New Zealand is a geologically active country and therefore has geohazards such as volcanoes, earthquakes, landslides and tsunami.

In New Zealand there are volcanoes, earthquakes, landslides and tsunami.

**What does geohazard mean?**

The word geohazard comes from two words:

**Geo** – from the word ‘geological’ meaning from the earth

**Hazard** – a situation that poses a risk to property, environment or life

So ‘geohazards’ means the risk of damage caused by a geological process.

**Common geohazards in New Zealand**

New Zealand is geologically active. This is because it sits across the boundary between the Indo-Australian and Pacific tectonic plates. These moving plates create huge forces that have shaped our landscape; uplifting mountains, carving out lakes and rivers and creating our rugged coastline. These forces continue to form the land...
Earthquakes

About 20,000 earthquakes occur every year in New Zealand, but we only feel about 250 of these. Earthquakes that are strong and close to towns or cities can cause great damage and sometimes loss of life. For this reason it is important for New Zealanders to know how to prepare for and respond safely to earthquakes.

Tsunami

A tsunami is a series of powerful ocean surges often caused by an undersea earthquake or landslide. Most tsunamis are similar to very strong, fast tides, rather than waves. The larger ones can travel a long way inland. Much of the damage from tsunamis is caused by the erosion from the strong currents and floating debris.

Volcanoes

When molten material (magma) reaches the earth’s surface a volcano is formed. A volcano will erupt broken rock and magma (ash) and release steam and gases. New Zealand volcanoes such as Ruapehu, Tongariro, and White Island are often active. Ash from eruptions can spread over large distances so can affect people living a long way from the eruption. Hazards also exist close to the active vent(s).

Lahars

Lahar is an Indonesian word that describes a volcanic mudflow. A moving lahar looks like a mass of wet concrete that carries rock debris. Lahars vary in size and speed and can cause widespread damage.

Eruptions may trigger lahars by quickly melting snow and ice on a volcano or ejecting water from a crater lake. Lahars are also formed by heavy rainfall during or after an eruption, when volcanic ash is washed off the volcano. Some of the largest lahars begin as landslides.

Hydrothermal activity

Hydrothermal systems come from volcanic activity. Geothermal activity starts when ground water is heated. Most of New Zealand’s geothermal activity occurs in the Taupō Volcanic Zone, an area that extends from White Island to Mt. Ruapehu.
Hydrothermal activity is usually confined to hot springs, geysers and warm ground. Eruptions can occur if this activity becomes unstable. Hydrothermal processes are often acidic and can alter the nature of rocks and soils, leading to the collapse of ground which can cause damage to property and harm people. Hydrogen sulphide gas can also be emitted and if there are high levels it can be harmful.

Landslides

A landslide is a movement of soil, rock and debris down a slope. Landslides often happen as a result of other natural disasters, such as earthquakes, volcanic eruptions and floods (rainfall).

Landslides are common throughout New Zealand. Serious landslides in built-up areas can cause thousands of dollars in damage and threaten lives.

What does geohazard mean?

The word geohazard comes from two words:

Geo – meaning from the earth
Hazard – a risk to property, environment or life

New Zealand sits between the Indo-Australian and Pacific tectonic plates. These moving plates create huge forces that have shaped our landscape; creating mountains, lakes and rivers, and our rugged coastline. These forces can also cause:

I wonder what geohazards there are near your place.

How might you go about preparing for these?
Earthquakes

There are about 20,000 earthquakes in New Zealand every year. We only feel about 250 of these. Earthquakes that are strong and close to towns or cities can cause a lot of damage and sometimes loss of life. It is important for New Zealanders to know how to prepare and respond safely to earthquakes.
**Tsunami**

A tsunami is a series of powerful ocean surges. They are often caused by an undersea earthquake or a landslide. Most tsunamis are like very strong, fast tides, rather than waves. A large tsunami can travel a long way inland. Floating debris and erosion from the strong currents causes most of the damage.

**Volcanoes**

When molten material, magma, reaches the earth’s surface a volcano is formed. If a volcano erupts it can release broken rock, ash, steam, and gases. New Zealand volcanoes such as Ruapehu, Tongariro, and White Island are often active. Ash from eruptions can spread over large distances. The ash can affect people living a long way from the eruption. There are also hazards close to the active vent(s).

**Lahars**
A lahar is a mixture of rock and ash from a volcanic eruption. They are like a mudflow that washes down the mountain, melting snow and flowing like a river. Lahars can be fast moving and cause widespread damage.

Hydrothermal activity

Hydrothermal activity starts when ground water is heated by magma that is close to the Earth's surface. This creates things like hot springs, geysers and mudpools. Eruptions can occur if this activity becomes unstable. Ground can also be weakened and dangerous gases can form.

Landslides

A landslide is a movement of soil, rock and debris down a slope. Landslides often happen because of earthquakes, volcanic eruptions and floods (rainfall).

Landslides are common in New Zealand. Large landslides in towns and cities can cause thousands of dollars in damage and threaten lives.
Māori keywords:
[rū whenua - shaking of the land, earthquake][13]
[puia - volcano][14]
[pahūtanga - eruption][15]
[horo - landslide][16]
[ngāwha - geothermal, volcanic activity][17]
[rahā lahar][18]

Audio Māori keywords:

- rū whenua - shaking of the land, earthquake
- puia - volcano
- pahūtanga - eruption
- horo - landslide
- ngāwha - geothermal, volcanic activity
- rahā lahar

Samoan keywords:

| mafui'e | earthquake |
| mauga mu | volcano |
| pa | eruption |
| solo | landslide |

Tongan keywords:

| mofuike | earthquake |
| mounga afi | volcano |
| laku/puna 'a e afi | eruption |
| konga fonua kuo holo | landslide |

Cook Islands Maori keywords:

| ngaruere enua | earthquake |
| maunga kā | volcano |
| pū | eruption |
| ngahoro | landslide |
| kā | geothermal activity |

Niuean keywords:

| mafuike | earthquake |
| mouga afi | volcano |
| pa | eruption |

Take a look at the LEARNZ Geohazards field trip[19] for more information on this topic.
Earthquakes are a common geohazard in New Zealand; why do you think New Zealand has so many earthquakes? Image: LEARNZ.

Earthquakes can trigger rock fall or landslides. Do you know where this rock fall has occurred? Image: LEARNZ.
Volcanoes are another type of geohazard. Do you know which New Zealand volcano this is? Image: GNS Science.

Tsunami can cause huge damage to coastal areas. This is a village near the coast of Sumatra after the 2004 Boxing Day tsunami. What causes tsunami? Image: Public Domain.

Hydrothermal systems can be part of volcanic activity. This is the Waimangu hot springs near Mount Tarawera. How can hydrothermal activity be hazardous and how can this hazard be avoided? Image: LEARNZ.
Landslides are also a common geohazard in New Zealand. This is the Dart landslide. Image: Simon Cox, GNS Science.

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Links
New Zealand’s Geohazards
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