

See back cover for an English translation of this cover

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90927M



909275



NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA

SUPERVISOR'S USE ONLY

## Koiora, Kaupae 1, 2013

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

9.30 i te ata Rāpare 14 Whiringa-ā-rangi 2013  
Whiwhinga: Whā

Paetae	Paetae Kaiaka	Paetae 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 mehemea e ōrite ana te Tau Ākongā ā-Motu (NSN) kei tō pepa whakauru ki te tau kei runga ake nei.

**Me whakautu e koe te KATOĀ o ngā pātai 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 2–17 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

Kia 60 meneti hei whakautu i ngā pātai o tēnei pukapuka.

**PĀTAI TUATAHI: NGĀ TUKANGA NAKUNAKU ME NGĀ TUKANGA WHAKAPUTA URI**

- (a) Whakaahuahia ngā tukanga nakunaku me te whakaputa uri i roto i te huakita me te hekaheka. Ka taea e koe te whakamahi hoahoa whai tapanga.

Tukanga nakunaku i roto i te huakita: \_\_\_\_\_

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Tukanga nakunaku i roto i te hekaheka: \_\_\_\_\_

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Tukanga whakaputa uri i roto i te huakita: \_\_\_\_\_

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Tukanga whakaputa uri i roto i te hekaheka: \_\_\_\_\_

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(b) Whakatauritehia ēnei tukanga nakunaku me te whakaputa uri i roto i te huakita me te hekaheka.

I tō whakautu:

- whakamāramahia mai te tukanga nakunaku i roto i te huakita me te hekaheka
- whakamāramahia mai te tukanga whakaputa uri i roto i te huakita me te hekaheka
- matapakitia ngā ōritetanga me ngā rerekētanga i waenga i te tukanga nakunaku me te whakaputa uri i te huakita me te hekaheka, me te tūhonohono haere i waenga i ngā hanganga o ngā rauropi me ngā tukanga.

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You are advised to spend 60 minutes answering the questions in this booklet.

### QUESTION ONE: DIGESTION AND REPRODUCTION PROCESSES

- (a) Describe the processes of digestion and reproduction in bacteria and in fungi.

You may use labelled diagrams.

Digestion process in bacteria: \_\_\_\_\_

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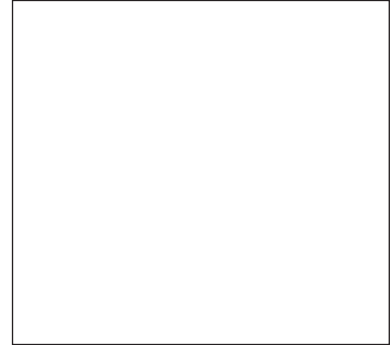
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Digestion process in fungi: \_\_\_\_\_

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Reproduction process in bacteria: \_\_\_\_\_

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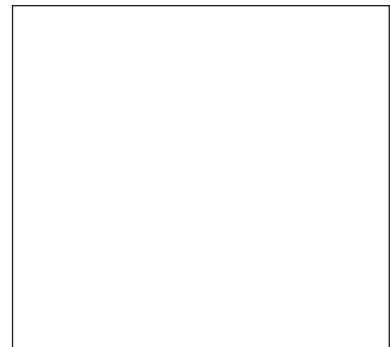
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Reproduction process in fungi: \_\_\_\_\_

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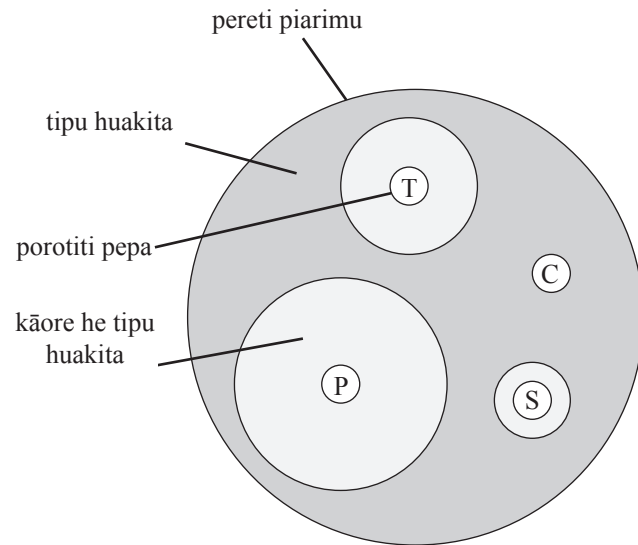


## PĀTAI TUARUA: NGĀ RONGOĀ PATUROPI<sup>1</sup>

Whakamahia ai ngā rongoā paturopi hei whakamaimoa whakapokenga. Ehara i te mea ka whaihua ia rongoā paturopi ki ia momo huakita. Ka taea e ngā kaipūtaiao te whakahaere whakamātauranga hei whakaatu i te whaihua o tētahi rongoā paturopi ki tētahi huakita tauwhāiti. I roto i tēnei whakamātauranga, ka pania tētahi tītipu huakita ki tētahi pereti piarimu mā te whakamahi i ngā tikanga horomata. Kātahi ka āta whakatakotohia ngā porotiti pepa whai paturopi ki te pereti piarimu, ā, ka awhitia mō te rua rā. E whakaaturia ana ngā hua o tētahi o ngā whakamātauranga i raro nei.

### Te whaihua o ngā rongoā paturopi e toru ki *E. coli*

Tohu	
C	Whakatina
P	Penicillin
S	Streptomycin
T	Tetracycline



Matapakihia te whakamātauranga, ka whakamārama ko tēhea te rongoā paturopi ka tino whaihua ki te whakapokenga *E. coli*, me pēhea te whakatau i tēnei.

I tō whakautu:

- whakaahuahia ko tēhea te rongoā paturopi tino whaihua rawa ka whakamārama me pēhea te whakatau i tēnei
- whakamāramahia te pūtake o te whakatina i roto i tēnei whakamātauranga
- whakamāramahia te take me mātua noho horomata te pereti piarimu i mua i te whakatakototanga atu o te huakita ki runga
- whakamāramahia mai he pēhea te whakatipu ā-pia i te pereti piarimu kia ōrite ai te tipu mai o te huakita.

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<sup>1</sup> patupokenga

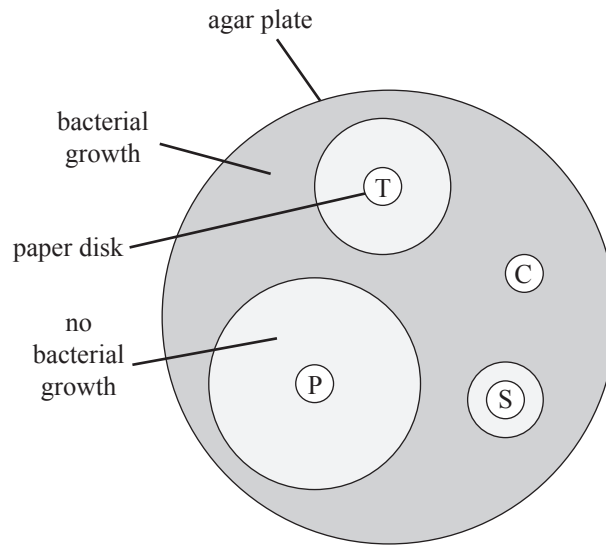


## QUESTION TWO: ANTIBIOTICS

Antibiotics are used routinely to treat infections. Not every antibiotic is effective against every species of bacteria. Scientists can carry out experiments to show how effective an antibiotic will be against specific bacteria. In this experiment, a culture of bacteria is spread over an agar plate using sterile techniques. Then, paper disks containing antibiotic are placed carefully onto the agar plate, which is then incubated for two days. The results of one test are shown below.

### Effectiveness of three antibiotics against *E. coli*

Key	
C	Control
P	Penicillin
S	Streptomycin
T	Tetracycline



Discuss the experiment, explaining which antibiotic would be most effective against the *E. coli* infection and how this can be determined.

In your answer you should:

- describe which antibiotic was the most effective and explain how this can be determined
- explain the purpose of the control in this experiment
- explain why the agar plate should be sterile before the bacteria are placed on it
- explain how the agar plate is inoculated to get an even growth of bacteria.

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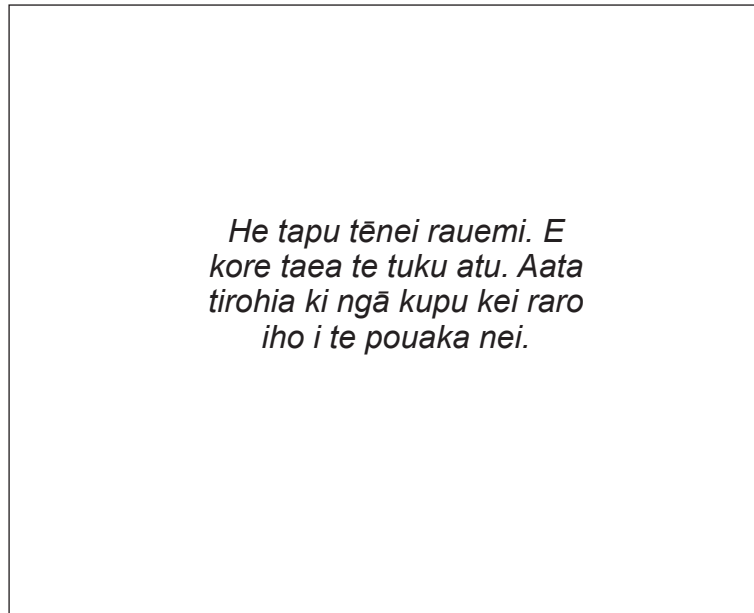
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## PĀTAI TUATORU: WAIRĀKAU<sup>2</sup> ME TE HURINGA TAIORA

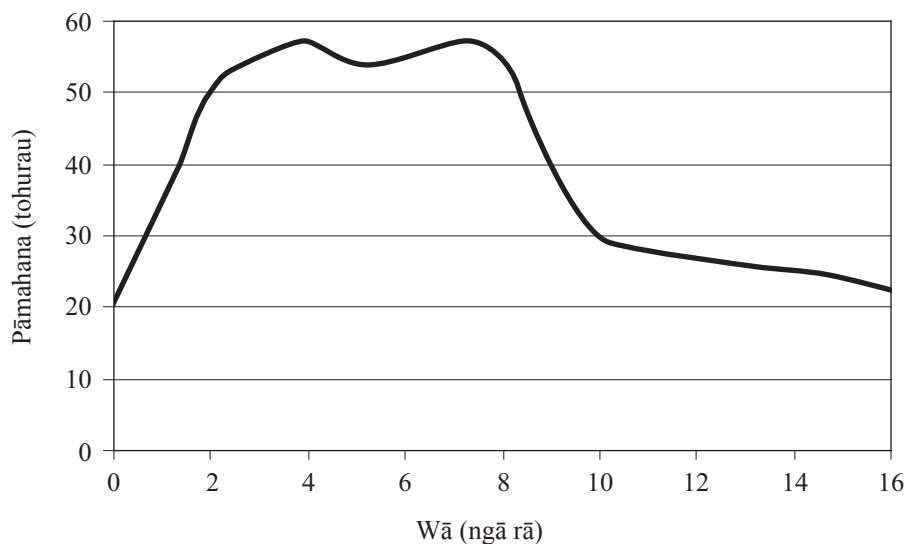
He matū pararopi pirau<sup>3</sup> te wairākau. He tukanga te hanga wairākau ka whakahaerehia e ngā moromoroiti hamupirau hei huri i ngā matū pararopi pēnei i te matū huawhenua me te manuia hei wairākau. Me whai rerenga hau pai te haupū wairākau tino pai rawa. Ka hua mai ko te wairākau, hauhā<sup>4</sup>, wai, me te wera.

### He haupū wairākau



[http://1.bp.blogspot.com/\\_GILzJHICKiY/TDt17qzpW\\_I/AAAAAAAAAKQ/q-ZfyI5I-Ic/s1600/compost\\_lower.jpg](http://1.bp.blogspot.com/_GILzJHICKiY/TDt17qzpW_I/AAAAAAAAAKQ/q-ZfyI5I-Ic/s1600/compost_lower.jpg)

### Ngā huringa o te pāmahana i roto i te wairākau i ngā rangi tuatahi



(a) Whakamāramahia te tūcupu hamupirau.

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<sup>2</sup> kapurangi

<sup>3</sup> pōpopo

<sup>4</sup> waro hāora-rua

(b) Tirohia te kauwhata ki te whārangi 10, ka whakamāramahia mai ngā huringa pāmahana kei te haere i roto i wairākau.

Tūhonohohia ēnei huringa pāmahana ki ngā tukanga ora o ngā moromoroiti me te tukanga wairākau.

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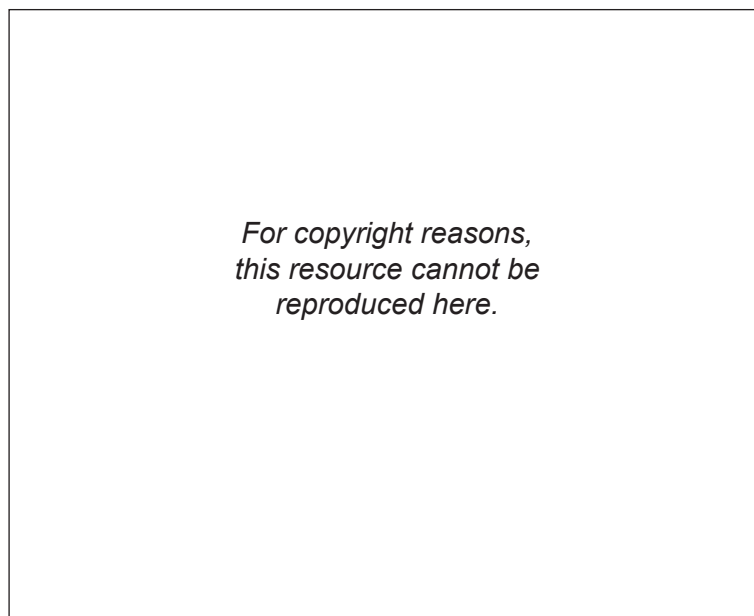
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**Ka haere tonu te Pātai Tuatoru  
ki te whārangi 14.**

### QUESTION THREE: COMPOST AND NUTRIENT CYCLING

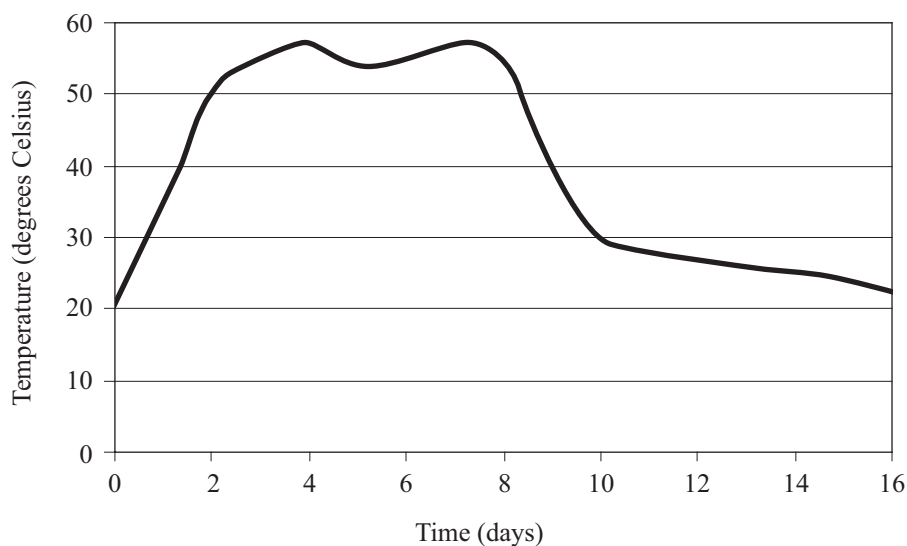
Compost is decayed organic matter. Composting is the process carried out by saprophytic micro-organisms turning organic matter such as vegetable matter and manure into compost. A successful compost heap requires good air flow. Compost, carbon dioxide, water, and heat are produced.

#### A compost heap



[http://1.bp.blogspot.com/\\_GILzJHICkiY/TDt17qzpW\\_I/AAAAAAAAAKQ/q-Zfy15I-Ic/s1600/compost\\_lower.jpg](http://1.bp.blogspot.com/_GILzJHICkiY/TDt17qzpW_I/AAAAAAAAAKQ/q-Zfy15I-Ic/s1600/compost_lower.jpg)

#### Temperature changes in compost over the first few days



- (a) Describe the term saprophyte.

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- (b) Refer to the graph on page 12, and explain the temperature changes that occur in the compost. Link these temperature changes to the life processes of the micro-organisms and the process of composting.

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**Question Three continues  
on page 15.**





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

TAU  
PĀTAI

MĀ TE  
KAIMĀKA  
ANAKE









*English translation of the wording on the front cover*

## Level 1 Biology, 2013

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

9.30 am Thursday 14 November 2013

Credits: Four

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 page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–18 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.**

90927M