

See back cover for an English translation of this cover

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91191M



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

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Te Pūtaiao ā-Papa, ā-Rangi, Kaupae 2, 2013

91191M Te whakaatu māramatanga ki ngā pūtake o ngā pāpono ā-Papa taikaha i Aotearoa

2.00 i te ahiahi Rātū 26 Whiringa-ā-rangi 2013
Whiwhinga: Whā

Paetae	Paetae Kaiaka	Paetae Kairangi
Te whakaatu māramatanga ki ngā pūtake o ngā pāpono ā-Papa taikaha i Aotearoa.	Te whakaatu māramatanga hōhonu ki ngā pūtake o ngā pāpono ā-Papa taikaha i Aotearoa.	Te whakaatu māramatanga matawhānui ki ngā pūtake o ngā pāpono ā-Papa taikaha i Aotearoa.

Tirohia mehemea e ōrite ana te Tau Ākongā ā-Motu (NSN) kei tō pepa whakauru ki te tau kei runga ake nei.

Me whakautu e koe ngā pātai KATOĀ kei roto i te pukapuka nei.

Ki te hiahia koe ki ētahi atu wāhi hei tuhituhi whakautu, whakamahia te (ngā) whārangi kei muri i te pukapuka nei, ka āta tohu ai i ngā tau pātai.

Tirohia mehemea kei roto nei ngā whārangi 2–21 e raupapa tika ana, ā, kāore hoki he whārangi wātea.

HOATU TE PUKAPUKA NEI KI TE KAIWHAKAHAERE HEI TE MUTUNGA O TE WHAKAMĀTAUTAU.

TAPEKE

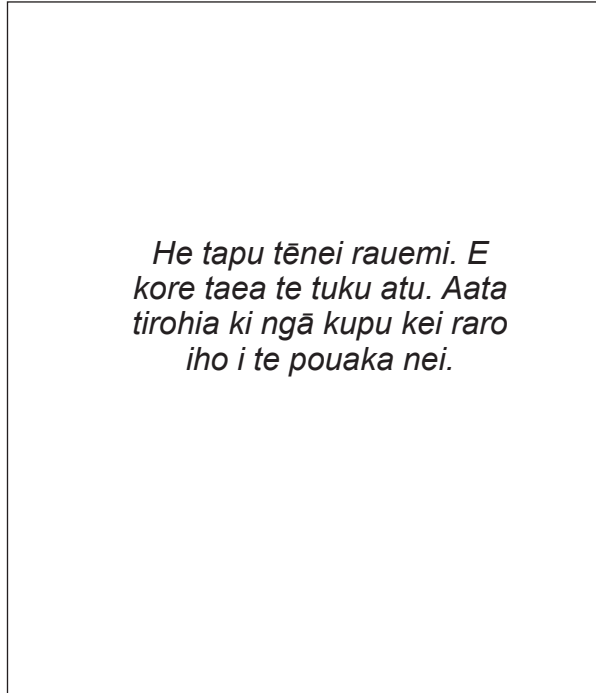
MĀ TE KAIMĀKA ANAKE

Kia 60 meneti hei whakautu i ngā pātai o tēnei pukapuka.

PĀTAI TUATAHI: RŪ MOANA ENGARI EHARA I TE TAI ĀNIWHANIWHA¹

I te 3 o Hōngongoi 2012, i pā mai tētahi rū he 7 te kaha, ā, nō te papa moana atu i te takutai o Taranaki tōna pūtakenga mai, ka mutu he tino whānui te rongohia mai i Te Waiariki ki Waitaha.

Te rohe o Taranaki o Te Ika-a-Māui



*He tapu tēnei rauemi. E
kore taea te tuku atu. Aata
tirohia ki ngā kupu kei raro
iho i te pouaka nei.*

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>

Whakamāramahia mai, mā te whakamahi i ngā ariā nukupapa, te pūtake o tēnei rū, ā, matapakitia te take kāore i puta he tai āniwhaniwha ahakoa tōna pokapū i raro i te papa moana.

I tō whakautu, me:

- whakamahi i ngā ariā nukupapa hei whakamārama i te pūtake o te rū atu i te takutai o Taranaki
- whakamārama i ngā āhuatanga o tētahi tai āniwhaniwha, ā, he pēhea te puta o tētahi tai āniwhaniwha i tētahi rū
- whakamārama mai i ngā take kāore i puta i tēnei rū moana tētahi tai āniwhaniwha.

Ka āwhina tētahi hoahoa whai tapanga i tō whakautu.

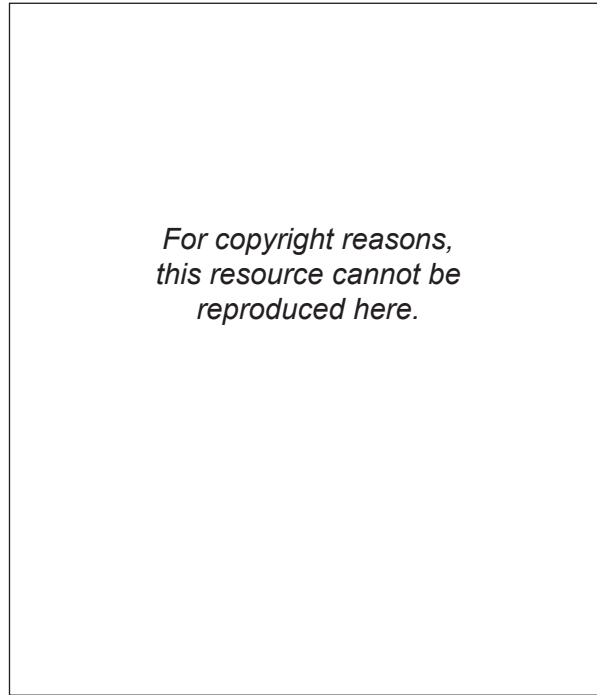
¹ PARAWHENUA

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

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.

English translation of the wording on the front cover

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.

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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 2–21 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.