



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

Level 2, 2003

Science: Describe New Zealand's geological history and processes, and the nature and life cycle of stars (90316)

National Statistics

Assessment Report

Assessment Schedule

Science: Describe New Zealand's geological history and processes, and the nature and life cycle of stars (90316)

National Statistics

Number of Results	Percentage achieved			
	Not Achieved	Achieved	Merit	Excellence
1,001	58.8%	34.5%	4.5%	2.2%

Assessment Report

General Comments

Every candidate for a National Certificate of Educational Achievement examination paper is expected to:

- read the question and do what the question asks
- allow adequate time to complete answers
- be accurate: check and/or proofread
- use appropriate technical terms
- bring the correct equipment
- write and/or draw clearly
- use pen if work is to be eligible for reconsideration.

This achievement standard requires candidates to describe geological processes related to New Zealand's geological history, and to describe how stars are classified and their life cycles. It is disappointing to note that many candidates achieved well in the geology part, but did not attempt the astronomy part.

Candidates are advised to ensure that the explanatory notes are well covered in their preparation for assessment. Many candidates were able to answer Question One (h) to an excellence level, yet could not state what an orogeny was, for example.

In the astronomy section, Question Three caused candidates considerable problems. Candidates appear to have misread the question and provided considerable material on stellar evolution, rather than characteristics of star types.

Assessment Schedule

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Evidence Statement

Code:

/ = or : = both parts required

Question	Evidence contributing to Achievement State, describe, name	Evidence contributing to Achievement with Merit Explain, link, identify	Evidence contributing to Achievement with Excellence Apply, relate, evaluate, discuss, judge
Part A			
	Describes New Zealand's geological history and processes.	Explains New Zealand's geological history and processes.	Applies understanding of New Zealand's geological history and processes.
	Holistic Judgement: The student can describe the Rangitata Orogeny and peneplains.	Holistic Judgement: The student can explain Rangitata Orogeny and peneplains.	Holistic Judgement: The student can discuss and apply knowledge of Rangitata Orogeny and peneplains.
ONE	Mountain building phase.		
(a)			
(b)	Subducting plate boundary/ colliding two continental plates/rocks pushed up.	Subducting plate boundary/ colliding two continental plates: continental rocks pushed up.	
(c)	Sedimentary rocks showing deposition phase/period of erosion/exposure of rocks from depth, ie metamorphic rocks/followed by peneplain phase.	Sedimentary rocks showing deposition phase : period of erosion : exposure of rocks from depth, ie metamorphic rocks : followed by peneplain phase. 2 linked phases explained	Sedimentary rocks showing deposition phase : period of erosion related to uplift : exposure of rocks from depth, ie metamorphic rocks : followed by peneplain phase. 3 or more linked phases
(d)	Fossil sequences/isotope dating.		
(e)	Spreading plate boundary.	Spreading plate boundary : west of proto New Zealand/proto NZ pushed away from Gondwana.	
(f)	Worn down landmass/ erosion.		
(g)	Flat area.	Ranges all the same height above sea-level	
(h)	Tahua : Rangitata : Kaikoura. 2 named	Tahua oldest : Rangitata main sequence second: Kaikoura youngest event.	Tahua oldest rocks in Western sequence : Rangitata middle age event eastern sequence : Kaikoura youngest event forming mountains seen today.

Part B			
	Describes the nature and life cycle of stars.	Explains the nature and life cycle of stars.	Applies understanding of the nature and life cycle of stars.
	Holistic Judgement: The student can describe the nature and life cycle of stars.	Holistic Judgement: The student can explain the nature and life cycle of stars.	Holistic Judgement: The student can discuss and apply knowledge of the nature and life cycle of stars.
TWO (a)	States 3 of: <ul style="list-style-type: none"> • colour • temperature • size • mass • luminosity/brightness • spectra. 		
(b)	<ul style="list-style-type: none"> • sun main sequence/ luminosity = 1 : • WD small/hot : • RG large/cool 1 correct for each	<ul style="list-style-type: none"> • sun main sequence/ luminosity = 1/G type : • WD small/hot/dim : • RG large/cool/bright 2 or more correct for each type	Explains and discusses in detail for each star type. All differences with explanations linked to star types.
THREE (a)	States 3 of: <ul style="list-style-type: none"> • luminosity • spectral types • temperature • magnitude • size from graph. 	States information and gives explanation for 2 of <ul style="list-style-type: none"> • luminosity is relative to the Sun • magnitude, how bright at same distance • spectral type relates to colour • temperature hot to cool. 	
(b)	Change in nuclear processes/fuel/ H • He Or described in diagram.	Change in nuclear processes : H • He : core shrinks/outer layer expands Or explained in diagram.	Change in nuclear processes : H • He : core shrinks : outer layer expands Or discussed in diagram.

Judgement Statement

Judgement statements (formerly referred to as sufficiency statements) help candidates understand how their overall results for each standard were arrived at.

Question	Achievement	Achievement with Merit	Achievement with Excellence
One Part A	Sufficiency: 4 Achievement	Sufficiency: Achievement <i>plus</i> 3 Merit	Sufficiency: Merit <i>plus</i> 1 Excellence
Two Part B	Sufficiency: 2 out of 4 correct	Sufficiency: 2 out of 3 correct	Sufficiency: 1 out of 2 correct
OVERALL Sufficiency	Geology <i>plus</i> astronomy Achievement	Geology <i>plus</i> astronomy Merit	Geology <i>plus</i> astronomy Excellence