

91156M



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

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

2

SUPERVISOR'S USE ONLY

Koiora, Kaupae 2, 2017

91156M Te whakaatu māramatanga ki ngā tukanga ora e pā ana ki te pūtau

2.00 i te ahiahi Rāapa 22 Whiringa-ā-rangi 2017
Whiwhinga: Whā

Paetae	Kaiaka	Kairangi
Te whakaatu māramatanga ki ngā tukanga ora e pā ana ki te pūtau.	Te whakaatu māramatanga hōhonu ki ngā tukanga ora e pā ana ki te pūtau.	Te whakaatu māramatanga matawhānui ki ngā tukanga ora e pā ana ki te pūtau.

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 mō ō tuhinga, whakamahia ngā whārangi wātea kei muri o tēnei pukapuka, ka āta tohu ai i ngā tau tūmahi.

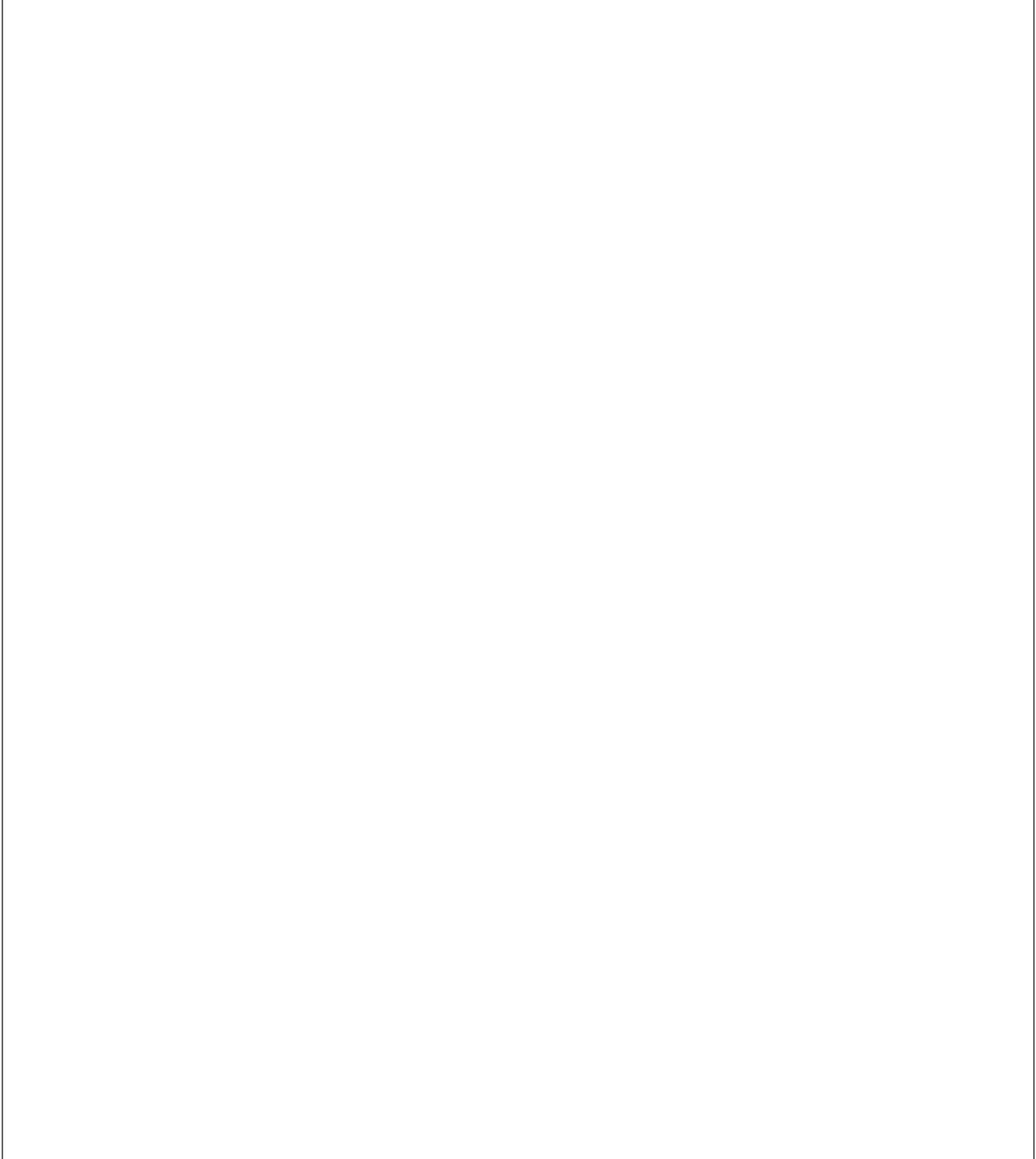
Tirohia mēnā e tika ana te raupapatanga o ngā whārangi 2–19 kei roto i tēnei pukapuka, ka mutu, kāore tētahi o aua whārangi i te takoto kau.

HOATU TE PUKAPUKA NEI KI TE KAIWHAKAHAERE HEI TE MUTUNGA O TE WHAKAMĀTAUTAU.

TAPEKE

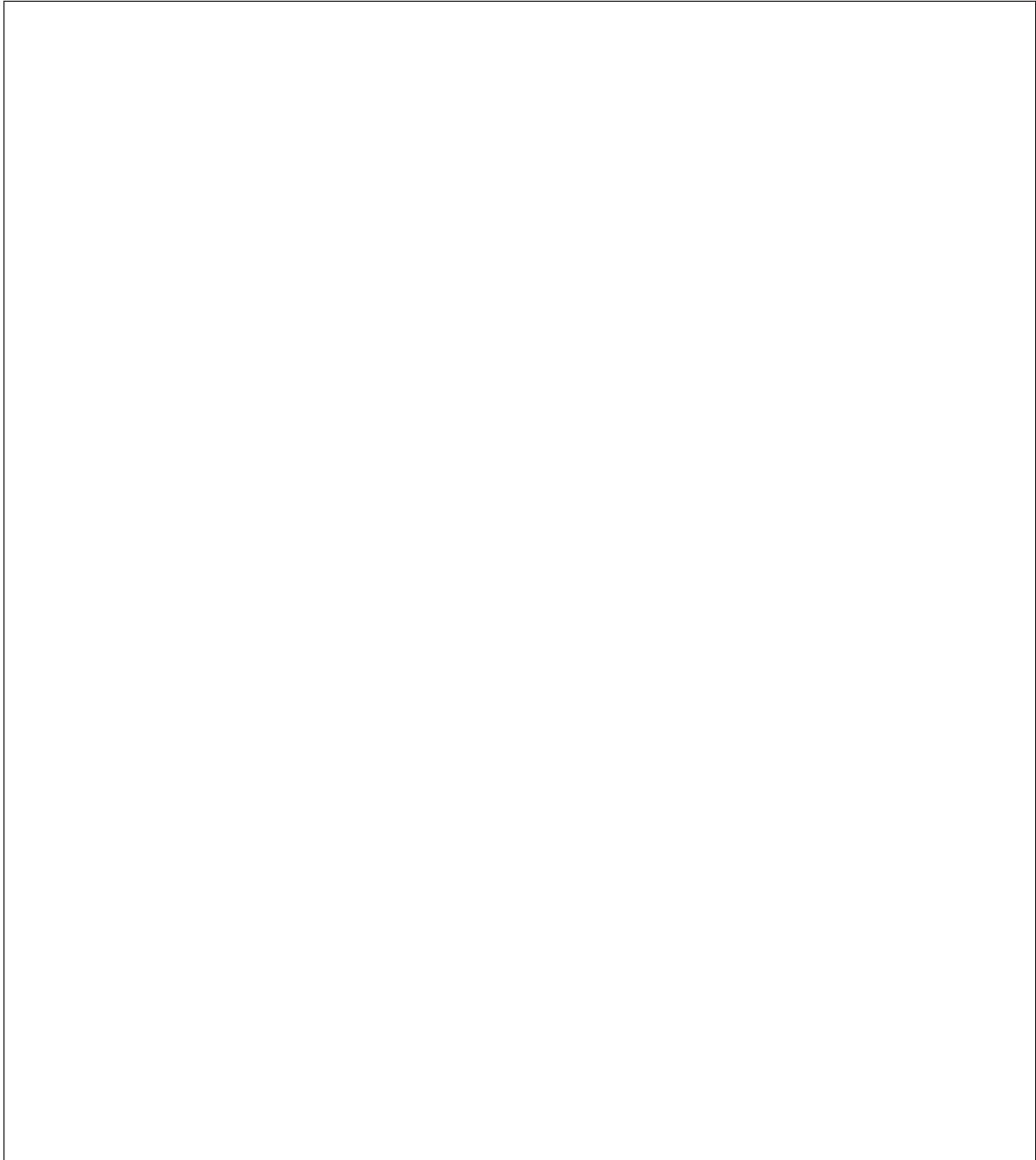
MĀ TE KAIMĀKA ANAKE

- (b) Tuhia te whārite kupu mō te ahotakakame ka tātuhi i te hoahoa tapanga o tētahi pūmāota¹ e whakaatu ana i te kiriuhi o roto, te kiriuhi o waho, ngā wēkārīki (stroma), me ngā tāpae kōpaeiti (thylakoid stacks).
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¹ pūkārīki

- (b) Write the word equation for photosynthesis AND draw a labelled diagram of a chloroplast showing the inner membrane, outer membrane, stroma, and thylakoid stacks.



TŪMAHI TUARUA: TE TUKUPŪNGAO PŪTAU

<http://taputeranga.org.nz/the-marine-life/molluscs/why-are-mussels-absent-from-the-wellington-south-coast/>

<http://naturewatch.org.nz/taxa/117650-Mytilus-edulis>

Ka whirinaki atu ngā kararehe ā-tai pērā i te kuku kikorangi, *Mytilus edulis*, ki te wai tai hei whiwhi hāora memeha mō te tukupūngao ā-hāora. I te tai timu kua rakerake ngā kuku ki te hau, ā, ka kaha te kakati o ngā anga kia kore ai e pūtī. I te wā o te tai timu ka whirinaki atu ki te tukupūngao hāora-kore kia mahi tonu ai ngā tino tukanga ora.

Whakatauritea te tukupūngao hāora-kore me te tukupūngao ā-hāora i roto i ngā kuku kikorangi ā-tai.

Me whakauru ki tō tuhinga, tētahi:

- whakamāramatanga o te tukupūngao hāora-kore e kōrero ana kei hea tēnei i roto i te pūtau, ā, me ngā hua ka whakaputaina
- whakamāramatanga o te tukupūngao ā-hāora e kōrero ana kei hea tēnei i roto i te pūtau, ā, me ngā hua ka whakaputaina
- matapakinga o tētahi painga me tētahi mate mō te tukupūngao ā-hāora ME TE hāora-kore i roto i ngā kuku kikorangi.

English translation of the wording on the front cover

Level 2 Biology, 2017

91156 Demonstrate understanding of life processes at the cellular level

2.00 p.m. Wednesday 22 November 2017
Credits: Four

91156M

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of life processes at the cellular level.	Demonstrate in-depth understanding of life processes at the cellular level.	Demonstrate comprehensive understanding of life processes at the cellular level.

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 space for any answer, use the page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–19 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.