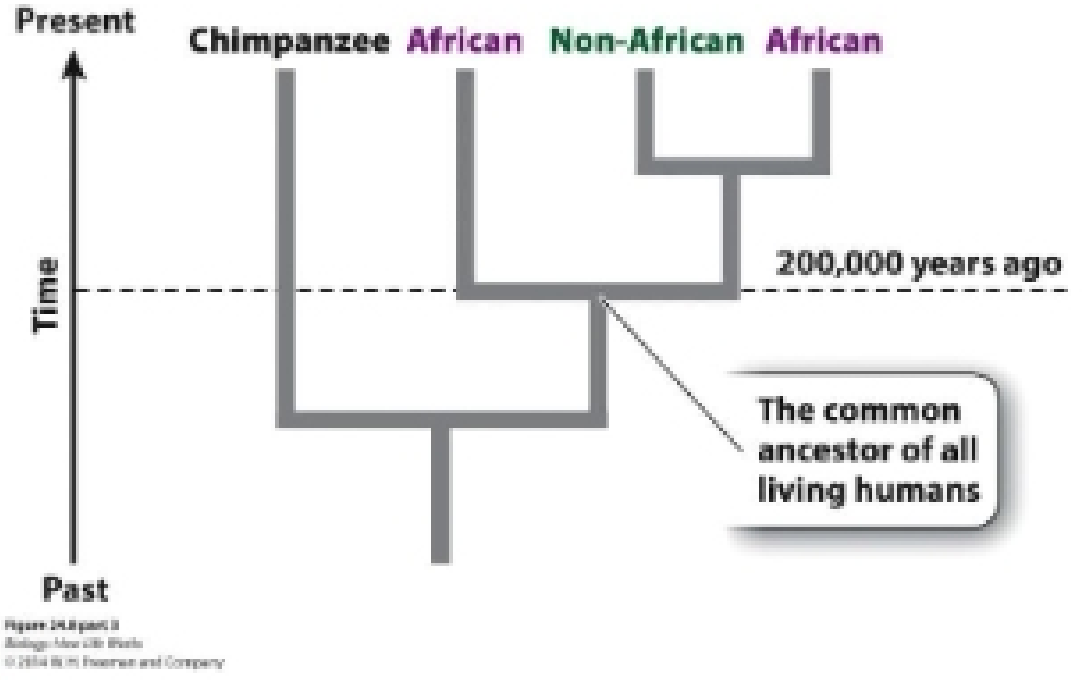
C. Used this to construct a phylogenic tree

IX. Phylogenetic Tree Based on Restriction Site Variation

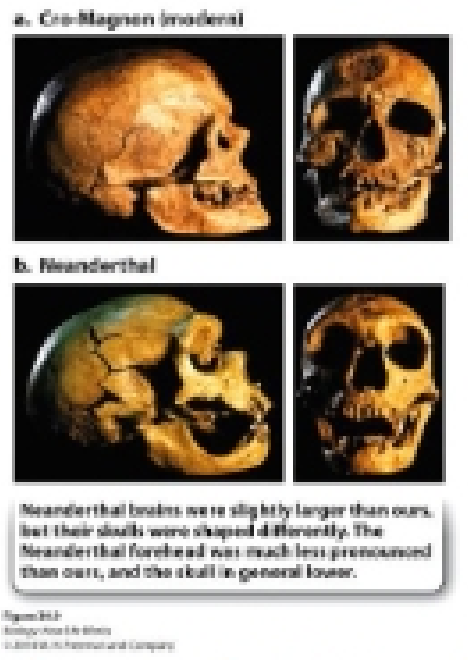
A. Homo sapiens evolved around 200,00 years ago

X. Support for the out-of-Africa theory

A.



XI. Neanderthals
- A. Cro-Magnon
  - 1. Considered modern
- B. Neanderthal
- C.



XII. The Evidence for and Against Interbreeding
- A. Mitochondrial DNA comes strictly from the mother
- B. Did Neanderthals and modern humans interbreed?
  1. Based on genome: yes
  2. Based on Mitochondrial DNA: no
     - a. Could have been lost through genetic drift
     - b. Female Neanderthals did not interbreed with homo sapiens
       - i. But males could have
- C.