90928M

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NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

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

# Koiora, Kaupae 1, 2018

## 90928M Te whakaatu māramatanga ki ngā ariā koiora e pā ana ki te hurihanga ora o ngā tipu whaipua

9.30 i te ata Rātū 27 Whiringa-ā-rangi 2018
Whiwhinga: Whā

| Paetae | Kaiaka | Kairangi |
|---|---|---|
| Te whakaatu māramatanga ki ngā ariā koiora e pā ana ki te hurihanga ora o ngā tipu whaipua. | Te whakaatu māramatanga hōhonu ki ngā ariā koiora e pā ana ki te hurihanga ora o ngā tipu whaipua. | Te whakaatu māramatanga matawhānui mō ngā ariā koiora e pā ana ki te hurihanga ora o ngā tipu whaipua. |

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 2–19 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

© Mana Tohu Mātauranga o Aotearoa, 2018. 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.

## TŪMAHI TUATAHI: AHOTAKAKAME

He tino hira te tukanga o te ahotakakame ki te hurihanga ora o tētahi tipu whaipua. E tino pā mai ana te ahotakakame ki te rau. E pāngia ana te pāpātanga o te ahotakakame e ngā take taiao maha. Pānuitia ngā kōrero o raro nei hei āwhina i a koe ki te whakatutuki i tēnei tūmahi.

**Hoahoa 1: Ngā pānga o ngā take taiao ki te pāpātanga o te ahotakakame**

www.juntadeandalucia.es/averroes/centros-tic/18010185/helvia/aula/archivos/repositorio/0/149/html/Unidad2_bilingue/Natural_Sciences/plantkfungik/01plants/plants05nutri.html

**Hoahoa 2: Te motuhanga o tētahi rau**

http://www.tutorvista.com/biology/cross-section-of-a-leaf-diagram

Matapakitia te hiranga o ngā take taiao me te hanganga o tētahi rau e taea ai te tukanga ora o te ahotakakame te mahi.

I tō tuhinga, me:

- whakaahua i te tukanga me te kaupapa o te ahotakakame
- whakamārama he pēhea te pā o ngā take taiao ki te pāpātanga o te ahotakakame
- matapaki he pēhea te mahi tahi a ngā take taiao, me te hanganga me te mahinga o te rau kia tino arotau ai te pāpātanga o te ahotakakame.

## QUESTION ONE: PHOTOSYNTHESIS

The process of photosynthesis is essential to the life cycle of a flowering plant. Photosynthesis occurs mainly in the leaf. The rate of photosynthesis is affected by a number of environmental factors. Study the information below to help you answer the question.

**Figure 1: The effects of environmental factors on the rate of photosynthesis**

www.juntadeandalucia.es/averroes/centros-tic/18010185/helvia/aula/archivos/repositorio/0/149/html/Unidad2_bilingue/Natural_Sciences/plantkfungik/01plants/plants05nutri.html

**Figure 2: Cross section of a leaf**

http://www.tutorvista.com/biology/cross-section-of-a-leaf-diagram

Discuss the importance of environmental factors and the structure of a leaf in allowing the process of photosynthesis to occur.

In your answer:

- describe the process and the purpose of photosynthesis
- explain how environmental factors can affect the rate of photosynthesis
- discuss how environmental factors and the structure and function of the leaf work together to maximise the rate of photosynthesis.

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.**

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## TŪMAHI TUARUA: TE HAENGA ME TE WHAKATŌNGA

Ko te pua te taihemahema o tētahi tipu whaipua. E whakaatu ana te hoahoa i raro i ētahi o ngā hanganga o tētahi pua āporo. E rua ngā tino tukanga ka puta i roto i te whakaputa uri a ngā tipu whaipua ko te haenga me te whakatōnga.

**Hoahoa 3: He motuhanga o tētahi pua āporo**

www.dreamstime.com/stock-illustration-anatomy-apple-flower-parts-detailed-diagram-cross-section-useful-study-botany-science-education-image89612668

Matapakitia he pēhea, he aha ai hoki, ka pā mai ai te haenga me te whakatōnga i roto i ngā tipu whaipua.

I tō tuhinga, me:

- whakaahua i ngā tukanga o te haenga me te whakatōnga i roto i tētahi tipu whaipua
- whakamārama i te hiranga o te haenga me te whakatōnga ki te hurihanga ora o tētahi tipu whaipua
- matapaki he pēhea te whai wāhi o ngā hanganga o tētahi pua me ngā mahinga ki ngā tukanga o te haenga me te whakatōnga kia mātua tutuki ai.

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## QUESTION TWO: POLLINATION AND FERTILISATION

The flower is the reproductive organ of a flowering plant. The diagram below shows some of the structures of an apple flower. Two important processes that occur in the reproduction of flowering plants are pollination and fertilisation.

**Figure 3: Cross section of an apple flower**

www.dreamstime.com/stock-illustration-anatomy-apple-flower-parts-detailed-diagram-cross-section-useful-study-botany-science-education-image89612668

Discuss how and why pollination and fertilisation occur in flowering plants.

In your answer:

- describe the processes of pollination and fertilisation as they occur in a flowering plant
- explain the importance of pollination and fertilisation to the life cycle of a flowering plant
- discuss how the structures of a flower and their functions are involved in processes of pollination and fertilisation to ensure maximum success.

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## TŪMAHI TUATORU: TE TIPURANGA TUATAHI ME TE TUARUA

Ka tipu haere ngā tipu whaipua mā ngā tukanga o te tipuranga tuatahi me te tipuranga tuarua.

**Hoahoa 4: Tipuranga tuatahi me te tuarua i roto i tētahi tipu**

www.slideshare.net/mpattani/biology-in-focus-chapter-28

Matapakitia mai he pēhea te pānga o ngā take taiao ki ngā tukanga o te tipuranga tuatahi me te tuarua o tētahi tipu whaipua, me te hiranga o ngā momo tipuranga e rua ki te hurihanga ora.

I tō tuhinga, me:

- whakaahua i ngā tukanga o te tipuranga tuatahi me te tuarua
- whakamārama he pēhea te pānga o ngā take taiao ki te tipuranga tuatahi me te tuarua o tētahi tipu
- matapaki i te hiranga o te tipuranga tuatahi me te tuarua ki te hurihanga ora o tētahi tipu whaipua.

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## QUESTION THREE: PRIMARY AND SECONDARY GROWTH

Flowering plants grow through the processes of primary growth and secondary growth.

**Figure 4: Primary and secondary growth in a plant**

www.slideshare.net/mpattani/biology-in-focus-chapter-28

Discuss how environmental factors affect the processes of primary and secondary growth of a flowering plant, and the importance of both types of plant growth to the life cycle.

In your answer:

- describe the processes of primary growth and secondary growth
- explain how environmental factors can affect the primary and secondary growth of a plant
- discuss the importance of primary and secondary growth in the life cycle of a flowering plant.

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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**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 1 Biology, 2018

## 90928 Demonstrate understanding of biological ideas relating to the life cycle of flowering plants

9.30 a.m. Tuesday 27 November 2018
Credits: Four

90928M

| Achievement | Achievement with Merit | Achievement with Excellence |
|---|---|---|
| Demonstrate understanding of biological ideas relating to the life cycle of flowering plants. | Demonstrate in-depth understanding of biological ideas relating to the life cycle of flowering plants. | Demonstrate comprehensive understanding of biological ideas relating to the life cycle of flowering plants. |

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 space 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.**