

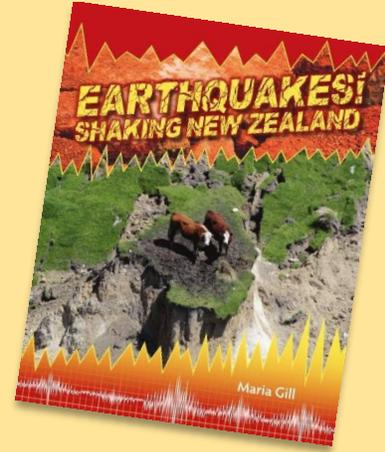
Earthquakes! Shaking New Zealand

Teaching Resource



Author Biography

Eight of New Zealand's most dramatic earthquakes are featured in *Earthquakes! Shaking New Zealand* from the 1855 Wairarapa quake to the 2016 Kaikōura earthquake. Readers can also find out why earthquakes are occurring around the world, as well as what to do if there is an earthquake, find out how they are monitored, and how to recover from one. In keeping with *Eruption! Discovering New Zealand's Volcanoes* book, there is a figure narrating some of the text boxes. This time it is Rūaumoko, the Māori God of Earthquakes and Volcanoes, drawn by illustrator Marco Ivancic. Readers can also find out more details about the earthquakes by googling key words on the Internet.



Synopsis of the Book

Maria Gill has written over 55 books for children and teachers. Five of those have been about volcanoes – this is the first earthquake book! Maria experienced the 2013 Wellington earthquake and up until then had thought it would be quite exciting to be in one. Not so. The memory of the CTV building collapsing in Christchurch in 2011 is etched on most people's minds. She thought the walls and ceiling of the building she was in would descend on her any moment. Her book *Anzac Heroes* (illustrated by Marco Ivancic) won the 2016 Non-fiction prize, as well as the Supreme Book of the Year award. www.mariagill.co.nz

Before Reading Book:

1. Look at the cover and discuss what this book is about.
In pairs share what you know about earthquakes and if you have ever experienced one.
2. When you flick through the book what graphics and colours has the designer used to complement this book about earthquakes.
3. Illustrator Marco Ivancic has drawn an Earthquake Maori God – how has he shown this? Draw your own Maori God.
4. Indigenous peoples used legends and myths to explain natural disasters. Find a legend about an earthquake and write a paragraph about it in your own words.
5. Brainstorm a list of words you would expect to find about earthquakes.

Comprehension Questions:

1. Explain the difference between a convergent and divergent boundary. (p.7)
2. What is a fault and what is it called when it breaks Earth's surface. (p.8)
3. Where can faults occur? (pp.8-9)
4. What is a subduction zone and why is it dangerous? (p.10)
5. How does a slow slip work and name where there is one? (p.11)
6. Why are there so many fault lines in the Wellington region? (p.12)
7. Where has a new fault been found in the Wellington region? (p.13)

Activities:

1. Write a readers' theatre script about an earthquake legend and perform it with a group in front of your class.
2. Use plasticine or play dough to replicate the ways the faults move and demonstrate it to a partner or teacher.
3. Draw your own Māori God of Earthquakes and Volcanoes.
4. Make a persuasive video or PowerPoint showing people how to be safe during and after an earthquake.
5. Make a clay model of New Zealand showing where the two plates separate and include the Hikurangi Trough, Marlborough Fault, Alpine Fault and label all the parts.
6. Pick a country around the world and find out what is happening with its plates and how it is affecting that country.
7. Make your own liquefaction. You'll need a heavy plastic pan (loaf pan), sand, water, smooth brick, rubber mallet. Instructions. 1. Make a hypothesis of what will happen in the experiment. 2. Fill the pan with sand. 3. Fill with water to just below the surface of the sand. 4. Wiggle the end of the brick down into the wet sand so it stands up like a tall building. 5. Tap the side of the pan with a mallet and watch what happens to the sand and the brick. 6. Record what happens. 7. Write a conclusion of what you think happened.
8. Draw a timeline of earthquakes that have happened in your life time.
9. Write a diary entry about an earthquake or a disaster you have experienced. What went through your mind throughout the incident? What safety measures did you take? What would you do different next time?
10. Have a look on Maria Gill's website: www.mariagill.co.nz and discover what else Marco Ivancic has illustrated for Maria Gill. Also, check out what other books New Holland Publishers has published of Marias.

Comprehension Questions Cont/...

8. Where is the Marlborough Fault System? (p.14)
9. What is special about the Alpine Fault System? (p.14)
10. List the hazards in an earthquake and design a symbol for them. (pp.16-17)
11. Where and when has there been an earthquake with the highest death toll. (p.17)
12. Pick an earthquake that has happened in New Zealand and write a newspaper article about the earthquake. See examples on pages 19, 21, 23, 25.
13. Does Australia have earthquakes and what causes them? (p.26)
14. Name the five biggest earthquakes in the world. (p.28)
15. What was the deadliest earthquake in the world, how many did it kill, and what did it measure on the magnitude scale? (p.29)
16. What should you do if you experience an earthquake near the beach? (p.33)
17. How many earthquakes are detectable in the world and how many cause damages? (p.33)
18. How did construction companies' clean-up after the Kaikōura earthquake? (p.34)
19. What are scientists called that measure earthquakes and how do they measure the earthquakes? (p.36)
20. How do scientists measure earthquakes in space and what does this information tell them? (p.37)
21. If you feel stressed after an earthquake and suffer problems such as headaches, nightmares, difficulty concentrating, etc., what can you do to help yourself? (p.38)
22. What does **rūwhenua** mean? (p.41)

