

INTRODUCTION TO ANTHROPOLOGY

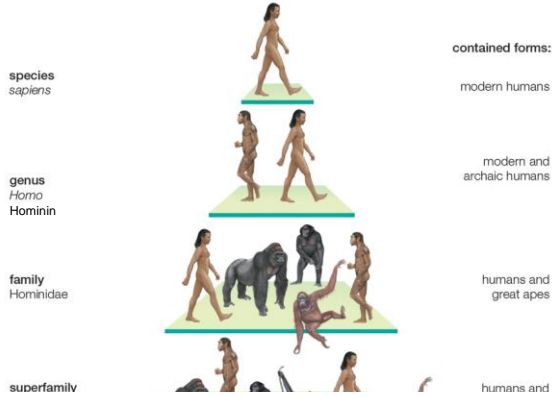


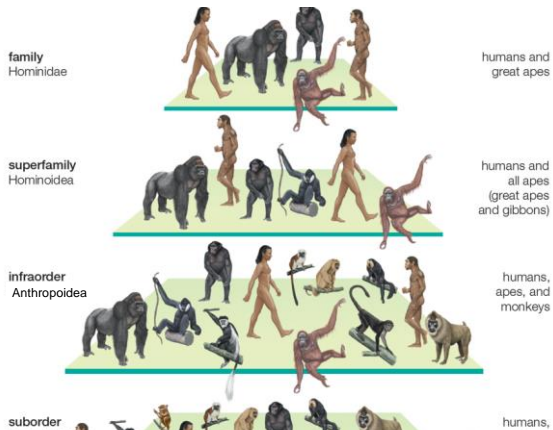
ANTH 101
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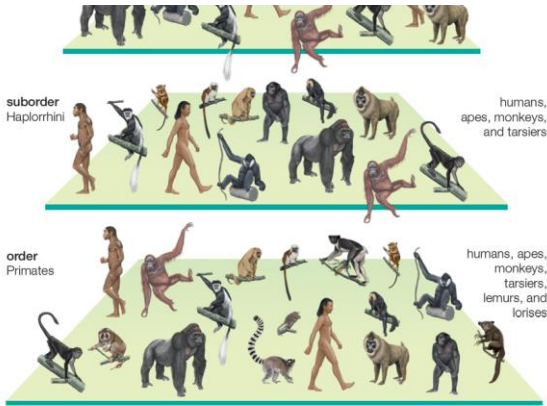
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C. Primate Evolution

Classification of *Homo sapiens* within the order Primates







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1. Features of Primate Evolution



Primates share at least six evolutionary trends:

- a. Increasing brain size, relative to body size, and increased brain complexity
- b. Decreasing facial projection and reliance on the sense of smell
- c. Increasing dependence on sight
- d. Decreasing number of teeth
- e. Increasing period of infant dependence
- f. Greater dependence on learned behavior

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2. Patterns in Primate Evolution



Primates share a unique “prehensile morphology”:

- Opposable thumbs and great (“big”) toes
- Nails rather than claws on at least some fingers or toes
- Pads at the tips of fingers and toes with many nerve endings
- Dermal ridges, or “friction skin,” on toes, fingers, soles, palms, and underside of prehensile tails

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3. Approaches to Primate Taxonomy



a. **Cladistic taxonomists** divide primates into **Strepsirhines** and **Haplorhines**.

1. Strepsirhines

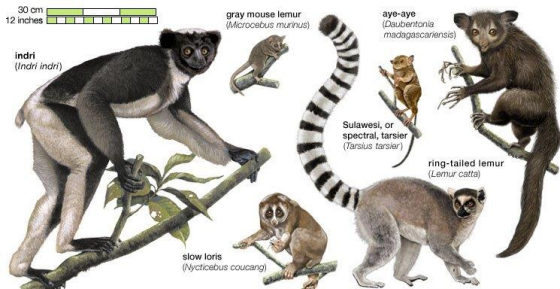
- Have a rhinarium, or upper lip, directly attached to the gums
- Include **lemurs and lorises**

2. Haplorhines

- Do not have a rhinarium
- Include **tarsiers and anthropoids**

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Strepsirhines



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3.a.2. Haplorhines

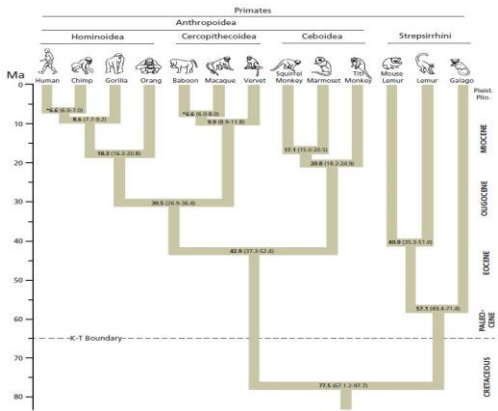
i. Tarsiers or Tarsiiformes

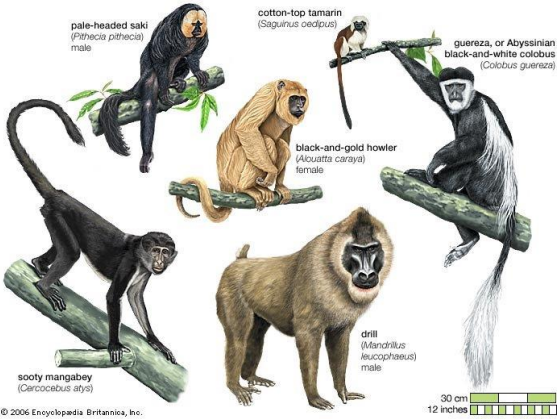
- Small, nocturnal primates
- Originally grouped with lemurs and lorises into prosimians, but since separated

ii. Anthropoids

- Consist of **monkeys, apes, and humans**
- Subdivided into New World anthropoids (all monkeys, classified as "platyrrhines", or flat-nosed primates) and Old World anthropoids







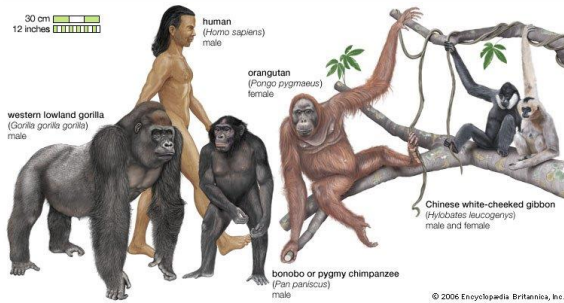
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4. Hominoids



- a. **Apes and humans** differ from monkeys in teeth, skeletal shape and size, and lack a tail.
- **Cladistic taxonomists** divide hominoids into **lesser apes, orangutans, and group African apes and humans together**.
- Humans are more closely related to **chimpanzees** than other hominoids (they share **98% similar DNA**).
- **Humans and their immediate ancestors** are called **hominins**.

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4. Hominoids

b. Gorillas



- Live in Africa and are **the most sexually dimorphic primate**
- A single **male dominates** social groups
- Consist of five living subspecies
 - Western lowland gorilla
 - Cross River gorilla
 - Grauer's gorilla
 - Bwindi gorilla
 - Mountain gorilla
- **Mountain gorilla** is the rarest subspecies but best known thanks to **Dian Fossey**.



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4. Hominoids:

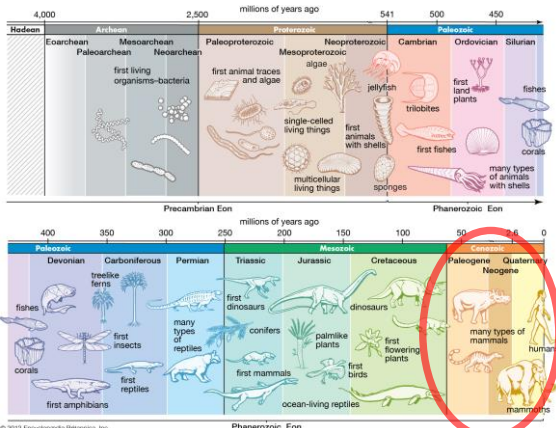
c. Chimpanzees



- Consist of **two living species** in Africa
 - **Common** chimpanzee (Pan troglodytes)
 - **Bonobo** or "pygmy" chimpanzee (Pan paniscus)
- Common chimpanzees are the most studied of all apes, thanks largely to **Jane Goodall** and associates.
- **Chimpanzees** regularly make and **use tools**.
- **Bonobos** are known for **highly eroticized social interactions** and a central role for females.



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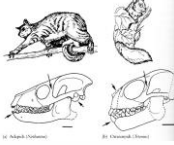


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5. Primate Evolution during the Cenozoic



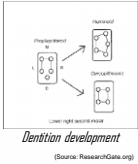
- a. **Paleocene Epoch (65-54 mya)**
 - Earliest evidence for primates
- b. **Eocene Epoch (54-38 mya)**
 - Primates are divided into **adapids** and **omyiids**.



- Adapids look like living lemurs but lack a dental comb.
- Omyiids look like living tarsiers.
- **Anthropoideans appear** and are ancestral to later monkeys, apes, and humans.

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5. Primate Evolution during the Cenozoic



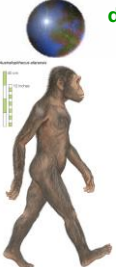
- c. **Oligocene Epoch (38-23 mya)**
 - **Anthropoidean** fossils are divided into **parapithecids** and **propliopithecids**.
 - Parapithecids may be ancestral to New World monkeys.
 - Propliopithecids may be ancestral to all later Old World monkeys, apes, and humans.
 - **Earliest hominoid**, or ape, fossils date to the late Oligocene.

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5. Primate Evolution during the Cenozoic

d. Miocene Epoch (23 to 5 mya)

- Hominoid diversity decreased during the middle Miocene (ca. 16-10 mya).
- Old World Monkeys become very successful during the late Miocene (ca. 9-5 mya).
- Chimpanzees, gorillas, and humans share a common ancestor in the late Miocene.
- Hominins, a bipedal hominoid, appear during the late Miocene.
- The *Australopithecene* genus emerged shortly after the Miocene.



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