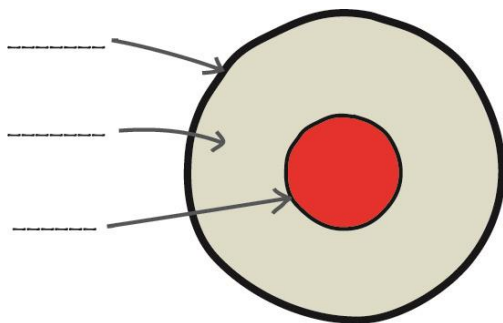


## ERUPTION QUIZ!

1. What are the names of the two tectonic plates whose boundary goes right through New Zealand?
2. Name four major types of volcano that are found in New Zealand.
3. Name three stratovolcanoes in New Zealand.
4. What is the name of New Zealand's youngest and most active volcano?
5. What is the difference between a volcanic bomb and a volcanic block?
6. Name the nearest shield volcano to where you live.
7. What is the name of New Zealand's only supervolcano?
8. What volcano erupted on 10 June 1886?
9. Name the biggest volcanic field in the North Island.
10. What is the name of the submarine volcano that was more than five times larger than Ruapehu and Tongariro?
11. Name five things you should do if a volcano erupts near you.
12. Name two scientific instruments volcanologists use to monitor volcanoes.
13. Label the parts of planet Earth.



Earth

... AND NOW A PHOTO QUIZ

While writing the book Maria felt compelled to visit some of the volcanoes she wrote about. Luckily, she took her camera. See if you can match the pictures of volcanoes with their names: Taupo, Rotorua, Ngauruhoe, White Island.



14. This is New Zealand's most active volcano.



15. This is a supervolcano.



16. This volcano last erupted in 1975.



17. The mud pools are near a caldera.

## BECOME A REPORTER!

Throughout *Eruption!* you will find numerous news articles about volcanoes. Our cub reporter, Volcanica, penned those ones – now it is your turn to write your own. You could find something interesting about one of the volcanoes, or write about a trip you made to a volcano.

In a news story the reporter's goal is to answer the following questions: WHO, WHAT, WHEN, WHERE, WHY and HOW at the beginning of the article. The body of the article contains interesting facts, quotes and colourful details. The ending contains the least important information.

1. Draw a triangle and divide it into thirds – like this one
2. Write in the top third the most important information (this is your 'who, what, when, where, why, how').
3. In the middle put supporting facts and background detail.
4. In the bottom third include the least important information.

That's your draft. Now write your news article with a catchy heading then follow with your sentences using the above format. Present your article on a newspaper template (<http://newspapertemplate.net/>) or make your own template.

Here's an example:

# MAGMATIC PRESS

www.magmaticpress.com
THE WORLD'S HOTTEST NEWSPAPER
- Since 1879

## PERILOUS CROSSING



Author Maria Gill trekked the Tongariro Crossing in nine hours.

"It must be a record for the longest time to walk the track," said Ms Gill.

Armed with camera and walking stick she set off at 7.30am. She had many short breaks but kept plodding on until the finish.

"The journey was dangerous at the top. Loose rubble threatened to cause a landslide but I managed to navigate it without falling."

The weather started off sunny but at the summit wind and black clouds increased the chill factor. Ms Gill kept warm wearing a woollen hat and zipped up her jacket.

"I didn't want to get hypothermia," said Ms Gill.

Ms Gill limped to the finish at 4.30pm. "I thought it was never going to end."

She felt she had overcome a personal obstacle to complete it.

## MĀORITŌPIA

Throughout the book are Māori legends about how the volcanoes were created.

Page 4 – Learn the Māori word for volcano.

Page 9 – How Māori used family relationships to explain changing landscapes.

Page 11 – The legend of the family break-up between Ranginui and Papatuanuku.

Page 14 – The legend about the sad Taranaki volcano.

Page 17 – The legend of Ngatoroirangi and how he named Ngauruhoe.

Page 21 – How Maui shaped Whakaari (White Island).

Page 29 – Legend of when Ngatoroirangi made Lake Taupo.

Page 31 – Ngatoroirangi creates Lake Taupo.

Page 35 – Fire goddess Mahuika teaches two giants a lesson.

### **Activities with the legends**

1. Students pick one of the legends in the book and turn it into a picture book.
2. Students pick one of the volcanoes without a Māori legend and make up their own legend for it.
3. Students turn one of the Māori legends into a cartoon either by drawing by hand or drawing it on the computer.
4. Students investigate one of the legends and see how many versions they can find of it. They then compare the different versions.
5. Students act out one of the Māori legends.

### VOLCANIC INQUIRY PROJECT

Pick a volcano to research. As a class, write a main focus question. Then choose three questions you would like to research. Write your notes in the middle and say where you got that information under 'source'. Lastly, summarise (put in your own words) what you have learnt about your volcano.

Here's an example to get you going.

Main focus question: How do volcanoes change the landscape?

Specific focus questions:

- 1) How did my volcano form?
- 2) What type of volcano is it?
- 3) Will my volcano erupt again ... and why?

VOLCANIC INQUIRY PROJECT		
VOLCANO: ..... TYPE: ..... STATUS: .....  MAIN FOCUS QUESTION: .....		
FOCUS QUESTIONS	RESEARCH	SOURCE
1.		
2.		
3.		
SUMMARY:		

## VOLCANIC STUFF TO MAKE AND DO

### EXPLODING VOLCANO

**You will need: large piece of stiff card, plastic canister\*, sticky tape or glue, newspaper, tinfoil, vinegar, baking soda, dishwashing liquid, red dye**

\* (about 10-16 cm long, like the type you buy bubble-blowing liquid in. You don't need the lid.)

1. Lay the card down and tape or glue the canister (open end up) in the middle.
2. Crumble newspaper balls and arrange them in a 'volcano' around the container.
3. Lay tinfoil over the top and tape it down underneath the edges of the card.
4. Make a hole (your 'crater') over the mouth of the container. Put in 1 teaspoon of baking soda, a few drops of dishwashing liquid and dye, then fill canister with vinegar.

### EXPANDING GASES

This is a messy experiment, so it's best you do it outside, or wear protective clothing!

**You will need: a bottle or can of raspberry soda**

Shake the bottle or can a few times, then take the lid off. What happens? The rising bubbles are a bit like magma rising from deep inside Earth to the crust. When magma rises, it moves from a high-pressure environment to a lower-pressure environment. This allows the gases inside it to expand and be released.

### TECTONIC PLATE JIGSAW

**You will need: paper, glue card, scissors**

Go to: <http://scienceonline.tki.org.nz/Nature-of-science/Nature-of-Science-Teaching-Activities/Plate-tectonics-2-2-evolution-of-a-theory#Jigsaw> and find the jigsaw puzzle PDF.

Print out the jigsaw puzzle, glue the back, and mount it on card. When dry, cut it out, and erase the names with correction fluid. Then jumble up the pieces and give them to someone else to put back together again. Can they name the plates?

### OTHER IDEAS:

- Paint, draw or create a new look for Ngauruhoe if it blew its top.
- Invent a new way to monitor volcanoes.
- Design and build a cutaway papier-mâché model of a volcano. Name the various parts.
- Make an A-Z list of volcanic information!

## QUICKFIRE MINDBENDERS

And finally, here are some questions and discussion points to get you thinking!

UPLIFT . . .

What if most of mainland Zealandia had not sunk into the Pacific? What would New Zealand be like?

WHAT IF?

What if Taupo exploded again? What would happen to your home town? What are some of the disadvantages of living near the Wellington fault line?

PREDICT . . .

What would be the consequences if a volcano erupted in Auckland?

ENERGISE!

Make a list of ways in which we might use crater lakes, volcano slopes and geothermal energy.

## WHAT TO DO!

At the back of the book are ideas of what to do if there is a volcanic explosion near you. Take the multi-choice quiz to see if you can remember what you need to do in an emergency.

If a volcano erupts you should:

- a) Grab your camera and get as close as possible to take photographs
- b) Ring all your friends to tell them all about it
- c) Stay indoors, close windows and doors
- d) Wear protective clothing and have a volcano party.

If you need to go outside you should:

- a) Wear a helmet and gas mask
- b) Wear protective clothing and a mask
- c) Wear your best clothes – you never know whom you'll meet!
- d) Wear your old clothes so you can throw them away afterwards.

If a lahar moves towards you, you should:

- a) Run as fast as you can
- b) Hide behind a rock
- c) Run sideways out of its path
- d) Grab your surfboard and ride it out.

Now play the Awesome Forces game to see if you're ready: <http://goo.gl/npDBX>

## LINKS

<http://www.sciencenewzealand.org/VolcanoesResources>.

<http://www.tepapa.govt.nz/WhatsOn/exhibitions/ADayInPompeii/Volcanoes/Pages/DrGrahamLeonardsTopTenVolcanoLinks.aspx>  
A volcanologist lists 10 top volcano sites.

<http://nhb-arcims.si.edu/ThisDynamicPlanet/index.html>  
Check out this interactive volcano world map.

[www.gns.co.nz](http://www.gns.co.nz)  
Teaching resources, photographs and videos.

[www.whatstheplanstan.govt.nz](http://www.whatstheplanstan.govt.nz)  
Teaching resource with safety information for primary schools.

## ANSWERS

### Quiz

1. Australian and Pacific plates
2. Stratovolcano, shield, caldera, volcano field
3. Taranaki, Tongariro, Ruapehu, White Island
4. Ngauruhoe
5. Volcanic bombs: lava cools and turns solid while still in air.  
Volcanic blocks: lava so thick it blocks up a vent.
6. Lyttelton? Akaroa? Rangitoto?
7. Taupo
8. Tarawera
9. South Auckland Volcanic Field
10. Waitakere Volcano
11. Stay indoors, close windows and doors, wear protective clothing if go out, wear mask over your mouth and nose, find shelter if outside.
12. Seismometer, GPS unit, lake levelling tool, webcam
13. [top to bottom] crust, mantle (or asthenosphere), core
14. White Island
15. Ngauruhoe
16. Rotorua
17. Ruapehu
18. C
19. B
20. C