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translation of this cover

# 3

91606M



916065

Tuhia he (☒) ki te pouaka mēnā  
kāore koe i tuhi kōrero ki tēnei puka



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# NZQA

Mana Tohu Mātauranga o Aotearoa  
New Zealand Qualifications Authority

## Te Mātai Koiora, Kaupae 3, 2023

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

Ngā whiwhinga: E whā

Paetae	Kaiaka	Kairangi
Te whakaatu māramatanga ki ngā ia i te kunenga tangata.	Te whakaatu māramatanga ki ngā ia i te kunenga tangata, kia hōhonu.	Te whakaatu māramatanga ki ngā ia i te kunenga tangata, kia tōtōpū.

Tirohia kia kitea ai 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 KATOĀ kei roto i tēnei pukapuka.

Ki te hiahia wāhi atu anō koe mō ō tuhinga, whakamahia ngā whārangi wātea kei muri o tēnei pukapuka.

Tirohia kia kitea ai e tika ana te raupapatanga o ngā whārangi 2–19 kei roto i tēnei pukapuka, ka mutu, kāore tētahi o aua whārangi i te takoto kau.

Kaua e tuhi ki tētahi wāhi e kitea ai te kauruku whakahāngai (AERUHI/TEI/VAURETUHI). Ka poroa taua wāhi ka mākahia ana te pukapuka.

**HOATU TĒNEI PUKAPUKA KI TE KAIWHAKAHAERE HEI TE MUTUNGA O TE WHAKAMĀTAUTAU.**

## TE TŪMAHI TUATAHI: NGĀ TAPUWAE LAETOLI

Ko ngā tapuwae o ngā tāngata onamata i kitea tuatahitia i te tau 1977 i Laetoli, i Tanzania, e whakapaetia ana kei tōna 3.66 miriona tau te tawhito, koia te taunaki tōmua katoa, e mārāma pū ana hoki, o te waerua i ngā mauhanga tangata onamata/mātātoka tangata. E whakaaro whānuitia ana i puta ēnei tapuwae i a *Australopithecus afarensis*.

I whakatairitea ngā tapuwae Laetoli, ngā tapuwae o tētahi tangata nō nāianeī, me ngā tapuwae makimaki.



Te whakatairiteanga tapuwae i ngā tāngata o nāianeī, i ngā tapuwae tangata onamata o Laetoli, i ngā makimaki o nāianeī hoki (i te mauī ki te matau)

Matapakina te awenga o te kunenga o te waewae e taea ai te neke ā-waerua.

I tō tuhinga, me kōrero mō:

- ngā rerekētanga E RUA i waenga i ngā tapuwae e toru, ā, me whai whakaahuatanga
- ngā panonitanga i te hanga o te waewae, tērā pea i hua ake i te taiao, i taea ai te whāomo ake o te neke ā-waerua
- ngā panonitanga i ngā kai o ngā tāngata onamata, tērā pea i hua ake i te waerua, me te āhua o te whai wāhitanga o aua āhuatanga ki tō rātou angitu.

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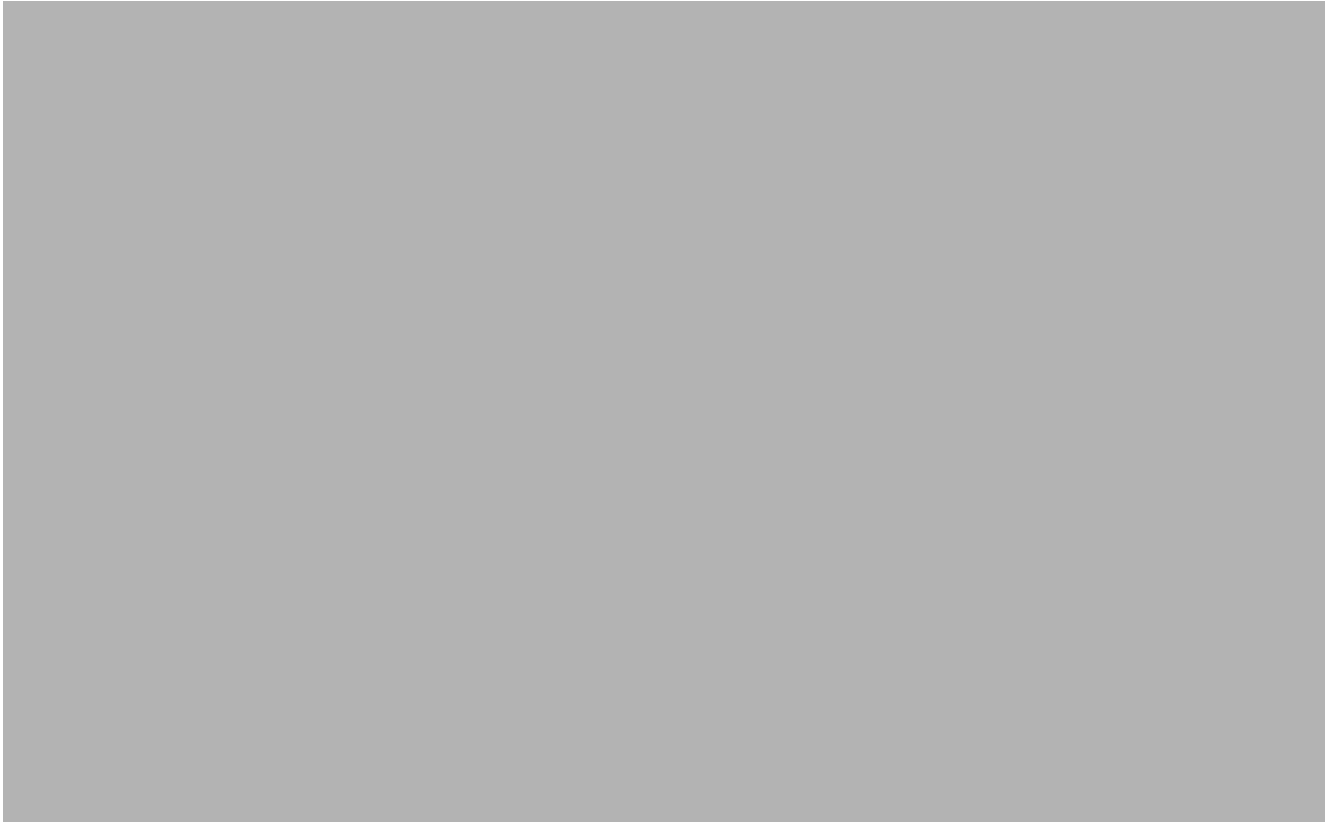
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He wāhi anō mō tō tuhinga  
mō tēnei tūmahi kei ngā  
whārangi e whai ake nei.

## QUESTION ONE: THE LAETOLI FOOTPRINTS

Discovered in 1977 at Laetoli in Tanzania, hominin footprints thought to be approximately 3.66 million years old gave us the earliest, clear evidence of bipedalism in the hominin/human fossil record. These footprints are widely considered to have been made by *Australopithecus afarensis*.

A comparison was made between the Laetoli footprints, those of a modern human, and a chimpanzee.



Footprint comparison for modern humans, Laetoli hominin footprints, and modern chimpanzee (from left to right)

Discuss the influence of the evolution of the leg and foot to allow for bipedal locomotion.

In your answer, include discussion of:

- TWO differences between the three footprints, with descriptions
- how the environment may have led to changes in the structure of the leg and foot, enabling more efficient bipedal locomotion
- how being bipedal could have led to changes in the diet of early hominins and how these contributed to their success.

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















## TE TŪMAHI TUATORU: TE HORAPA

I heke ngā tāngata o nāiane i Āwherika i tōna 60 000 tau ki muri. Kei te whakaatu tēnei mahere i tā rātou heke



Matapakina ngā take i puta ai ngā ihu o ngā *Homo sapiens*.

I tō tuhinga, me kōrero mō:

- te wāhi me te wā o te pūtake o ngā *Homo sapiens* i te whakapae o Atu i Āwherika me te whakapae o ngā takiwā-maha o te horapa tangata
- te take i māmā ake ai pea, i tere ake ai hoki pea te heke i Rāwhiti Waenga ki Āhia, tēnā i te heke i Āwherika ki Ūropi
- te wāhi ki ngā panonitanga i te whakaaro tūrehurehu me te whanaketanga ā-roro i te huanga o ngā maru pai ake me te pai ake o te kōhi kai a ngā *Homo sapiens* e heke ana.

*He wāhi anō mō tō tuhinga  
mō tēnei tūmahi kei ngā  
whārangi e whai ake nei.*

















**Ngā Mihi**

He mea whakahāngai ngā kōrero i ngā mātāpuna e whai ake nei hei whakamahinga i tēnei whakamātautau:

**Te whārangi 2**

Te whakaahua: <https://royalsocietypublishing.org/doi/10.1098/rspb.2016.0235>

**Te whārangi 8**

Te whakaahua: [https://www.researchgate.net/figure/A-precision-grip-left-and-a-power-grip-right-based-on-Napier-1956\\_fig2\\_51586020](https://www.researchgate.net/figure/A-precision-grip-left-and-a-power-grip-right-based-on-Napier-1956_fig2_51586020)

**Te whārangi 14**

Te mahere: <https://education.nationalgeographic.org/resource/global-human-journey/>

**Acknowledgements**

Material from the following sources has been adapted for use in this assessment:

**Page 2**

Image: <https://royalsocietypublishing.org/doi/10.1098/rspb.2016.0235>

**Page 8**

Image: [https://www.researchgate.net/figure/A-precision-grip-left-and-a-power-grip-right-based-on-Napier-1956\\_fig2\\_51586020](https://www.researchgate.net/figure/A-precision-grip-left-and-a-power-grip-right-based-on-Napier-1956_fig2_51586020)

**Page 14**

Map: <https://education.nationalgeographic.org/resource/global-human-journey/>

*English translation of the wording on the front cover*

## Level 3 Biology 2023

### 91606M Demonstrate understanding of trends in human evolution

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.

Check that this booklet has pages 2–19 in the correct order and that none of these pages is blank.

Do not write in any cross-hatched area (不要在此处书写). This area will be cut off when the booklet is marked.

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