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90927M



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NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA

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KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

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## Koiora, Kaupae 1, 2018

### 90927M Te whakaatu māramatanga ki ngā ariā koiora e pā ana ki te moroiti

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 moroiti.	Te whakaatu māramatanga hōhonu ki ngā ariā koiora e pā ana ki te moroiti.	Te whakaatu māramatanga matawhānui ki ngā ariā koiora e pā ana ki te moroiti.

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 tuinga, 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 2–21 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: TE WHAKAMAHI I NGĀ MOROITI HEI HOROI I TĒTAHI RUKENGA HINU

Ka taea ētahi momo huakita te whakamahi hei horoi i ngā rukenga hinu. Ina pā ēnei huakita ki te hinu, ka kainga haeretia me te wāwāhi haere, e puta ai he hauhā me te wai.

### He rukenga hinu



Mātāpuna: [www.smithsonianmag.com/innovation/scientists-find-natural-way-to-clean-up-oil-spills-with-plant-based-molecule-180955815/](http://www.smithsonianmag.com/innovation/scientists-find-natural-way-to-clean-up-oil-spills-with-plant-based-molecule-180955815/)

Matapakitia he pēhea e taea ai e ngā tukangā ora o te huakita te horoi i ngā rukenga hinu.

I tō tuhinga, me:

- whakaahua mai he pēhea ngā huakita e kai ai
- whakamārama he pēhea te whakaawe a ngā take taiao rerekē (hei tauira, te whakataetae, te wātea o te hāora, te wātea o te wai, te paemahana) ki te tipuranga huakita, whakaputa uri me te tukupūngao
- matapaki he pēhea te whakaawe a ngā take taiao (hei tauira, te whakataetae, wātea o te hāora, wātea o te wai, paemahana) e RUA kua whakaingoatia i te tutuki pai pea o te horoi a te huakita i te rukenga hinu.

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**QUESTION ONE: USING MICROBES TO CLEAN UP AN OIL SPILL**

Some types of bacteria can be used to help clean up oil spills. When these bacteria come in contact with oil, they feed on it, breaking it down, producing carbon dioxide and water.

**An oil spill**

Source: [www.smithsonianmag.com/innovation/scientists-find-natural-way-to-clean-up-oil-spills-with-plant-based-molecule-180955815/](http://www.smithsonianmag.com/innovation/scientists-find-natural-way-to-clean-up-oil-spills-with-plant-based-molecule-180955815/)

Discuss how the life processes of bacteria enable them to clean up oil spills.

In your answer:

- describe how bacteria feed
- explain how different environmental factors (e.g. competition, oxygen availability, water availability, temperature) affect bacterial growth, reproduction and respiration
- discuss how TWO named environmental factors (e.g. competition, oxygen availability, water availability, temperature) can affect how successful the bacteria will be at cleaning up the spill.

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## TŪMAHI TUARUA: HE KOROKORO MAMAE

Ka pā noa mai te korokoro mamae ki te tangata mō ngā take rerekē. I te nuinga o te wā ka pupū ake nā tētahi whakapokenga huaketo, huakita rānei.

### Ngā pūtake me ngā tohumate o tētahi korokoro mamae



Mātāpuna: <http://mytwitbox.com/2015/01/role-of-bacterial-infections-to-develop-sore-throat/>

Matapakitia he pēhea te pupū ake o ngā whakapokenga pērā i te korokoro mamae i ngā tukanga ora o ngā huakita me ngā huaketo.

I tō tuhinga, me:

- whakaahua mai he pēhea te whakaputa uri a ngā huakita me ngā huaketo
- whakamārama he pēhea te hōrapa i waenga tāngata o ngā moroiti e pā mai ai ngā korokoro mamae
- whakataurite he pēhea te pā mai o ngā whakapokenga pērā i te korokoro mamae i ngā tukanga ora o te huakita me te huaketo, hei tauira, te whakaputa uri.

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**QUESTION TWO: SORE THROAT**

A sore throat can occur in humans for a variety of reasons. It is often caused by either a viral or a bacterial infection.

**Causes and symptoms of a sore throat**

Source: <http://mytwitbox.com/2015/01/role-of-bacterial-infections-to-develop-sore-throat/>

Discuss how the life processes of bacteria and viruses can cause infections such as a sore throat.

In your answer:

- describe how both bacteria and viruses reproduce
- explain how microbes that cause sore throats can be passed between different people
- compare and contrast how the life processes of bacteria and viruses, such as reproduction, can cause infections such as a sore throat.

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## TŪMAHI TUATORU: WAIKURA RŌHUTU (MYRTLE RUST)

He hekaheka te waikura rōhutu e patu nei i ā tātou tipu taketake. I ngā tino āhuatanga ka tere te tipu, ā, mārama ana te kitea atu.

Ko ngā tohumate hei rapu i runga tipu ko:

- te paura tino kōwhai i runga rau



[www.wildernessmag.co.nz/myrtle-rust-set-explode/](http://www.wildernessmag.co.nz/myrtle-rust-set-explode/)  
[www.radionz.co.nz/news/environment/344864/fears-myrtle-rust-could-spread](http://www.radionz.co.nz/news/environment/344864/fears-myrtle-rust-could-spread)

- ngā iraira parauri me te whero



[www.mpi.govt.nz/protection-and-response/responding/alerts/myrtle-rust](http://www.mpi.govt.nz/protection-and-response/responding/alerts/myrtle-rust)  
[www.doc.govt.nz/myrtle-rust](http://www.doc.govt.nz/myrtle-rust)

- te piko me te whiri o ngā rau, me te matemate haere.



<http://www.spiffa.org/myrtle-rust-invades-victoria.html>  
<http://www.doc.govt.nz/myrtle-rust>

E tonono ana Te Manatū Ahu Matua (MPI) kia āwhinatia rātou e te iwi ki te rapu i tēnei hekaheka kino, kia taea ai te pupuri tōna hōrapatanga. Anei ā rātou tohutohu:

*Mēnā ka kitea e koe te waikura rōhutu, kaua rawa e pā atu, e kōhi rānei i ngā tīpakonga. Me tango whakaahua ka waea atu ki te waeawera MPI Pest and Disease kia tukuna atu ai e MPI he tangata ki te whakawātea mai i ngā tipu katoa kua pā kinotia, me te aha kia tohua ētahi atu tipu kei runga i taua whenua kia āta mātakitaki haeretia.*

Whakawhānuitia ngā tohutohu a MPI, me te whakamārama he aha i tino māharahara ai rātou.

I tō tuhinga:

- me whakamārama mai he pēhea te kai, te tipu me te whakaputa uri a te hekaheka
- e ai ki te whakaputa uri a te hekaheka, whakamāramahia mai he aha i tohutohutia ai te iwi whānui kia kaua e pā atu, e raweke rānei i ngā tipu kua pōkea e te waikura rōhutu
- me matapaki he pēhea te mahi tahi a ngā tukanga ora hekaheka o te kai, te tipu me te whakaputa uri me ngā take taiao o te mahana me te mākū, e tino noho mōrearea nei ā tātou tipu taketake ki te waikura rōhutu.

### QUESTION THREE: MYRTLE RUST

Myrtle rust is a fungus that is killing our native plants. In the right conditions it grows quickly, making it easy to see.

Symptoms to look out for on plants are:

- bright yellow powder on leaves



[www.wildernessmag.co.nz/myrtle-rust-set-explode/](http://www.wildernessmag.co.nz/myrtle-rust-set-explode/)  
[www.radionz.co.nz/news/environment/344864/fears-myrtle-rust-could-spread](http://www.radionz.co.nz/news/environment/344864/fears-myrtle-rust-could-spread)

- brown and red spots



[www.mpi.govt.nz/protection-and-response/responding/alerts/myrtle-rust](http://www.mpi.govt.nz/protection-and-response/responding/alerts/myrtle-rust)  
[www.doc.govt.nz/myrtle-rust](http://www.doc.govt.nz/myrtle-rust)

- leaves becoming buckled and twisted, and dying off.



<http://www.spiffa.org/myrtle-rust-invades-victoria.html>  
<http://www.doc.govt.nz/myrtle-rust>

New Zealand's Ministry for Primary Industries (MPI) is asking people to help them find this harmful fungus, so that they can control its spread. Their advice is as follows:

*If you see myrtle rust, do not touch the plant or try to collect samples. Take photos and call the MPI Pest and Disease hotline so that someone from MPI can be sent to remove all affected plants, and other plants on the property can be marked for observation.*

Elaborate on MPI's advice, and explain why they are so concerned.

In your answer:

- describe how fungi feed, grow, and reproduce
- in relation to fungal reproduction, explain why the public are advised not to touch or disturb plants infected with myrtle rust
- discuss how the fungal life processes of nutrition, growth, and reproduction work together with the environmental factors of warmth and moisture, to make myrtle rust such a risk to our native plants.

**He wāhi anō mō tō  
tuhinga mō tēnei tūmahi  
kei te whārangi 14.**

**There is more space for your answer to this question on page 15.**





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

TAU TŪMAHI

Lined writing area consisting of 28 horizontal lines for text entry.









*English translation of the wording on the front cover*

## Level 1 Biology, 2018

### 90927 Demonstrate understanding of biological ideas relating to micro-organisms

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

90927M

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of biological ideas relating to micro-organisms.	Demonstrate in-depth understanding of biological ideas relating to micro-organisms.	Demonstrate comprehensive understanding of biological ideas relating to micro-organisms.

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 2–21 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.**