



 Earth Science Series

**7 Day South Island
Geological Experience**
Earth Sciences

 Overview

New Zealand's South Island provides a unique opportunity for students to actualise their curriculum through the dramatic range of tectonic activity, glaciers, fiords and erosion available through the superb South Island Geological Education Experience.

Travelling is kept to a minimum, resulting in a full and exciting programme and tremendous value for money. Each day is a stimulating and enjoyable opportunity to bring your syllabus to life.

As with all Gefen programmes, we offer flexibility and are happy to discuss tailoring itineraries to your curricular requirements or student needs.

Availability: Year Round

Itinerary Flexibility: Medium

Minimum Group Size: 10

All trip prices include:

- 7 days accommodation, meals and domestic transport, fully detailed in final quote and itinerary

Ask us how teaching staff can travel **FREE** of charge!

 Key Learning Areas

- Tectonic plate activity
- Subduction Zones
- Faultlines, scarps, ruptures, Seismic activity.
- Liquefaction
- Rock types and formation
- Glaciers, glacial lakes and moraines
- Erosion, deposition, alluvial fans
- Aquifers



∞ DAY 1 Itinerary Overview

Southern Alps Experience

Location: Christchurch - Westland

On the first morning of our tour, we assemble in Christchurch and head west across the Canterbury plains and over the Southern Alps, via Arthurs Pass, to Westland Tai Poutini National Park, a World Heritage site. This spectacular drive showcases many fascinating geological features including alluvial plains, braided rivers, the Waimakariri River gorge, metamorphic schists and the dramatic limestone formations of Castle Hill.

We conclude our day with a visit one of the world's major geological features, the Alpine Fault. Students will see how the Australian plate is sliding horizontally north-east, at the same time as the Pacific plate pushes upward. Our expert guides bring the amazing phenomenon of the Southern Alps, and its uplift and erosion, to life.

∞ Learning Opportunities

- Plate tectonics, Alpine Fault, strike-slip faulting
- Ablation and alimentation
- Braided rivers, alluvial soils, quaternary moraines
- Limestone

∞ Activity Information

- Fully compliant with NZ school safety guidelines
- Professional guides available



∞ DAY 2 Itinerary Overview

Glacier Wonder

Location: Franz Josef

Day 2 sees students experiencing another fascinating day amongst spectacular surrounds. We begin our day at the Franz Josef Glacier which is around 12km long and descends from the Southern Alps to less than 300m above sea level through lush, temperate rainforest. Although it was advancing as recently as 2008, Franz Josef is now in a rapid phase of retreat. If time permits, we will take a hike to Canavan's Knob and see superb vistas of where the glacier has carved the rest of the land surrounding this knob of granite away, plus stunning views of the Waiho River, the glacier and the Main Divide.

The afternoon sees us travelling through some of the most beautiful scenery New Zealand has to offer, and pausing to visit some impressive geological sites including the Blue Pools, and the stunning Lake Hawea and Lake Wanaka which were gouged out by the Hawea and Wanaka Glaciers. Of special interest are the moraine deposits which form the southern shore of Lake Hawea, and the mighty Clutha River with its famous turquoise water.

∞ Learning Opportunities

- Névé, terminus, advance and retreat
- Moraine, roche moutonnees, Jökulhlaups, striations
- Alluvial fans

∞ Activity Information

- Fully compliant with NZ school safety guidelines
- Professional guides



∞ DAY 3 Itinerary Overview

Queenstown Geological Adventure

Location: Queenstown

While Queenstown is more commonly known as the Adventure Capital of the World, today we will learn more about this complex geological region and see for ourselves how the forces of glaciation, water and weathering have created this incredible landscape of canyons, rivers, rounded hills and jagged peaks and distinctive tors.

In the morning we will take a walk along the coast of Lake Wakatipu where we will have the opportunity to look for deposits of ancient marine sediment that take us back to Gondwanaland. Then, in the afternoon, we take an exhilarating jet boat ride into Mt Aspiring National Park exploring the pristine, glacier-fed, braided Dart River.

∞ Learning Opportunities

- Cirques, kames, loess, tors, terraces
- Schist, parallel fault-block mountain ranges
- Seiches

∞ Activity Information

- Fully compliant with NZ school safety guidelines
- Professional guides available



∞ DAY 4 Itinerary Overview

Limestone Cave Experience

Location: Te Anau

This morning we depart on a scenic drive south west, along the shores of Lake Wakatipu, with dramatic views to The Remarkables, through fertile plains and across braided rivers. We pause at the geological wonder that is the Southland syncline, a massive fold in the earth's surface, before arriving at Te Anau in time for lunch.

In the afternoon we take a cruise across stunning Lake Te Anau to explore the remarkable limestone caves. Students can see for themselves a range of speleothems including stalactites and stalagmites, and understand the differing environmental and geological conditions in which these occur. While these caves are relatively young in geological terms and are still being eroded, visiting this incredible world that began forming 30 million years ago beneath the sea is experiential learning in its most valuable form.

∞ Learning Opportunities

- Synclines, tuffaceous sandstone
- Gneiss, schist, textural subdivision
- Strike ridges
- Metallic and non-metallic resources

∞ Activity Information

- Fully compliant with NZ school safety guidelines
- Professional guides available



∞ DAY 5 Itinerary Overview

Milford Sound Cruise

Location: Fiordland

Day 5 is a revelation in every sense as we travel towards Fiordland and the incredible Milford Sound. Passing through the Eglinton, Hollyford and Cleddau Valleys and the Homer Tunnel provides students with the opportunity to witness the unique geology of each area including steep-sided glaciated valleys, Mirror Lakes and the Chasm waterfall.

A visit to the Discovery Centre is followed by one of our most popular excursions, the Milford Sound cruise, where students appreciate the awe of Fiordland and its ancient rock, glacially scoured walls, U-shaped valleys, glaciers and waterfalls. There is also the opportunity to see dolphins, a range of sea birds, verdant and lush flora as well as to relax and enjoy the magnificence of the location.

∞ Learning Opportunities

- Cirque glaciations
- Granite, diorite, gneiss
- Fiords, sounds

∞ Activity Information

- Fully compliant with NZ school safety guidelines
- Professional guides available

∞ DAY 6 Itinerary Overview

Southern Experience

| Location: Mt Cook

Day 6 sees us on the road and winding our way back northwards. Passing many of the outstanding geological features that have beguiled us over the past few days, we arrive in Cromwell in time for lunch and a break in our journey that allows students the opportunity to try their hand panning for alluvial gold.

In the afternoon we continue north towards the turquoise water of Lake Tekapo and the iconic Aoraki Mt Cook, New Zealand's tallest peak. If time permits, the relaxing warmth of the Tekapo Hot Springs beckons before an early dinner.

At nightfall, Aoraki/Mt. Cook's status as an International Dark Sky Reserve offers students an unsurpassed opportunity for star-gazing. We also offer the option of observatory tours which encompass the extensive research facilities and state-of-the-art equipment as well as viewing distant constellations, nebulas and planets, accompanied by expert guides.

∞ Learning Opportunities

- Quartz veins, alluvial gold
- Parallel fault-block mountain ranges
- Fluvio-glacial outwash terraces
- Hydro-electricity
- Southern night skies

∞ Activity Information

- Fully compliant with NZ school safety guidelines
- Professional guides available



∞ DAY 7 Itinerary Overview

Plate Tectonics

Location: Christchurch

On our last morning we leave the pristine alpine environment for the last time to return to Christchurch. Passing through a succession of strikingly contrasting landscapes, stunning rivers and productive farmland, we pause at the stunning Rakaia Gorge before passing through the area that sits atop the Greendale fault. Our journey ends with a visit to a recent victim of the geological violence of plate tectonics, the city of Christchurch.

Experiential learning at its most effective sees students visit the earthquake simulator, followed by a tour of the city where they see for themselves the extent of the damage from the 2011 earthquake and the massive ground acceleration that occurred. The end of the day sees the conclusion to our week in the living laboratory that is New Zealand's geological landscape.

∞ Learning Opportunities

- Plate tectonics, Alpine Fault, strike-slip faulting
- Peak ground acceleration, epicentres, seismic waves, liquefaction, seismic lensing

∞ Activity Information

- Fully compliant with NZ school safety guidelines
- Professional guides available

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