

## LAB EXERCISE

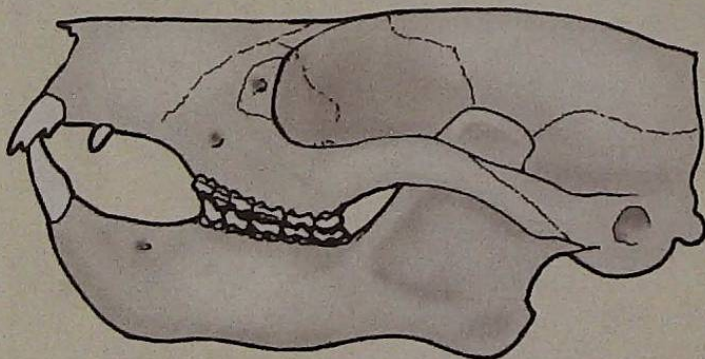
## 12.1

NAME \_\_\_\_\_

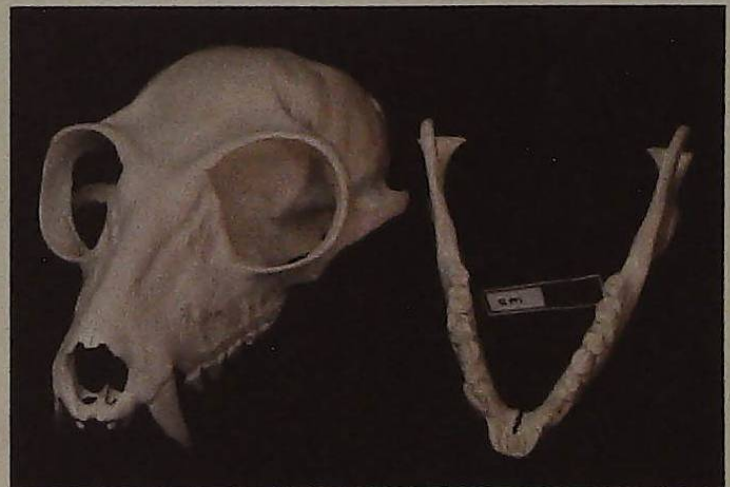
SECTION \_\_\_\_\_ DATE \_\_\_\_\_

1. Compare the illustration of a Plesiadapiform primate (*Plesiadapis*, below) (*Atlas* p. 260; br. ed. p. 32) with the skull (or the photo below) of a strepsirhine (*Atlas* p. 102; br. ed. p. 8).
- a. Fill out the chart below. Refer to Table 12.2 for body parts that are not shown in the accompanying illustration or photo.

SKULL FEATURES	PLESIADAPIFORM	STREPSIRHINE
Postorbital bar	No	Yes
Position of orbits: lateral or forward-facing?	Lateral	Forward-facing
Relative size of braincase (compared to face)	Small	Small
Prognathism: length of snout relative to cranium	Long	Small
Form of incisors and incisor size relative to canines and molars	Have long incisors separated by a gap from the molars	Have toothcomb which consists of 6 teeth i.e. 4 incisors and 2 canines
POSTCRANIAL FEATURES		
Nails versus claws*	Strong curved claws	Have nails and toilet claw
Opposable big toe?*	No	Yes
*not observable from photos, but information is in this chapter		



Plesiadapis skull



Ring-tailed lemur

b. Why do some researchers consider plesiadapiformes to be members of the primate order?

This is because of their petrosal bulla, more rounded molar cusps, and arboreal features of postcranial skeleton.

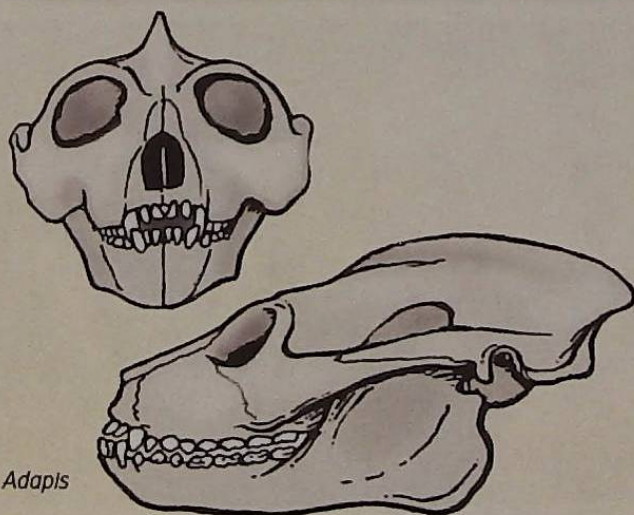
c. Which of the plesiadapiform features are decidedly unlike those of primates?

Difference occurs in lack of opposable big toe, having claws and laterally facing eye orbits.

2. a. Compare the fossil and living forms listed below, using a combination of specimens and accompanying illustrations and photos on this page and the next. (*Adapis*: Atlas p. 265, br. ed. p. 37; Ring-tailed lemur: Atlas pp. 102; *Necrolemur*: Atlas p. 267, br. ed. p. 39; Tarsier: Atlas pp. 112–113; *Eosimias*). If you can't determine a specific feature, put a "not obs" (not observable) in the blank. Figures 10.5 and 10.6 may also provide useful information.

SKULL FEATURE	ADAPIS (ADAPOID)	LEMUR* (LEMUR)	NECROLEMUR (OMOMYOID)	TARSIER (TARSIVUS)	EOSIMIAS
Postorbital bar?	yes	Yes	Yes	Yes	
Postorbital closure?	No	Yes	No	Yes	
Position of orbits	Forward facing	Lateral	Lateral	Forward facing	
Relative size of braincase	Big	Small	Big	Small	
Snout length relative to cranium	Long	Small	Narrow	No	
Fused mandibular symphysis?	No	No	No	No	No
Size of anterior versus posterior dentition					

\*Other strepsirhine skulls may be substituted for the lemur.



*Adapis*

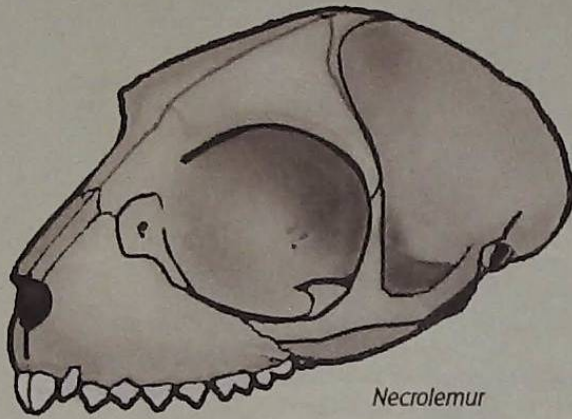


Ring-tailed lemur

LAB EXERCISE  
**12.1** (CONT.)

NAME \_\_\_\_\_

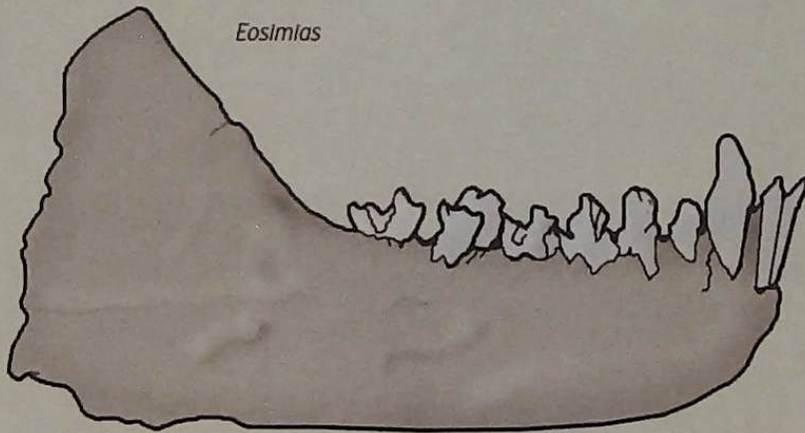
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*Necrolemur*



*Tarsier*



*Eosimias*

b. Using lab specimens or the accompanying photos, look at the relative size of orbits of the tarsier versus those of a monkey (at right) and a lemur (see photo from question #1, previous page). What can we tell about the activity patterns (diurnal versus nocturnal) from fossilized remains?

Tarsier species are seen to be nocturnal. They possess a short-snouted, round head and middle-sized to very large, skinny, mobile ears. Their eye sockets have been seen to be very huge.

c. Adapoids are thought to be ancestral to what modern forms?

They are ancestors of strepsirhines



Capuchin monkey

d. Omomyoids may be ancestral to what modern forms?

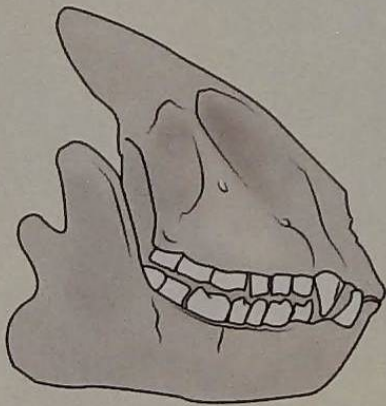
Haplorhines

3. Compare the skulls of the Fayum primates *Apidium* and *Aegyptopithecus* to a New World monkey, an Old World monkey, and an African ape.

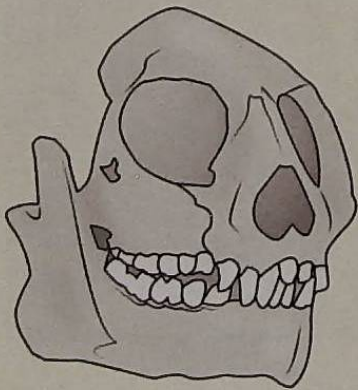
a. Fill out the chart below using specimens or the accompanying photos and illustrations (use capuchin photo on p. 289) (*Apidium*: Atlas p. 272, br. ed. p. 44; *Aegyptopithecus*: Atlas p. 272–273, br. ed. p. 44–45; chimpanzee: Atlas pp. 140–142). Again, not all features will be visible from the photos alone. Figures 10.5, 10.6, and 10.8, as well as Photo 10.2, may provide useful information.

SKULL FEATURES	APIDIUM	CAPUCHIN MONKEY (OR OTHER NEW WORLD MONKEY)	AEGYPTOPITHECUS	VERVET (OR OTHER OLD WORLD MONKEY)	CHIMPANZEE (OR GORILLA)
Postorbital closure?	present	Present	Present	Present	Present
Dental formula	2-1-3-3	2-1-3-3	2-1-2-3	2-1-2-3	2-1-2-3
Length of snout	Long	small	Long	Small	Small
Molar form* (bilophodont versus Y5 pattern)	NA	NA	Present	Y5 molar	present
Form of ear region (bony tube?)	No	no	no	Present	present

\*If actual specimen is available



*Aegyptopithecus* (A) skull and (B) dental arcade



*Apidium*



Vervet monkey



Chimpanzee