

91156M



911565



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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SUPERVISOR'S USE ONLY

## Koiora, Kaupae 2, 2019

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

9.30 i te ata Rātū 19 Whiringa-ā-rangi 2019  
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 KATOĀ kei roto i tēnei pukapuka.

Mēnā ka hiahia whārangi atu anō koe mō ō tuinga, whakamahia te (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 2–19 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: AHOTAKAKAME



[www.tigtagworld.co.uk/film/parts-of-a-plant-PRM00096/](http://www.tigtagworld.co.uk/film/parts-of-a-plant-PRM00096/)

- (a) Whakaotihia te whārite kupu ahotakakame i raro:

hauhā + wai  $\xrightarrow{\text{aho}}$  \_\_\_\_\_ + \_\_\_\_\_

- (b) Whakaahuahia he pēhea, Ā, kei hea te urunga mai o te wai me te hauhā ki te tipu.

Wai: \_\_\_\_\_

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Hauhā: \_\_\_\_\_

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**QUESTION ONE: PHOTOSYNTHESIS**



[www.tigtagworld.co.uk/film/parts-of-a-plant-PRM00096/](http://www.tigtagworld.co.uk/film/parts-of-a-plant-PRM00096/)

(a) Complete the photosynthesis word equation below:



(b) Describe how AND where water and carbon dioxide enter the plant.

Water: \_\_\_\_\_

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Carbon dioxide: \_\_\_\_\_

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## TŪMAHI TUARUA: TUKUPŪNGAO PŪTAU

- (a) Whakaahuahia mai te wāhi e pā mai ai te tukupūngao hāora-kore ME te tukupūngao ā-hāora i roto i tētahi pūtau.

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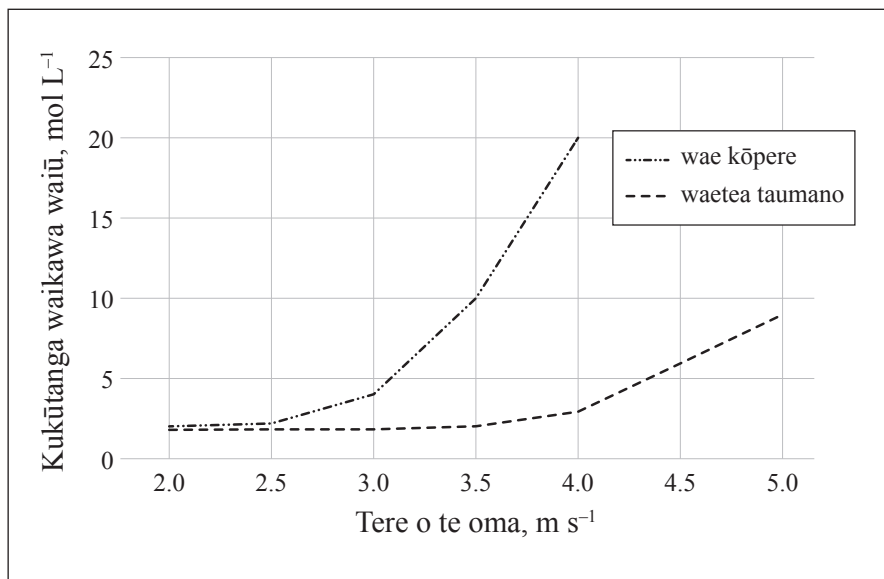
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- (b) Puta ai te tuku pūngao hāora-kore me te tukupūngao ā-hāora i ngā kaioma katoa.

**Te ānau mahinga waikawa waiū**



He mea urutau mai i: <http://www.lactate.com/pitesbas.html>

Tātarihia te kauwhata i runga ake ka matapaki he aha i puta mai ai i ngā momo oma rerekē ngā kukūtanga rerekē o te waikawa waiū.

Me whakauru ki roto i tō tuhinga:

- tētahi whakamāramatanga o te tukupūngao hāora-kore ME te tukupūngao ā-hāora
- tētahi matapakinga o ngā painga ME ngā kino o te tukupūngao hāora-kore, ā-hāora hoki
- tētahi matapakinga he aha i whakaputaina e ngā wae kōpere me ngā waetea taumano ngā kukūtanga waikawa waiū rerekē. Whakamahia te kauwhata i runga ake hei tautoko i tō matapakinga.

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**QUESTION TWO: CELLULAR RESPIRATION**

(a) Describe where anaerobic AND aerobic respiration occur in a cell.

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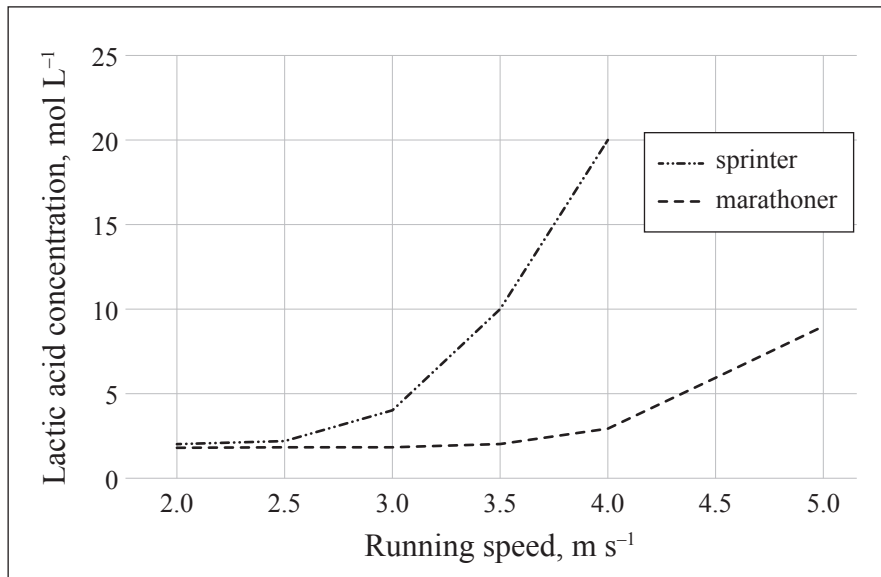
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(b) Anaerobic and aerobic cell respiration are carried out by all runners.

**Lactic acid performance curve**



Adapted from <http://www.lactate.com/pitesbas.html>

Analyse the graph above and discuss why different types of running produce different concentrations of lactic acid.

In your answer include:

- an explanation of anaerobic AND aerobic respiration
- a discussion of the advantages AND disadvantages of anaerobic and aerobic respiration
- a discussion of why sprinters and marathon runners produce different concentrations of lactic acid. Use the graph above to support your discussion.

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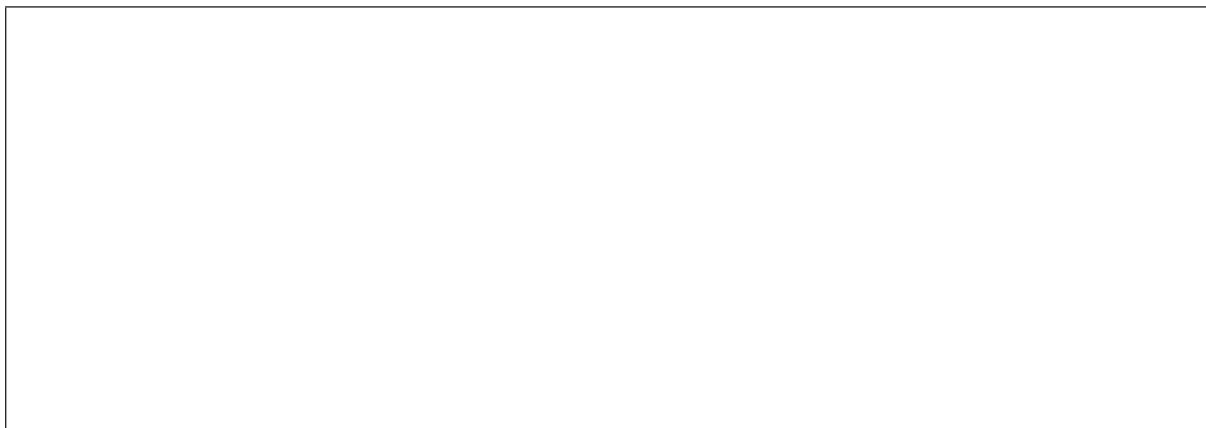












- (b) Some specific enzymes move magnesium ions ( $Mg^{2+}$ ) across the cell membrane.  $Mg^{2+}$  ions are transported using active transport.

Describe an enzyme's structure and purpose, AND explain the process of active transport.

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**Question Three continues  
on page 15.**





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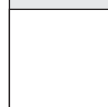
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**He whārangī anō ki te hiahiatia.  
Tuhia te (ngā) tau tūmahi mēnā e tika ana.**

TAU TŪMAHI

MĀ TE  
KAIMĀKA  
ANAKE



*English translation of the wording on the front cover*

## Level 2 Biology, 2019

### 91156 Demonstrate understanding of life processes at the cellular level

9.30 a.m. Tuesday 19 November 2019  
Credits: Four

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.

91156M

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.**