91191

911910

2

SUPERVISOR'S USE ONLY

NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

Level 2 Earth and Space Science, 2013

91191 Demonstrate understanding of the causes of extreme Earth events in New Zealand

2.00 pm Tuesday 26 November 2013
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of the causes of extreme Earth events in New Zealand.	Demonstrate in-depth understanding of the causes of extreme Earth events in New Zealand.	Demonstrate comprehensive understanding of the causes of extreme Earth events in New Zealand.

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 page(s) provided at the back of this booklet and clearly number the question.

Check that this booklet has pages 2–12 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

© New Zealand Qualifications Authority, 2013. All rights reserved.
No part of this publication may be reproduced by any means without the prior permission of the New Zealand Qualifications Authority.

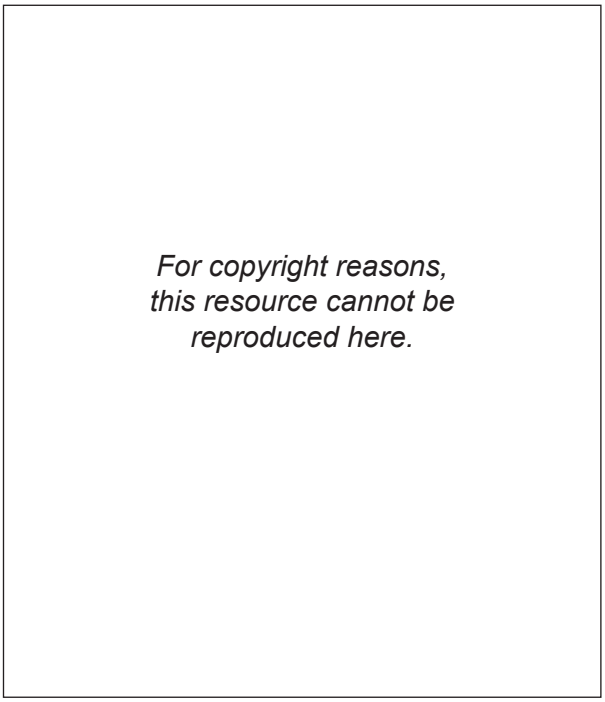
You are advised to spend 60 minutes answering the questions in this booklet.

ASSESSOR'S USE ONLY

QUESTION ONE: OCEAN EARTHQUAKE BUT NO TSUNAMI

On 3 July 2012, a magnitude 7 earthquake, which was centred under the ocean floor off the coast of Taranaki, was widely felt from the Bay of Plenty to Canterbury.

Taranaki region of the North Island



https://maps.google.co.nz/maps?f=q&source=s_q&hl=en&geocode=&q=
http://magma.geonet.org.nz/services/quake/kml/2.2/search%3FexternalRef%3D3732830

Explain, using plate tectonics, the cause of this earthquake, and discuss why this earthquake did not cause a tsunami even though it was centred under the ocean floor.

In your answer, you should:

- use plate tectonics to explain what caused the earthquake off the coast of Taranaki
- explain characteristics of a tsunami and how a tsunami can result from an earthquake
- discuss reasons why **this** ocean based earthquake did not cause a tsunami.

An annotated diagram will assist your answer.

ASSESSOR'S USE ONLY

More space for this answer is available on the next page.

ASSESSOR'S USE ONLY

This page has been deliberately left blank.

The examination continues on the following page.

QUESTION TWO: GEYSERS

ASSESSOR'S USE ONLY

Geysers are volcanic events that result when superheated water and steam are forced from the ground.

New Zealand's largest geyser, Pohutu, is found in the Whakarewarewa Thermal Valley in the Taupo Volcanic Zone (TVZ). Pohutu erupts approximately 20 times a day, up to a height of 30 m.

For copyright reasons, this resource cannot be reproduced here.

http://www.teara.govt.nz/files/p6495gns.jpg

Explain, giving reasons, why regularly erupting geysers like Pohutu are found only in active volcanic zones.

In your answer, you should:

- use a labelled diagram to describe the plate tectonics that contribute to the active TVZ
- explain what features of the TVZ can result in the formation of geysers.

An annotated diagram will assist your answer.

ASSESSOR'S USE ONLY

More space for this answer is available on the next page.

ASSESSOR'S USE ONLY

QUESTION THREE: VOLCANIC VARIETY

ASSESSOR'S USE ONLY

In the North Island of New Zealand there is evidence for three different types of volcanic eruptions:

- Mount Tarawera (1886) was a basaltic eruption.
- Taupo eruption (26 500 years ago) was a rhyolitic eruption.
- Mount Ruapehu (1995 – 1996) was an andesitic eruption.

Explain how the three different types of volcanic eruption described above can occur within the **same** volcanic zone.

In your answer, you should include:

- a brief description of each type of eruption
- an explanation for the different types of lava formed in each eruption including details of the lava composition
- reasons why three different types of eruption are possible in one volcanic zone.

An annotated diagram will assist your answer.

For copyright reasons, this resource cannot be reproduced here.

Adapted from: www.explorevolcanoes.com/tarawera-volcano-new-zealand.html

More space for this answer is available on the next page.

ASSESSOR'S USE ONLY

ASSESSOR'S USE ONLY

Extra paper if required.
Write the question number(s) if applicable.

QUESTION NUMBER

ASSESSOR'S USE ONLY

91191