90928M

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SUPERVISOR'S USE ONLY

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

Koiora, Kaupae 1, 2014

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

2.00 i te ahiahi Rāhina 17 Whiringa-ā-rangi 2014
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 mehemea e ōrite ana te Tau Ākonga ā-Motu (NSN) kei tō pepa whakauru ki te tau kei runga ake nei.

Me whakautu e koe ngā pātai KATOA kei roto i te pukapuka nei.

Ki te hiahia koe ki ētahi atu wāhi hei tuhituhi whakautu, whakamahia te (ngā) whārangi kei muri i te pukapuka nei, ka āta tohu ai i ngā tau pātai.

Tirohia mehemea kei roto nei ngā whārangi 2–21 e raupapa tika ana, ā, kāore hoki he whārangi wātea.

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

TAPEKE

MĀ TE KAIMĀKA ANAKE

© Mana Tohu Mātauranga o Aotearoa, 2014. Pūmau te mana.
Kia kaua rawa he wāhi o tēnei tuhinga e tāruatia ki te kore te whakaaetanga a te Mana Tohu Mātauranga o Aotearoa.

PĀTAI TUATAHI: TE RUIRUI KĀKANO

MĀ TE KAIMĀKA ANAKE

(a) He rerekē ngā tikanga a ngā tipu mō te ruirui kākano.

Whakaingoatia te tikanga ruirui e whakamahia ana e ia kākano e whakaaturia ana i ngā pikitia i raro.

He tapu tēnei rauemi. E kore taea te tuku atu. Aata tirohia ki ngā kupu kei raro iho i te pouaka nei.	*He tapu tēnei rauemi. E kore taea te tuku atu. Aata tirohia ki ngā kupu kei raro iho i te pouaka nei.*	*He tapu tēnei rauemi. E kore taea te tuku atu. Aata tirohia ki ngā kupu kei raro iho i te pouaka nei.*	*He tapu tēnei rauemi. E kore taea te tuku atu. Aata tirohia ki ngā kupu kei raro iho i te pouaka nei.*
Kākano milkweed	Kākano sandbur	Kākano kokonati	Hua miro
http://www.flickr.com/photos/mully410/5031292705/	www.bcliving.ca/garden/fruit-edible-inedible-incredible-by-wolfgang-stuppy-and-rob-kesseler#Cenchrus-spinifex	http://www.bic.searca.org/photo_exchange/pages/coconut_jpg.htm	http://guacamoleinthetrees.blogspot.co.nz/2013_01_01_archive.html

1. _____ 2. _____ 3. _____ 4. _____

(b) Mā te whakamahi i ngā tauira e whā o runga, whakatauritea ngā tikanga ruirui rerekē e whakamahia ana e ia kākano, ka whakamāmara he pēhea te tūhono o te tikanga ruirui ki te hanganga o te kākano.

MĀ TE KAIMĀKA ANAKE

(c) Matapakitia ngā huapai ME ngā huakino pea o ngā **tikanga ruirui kākano rerekē** e whakamahia ana e tēnā, e tēnā o ngā tipu e whā.

QUESTION ONE: SEED DISPERSAL

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(a) Plants use different methods of seed dispersal.

Name the method of dispersal that is used by each seed shown in the pictures below.

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Milkweed seed http://www.flickr.com/photos/mully410/5031292705/	Sandbur seed www.bcliving.ca/garden/fruit-edible-inedible-incredible-by-wolfgang-stuppy-and-rob-kesseler#Cenchrus-spinifex	Coconut seed http://www.bic.searca.org/photo_exchange/pages/coconut_jpg.htm	Miro berries http://guacamoleinthetrees.blogspot.co.nz/2013_01_01_archive.html

1. _____ 2. _____ 3. _____ 4. _____

(b) Using the four examples above, compare the different dispersal methods used by each seed, and explain how the method of dispersal is linked to the structure of the seed.

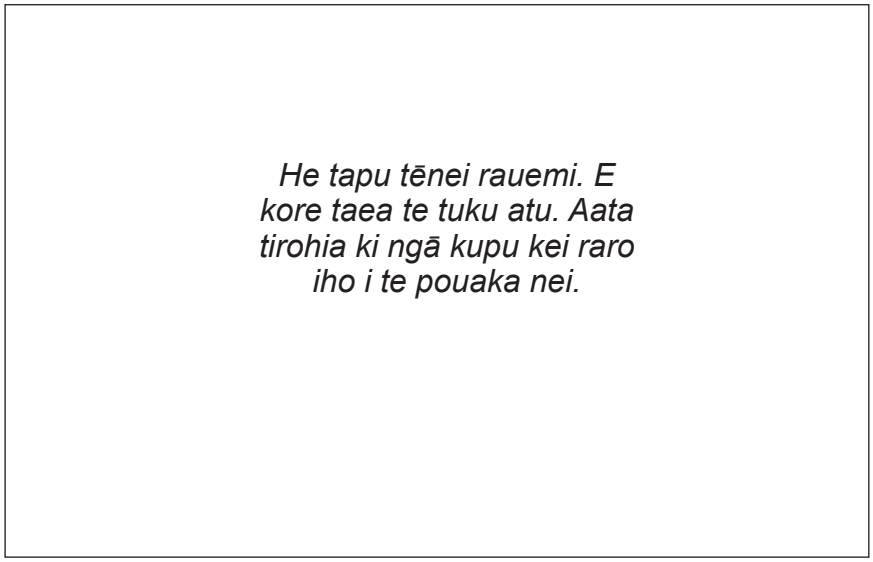
ASSESSOR'S USE ONLY

(c) Discuss the advantages AND possible disadvantages of the **different methods of seed dispersal** used by each of the four plants.

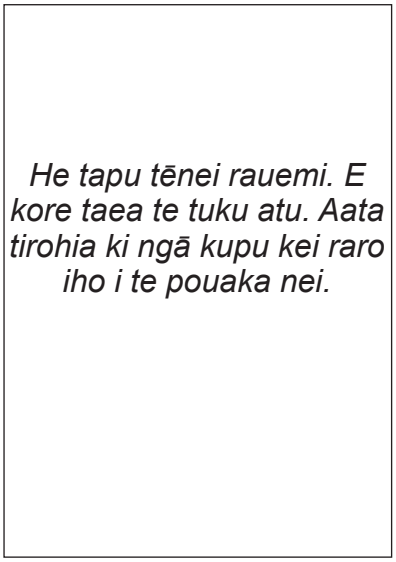
PĀTAI TUARUA: TE TINAKUTANGA ME TE TIPURANGA

MĀ TE KAIMĀKA ANAKE

Ina ruia ngā kākano ka taea pea te tinaku. E whakaatu ana ngā pikitia i raro i ngā wana miro kua tinaku**.**



http://www.teara.govt.nz/en/photograph/12678/miro-seeds



http://www.conifers.org/po/pr/ferruginea2.jpg

(a) Ko tētahi āhuatanga taiao e hiahiatia ana mō te tinaku momoho ko te hāora.

Tāutua kia RUA atu anō ngā āhuatanga taiao e hiahiatia ana kia tinaku ai ngā kākano miro.

1. _____

2. _____

(b) Whakamāramahia he aha i hiahiatia ai ngā āhuatanga taiao katoa e TORU o runga kia momoho ai te tinakutanga.

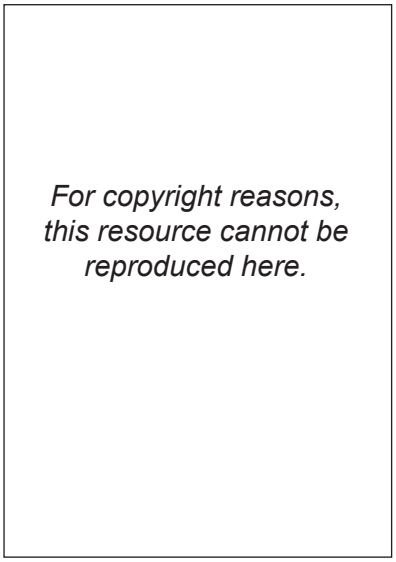
MĀ TE KAIMĀKA ANAKE

QUESTION TWO: GERMINATION AND GROWTH

ASSESSOR'S USE ONLY

Once the seeds have been dispersed they may germinate. The pictures below show miro seedlings that have germinated.

http://www.teara.govt.nz/en/photograph/12678/miro-seeds



http://www.conifers.org/po/pr/ferruginea2.jpg

(a) One environmental condition needed for successful germination is oxygen.

Identify TWO other environmental conditions required for miro seeds to germinate.

1. _____

2. _____

(b) Explain why each of the THREE environmental conditions above are necessary for germination to be successful.

ASSESSOR'S USE ONLY

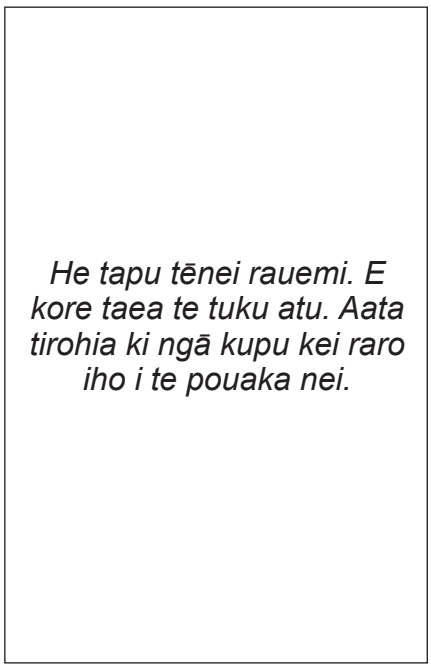
(c) E whakaatu ana te hoahoa i raro nei i tētahi topenga o tētahi kahiwi miro. Ka kitea te tipuranga tuarua i roto i te kahiwi o te miro. Whakamahia te pikitia hei āwhina ki te whakautu i tēnei pātai i raro.

MĀ TE KAIMĀKA ANAKE

He hoahoa o te pae motuhanga o te kahiwi e whakaatu ana i ngā porowhita tipuranga

He tapu tēnei rauemi. E kore taea te tuku atu. Aata tirohia ki ngā kupu kei raro iho i te pouaka nei.

http://woodlandstewardship.org/?page_id=1118



www.nzbordercollies.co.nz/idex%20files/Photos.htm

Ina tinakuhia te kākano miro ka tīmata te tipu.

Whakamāramahia he pēhea te tipuranga tuatahi, tuarua hoki e tūpono ai, me te matapaki i te hiranga o ēnei momo tipuranga e rua mō te tipu.

Me whakauru ki tō whakautu:

- tētahi whakamāramatanga o ngā rerekētanga i waenga i te tipuranga tuatahi me te tuarua
- tētahi whakamāramatanga ka pēhea, kei hea hoki, e tūpono ai te tipuranga tuatahi me te tuarua
- tētahi matapakinga o te hiranga o te tipuranga tuatahi me te tuarua.

MĀ TE KAIMĀKA ANAKE

ASSESSOR'S USE ONLY

(c) The diagram below shows a cross-section of a miro tree trunk. Secondary growth can be observed in the trunk of a miro tree. Use the picture to help you answer the question below.

Diagram of transverse section of tree trunk, showing growth rings

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http://woodlandstewardship.org/?page_id=1118

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www.nzbordercollies.co.nz/idex%20files/Photos.htm

Once the miro seed has germinated it starts to grow.

Explain how primary and secondary growth occur, and discuss the importance of these two types of growth for the plant.

Your answer should include:

- an explanation of the differences between primary and secondary growth
- an explanation of how and where primary and secondary growth occur
- a discussion of the importance of both primary and secondary growth.

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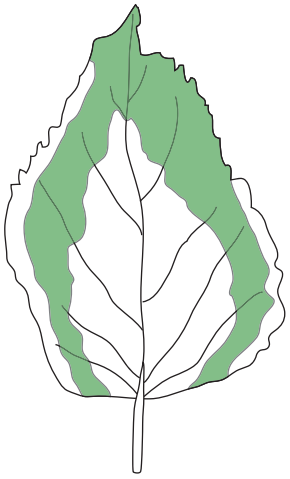
PĀTAI TUATORU: TE AHOTAKAKAME

MĀ TE KAIMĀKA ANAKE

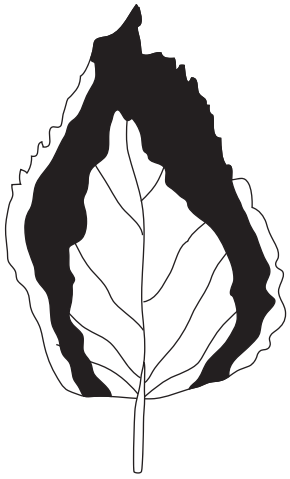
(a) E whakaatu ana te hoahoa i raro me pēhea te whakamahi i tētahi whakamātau konutawa hei tūhura i te ahotakakame.

Whakamātau konutawa i runga i te rau

I mua i te whakamātau konutawa



I muri i te whakamātau konutawa



Mātāpuna (he mea urutau): http://sciencee-portfoliomaxx.wikispaces.com/Lab%20Reflections

Tirohia te hoahoa i runga ake ka whakamārama mai he aha e whakaaturia ana e ngā kitenga o te whakamātau konutawa i roto i te rangahau.

I tō whakautu, me:

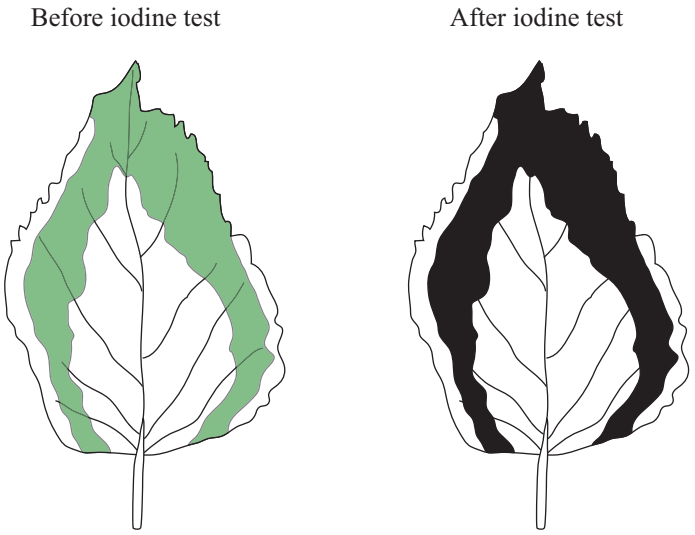
- whakaahua he aha e whakaaturia ana e te whakamātau konutawa i roto i tēnei rangahau
- whakamārama he aha te tikanga o ngā kitenga e ai ki te ahotakakame e mahi ana i roto i te rau.

QUESTION THREE: PHOTOSYNTHESIS

ASSESSOR'S USE ONLY

(a) The diagram below shows how an iodine test can be used to investigate photosynthesis.

Iodine test on leaf



Source (adapted): http://sciencee-portfoliomaxx.wikispaces.com/Lab%20Reflections

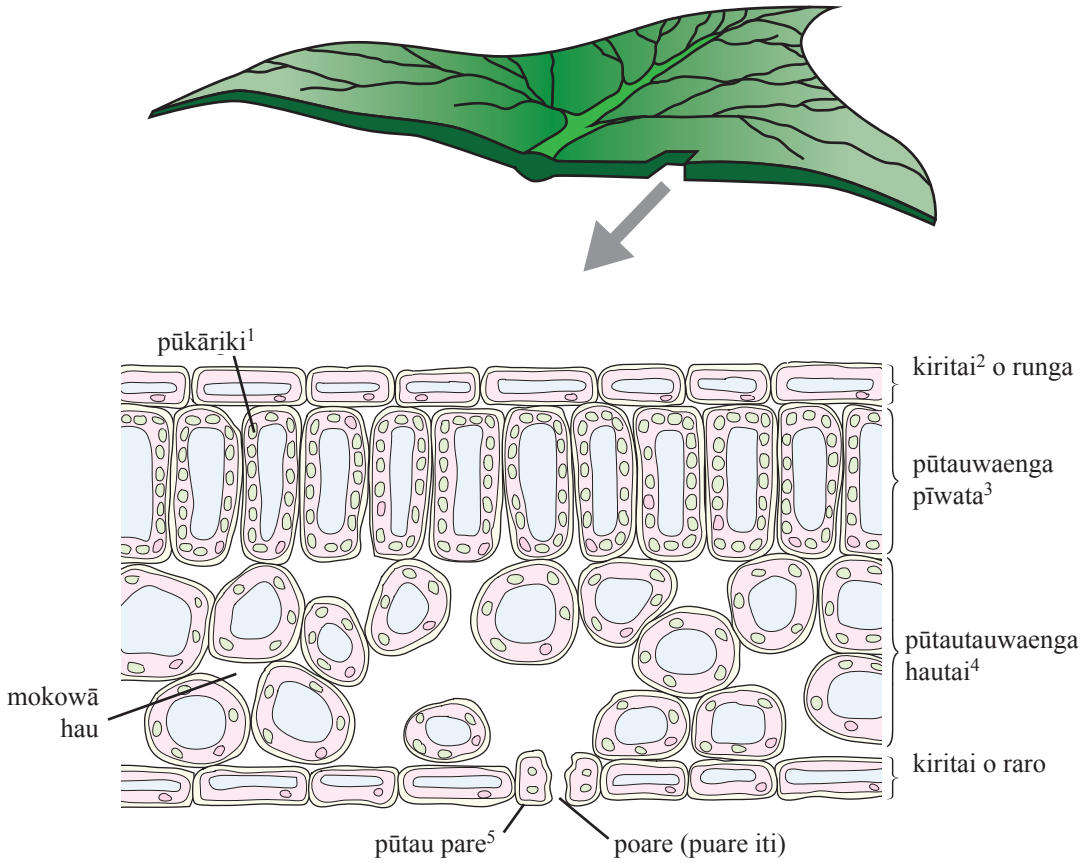
Refer to the diagram above and explain what the results of the iodine test indicate in the experiment.

In your answer you should:

- describe what the iodine test shows in this experiment
- explain what the results mean in terms of photosynthesis occurring in the leaf.

(b) He topenga te hoahoa i raro o tētahi rau, ā, e whakaatu ana i ngā pūtau me ngā hanganga ka kitea i roto i tētahi rau pūnoa.

MĀ TE KAIMĀKA ANAKE



Mātāpuna (he mea urutau): http://scienceuniquez.blogspot.co.nz/2011_10_01_archive.html
me K. Gadd, *AQA Science: For AQA GCSE Additional Studies* (Rānana: Harper Collins, 2006), wh. 29.

Mā te whakamahi i te hoahoa i runga, matapakitia he pēhea te āwhina a ngā hanganga o te rau i te tukanga ahotakakame.

I tō matapakinga me:

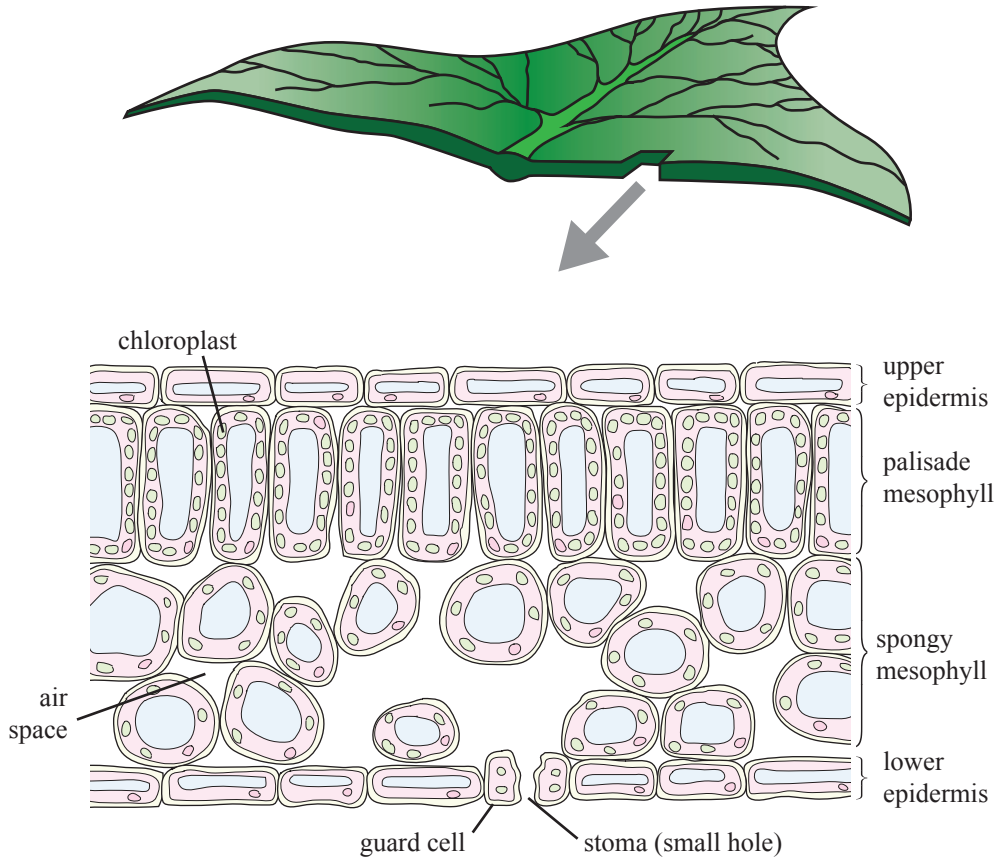
- whakaingoa te whēkauiti kei roto i te ahotakakame
- tautohu ngā urutaunga ka taea te whāomotanga o te ahotakakame te whakapai ake
- whakauru ki ngā whakamāramatanga he pēhea te whakapai ake a ēnei urutanga i te ahotakakame
- tūhono ngā āhuatanga me ngā hanganga motuhake o te rau ki te whāomotanga whānui o te ahotakakame.

[1] pūmāota
[2] kiriwaho
[3] palisade mesophyll
[4] spongy mesophyll
[5] tautiaki

He wāhi anō mō tō whakautu i tēnei pātai kei ngā whārangi 18 me 19.

ASSESSOR'S USE ONLY

(b) The diagram below is of a cross section of a leaf and it shows the cells and structures you find in any typical leaf.



Source (adapted): http://scienceuniquez.blogspot.co.nz/2011_10_01_archive.html
and K. Gadd, *AQA Science: For AQA GCSE Additional Studies* (London: Harper Collins, 2006), p. 29.

Using the diagram above, discuss how the structures of a leaf assist the process of photosynthesis.

In your discussion you should:

- name the organelle involved in photosynthesis
- identify adaptations that can make photosynthesis more efficient
- include explanations of how these adaptations improve photosynthesis
- link the specialised features and structures of the leaf to the overall efficiency of photosynthesis.

There is more space for your answer to this question on pages 18 and 19.

MĀ TE KAIMĀKA ANAKE

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He puka anō mēnā ka hiahiatia.
Tuhia te (ngā) tāu pātai mēnā e hāngai ana.

TAU PĀTAI

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, 2014

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

2.00 pm Monday 17 November 2014
Credits: Four

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.

90928M

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 2–21 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.

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