

Question 32:

a. i) one feature which can be used to classify humans as mammals <sup>are</sup> the mammary glands. The mammary glands are used to suckle the young.

ii) Homo sapiens have a longer femur than Australopithecus afarensis which results in longer legs.

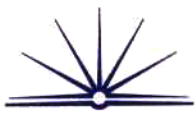
The shape of the ribs differs from Australopithecus as ~~a~~ larger organs and stomach developed. A larger cavity underneath ribs can be found on Australopithecus afarensis.

The forehead of Homo sapien also differs from that of Australopithecus as the Homo sapien has a larger forehead.

b. i) I would compare the data to any other radiometric data previously taken at or near the fossil site. I would then compare the fossils to similar fossils from a similar site and compare radiometric data on the two or more similar fossils.

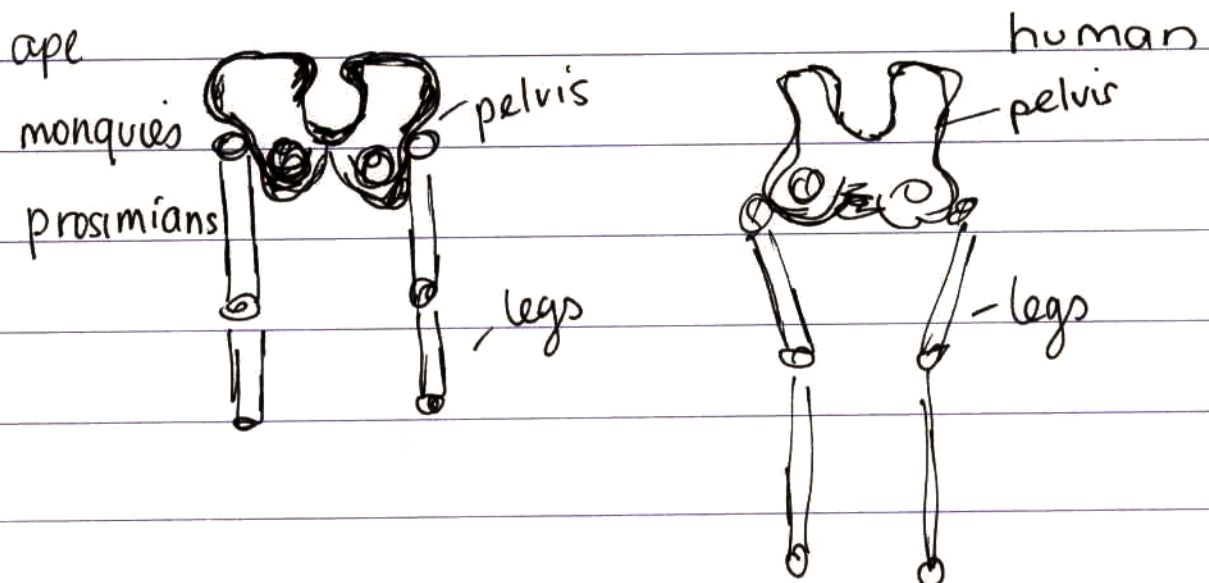
ii) Look at results from previous radiometric data to see what is represented in the data. Gather info from Library, museum to see what came up in data and what information can be processed from the findings.

c). phenotypes can either be homozygous or heterozygous. offspring will result as either are depending on their parents, and their characteristics will develop regarding their parents. Blue eyes is a dominant characteristic and if two homozygous parents have blue eyes there is a 100% chance the offspring will.



(d)	Prosimians	Monkeys	Apes	Humans
Feature I	skull	skull	skull	skull
Feature II	legs, feet	-  -	-  -	-  -

By using the skulls of those we calculated the Beanning angle. By putting the special ruler on top of the skull and other side of ruler between eye and ear (where it should be). We calculated skulls to be bigger of ape  $110^\circ$  and human  $90^\circ$ . Also we have looked at the pelvis and position of the legs. In Prosimians, monkeys & apes the leg from pelvis go straight which unables them to move ~~fast~~ quickly and to walk normally.

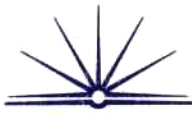


From this we have concluded that it is easier to walk for humans than for others. Also we have concluded that when other once ~~for~~ run it hurts because their legs and pelvis are not joined properly. they have harder ~~time~~ to move around.

Also by calculating the cranial capacity for p, m, a, h and the volume of the head we have concluded that modern humans have 3 times larger brain size and cranial capacity than apes, monkeys and prosimians. Also the cranial capacity is for humans  $1500 - 1000 \text{ cm}^3$  where for apes is  $430 - 320 \text{ cm}^3$ .

Also by comparison of the spine shape and foremen magnum we concluded that the human spine is more flexible and supports the body better also the skull foremen magnum is in the centre of the skull.





where for others it is at the end joined by many muscles to support it. Also the spine for others is less flaxable more ridges and makes them use arms to move around.

e) The main factors affecting human biological evolution would include the changes in genetic engineering, <sup>and</sup> ~~Medicine~~ <sup>and</sup> advancements in medicine.

Changes in genetic engineering would be developments of new ways of creating organisms with desirable characteristics used in ~~or~~ agricultural practices. Other experiments include creating transgenic species and improving the food that is ~~so~~ now on the market.

Advancements in medicine would be used to help patients who are in need of treatment. It would also evolve to longer lifespans.

The advancements in medicine and genetic engineering would be an advantage unless it is misused. This could lead to problems such as biological warfare and unexpected deaths from the wrong medication. If the impact is on the environment it can lead to irreversible changes.