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NZQA

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

For Supervisor's use only

Level 2 Science, 2008

90767 Describe New Zealand's geological history

Credits: Three
9.30 am 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 New Zealand's geological history.		Explain New Zealand's geological history.		Discuss New Zealand's geological history.	
Overall Level of Performance					

You are advised to spend 35 minutes answering the questions in this booklet.

Assessor's use only

QUESTION ONE: THE WEKA PASS LIMESTONE

The photo above shows the present-day appearance of Amuri Limestone in the Weka Pass region of North Canterbury. This limestone was deposited about 20 million years ago and is widespread in North Canterbury and Marlborough.

(a) Describe how limestone rock was formed, such as the Amuri Limestone 20 million years ago.

(b) Limestone was uplifted during the Kaikoura Orogeny to create the limestone formations in the Weka Pass region that we see today.

Use plate tectonics and other processes to discuss how the land formation we see today was formed.

Assessor's use only

QUESTION TWO: GREYWACKE

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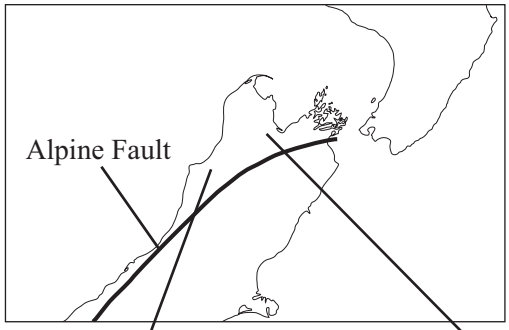

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Hawks Crag Breccia
http://www.teara.govt.nz/EarthSeaAndSky/Geology/GeologyOverview/6/ENZ-Resources/Standard/2/2/en#breadcrumbtop

Moutere Gravels

Hawks Crag is located in the Buller region of the West Coast. The Hawks Crag Breccia is a mixture of angular fragments of greywacke in a muddy matrix. It is of Middle Cretaceous age, 95–100 million years old.

The Moutere Gravels are located near Nelson. The Moutere Gravels are made up of a thick layer of well-rounded greywacke gravels. The gravels are thought to be about 2 million years old.

The appearance and arrangement of the greywacke differs in the two locations, as shown in the photos above.

(a) Give reasons for the differences in the appearance and arrangement of the greywacke in the two locations.

(b) Use plate tectonics theory to explain the location and appearance of the Moutere Gravels.

Assessor's use only

(c) Use evidence from the information on page 4 to discuss how the Rangitata Orogeny is associated with the Hawks Crag Breccia.

Assessor's use only

QUESTION THREE: GONDWANA

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New Zealand was originally part of Gondwana and separated about 80 million years ago.

With reference to plate tectonics, discuss how New Zealand separated from Gondwana.

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

Assessor's use only

Question number