

91243R



NEW ZEALAND QUALIFICATIONS AUTHORITY  
MANA TOHU MĀTAURANGA O AOTEAROA

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

## Level 2 Geography, 2019

### 91243 Apply geography concepts and skills to demonstrate understanding of a given environment

2.00 p.m. Thursday 14 November 2019

Credits: Four

## RESOURCE BOOKLET

Refer to this booklet to answer the question for Geography 91243.

Check that this booklet has pages 2–12 in the correct order and that none of these pages is blank.

**YOU MAY KEEP THIS BOOKLET AT THE END OF THE EXAMINATION.**

## Key geographic concepts

### Environments

May be natural and / or cultural. They have particular characteristics and features, which can be the result of natural and / or cultural processes. The particular characteristics of an environment may be similar to and / or different from another. A cultural environment includes people and / or the built environment.

### 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 worldviews 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).

### Processes

A sequence of actions, natural and / or cultural, that shape and change environments, places, and societies. Processes can have temporal or spatial variations. Some examples of geographic processes include erosion, migration, desertification, and globalisation.

### Patterns

May be spatial: the arrangement of features on the earth's surface; or temporal: how characteristics differ over time in recognisable ways.

### 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- or two-way interactions. Landscapes are the visible outcome of interactions. Interaction can bring about environmental change.

### Change

Involves any alteration to the natural and / or cultural environment. Change can be spatial and / or temporal. Change is a normal process in both natural and cultural environments. It occurs at varying rates, at different times, and in different places. Change can bring further change. Some changes are predictable, recurrent, or cyclic, while others are unpredictable or erratic.

### Sustainability

Involves adopting ways of thinking and behaving that allow individuals, groups, and societies to meet their needs and aspirations without preventing future generations from meeting theirs. Sustainable interaction with the environment may be achieved by preventing, limiting, minimising or correcting environmental damage to water, air, and soil, as well as considering ecosystems and problems related to waste, noise, and visual pollution.

## Additional geographic concept

### Location and accessibility

Accessibility refers to how easy it is to reach a location. Accessibility can be measured in terms of distance, travel time, costs, transport flows, and ease of travel. Changes in transport or travel cost can affect accessibility. Location and accessibility can be an advantage or a constraint.

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## INTRODUCTION: CHATHAM ISLAND

Chatham Island is the main island of the Chatham Islands, a group of isolated offshore New Zealand islands lying 862 kilometres due east of Christchurch and 770 kilometres south-east of Napier.

Chatham Island is located on the other side of the 180th meridian – the basis for the International Date Line; the Date Line has been shifted eastwards to allow Chatham Island to remain on the same day as New Zealand. However, due to its distant location, Chatham Island's local time is 45 minutes ahead of New Zealand Standard Time.

Chatham Island is also known as Rēkohu ("Misty Sun") by the Moriori, the original inhabitants, who first settled the island in 1500 AD. To the Māori, who arrived by a European sailing ship in the 1830s and conquered the Moriori, Chatham Island is known as Wharekauri.

Chatham Island has an area of 920 square kilometres, which is just over half the size of Stewart Island, New Zealand's third-largest island. Chatham Island is low-lying, and the underlying geology consists of ancient schist and volcanic rocks. Over 60% of the island is lagoon, swamp, and peat. The climate is cool, and the island is windswept.

The population of Chatham Island today is 600, with the main ethnic groups being European, Māori, and Moriori. The main industries and employment are farming, fishing, and a small but growing tourism industry.

Photos to show  
Chatham Island's  
topography: low-lying  
with lagoons, swamps,  
and small volcanic peaks

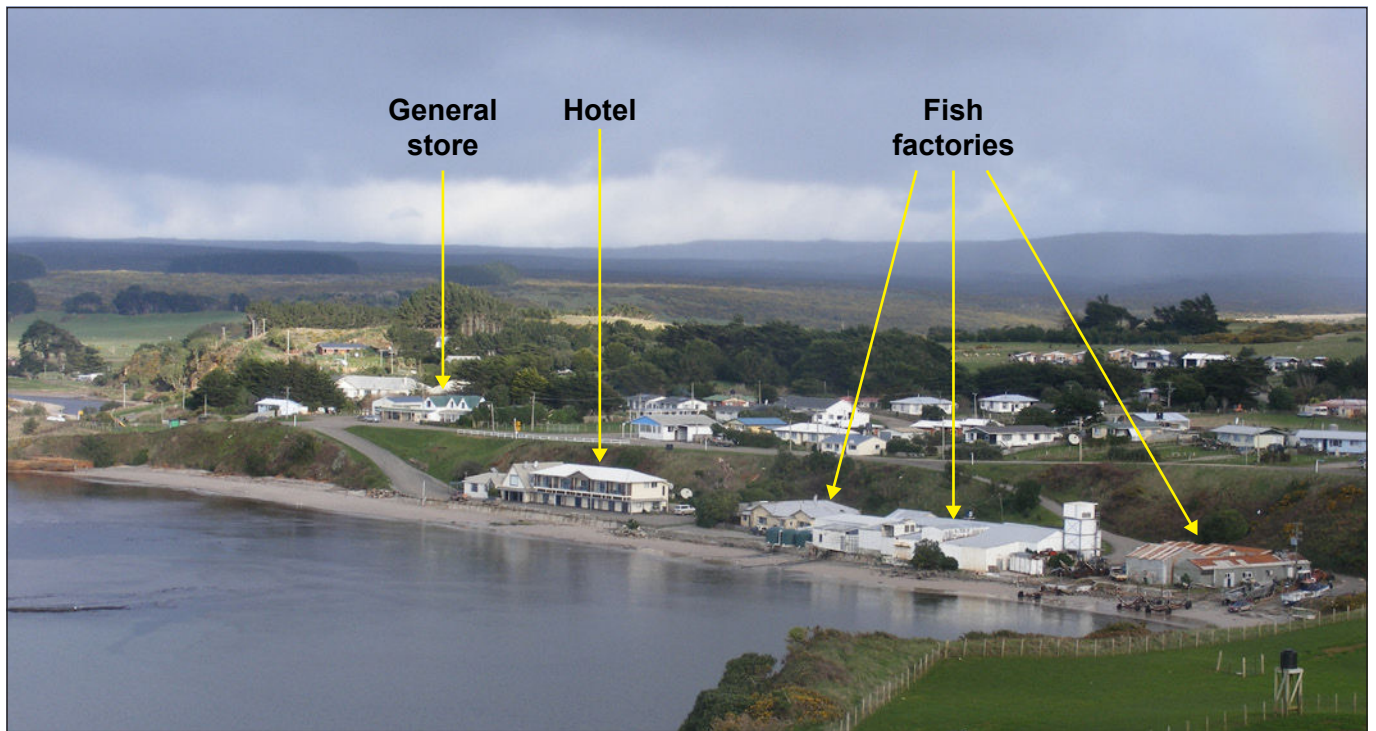


Map of Chatham Island

Bathymetry map showing the location of the Chatham Islands

**RESOURCE A: WAITANGI, CHATHAM ISLAND'S MAIN SETTLEMENT**

**Figure 1:** Satellite image of Waitangi



**Figure 2:** Photograph of Waitangi settlement



**Figure 3:** Topographic map of Waitangi

## RESOURCE B: SETTLEMENT OF CHATHAM ISLAND

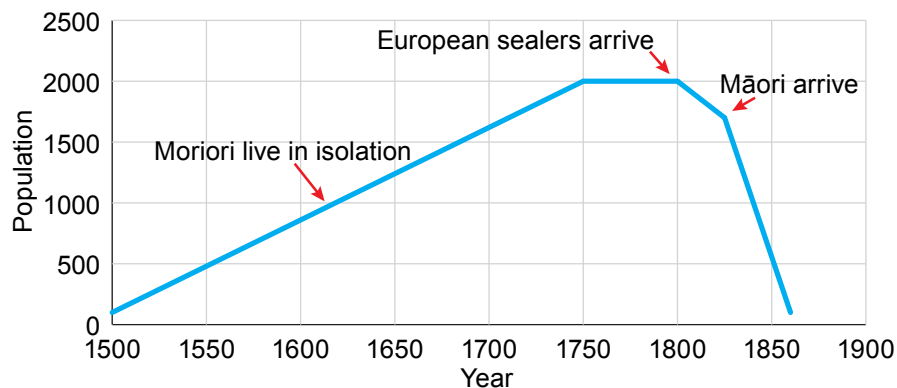


Moriori descendant with  
pre-European Moriori  
tree carving



Moriori rock carving  
of seals

**Line graph to show approximate Moriori Population 1500–1900**



Text adapted from: *Te Ara: The Encyclopaedia of New Zealand*.



## RESOURCE C: THE CHATHAM ISLAND ECONOMY

Chatham Island key economic sectors:  
Employment and GDP (2016)

Key economic sector	Employment		Economic value	
	Number of jobs	Change 2015–2016	Value (\$ million)	Change 2015–2016
Farming	62	– 13.9%	\$4.77	– 9.0%
Fishing	135	+ 10.7%	\$18.56	+ 11.1%
Tourism	38	+ 23.5%	\$2.03	+ 5.4%



Sheep and beef farming



Crayfishing



Tourist visiting basalt columns

## RESOURCE D: FISHING, FARMING, AND TOURISM

### Fishing

Although Chatham Island is small and isolated, the 200-nautical-mile area circling the island adds considerably to New Zealand's exclusive economic zone and fisheries resources.

Chatham Island sits on the Chatham Rise – a relatively shallow undersea plateau with abundant fish. The island provides a base for 50 small fishing boats that would otherwise find the area and the fish resource too remote.

Due to the distance and high cost of transport to New Zealand's mainland markets, only the most valuable fish species – live crayfish (rock lobster), blue cod, and pāua – are caught. There are three island-based fish processing companies. The distance to markets means the fish need to be air freighted to New Zealand despite the very high cost.

The isolated nature of Chatham Island means that the surrounding seas are not over-fished, so they provide a sustainable fish resource that attracts tourists on fishing charters.



New Zealand's 200-nautical-mile  
exclusive economic zone



The seas are abundant in fish, enabling  
small fishing operators and  
seals to coexist

### Farming

Chatham Island's remote maritime location provides an ideal climate for sheep farming, with adequate and regular rainfall and temperatures throughout the year suited to grass growth.

However, the island's isolation also creates problems for farmers. All farm equipment – including machinery, vehicles, fence posts, and wire – comes from New Zealand. This is expensive, and there are often delays for urgently required equipment and parts as shipping is irregular and often affected by poor weather.

There is no meat-processing factory on Chatham Island due to the small number of sheep. Sheep are exported live by ship to New Zealand, which is both difficult and expensive. The sheep are driven to Waitangi for loading, but as shipping is often delayed by weather, the farmer may have to pay for

grazing while waiting. After the sheep are loaded on board, they need to be supplied with hay for the three-day voyage to Napier. Once they arrive, they are unloaded, loaded onto trucks, and then unloaded for further grazing so they regain condition before they are ready to be trucked to the meat works.



All materials for farming need to be imported, and sheep are exported live to New Zealand.

### Tourism

Chatham Island's isolated and unspoilt nature as well as its natural features and history make it an appealing destination for some tourists. The main attractions are its rugged natural landscape and coastal scenery, native plants, bird and marine wildlife, Moriori rock and tree carvings, early Māori and European sites, and fishing and diving charters.

Air Chathams operates flights from New Zealand. However, due to the distance and few passengers, airfares are expensive, with a return ticket costing \$800. Food – especially fruit and vegetables – and most other tourist supplies need to be imported from New Zealand, which is expensive. Imported goods cost about 2.5 times what they would on the mainland.

There are only 2000 visitors to Chatham Island a year, but this is increasing by 5% annually. The island's isolation means that there are relatively few tourists, which helps preserve the island's unspoilt nature. More tourist accommodation is being provided, and the additional tourist numbers will not have a negative effect on the island's natural environment.



Tourists arriving in Chatham Island



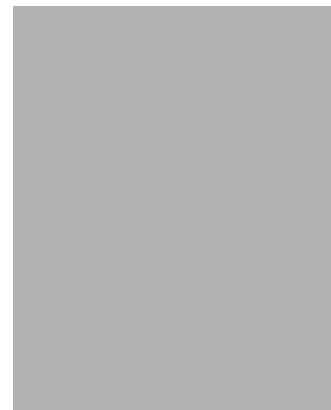
Wild coasts



Wildlife



Historic European  
stone cottage



Fishing and diving  
charters

### Acknowledgements

Material from the following sources has been adapted for use in this examination:

#### Page 4

Aerial photograph: <https://flyawaysimulation.com/downloads/files/8930/fsx-chatham-islands-scenery-airport-upgrades/>

#### Page 5

Map 1: [https://commons.wikimedia.org/wiki/File:Chatham-Islands\\_map\\_topo\\_en.svg](https://commons.wikimedia.org/wiki/File:Chatham-Islands_map_topo_en.svg)

Map 2: [https://www.niwa.co.nz/sites/niwa.co.nz/files/styles/large/public/niwa\\_underseanz.jpg](https://www.niwa.co.nz/sites/niwa.co.nz/files/styles/large/public/niwa_underseanz.jpg)

#### Page 6

Figure 1: <https://www.google.com/earth/>

#### Page 7:

Figure 3: <https://www.topomap.co.nz/>

#### Page 8:

Text:

R. Richards, *Chatham Islands – From first settlement to 1860*, Te Ara – the Encyclopedia of New Zealand, <http://www.TeAra.govt.nz/en/chatham-islands/page-3>

M. King, *Mori: a people rediscovered* (Auckland: Viking, 1989).

#### Page 9:

Statistics: *Chatham Islands Economic Profile*, Martin Jenkins, (2017), p.28. <https://www.cic.govt.nz/assets/CIC/Documents/Chatham-Islands-Economic-Profile-Report-2017.pdf>

#### Page 10:

Map: [ftp://ftp.niwa.co.nz/bathymetry/NZBathy\\_EEZ\\_image.jpg](ftp://ftp.niwa.co.nz/bathymetry/NZBathy_EEZ_image.jpg)

#### Page 11:

Charter fishing photograph: <http://discoverthechathamislands.co.nz/charter-fishing/>