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3

91606



916060



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
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SUPERVISOR'S USE ONLY

Level 3 Biology, 2015

91606 Demonstrate understanding of trends in human evolution

2.00 p.m. Monday 23 November 2015
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 2–12 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.

**Not
Achieved**

TOTAL

5

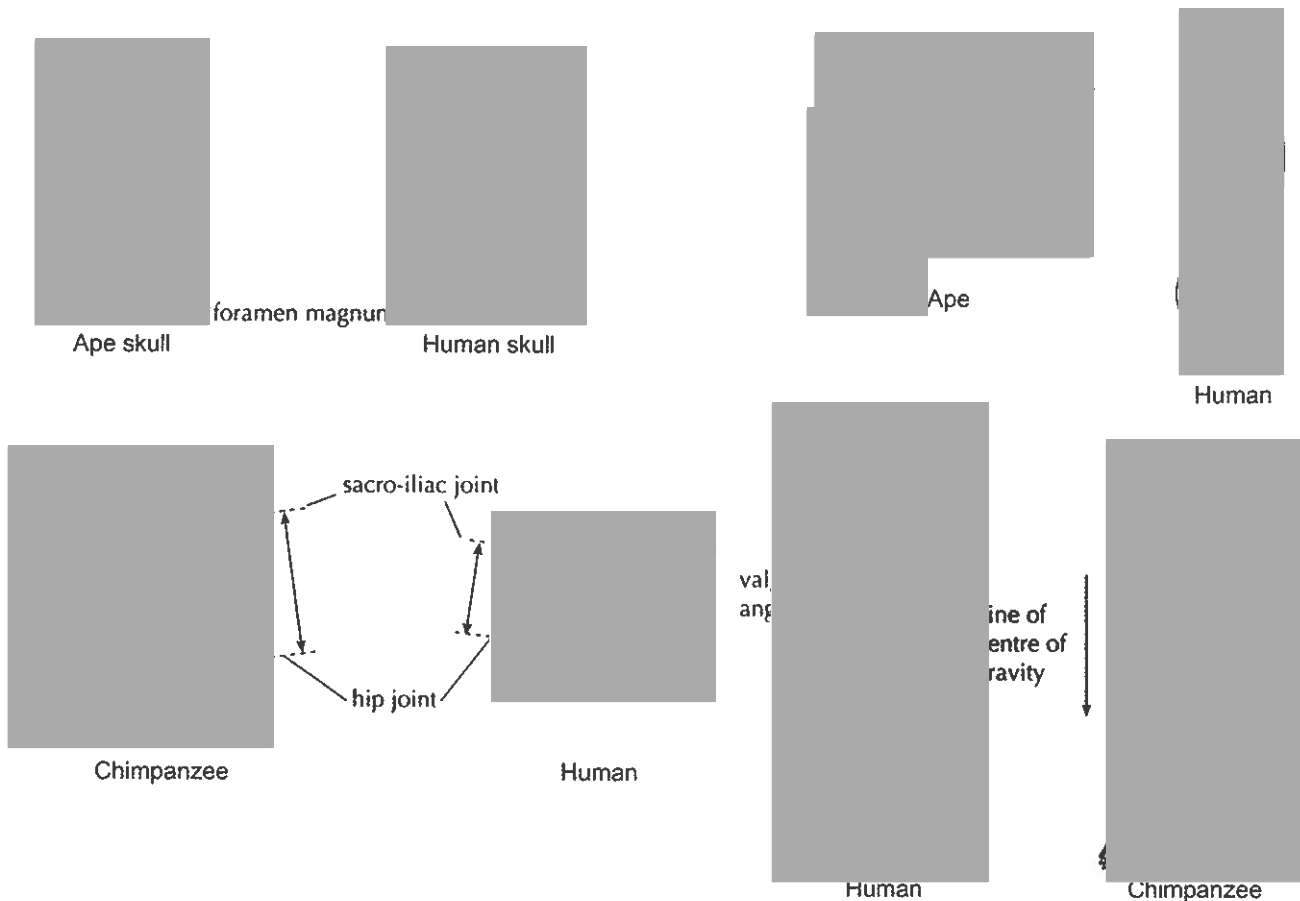
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QUESTION ONE

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A distinguishing feature of hominins is habitual bipedalism. Comparisons of skeletal features of modern humans and extant (living) hominids such as the gorilla or chimpanzee, reveal several key features that are associated with the transition from quadrupedal species to bipedal species.

Some of the most important features are shown below.



Adapted from: Anna Roberts & Maria Sinclair, *ESA Study Guide: Level 3 Biology* (Auckland: ESA Publications (NZ) Ltd, 2013), pp 275–277

Discuss the importance of bipedalism in the development of hominins by linking the skeletal features to their adaptive significance.

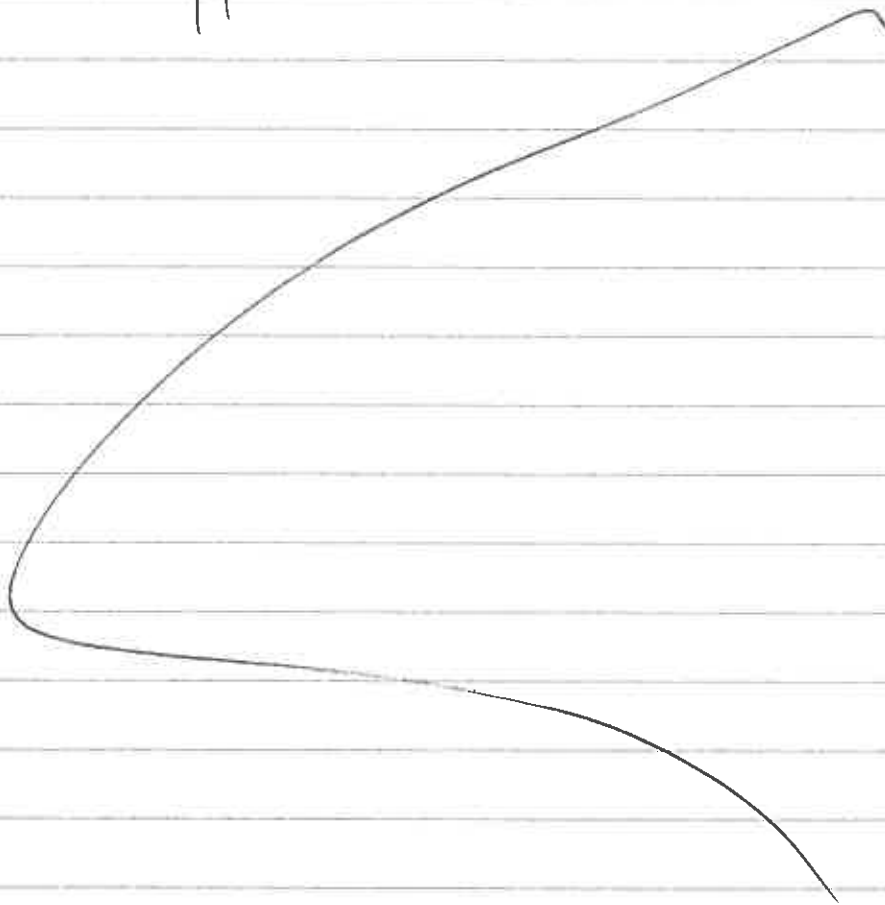
In your answer:

- describe what is meant by the terms quadruped and biped
- explain how any three of the skeletal features (shown above) provide evidence for the form of locomotion changing to bipedalism

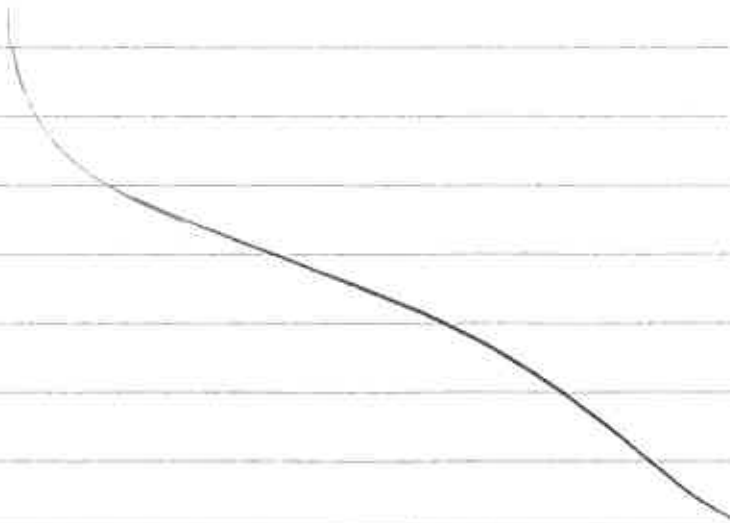
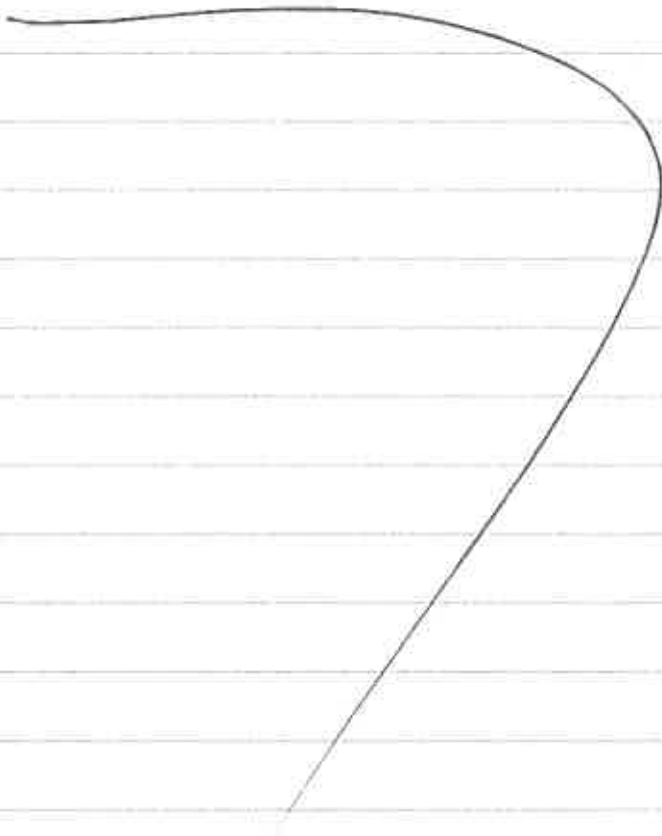
justify why bipedalism was so significant to the evolution of hominins.

The term biped means for a animal to walk on two feet as its main form of transport and ~~the~~ quadruped means to walk on four limbs such as two feet and two hands/arms as the main source of transport. We see with the foramen magnum of the ape is further back on the

skull than the human skull. this ~~helps~~ is where the head connects to the spine. because its further back it ~~helps~~ means it is able to look forward when on ~~two~~ all fours and the humans in the middle of the skull as ~~the~~ they walk upright so placing that on the spine enables them to see straight ahead. the humans have a ~~S~~ S shaped spine ~~that~~ and the chimps have a more straight spine. the humans ~~the~~ femurs are on a 45° angle inwards which helps them to walk upright as chimps ~~have~~ less of an angle which reduces their leg movements



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






N2

N2

QUESTION TWO

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Tool Culture Figure 1	Tool Culture Figure 2	Tool Culture Figure 3
		
http://zinken.typepad.com/palaeo/images	https://en.wikipedia.org/wiki/Stone_tool#/media	https://upload.wikimedia.org/wikipedia/commons/8/89

The advance of the use of tools and fire had many effects on the evolution of hominins.

Discuss the likely impacts that the different tools and fire had on the different hominin species, and the evolutionary trends that can be linked to these developments.

In your answer:

- identify the three tool cultures as shown in the diagrams above, and link a species of hominin to each tool type
- explain the trends shown in the development of the tool cultures above, and how this shows a progression in the cultural evolution of the hominins
- discuss the likely effects that fire and the use and development of tools had on the biological evolution of the hominins.

Figure 2 is Oldowan tools which were the first tools to be used by ~~late~~ hominins. They were a chipped rock likely used to dig and ~~cut~~ ^{crack} small objects, like nuts.

Figure 3 was the next development of tools to the more intelligent species that ~~were~~ evolved. They were used for cutting, digging, scraping.

Figure 1 was the more advanced tools for the much more intelligent species as they used bones as their tools. The ~~to~~ evolution of these tools was because as the species began to get more intelligent they were able to kill and store food. Their fore-
not needing to hunt ~~to~~ ~~the~~ every

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

|| moment of the day so they had spare time
to make tools and communicate ||

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(21)

21

QUESTION THREE

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<http://madamepickwickartblog.com/wp-content/uploads/2012/01/cannibal4.jpg>

<http://io9.com/how-farming-almost-destroyed-human-civilization-1659734601>

One of the most important milestones in human evolution was the transition from hunter-gatherer to agriculture or farming. Scientists have concluded that it is likely that the transition to farming was due to migration and replacement of existing populations, and not due to cultural transmission from farmers to hunter-gatherer populations.

Discuss the cultural trends and any advantages and disadvantages a transition from hunter-gatherer to agriculture involved.

In your answer you should:

- describe the lifestyle of a hunter-gatherer and the lifestyle of an early farmer
- explain the cultural trends involved in the transition from hunter-gatherer to agriculture
- discuss any advantages and disadvantages a transition to agriculture from hunter-gatherer involved.

hunted gatherers were always relying on hunting and gathering to live but as the styles of farming came they were able to settle down in one place and to ~~the~~ take time to socialize and build a culture. fires enabled them to be safer at night against predators so more people survive. domestication of animals such as dogs helped the culture also having cows and pigs as the main source of food on their back yard helped for a always ready source of food. a ~~dis~~ disadvantage of having a farming community would be if it is small having a

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

Small range of variation within the species. This might lower the chance of survival if a virus was caught in the community. Advantage of being hunter gatherers is the continual movement of living helped to strengthen the young to be better hunters and to be stronger.

(N2)

N2

Extra paper if required.
Write the question number(s) if applicable.

QUESTION
NUMBER

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Not Achieved exemplar for 91606 2015			Total score	05
Q	Grade score	Annotation		
1	N2	The candidate describes the terms quadruped and biped; identifies two skeletal features and the relevant biological development of one feature to bipedalism. If a third skeletal feature had been identified A3 would be attained.		
2	N1	The candidate was unable to identify correctly the tool cultures and associated species. If the candidate had identified the hominin that used the named tool culture the score would have been N2.		
3	N2	The candidate did not clearly identify and distinguish between the lifestyles of a hunter-gatherer and an early farmer. Partial evidence for describing farming lifestyle.		