

90314



NEW ZEALAND QUALIFICATIONS AUTHORITY MANA TOHU MĀTAURANGA O AOTEAROA



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

Level 2 Science, 2004

90314 Describe aspects of New Zealand's endemic life

Credits: Four 9.30 am Wednesday 17 November 2004

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.

Show ALL working.

If you need more space for any answer, use the page 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.

Achievement Criteria	For Assessor's use only						
Achievement	Achievement with Merit	Achievement with Excellence					
Describe the evolution of New Zealand plants and animals including the factors and processes involved.	Make reasoned links between the factors and the processes involved in the evolution of New Zealand plants and animals.	Make valid generalisations by applying the linked factors and processes to a wider group of New Zealand plants and animals.					
Describe the key conditions necessary for the survival of a New Zealand endemic plant or animal.	Explain key conditions necessary for the survival of a New Zealand endemic plant or animal, and discuss implications for survival.	Explain, in detail, a range of conditions necessary for the survival of a New Zealand endemic plant or animal, discuss implications and evaluate the chances for survival.					
Overall Level of Performance (all criteria within a column are met)							

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QUESTION ONE: HEBES

Hebes are endemic New Zealand plants with about 100 species. They occupy areas from forests to the high alpine environments.



The two hebes shown in the above diagram evolved from a common ancestral population of the forest type and have evolved distinct characteristics.

(a) Describe ONE key difference between forest and alpine hebes.

The ice ages created small populations, or bottlenecks, which contributed to the evolution within the hebe.

(b) Explain how the ice ages created bottlenecks of hebe populations.

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Assessor's use only

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Discuss ho	w bottleneck	s contribu	ited to the	e evolution	of the hel	be.	

QUESTION TWO: THE EVOLUTION OF THE KAKA AND THE KEA

The present day kaka and kea have evolved from a single forest-dwelling parrot species that became separated geographically about 3 million years ago. The parrot that evolved in the lowlands of New Zealand became the kaka, which specialised in exploiting the area's more predictable food resources. The kea, meanwhile, evolved in the colder alpine environment where food supplies were less predictable.

- (a) Give TWO **geological** factors that changed the environment and contributed to the evolution of the kea in the last 3 million years.
 - (i) ______(ii) _____
- (b) Explain how ONE of the geological features in (a) contributed to the evolution of the kea.

Geological feature Explanation

Today the distribution of the kea and kaka may overlap.

- (c) Discuss TWO processes that keep these genetically isolated species from interbreeding.
 - (1)

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The Mount Cook lily is the world's largest buttercup. It is found in the Mount Cook region of New Zealand. It occupies rocky slopes, grows on poor thin soils, grows slowly and has a prostrate habit. The Mount Cook lily evolved in an environment where animal competition was non-existent.

www.vnz.co.nz/photos/flora/032b.shtml

(a) The Mount Cook lily is under threat from introduced animals.

Describe TWO ways introduced animals can threaten native plants such as the Mount Cook lily.

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- (b) (i) Describe ONE method that can be used to minimise the threat posed to native plants by introduced animals.

(ii) Explain how this method would enhance the survival of the Mount Cook lily.



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QUESTION FOUR: NEW ZEALAND'S ENDEMIC ANIMALS

There are a number of methods used to conserve New Zealand's endemic **animals** and maximise their survival potential.

Discuss the **effectiveness** of THREE methods used to **maximise** the survival of a named New Zealand endemic animal.

Name of animal Methods and their effectiveness

Extra paper for continuation of answers if required. Clearly number the question.

Assessor's use only

Question number	