3

90731

907310

NZQA

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

For Supervisor's use only

Level 3 Science, 2008

90731 Describe geological processes affecting New Zealand

Credits: Two
2.00 pm Thursday 20 November 2008

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.

For Assessor's use only	**Achievement Criteria**		
Achievement	**Achievement with Merit**	**Achievement with Excellence**
Describe geological processes affecting New Zealand.	Explain geological processes affecting New Zealand.	Discuss geological processes affecting New Zealand.
Overall Level of Performance		

You are advised to spend 25 minutes answering the questions in this booklet.

Assessor's use only

QUESTION ONE: VOLCANOES

(a) Mount Taranaki is a dormant volcano.

Describe what is meant by the term **dormant volcano**.

(b) (i) Describe THREE warning signs that could indicate a volcano was about to erupt.

(1)

(2)

(3)

(ii) Explain the cause of TWO of these signs.

(1)

(2)

(c) Two types of volcanoes found in New Zealand are shield volcanoes and dome volcanoes.

Assessor's use only

Rangitoto Island (shield)

For copyright reasons, this resource cannot be reproduced here.

http://dommy.com/az2nzau/fotos/images/rangitoto/P9120020.jpg

Mount Tarawera (dome)

For copyright reasons, this resource cannot be reproduced here.

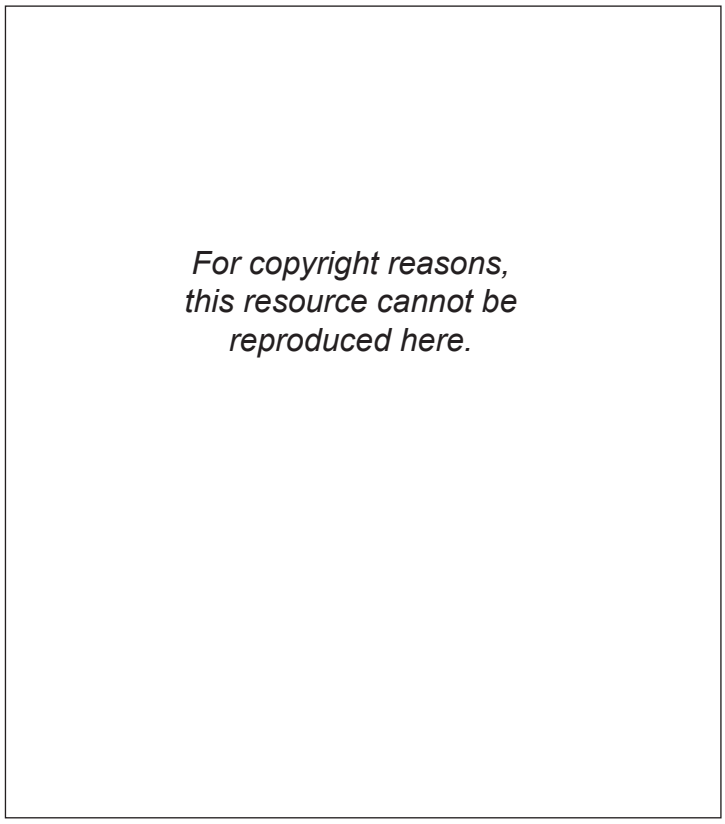
http://www.gns.cri.nz/what/earthact/volcanoes/nzvolcanoes/okatbookprint.htm

Discuss the relationship between the types of magma from shield volcanoes and dome volcanoes and the shapes of these volcanoes.

QUESTION TWO: EARTHQUAKES

Assessor's use only

The following diagram shows recordings of the arrival times of both P and S waves at five different distances from the focus of one earthquake.



Aitken, Jefley, *Rocked and Ruptured* (Auckland: Reed, 1999), p 75.

(a) Explain why the P and S waves change over 60 seconds.

(b) Explain how the arrival times of the P and S waves from three different seismic stations are used to locate the **epicentre**. A labelled diagram may help your answer.

Assessor's use only

There are two different scales for measuring the size of an earthquake, the Richter Scale and the Modified Mercalli Scale.

Assessor's use only

(c) Explain the difference between the **Richter Scale** and the **Modified Mercalli Scale** for measuring earthquakes.

Assessor's use only

The Southern Alps are located near New Zealand's largest fault line, the Alpine Fault. The following diagram shows the South Island of New Zealand and the location of the Alpine Fault.

http://www.teara.govt.nz/NR/rdonlyres/70349733-61AD-48AA-9C98-8DFB7864371B/210566/hero4366.jpg

(d) Discuss how the actions of the two tectonic plates either side of the Alpine Fault have resulted in the formation of the Southern Alps.

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

Assessor's use only

Question number