Human Origins Lecture 07

Geological Time

Geological Time Scale

Precambrian

Phanerozoic

Cenozoic

Mesozoic

Paleozoic

Proterozoic

Archaean

Hadean
Hadean  
4.5 to 3.8 billion years ago

Archaean  
3.8 to 4.5 billion years ago

Proterozoic  
2.5 billion to 543 million years ago

Phanerozoic

Cenozoic
Mesozoic
Paleozoic
Proterozoic
Archaean
Hadean
Paleozoic
- Cambrian Explosion
- Permian Extinctions
- Life on land

Mesozoic
- "Middle" animals
- Dinosaurs
- Cycads, ferns, etc.
- Angiosperms
Mesozoic

Cretaceous
- Demise of the dinosaurs
- Breakup of Pangea

Cenozoic
- Paleocene
- Eocene
- Oligocene
- Miocene
- Pliocene
- Quaternary
- Age of Mammals

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<th>Era</th>
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<th>Epoch (in years)</th>
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Paleogene
- Neogene
- Paleogene

Cretaceous
- Early
- Late
- Jurassic
- Cretaceous
Pleistocene

Pace of Evolution

Life Prior to First Vertebrates

trilobites
Ordovician (448-443 mya)

Amphioxus—sea lancelets

Chondrichthyes, or "cartilaginous" fish

Bony Fishes
Lung Fish and Coelacanth

Life on Land: Devonian (416-360 mya)
- Respiration
- Reproduction

Amphibians
Amniotic Egg

Mammal-like Reptiles
- Reduction in skull bones
- Teeth begin to differentiate
- 5 digits
- Skull attached to backbone
- Limbs beneath body
- Brains larger
- Physiologically more like mammals

Lycaenops

Therapsida

Mammals
- Homoiothermy
- Intelligence
- Reproduction
- Pre- and post-natal care
- Improved immune system
- Heterodontism

Monotremes
- Marsupials
- Placental mammals
Human Primate

- Bipedalism
- Culture
- Spoken language