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3

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Level 3 Biology 2020

91606 Demonstrate understanding of trends in human evolution

2.00 p.m. Tuesday 24 November 2020
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of trends in human evolution.	Demonstrate in-depth understanding of trends in human evolution.	Demonstrate comprehensive understanding of trends in human evolution.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL the questions in this booklet.

If you need more room for any answer, use the extra space provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–16 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

TOTAL

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QUESTION ONE: HOMININ SKULLS

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Ardipithecus ramidus
https://australianmuseum.net.au/learn/science/human-evolution/ardipithecus-ramidus/

Australopithecus afarensis
https://australianmuseum.net.au/learn/science/human-evolution/australopithecus-afarensis/

Homo ergaster
https://australianmuseum.net.au/learn/science/human-evolution/homo-ergaster/#gallery-thumbnail-1

Homo sapiens
https://australianmuseum.net.au/learn/science/human-evolution/homo-sapiens-modern-humans/#gallery-291-10

Using information from the fossils shown above, discuss trends in hominins over the past four million years.

In your answer:

- describe TWO trends, referring to named fossils or to the image number, AND explain a possible selection pressure for the two trends named
- explain how these two identified fossil trends can be used as evidence to infer lifestyle changes such as diet, locomotion, or communication over the past four million years
- evaluate how the trends you have explained would have resulted in the success of the species.

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There is more space for your answer to this question on the following page.

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QUESTION TWO: CULTURAL ADVANCEMENT

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A carved horse found in Germany, dated at approximately 32 000 – 35 000 years old and made of mammoth ivory.

http://www.bradshawfoundation.com/sculpture/vogelherd_horse.php

Bifacial silcrete (cemented sand and gravel) point found in Blombos Cave, South Africa and dated at 71 000 years old.

https://commons.wikimedia.org/wiki/File:Blombos_point_white.jpg

Discuss the benefits to society of increased cultural advancement.

In your answer:

- describe what is meant by cultural evolution, and explain how this differs from biological evolution
- explain how tool and art production would have been more efficient due to changes in the hand structure and the development of the Broca's and Wernicke's areas in the brain
- discuss the benefits to society with the production of both stone tools and art.

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QUESTION THREE: AGRICULTURAL REVOLUTION

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The origin and dispersal of domestic livestock species in the Fertile Crescent. Shaded areas show the general region and the approximate dates in years before present in which initial domestication is thought to have taken place.
https://www.pnas.org/content/pnas/105/33/11597.full.pdf

The Neolithic Revolution, also called the Agricultural Revolution, marked the change in human history from small, nomadic bands of hunter-gatherers to larger, agricultural settlements and early civilisation. The Neolithic Revolution started around 12 000 years ago in the area known as the Fertile Crescent in the Middle East, where humans first took up farming and began to develop agriculture. Large settlements soon developed in areas that had domestication of both animals and plants. Cities and then civilisations grew out of these innovative developments.

Evaluate the impact of agriculture, domestication and settlement on humans at this time.

In your answer:

- describe benefits of the domestication of animals such as cattle, goats and sheep to the groups living there
- explain the costs and benefits in the establishment of settlements
- evaluate how health may have been affected through domestication and the development of settlements.

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Extra paper if required.
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