

# 1

90927



NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD  
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SUPERVISOR'S USE ONLY

## Level 1 Biology, 2019

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

9.30 a.m. Monday 11 November 2019  
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 space provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–8 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.**

**TOTAL**

ASSESSOR'S USE ONLY

**QUESTION ONE: MICROBES AND THE CARBON CYCLE**

Fungi and bacteria are known as decomposers. By carrying out their life processes, they have an important role in decomposing and in the carbon cycle.



Log on forest floor, being decomposed by fungi.

<https://stlawrencelowlands.wordpress.com/2014/11/26/turkey-tail-fungi-natures-recycling-enthusiasts/>

Discuss the importance of the life processes of fungi OR bacteria in the carbon cycle by:

- describing and explaining how fungi OR bacteria carry out the life processes of feeding/nutrition, respiration, and excretion
- linking the life processes of feeding/nutrition, respiration, and excretion in fungi OR bacteria, to their importance in the carbon cycle.

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## QUESTION TWO: CULTURING MICROBES

An investigation into the effect of temperature on culturing microbes was carried out by a group of Year 11 students. They inoculated agar plates with the same material, and then incubated the agar plates for 96 hours, at three different temperatures.

Photographs of three plates after 96 hours are shown below.

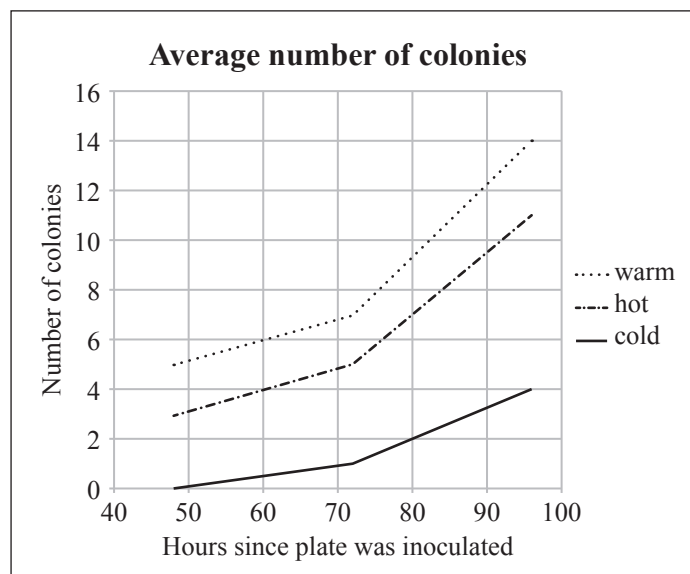


**Plate A**  
hot temperature

**Plate B**  
warm temperature

**Plate C**  
cold temperature

<https://www.stevespanglerscience.com/lab/experiments/growing-bacteria/>



Discuss the impact of environmental factors on the culturing and growth of microbes by:

- describing and explaining the structure and function of the microbes that are growing on the plates
- explaining the role of the agar in the culturing of microbes
- discussing the effect of different temperatures on the life processes of microbes, referring to the graph and photographs above.

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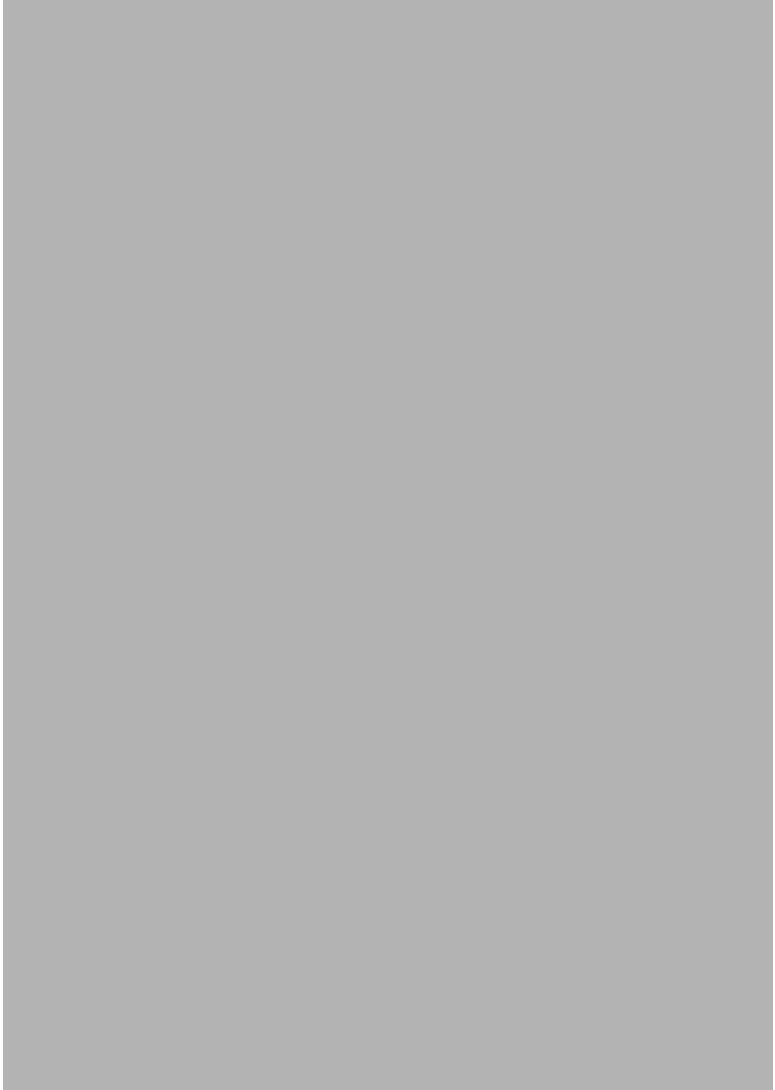
### QUESTION THREE: CHICKENPOX

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Chickenpox is a disease that is caused by the chickenpox virus, and is easily spread. The symptoms of chickenpox are listed in the diagram on the right. Although antibiotics can be an effective treatment for bacterial infections, they are not an effective treatment for viruses such as chickenpox. Treatment for chickenpox focuses on reducing the fever and itching.

Discuss the causes, effects and treatment of a viral disease such as chickenpox by:

- describing and explaining the structure and function of a virus
- explaining how viruses reproduce and how they are spread
- comparing the effects of antibiotics on bacteria and viruses.



<https://www.verywellhealth.com/symptoms-of-chicken-pox-2634340>



