

# 3

91606M



# NZQA

NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA

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

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Tohua tēnei pouaka  
mēnā kāore he tuhituhi i  
roto i tēnei pukapuka

## Koiora, Kaupae 3, 2020

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

2.00 i te ahiahi Rātū 24 Whiringa-ā-rangi 2020  
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 tuinga, 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 2–23 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

## TŪMAHI TUATAHI: TE ANGAANGA O TE TANGATA ONAMATA



*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>

Mā te whakamahi i ngā mātātoka i runga ake, matapakitia ngā ia o ngā tāngata onamata i roto i ngā tau e whā miriona kua hipa.

I tō tuhinga, me:

- whakaahua ngā ia e RUA, e kōrero ana ki ngā mātātoka kua whakaingoatia, ki te tau atahanga rānei, ME te whakamārama i tētahi pēhanga whiringa pea mō ngā ia e rua kua whakaingoatia
- whakamārama mai ka pēhea te whakamahi i ēnei ia mātātoka e rua kua tautuhia hei taunakitanga mō ngā huringa āhua noho pērā i te kai, te nekeneke haere, te whakawhitiwhiti kōrero rānei i roto i ngā tau e whā miriona kua hipa
- arotake he pēhea te puta o ngā ihu o ēnei momo nā ngā ia kua whakamāramahia mai e koe.

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**He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi o muri mai.**

**QUESTION ONE: HOMININ SKULLS**ASSESSOR'S  
USE ONLY*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 pages.**

## TŪMAHI TUARUA: KAUNEKE O TE AHUREA

He tata ki te 32 000–35 000 tau te tawhito o tētahi hōiho whakairo i kitea i Tiamana, ā, he mea whakairo i te rei arewhana pūhuru.

[http://www.bradshawfoundation.com/sculpture/vogelherd\\_horse.php](http://www.bradshawfoundation.com/sculpture/vogelherd_horse.php)

He koinga raima matarua i kitea i te ana o Blombos, i Awherika ki te Tonga, he 71 000 te tawhito.

[https://commons.wikimedia.org/wiki/File:Blombos\\_point\\_white.jpg](https://commons.wikimedia.org/wiki/File:Blombos_point_white.jpg)

Matapakitia ngā painga ki te iwi o te kaha haere o te kauneke o te ahurea.

I tō tuhinga, me:

- whakaahua mō te kunenga ahurea, ka whakamārama mai he pēhea te rerekē o tēnei ki te kunenga koiora
- whakamārama he pēhea te tōtika ake o te whakanaonga o ngā utauta, toi hoki nā ngā huringa ki te hanga o te ringa me te whanaketanga o ngā wāhanga Broca me te Wernicke o te roro
- matapaki ngā painga ki te iwi nā te whakanaonga o ngā utauta kōhatu me te toi.

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**He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi o muri mai.**



**QUESTION TWO: CULTURAL ADVANCEMENT**

ASSESSOR'S  
USE ONLY



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](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](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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## TŪMAHI TUATORU: WHAKAHURIHURI AHUWHENUA



Te takenga mai me te mararatanga o ngā momo kararehe rata i roto i te Pewa Mōmona. E whakaatu ana ngā wāhi kua kaurukutia i te rohe whānui me ngā tau āwhiwhi i mua i tēnei wā i mua i te wā pea e whakapaetia ana i tīmata te whakarata kararehe.

<https://www.pnas.org/content/pnas/105/33/11597.full.pdf>

E tohu ana te Whakahurihuri Nioriki, e kīia ana hoki ko te Whakahurihuri Ahuwhenua, i te huringa o te hītori ā-tangata mai i ngā kaiaruaru-kaikohikohi rōpū iti, nekeneke haere ki ngā nōhanga ahuhenua nui ake me ngā nōhanga iwi. I tīmata te Whakahurihuri Nioriki i te takiwā pea o te 12 000 tau ki mua i te wāhi e mōhiotia ana ko te Pewa Mōmona i te Rāwhiti Waenga, te wāhi i tīmata ai te tangata ki te pāmu kararehe me te whakawhanake ahuhenua. I muri tonu mai ka puta ko ngā nōhanga nunui i ngā wāhi e whakarata ana ngā kararehe me te whakatipu tipu. Ka whānau mai ngā tāonenui me ngā nōhanga tangata i ēnei whanaketanga auaha.

Arotakehia te pānga o te ahuhenua, te whakarata kararehe me te noho tūturu ki te tangata i taua wā.

I tō tuhinga, me:

- whakaahua ngā painga o te whakarata kararehe pērā i ngā kau, ngā nanenane me ngā hipi ki ngā rōpū e noho ana i reira
- whakamārama ngā utu me ngā painga i roto i ngā nōhanga i whakatūhia
- arotake i pēhea te whai pānga pea ki te hauora nā te whakarata kararehe me te whanaketanga o ngā nōhanga.

**He wāhi anō mō tō tuhinga mō tēnei tūmahi kei te whārangi o muri mai.**

**QUESTION THREE: AGRICULTURAL REVOLUTION**ASSESSOR'S  
USE ONLY

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

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**He wāhi anō mō tō tuhinga mō tēnei tūmahi kei ngā whārangi o muri mai.**





A series of horizontal lines for writing, with a shaded yellow area at the bottom.







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

TAU TŪMAHI

Lined writing area with a vertical margin line on the left and horizontal lines for text entry.



*English translation of the wording on the front cover*

## Level 3 Biology 2020

### 91606 Demonstrate understanding of trends in human evolution

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

91606M

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 2–23 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.**