91606M

916065

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

3

SUPERVISOR'S USE ONLY

Koiora, Kaupae 3, 2019

91606M Te whakaatu māramatanga ki ngā ia i roto i te kunenga tangata

2.00 i te ahiahi Rātū 12 Whiringa-ā-rangi 2019
Whiwhinga: Whā

Paetae	Kaiaka	Kairangi
Te whakaatu māramatanga ki ngā ia i roto i te kunenga tangata.	Te whakaatu māramatanga hōhonu ki ngā ia i roto i te kunenga tangata.	Te whakaatu māramatanga matawhānui ki ngā ia i roto i te kunenga tangata.

Tirohia mēnā e rite ana te Tau Ākonga ā-Motu (NSN) kei runga i tō puka whakauru ki te tau kei runga i tēnei whārangi.

Me whakamātau koe i ngā tūmahi KATOA kei roto i tēnei pukapuka.

Mēnā ka hiahia whārangi atu anō koe mō ō tuhinga, whakamahia ngā whārangi wātea kei muri o tēnei pukapuka, ka āta tohu ai i te tau tūmahi.

Tirohia mēnā e tika ana te raupapatanga o ngā whārangi 2–21 kei roto i tēnei pukapuka, ka mutu, kāore tētahi o aua whārangi i te takoto kau.

ME HOATU RAWA KOE I TĒNEI PUKAPUKA KI TE KAIWHAKAHAERE Ā TE MUTUNGA O TE WHAKAMĀTAUTAU.

TAPEKE

MĀ TE KAIMĀKA ANAKE

© Mana Tohu Mātauranga o Aotearoa, 2019. Pūmau te mana.
Kia kaua rawa he wāhi o tēnei tuhinga e whakahuatia ki te kore te whakaaetanga tuatahi a te Mana Tohu Mātauranga o Aotearoa.

MĀ TE KAIMĀKA ANAKE

TŪMAHI TUATAHI

He mea urutau mai i: www.semanticscholar.org/paper/Evolution-The-Evolutionary-Path-to-Apes/2f5b0385464563072456ba2ce9615a6fb4ab2565/figure/12

E whakaatu ana te hoahoa i runga i tētahi makihipani kei te taha mauī, kei te taha matau ko tētahi australopithecine.

Matapakitia ngā ia e kitea ana i roto i te kunenga o ngā tāngata onamata.

Whakaurua ki tō tuhinga:

- tētahi whakaahuatanga mō ngā huringa anga kōiwi e TORU mai i ēnei e whai ake: take waewae, ōwehenga ringa / waewae, tuaiwi, pūkaka, hanga papatoiake, puare-nui o te kōpako
- tētahi whakamāramatanga mō ngā āhuatanga e RUA o te painga o tēnei huringa ki te australopithecine ina hīkoi tū tika ana i Awherika
- tētahi matapakinga o ngā āhuatanga tīpakonga i puta ai pea ngā huringa kua kitea.

He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi 4.

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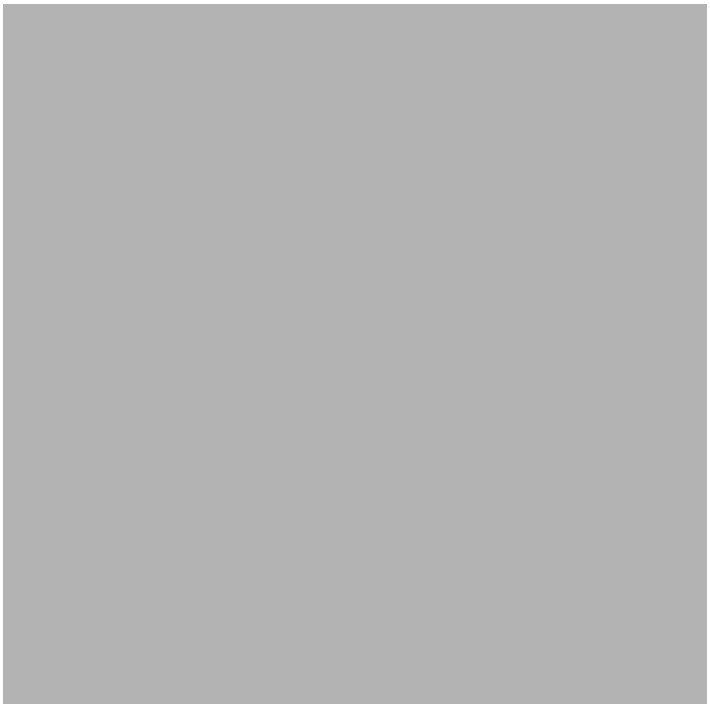
QUESTION ONE



Adapted from: www.semanticscholar.org/paper/Evolution-The-Evolutionary-Path-to-Apes/2f5b0385464563072456ba2ce9615a6fb4ab2565/figure/12

The above diagram shows a chimpanzee on the left and an australopithecine on the right.

Discuss trends seen in the evolution of early hominins.

Include in your answer:

- a description of THREE of the following skeletal changes in the: foot, arm / leg ratio, spine, femur, pelvis shape, foramen magnum
- an explanation for TWO features of the advantage this change would provide the australopithecine when walking bipedally in Africa
- a discussion of possible selection factors that could have led to the changes seen.

There is more space for your answer to this question on page 5.

MĀ TE KAIMĀKA ANAKE

He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi 6.

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There is more space for your answer to this question on page 7.

MĀ TE KAIMĀKA ANAKE

ASSESSOR'S USE ONLY

MĀ TE KAIMĀKA ANAKE

TŪMAHI TUARUA

I tīmata te wā o te Ao Kōhatu Tawhito (Paleolithic) i te takiwā o te 2.6 miriona tau ki mua. Koinei te wā i kitea ai ngā whakaaturanga tuatahi o ngā hangarau a ngā tāngata o nehe rā anō.

I roto i te wā o te Ao Kōhatu Tawhito he nui ngā whanaketanga i roto i ngā ahurea utauta, i puta ai ngā whanaketanga o te mahi kākahu me te kohikohi kai.

Matapakitia ngā huringa ki te ahurea utauta i puta ai i te wā o te Ao Kōhatu Tawhito, me ngā painga pea o ēnei huringa ki ngā taupori/momo e ora ana i taua wā.

I tō matapakinga me:

- whakaahua i te rerekētanga i waenga i te kunenga ahurea me te kunenga koiora
- whakamārama mai ka pēhea te whakarerekē i te awhenga ora o te taupori/momo mā ngā utauta/ahurea utauta e RUA i whakaingoatia
- matapaki i te āhua o ngā huringa ka puta i te ahurea utauta ki te rerekētanga o ngā kākahu e mauhia ana me te angitu o te aruaru /kohikohi kai.

He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi 10.

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QUESTION TWO

The Paleolithic period (the Old Stone Age) began approximately 2.6 million years ago. This was when we saw the first material evidence of early human technology.

Over the Paleolithic period there was a lot of development in tool cultures, which led to developments in clothing and food gathering ability.

Discuss changes to tool culture that came about in the Paleolithic period, and the advantages these changes could have brought to populations / species living at the time.

In your discussion:

- describe the difference between cultural evolution and biological evolution
- explain how TWO named tools / tool cultures could lead to a change in the lifespan in the population / species
- discuss how the changes to the tool culture could bring about change in clothing worn and success in hunting / gathering food.

There is more space for your answer to this question on page 11.

MĀ TE KAIMĀKA ANAKE

He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi 12.

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There is more space for your answer to this question on page 13.

MĀ TE KAIMĀKA ANAKE

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MĀ TE KAIMĀKA ANAKE

TŪMAHI TUATORU

Kua kitea he momo korehāhā hou o te tangata i Piripīni. E kīia ana ināianei ko ngā mātātoka nō ngā tau 67 000 ki mua nō te iwi *Homo luzonensis*, he mea tapa ki te wāhi i kitea i te motu nui rawa o Piripīni, a Luzon. He āhua ōrite ētahi āhuatanga ōkiko o *Homo luzonensis* ki ngā tāngata o nā tata nei, engari ko ētahi atu āhuatanga he tata atu ki ngā australopithecines i noho i Awherika i waenga i te rua ki te whā miriona tau ki mua, tae atu hoki ki ngā tāngata taketake o te puninga *Homo*.

E tohu ana pea tēnei i wehe atu ngā uri o neherā o te tangata mai i Awherika ka haere ki te Tonga-mā-rāwhiti o Āhia rā anō, ā, ko te whakaaro i te tuatahi kāore i taea.

E whakaatu ana ngā kitenga tērā pea e toru, neke atu rānei ngā momo tāngata i whai wāhi atu ki te kunenga ā-tangata i roto i taua rohe i te wā i tae atu ai ō tātou tīpuna.

Ko tētahi o ēnei momo ko te "Hobbit" iti, *Homo floresiensis*, i noho i te motu o Flores i Initonīhia atu ki ngā tau 50 000 ki mua.

Ko ngā mātātoka i kitea ko ngā niho kauoro tino iti, me ngā kōiwi matimati me ngā matiwae. Kāore i tangohia he pītau ira nā ngā āhuatanga mahana o taua rohe.

Matapakitia he pēhea te āhei o te pūtaiao, nā te kitenga o ngā momo hou pērā i te *Homo luzonensis,* ki te whakatika i ngā mōhiotanga whānui o te ariā I Ahu Mai i Āwherika.

Me whakauru ki tō tuhinga:

- tētahi whakaahuatanga o te ariā I Ahu Mai i Āwherika / tauira whakakapi
- tētahi whakamāramatanga he aha ngā mōhiotanga ka puta ki ngā tohunga pūtaiao i te pītau ira pata pūngao me te pītau ira karihi
- tētahi whakamāramatanga o ngā āhuatanga o roto i te pakohu roro (endocranium) kua whakaingoatia, ā, i pēhea pea te āwhina a ēnei āhuatanga i te hekenga mai i Awherika.

He kōiwi ānau o te matimati, matiwae rānei o *H. luzonensis*.

www.bbc.com/news/science-environment-47873072

He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi 16.

ASSESSOR'S USE ONLY

QUESTION THREE

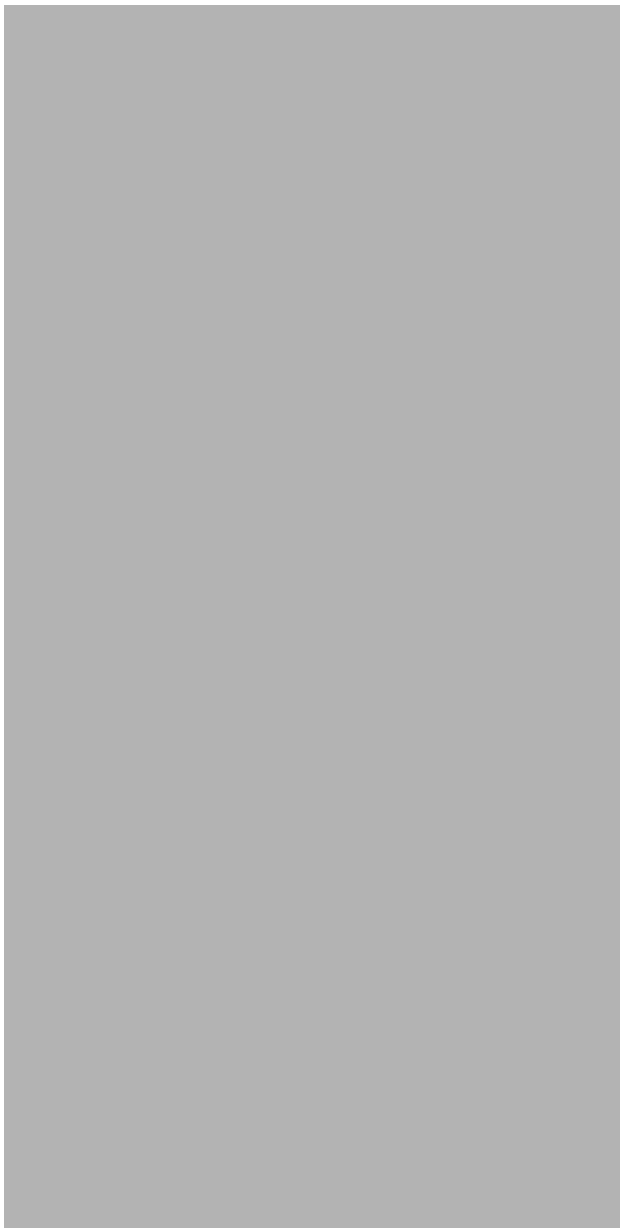
A new extinct species of human has been found in the Philippines. Fossils dated at 67 000 years ago are now attributed to belonging to *Homo luzonensis*, after the site of its discovery on the Philippines' largest island, Luzon. *Homo luzonensis* has some physical similarities to recent humans, but other features are closer to the australopithecines who lived in Africa between two and four million years ago, as well as very early members of the genus *Homo*.

That could mean primitive human relatives left Africa and made it all the way to South-East Asia, something not previously thought possible.

The find also shows that human evolution in the region may have involved three or more human species in the region at around the time our ancestors arrived.

One of these species was the diminutive (small) "Hobbit", *Homo floresiensis*, which survived on the Indonesian island of Flores until 50 000 years ago.

Fossils found include very small molars, and finger and toe bones. No DNA has been extracted due to the warm conditions in the area.



Curved finger or toe bone of *H. luzonensis*.
www.bbc.com/news/science-environment-47873072

Discuss how the discovery of new species such as *Homo luzonensis* enables science to adjust the common understanding of the Out of Africa theory.

Include in your discussion:

- a description of the Out of Africa theory / replacement model
- an explanation of what knowledge mitochondrial DNA and nuclear DNA would provide scientists
- an explanation of named endocranial features, and how these features may have aided migration out of Africa.

There is more space for your answer to this question on page 17.

MĀ TE KAIMĀKA ANAKE

He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi 18.

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There is more space for your answer to this question on page 19.

MĀ TE KAIMĀKA ANAKE

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He whārangi anō ki te hiahiatia.
Tuhia te (ngā) tau tūmahi mēnā e tika ana.

TAU TŪMAHI

MĀ TE KAIMĀKA ANAKE

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

QUESTION NUMBER

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English translation of the wording on the front cover

Level 3 Biology, 2019

91606 Demonstrate understanding of trends in human evolution

2.00 p.m. Tuesday 12 November 2019
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.

91606M

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 2–21 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.