

No part of the candidate evidence in this exemplar material may be presented in an external assessment for the purpose of gaining credits towards an NCEA qualification.

2

91240



912400



NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD  
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

SUPERVISOR'S USE ONLY

## Level 2 Geography, 2017

### 91240 Demonstrate geographic understanding of a large natural environment

2.00 p.m. Wednesday 15 November 2017  
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate geographic understanding of a large natural environment.	Demonstrate in-depth geographic understanding of a large natural environment.	Demonstrate comprehensive geographic understanding of a large natural environment.

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 parts of the question in this booklet.**

If you need more room for any answer, use the extra space provided at the back of this booklet.

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.**

Excellence

TOTAL

7

ASSESSOR'S USE ONLY

## INSTRUCTIONS

Name ONE **large natural environment case study** you will use to answer ALL parts of the question in this booklet.

The South Island High Country (SIHC)

In your answers, you should:

- integrate comprehensive supporting case study evidence
- use appropriate geographic terminology and relevant geographic concepts, showing insight.

## Relevant Geographic Concepts

### Environments

Environments may be natural and / or cultural. They have particular characteristics and features, which can be the result of natural and / or cultural processes.

### Location

Location is where something is found. It can be an advantage or a constraint. Location can be described in absolute or relative terms.

### Perspectives

Ways of seeing the world that help explain differences in decisions about, responses to, and interactions with environments. Perspectives are bodies of thought, theories, or world views that shape people's values and have built up over time. They involve people's *perceptions* (how they view and interpret environments) and *viewpoints* (what they think) about geographic issues. Perceptions and viewpoints are influenced by people's *values* (deeply held beliefs about what is important or desirable).

### Change

Change involves any alteration to the natural or cultural environment. Change can be spatial and / or temporal. It occurs at varying rates, at different times, and in different places.

### Interaction

Interaction involves elements of an environment affecting each other and being linked together. Interaction incorporates movement, flows, connections, links, and interrelationships, which work together and may be one-way or two-way interactions. Landscapes are the visible outcome of interactions. Interaction can bring about environmental change.

## QUESTION

ASSESSOR'S  
USE ONLY

### (a) Characteristics of the environment

Natural characteristics of an environment include landforms (relief), climate, soils, and vegetation.

Fully explain how TWO characteristics of your large natural environment result from the interaction of the elements and/or processes within this environment.

You MUST include sketch maps and/or diagrams to support your explanations in the spaces on pages 4 and 6.

Characteristic (1): Climate  
Characteristic (2): Landforms (relief)

#### PLANNING (OPTIONAL)

Climate = a result of  
the landforms denudation  
processes + landform elements  
and orographic  
processes

plates collision zone subduct uplift HT

Landforms = a result of  
tectonic and denudation  
processes.

U-valleys - Glaciation

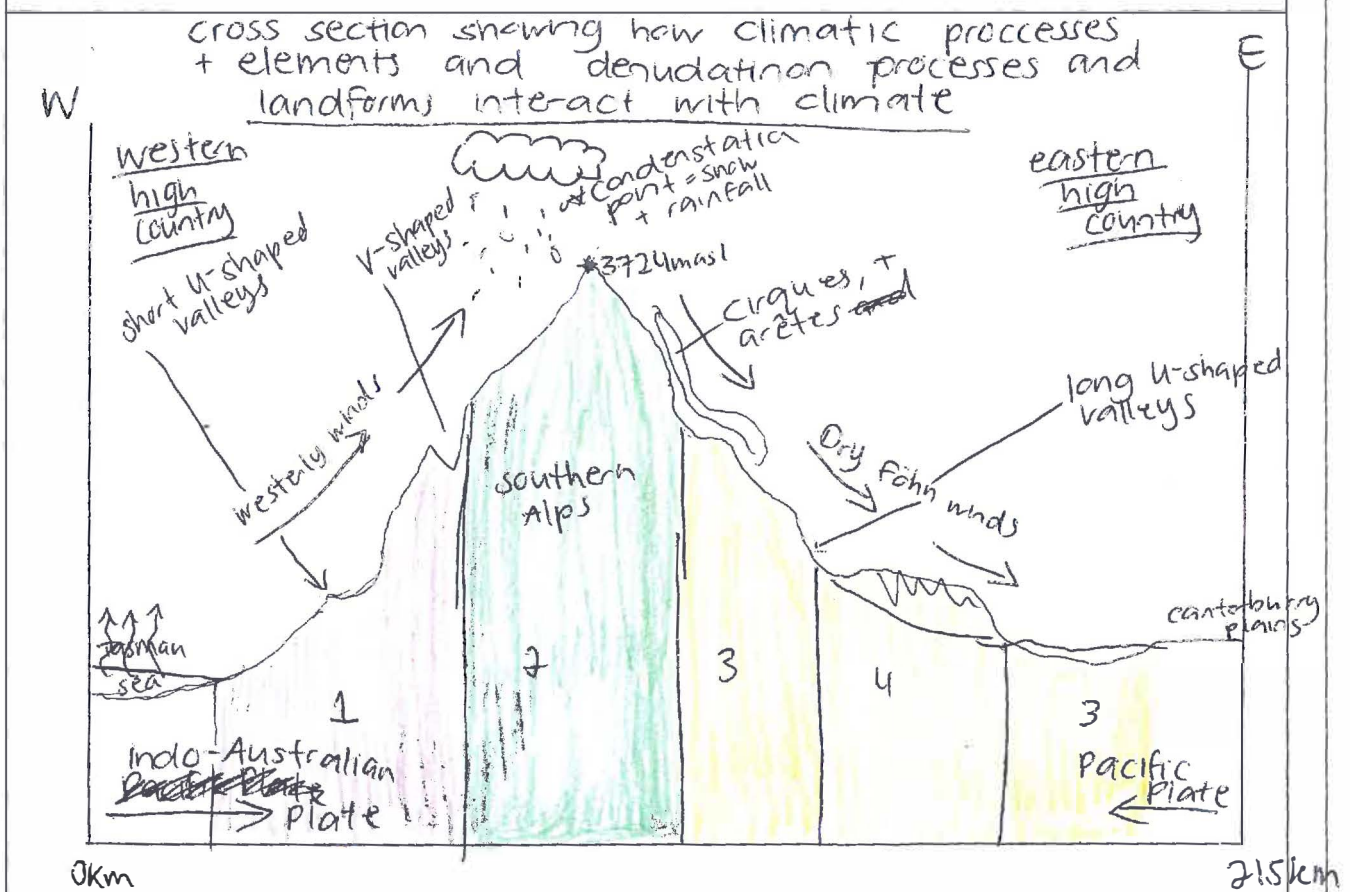
braided  
rivers

V-valleys

E ↑ than  
west

Ribbon lakes

## Characteristic (1): Climate



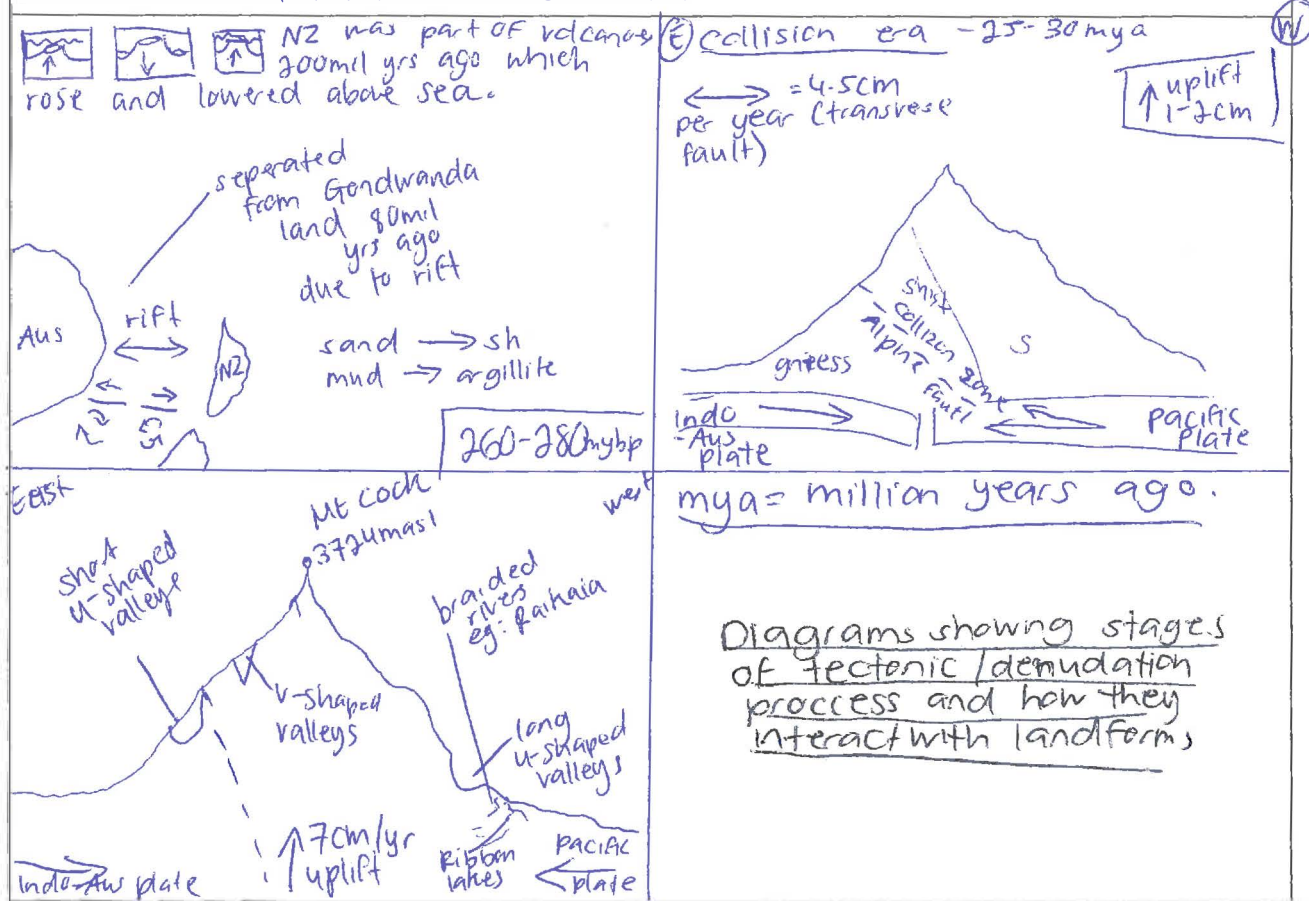
Fully explain how this characteristic of your large natural environment results from the interaction of the elements and/or processes within this environment.

In the South Island High Country (SIHC) the characteristic Climate results from many elements and processes such as orographic rainfall, denudation processes and landform elements. The Climate in the SIHC can be split into 4 main zones. The first is the Western region. This zone has moderate temperatures and a low annual temperature range. Moist westerly winds from the tasman sea blow into the west coast, meeting at the geographical boundary of the southern alps and due to this interaction it is forced to rise. As the air rises with altitude it cools at the adiabatic rate of  $0.6^{\circ}\text{C}/1000\text{m}$ .



and condenses, forming cumulus clouds. This is condensation point and at this point the rainfall is high (3200mm) due to the <sup>pattern of</sup> orographic rainfall at this point and as a result the vegetation is dense. Processes and elements further interact at the second zone which is the Southern Alps. The environment here is very cold due to the high altitude - there are 25 peaks <sup>above</sup> ~~more~~ 3000m asl with Mount Cook being one of them (3774m asl). The air also gets thinner with altitude so it is colder. There are prevailing westerly winds that can reach 200km/h. Due to orographic rainfall interacting with this zone the annual rainfall is very high: 6000mm - ~~8500mm~~ 8500mm. The third region is on the lower eastern side of the Southern Alps and the eastern ranges. In the summer the temperatures are 20°C and drop to 11°C in the winter. This is due to the <sup>warm</sup> dry föhn winds which come down the Southern Alps to the rainshadow (eastern) side, having lost its precipitation in the Alps as snow and rain. Due to the lack in cloud cover this zone has 1530 annual sunshine hours and rainfall of 1600mm/yr due to the rainshadow interaction. The 4<sup>th</sup> zone is the mackenzie basin. It has cold winters of 8°C and hot summers of 23°C-30°C (continental). This is due to the polar blasts from Antarctica which also results in sunshine hours of 2580 due to lack of cloud cover and ~~for~~ low rainfall of 400mm-1200mm/yr. Orographic Climate would not be able to take place without the interaction of landform elements and denudation processes.

## Characteristic (2): landforms (relief)



Fully explain how this characteristic of your large natural environment results from the interaction of the elements and/or processes within this environment.

The South Island High Country (SIHC) landforms (relief) is a result of tectonic processes and movement processes. 200million years ago NZ was part of a group of volcanoes on the coast of Gondwanaland. 80million years ago NZ separated from Gondwanaland due to a rift in the Tasman sea which caused the Pacific and Indo-Australian plate to separate. 25-30mya the Pacific and Indo-Australian plate collided - as both plates were made of continental crust the plates didn't subduct. However, the more buoyant Pacific plate moved up against the heavier plate causing an uplift of 1-2cm/yr - which is why the <sup>eastern</sup> side is higher than the western side. Denudation processes began 2mya and without

them the SLIC would be 6x higher today.  
 In 1991 there was an avalaunch on Mt Cook  
 and <sup>10 million m<sup>3</sup></sup> ~~10,000 m<sup>3</sup>~~ of ice ~~we~~ fell in seconds and  
 as a result Mt Cook is 10m shorter. Denudation  
 processes include glaciation processes, movement  
~~processes and abrasion + plucking.~~ Glaciation is  
 the movement of ice. When this took <sup>interaction</sup> place  
 took place short U-shaped valleys were carved  
 in the western ranges and long U-shaped valleys  
 were ~~form~~ <sup>formed</sup> in the Eastern ranges - These were  
 formed by Glaciers, such as the Tasman  
 glacier which is 27km long, which eroded the  
 land. <sup>by plucking and abrasion</sup> Meltwater drowned some of the U-shaped  
 valleys in the west creating fiords such as the  
 Milford Sound. Ribbon lakes such as Lake  
 Waikatu <sup>(80km long, 100m deep)</sup> was <sup>formed</sup> in the east due to  
 erosion processes. Deposits were carried  
 down the slopes carving the ribbon lakes.  
 Braided rivers in the east (Waimakariri, and  
 the Rairua) were also formed due to  
 movement processes creating river networks.  
 Without tectonic and denudation processes the  
 SLIC landforms wouldn't have been formed or  
 would be dramatically different. These interactions  
 have resulted in the SLIC landforms.



## (b) Perceptions

ASSESSOR'S  
USE ONLY

Different groups of people and individuals have different perceptions of the natural environment. Perceptions can be cultural, economic, or political. Perceptions are outcomes of people's background, experiences, or involvement with the natural environment, and can change over time.

Fully explain how a group/individual's perception of your large natural environment has affected, or affects, their use of this environment.

Group/individual: SIHC Farmers

## PLANNING (OPTIONAL)

perception → influenced by perspective

1st perception affected SIHC  
negatively

2nd perception affected SIHC  
positively



describe +  
give reasons

Fully explain how this group/individual's perception of your large natural environment has affected, or affects, their use of this environment.

ASSESSOR'S  
USE ONLY

The SIHC Farmers perception of the SIHC has changed over time which has positively and negatively affected their use of the land. In the 1800's the farmers initial perception of the land was influenced by an economic perspective. They thought the land was a wasteland and introduced the wasteland Act in 1854. This meant farmers could take any wasteland of Maori and most of the SIHC was considered to be wasteland. Because they had a <sup>negative</sup> ~~bad~~ perception of the SIHC environment this negatively affected the environment and the farmers acted negatively towards the SIHC. They introduced Alien plants and animals such as rabbits, stoats, ferrets (pests) and merino sheep. They burnt speargrass and prickly scrubweed. In 1855 the Government introduced pastoral licences which cost farmers £20 for 14yrs <sup>lease</sup> and the farmers had to make improvements to the land. This was introduced because there wasn't enough land for new coming farmers. The farmers didn't sustain the SIHC environment and due to the way the negatively affected it, in the 1950's farmers changed their perception of the land because they saw ~~their~~ value in the SIHC. Their new positive perception was influenced by an environmental and economic perspective. Bendigo became a very successful sheep station and in the 1990's vineyards were introduced

to Bendigo. Bendigo is now home to successful wine orchards and sheep farms. Land ownership was introduced and in 1979 John Perriman bought the pastoral licence and fixed the poor pastures. In 1991 John gave some of Bendigo station to DCC to sustain the land. Farmers now interact and affect the SHC positively due to their more positive perception. Farmers now allow 1080 drops to kill the pests damaging the native plants. They also now farm merino sheep for their wool, not their ~~meat~~ meat.

E7

Extra space if required.  
Write the question part(s) if applicable.

ASSESSOR'S  
USE ONLY

QUESTION  
PART

(a) characteristic one:

In the western region glaciation processes have created short U-shaped valleys such as the ~~Fox~~ valley which is 13km long. Glaciers covered U-shaped valleys creating fiords such as the Milford sounds. V-shaped valleys were also created (50°-60° angles) due to flooding processes. In the Southern Alps where the altitude is high cirques, arêtes, and pyramidal points were ~~an~~ formed. Bowl cirques were formed due to deposits running down from the glacier. 2 cirques back to back formed arêtes. 3 cirques made pyramidal points. In the eastern ranges the U-shaped valleys are longer, the longest glacier in NZ is 27km (Tasman Glacier) which has formed many long valleys from plucking and abrasion processes. ~~There are also~~ ~~fiords~~ Without these landform elements and denudation processes the SIHC climate would be very different today. //

**Excellence E7**

The candidate provides clear references to the elements and processes that interact in the South Island High Country. Further, the explanation of how farmers have affected the area both positively and negatively is fully explained. The diagrams are appropriate.

The candidate uses geographic terminology throughout their answer and applies the geographic concepts of interaction, perception perspectives and sustainability appropriately. Case study material is comprehensively provided as evidence.