

AS Level Biology B

H022/02 Biology in depth

Question Set 3

1 Hominids have been classified using taxonomic ranks.

(a) Using the terms below, complete the sequence of taxonomic ranks in the hierarchy of classification.

The last one has been done for you.

Genus Phylum Class Family Domain
Species Order Kingdom

Species

[1]

(b)* *Homo habilis* is a species of hominid that lived in central Africa between 2.8 and 1.5 million years ago.

Since the discovery of *Homo habilis* fossils in central Africa during the 1950s, scientists have debated whether this species should have been placed in the genus *Australopithecus*.

Discuss the usefulness of different types of evidence when classifying species such as *Homo habilis*.

[6]

(c) Fig. 1.1 shows tools used by *Homo habilis* and *Homo neanderthalensis*.



Tools used by *Homo habilis*

Fig. 1.1(a)



Tools used by *Homo neanderthalensis*

Fig. 1.1(b)

Explain how different tools, such as those shown in Fig. 1.1, can provide evidence of hominid evolution.

[2]

- (d) Primate species are known to use physical grooming to maintain social groups. Studying this behaviour in primates has enabled scientists to hypothesise about how it developed into 'vocal grooming' and the evolution of language in hominids.

Table 1 shows results from a predictive model of how much time must be spent physically grooming for hominid species to maintain the size of their social groups.

Species	Size of social group (number of individuals per group)	Time that must be spent physically grooming to maintain group size (% of each day)
<i>Australopithecus sp.</i>	65	18
<i>Homo habilis</i>	90	25
<i>Homo erectus</i>	110	30
<i>Homo neanderthalensis</i>	120	35
<i>Homo sapiens</i>	150	40

Table 1

In extant primates, the maximum time that could be spent physically grooming has been recorded at 20%. This was observed in *Theropithecus gelada*, a species of baboon.

Discuss how this information and the predictive data in Table 1 support the idea for the development of 'vocal grooming' and evolution of language in hominids.

[3]

Total Marks for Question Set 3: 12



Oxford Cambridge and RSA

Copyright Information

OCR is committed to seeking permission to reproduce all third-party content that it uses in its assessment materials. OCR has attempted to identify and contact all copyright holders whose work is used in this paper. To avoid the issue of disclosure of answer-related information to candidates, all copyright acknowledgements are reproduced in the OCR Copyright Acknowledgements Booklet. This is produced for each series of examinations and is freely available to download from our public website (www.ocr.org.uk) after the live examination series.

If OCR has unwittingly failed to correctly acknowledge or clear any third-party content in this assessment material, OCR will be happy to correct its mistake at the earliest possible opportunity.

For queries or further information please contact The OCR Copyright Team, The Triangle Building, Shaftesbury Road, Cambridge CB2 8EA.

OCR is part of the Cambridge Assessment Group; Cambridge Assessment is the brand name of University of Cambridge Local Examinations Syndicate (UCLES), which is itself a department of the University of Cambridge