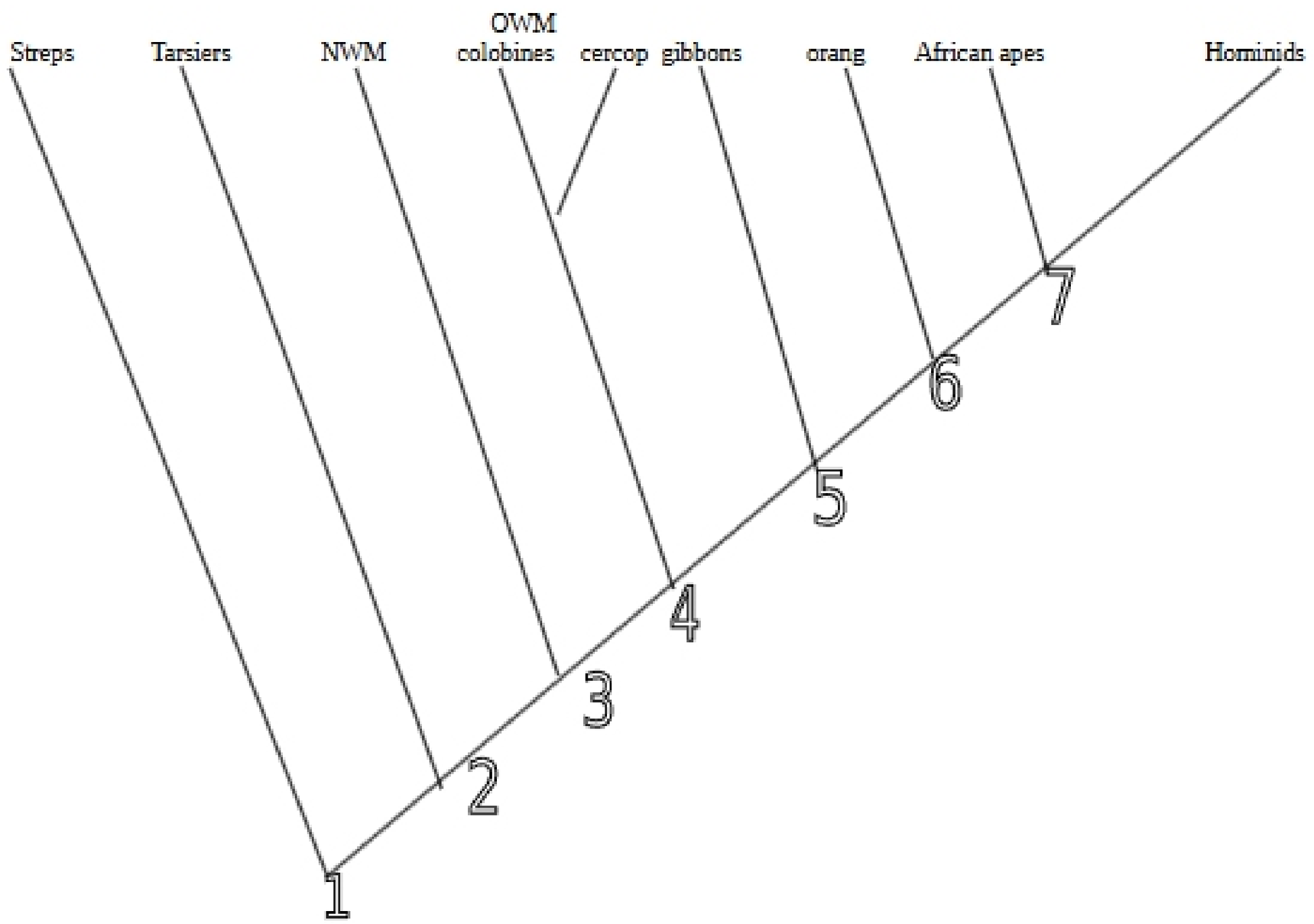
Name:

ANT 3514 – Intro to Biological Anthropology
Lab 7
Primate Evolution
Week of February 23, 2004



The nodes on a cladogram represent shared derived features that unite a natural group of species to the exclusion of others. We will go over how this cladogram was constructed in lab.

1- postorbital bar, convergent orbits
2- partial postorbital closure, loss of tapetum lucidum, development of haplorhine nose
3- complete postorbital closure, more complex (elaboration) placenta
4- 2-1-2-3 dental formula, tubular ear region, true quadrapedal body form
7- fused wrist bones, genetic/molecular similarities, enlarged ovaries, changes in premaxilla, shortened canines

**<u>At home</u>, list 1 trait for node 5 and 1 for node 6.

5- _____

6- _____

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STATION 1: The earliest Primates? *Plesiadapsis* & *Purgatorius*
Fossils of the earliest primate-like mammals exist from the Paleocene epoch (58-65 mya). These fossils are found in North America and Europe. There is disagreement over whether or not these are actually early primates. Take some time to look at the drawing of the plesiadapiform skulls, the plesiadapiform tooth cast and the tree shrew skull. Use these items and your book to answer the following questions:

What are two primate characteristics these fossils possess?
1._____

2. _____

What are two non-primate characteristics?

1. _____

2. _____

STATION 2: The earliest Primates: Eocene Radiation
The start of the Eocene epoch (58 mya) coincides with a period of adaptive radiation for the earliest well-defined primate species (nearly 60 genera, this is four times greater than the amount of prosimian diversity today). Two extinct families: Adapidae and Omomyidae, help to group the earliest primates. The adapids are thought to be ancestral to present day lemurs and lorises, whereas the omomyids are most likely ancestral to tarsiers. Adapids and omomyids were sympatric and found in North America and Europe.

Compare the adapid skull, lemur skull and tarsier skulls. Use these skulls and the laminated drawing to answer the following questions:

What are two traits the adapid and the lemur share?
1._____

2. _____

Name and describe two differences between the adapid and the tarsier.

1. _____

2. _____

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STATION 3: Early Anthropoids

The Oligocene epoch began 35 mya and marked by a great deal of geologic and climatic change. This time period also represents a major gap in the fossil record. However, the Fayum deposits in Western Egypt are an exception (additional scattered remains have been found worldwide). One of the earliest known and best described catarrhine monkeys from this time is *Aegyptopithecus*. *Aegyptopithecus* belongs to the family Propliopithcidae. Propliopithecids have been found in Africa, Asia and South America.

Other anthropoids found at Fayum, but thought to precede the split between platyrrhines and catarrhines are *Parapithecus* and *Apidium*.

Examine the *Aegyptopithecus*, *Parapithecus*, *Apidium*, capuchin, howler and baboon skulls, along with the laminated picture in order to answer the following questions:

Which of the fossils are more like new world monkeys, and why?

1. _____

Which is more like an old world monkey and why?

1. _____

Name and describe one similarity and one difference between the *Aegyptopithecus* and the baboon.

1. _____

2. _____

What do these similarities and differences tell you about the place of *Aegyptopithecus* on a cladogram of extant and extinct primates?

STATION 4: Fossil Apes

The beginning of the Miocene epoch (25 mya) marks the appearance of the first apes. At this time, apes shared a great deal of morphological similarities with monkeys. One of the first ape genera includes *Proconsul* (20-17 mya). Another later genus, *Sivapithecus* (12-7 mya), is most commonly thought of as the ancestor of orangutans.

Examine the *Proconsul*, *Sivapithecus*, *Gigantopithecus*, *Oreopithecus*, cercopithecine, orangutan and chimpanzee specimens in order to answer the following questions: