

# Lab report example

[Science](#), [Anthropology](#)



Anthropology lab report Identification of species by skull features.

Significance of the indices; i) Index of supra orbital height- This index measures the height of the skull above the eyes. The supra orbital ridge is a feature more prominent in the early hominids as they had larger and stronger muscles of mastication. This was thus a form of reinforcement. Furthermore, a higher ridge is associated with more primitive hominids as the position of the brain was positioned more posterior to the eyes. It is an indirect way to measure the size and complexity of the cerebrum.

ii) Index of nuchal area height- This measurement gives relative position and height of the foramen magnum and helps to determine upright posture of the hominid.

iii) Index of condylar position- This index is used to tell how far forward or backward the occipital condyles are located. These occipital condyles are projections from the bottom of the skull that attach the skull to the atlas and axis of the cervical vertebrae. This gives an indication of how upright the organism stood. The more centered that the occipital condyles are along the Frankfurt plane, the higher the probability the hominid was upright.

Other indices

1) Total facial index – earlier hominids had wider faces due to the larger facial bones for muscle attachment. Larger facial size thus indicates a more primitive hominid

2) Cranial volume- Primitive hominids are believed to have smaller cranial vault sizes than the more recent/evolved hominids.

3) Lower nasal spine- larger nasal spines imply European origin of hominid skull. A smaller one implies a sub Saharan origin.

4) Nasal cavity shape – the nasal cavity shape helps establish ancestry and racial origin. A wider nasal chamber indicates a sub Saharan origin as compared to a narrower flared/heartshaped one in the European skull.

#### Identification of skulls

The Mystery skull 1 belongs to anatomically modern Homo sapiens. The reason I assigned this taxon is due to the high  $uv/tv$  ratio. This implies that the hominid had a lower brow and thus the frontal lobes were higher than eye level. The  $tw/tv$  ratio is also large meaning that the foramen magnum is high. This implies an upright posture. The index of condylar position is also large implying that the foramen magnum is nearly centrally placed under the skull. This also implies a near upright gait. The facial features such as zygomatic bones are not as prominent, thus showing that the hominid did not have need for large mastication muscles. The maxillary jaw is also less protruded. This is characteristic of the more evolved hominids. The sagittal sutures also close to form a well rounded calvaria characteristic of higher hominids.

Mystery skull 2 belongs to the Neanderthal. The reason I assigned this taxon is due to the fact that the  $uv/tv$  ratio is relatively large. This implies that the brow ridge is not as high, and thus the brain is slightly higher placed than the eyes. The  $tw/tv$  ratio shows that the foramen magnum is located lower on the skull and thus the hominid may not have been entirely upright. The  $xy/xz$  ratio is quite large. This implies that the foramen magnum was almost centred, meaning that although the hominid was not entirely upright, it may have employed bipedal gait. The skull also exhibits a certain degree of maxillary prognathism with protruding zygomatic bones. This therefore

implies that there was need for strong mastication muscles.

The new found skull belongs to *Australopithecus robustus*. This is due to the prominent zygomatic bones that imply large muscles of mastication. The skull also has prominent prognathism and tapering of the calvaria at the sagittal suture. The uv/tv ratio is at 50 implying that the brow is high. This means that the brain is posterior to the eyes and thus a trait of primitive hominids. The tw/tv ratio shows that the foramen magnum is low placed in the skull, and thus the hominid was not likely upright. This also coincides with the xy/xz ratio that is at 56. This implies that the foramen magnum and condyles are more posteriorly placed. This coincides with a less upright posture.