



For Supervisor's use only

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90168



NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA



National Certificate of Educational Achievement  
TAUMATA MĀTAURANGA Ā-MOTU KUA TAEA

## Level 1 Biology, 2005

### 90168 Describe how humans use and are affected by micro-organisms

Credits: Two

9.30 am Tuesday 15 November 2005

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 answer 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 2–8 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.**

<i>For Assessor's use only</i>		<b>Achievement Criteria</b>	
<b>Achievement</b>	<input type="checkbox"/>	<b>Achievement with Merit</b>	<input type="checkbox"/>
		<b>Achievement with Excellence</b>	<input type="checkbox"/>
Describe biological ideas relating to how humans use and are affected by micro-organisms.	<input type="checkbox"/>	Explain biological ideas relating to how humans use and are affected by micro-organisms.	<input type="checkbox"/>
		Discuss biological ideas relating to how humans use and are affected by micro-organisms.	<input type="checkbox"/>
<b>Overall Level of Performance</b>		<input type="checkbox"/>	

You are advised to spend 40 minutes answering the questions in this booklet.

### QUESTION ONE: PATHOGEN PROBLEMS

Many bacteria, fungi and viruses are pathogens.

- (a) **Describe** what a pathogen is.

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- (b) Complete the following table to describe when micro-organisms are useful and when they are harmful to humans. (The table has been started for you.)

	Bacteria	Virus	Fungi
Useful			
Harmful			Athlete's foot

- (c) **Explain** how the use of disinfectant around the house can reduce the chances of getting an infection.

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REASONS, THIS  
RESOURCE CANNOT BE  
REPRODUCED HERE.  
SEE BELOW.]**

source: [www.clipsahoy.com/webgraphics3/aw4777.htm](http://www.clipsahoy.com/webgraphics3/aw4777.htm)

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**QUESTION THREE: A QUESTION OF WASTE**

The diagram shows a typical sewage treatment station.



Diagram source: [web.ukonline.co.uk/webwise/spinneret/microbes/sewag.htm](http://web.ukonline.co.uk/webwise/spinneret/microbes/sewag.htm)

- (a) Some of the end products of the treatment are useful to humans. **Describe** ONE use for each of **digested sludge** and **methane**.

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- (b) The conditions in part **A** and part **B** of the sewage treatment station affect the biological processes that the micro-organisms carry out there.

- (i) **Explain** how the conditions in **part A** affect the organisms.

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(ii) **Explain** how the conditions in **part B** affect the organisms.

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