

*from fire and ash comes new life*

# Rangitoto

Te toka tū moana

The rock standing in the ocean

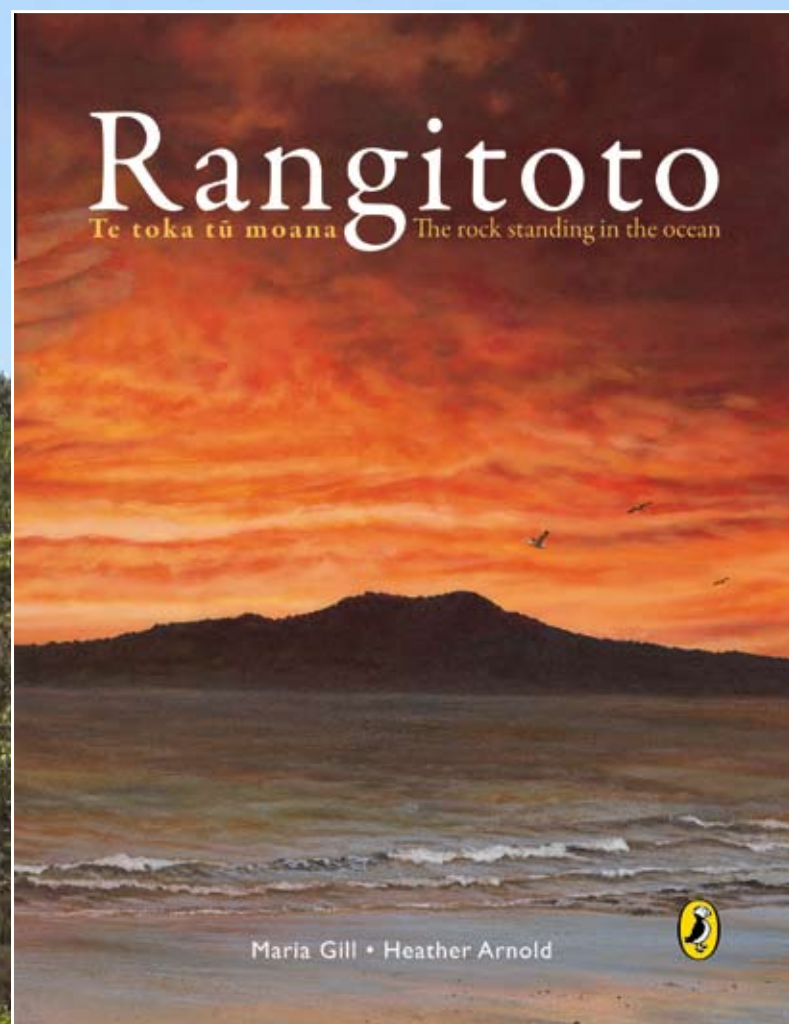
**Teachers Resource Unit**  
**Years 3 - 8**

Maria Gill • Heather Arnold



[www.mariagill.co.nz](http://www.mariagill.co.nz)





Have you ever gazed at Rangitoto  
and wondered...

How it got its shape?

Was it a very explosive beginning?

And will it erupt again?

Rangitoto: Te toka tū moana/The  
rock standing in the ocean tells the  
dramatic story of Auckland's most  
striking icon – its volcanic birth,  
the kaka's connection to Rangitoto,  
the imprint of humans on its  
fragile wildlife, and how the island's  
guardians are saving it today.

ISBN: 978-014-350334-7



## About the Author

Maria Gill is an author, teacher and mother of two children. She lives on a lifestyle block with lots of animals. Kaka birds fly over her house every morning and evening, shrieking their call.

Maria was determined to get them in a story somewhere. When she heard Rangitoto was a kaka reserve once – presto she had her story. Maria has written six other children's books.



## Classroom Activities

- Look up Maria Gill's website to find out about her other books – [www.mariagill.co.nz](http://www.mariagill.co.nz)
- Discuss: What type of book does Maria tend to write? Does Maria have a running theme through most of her books?
- Students write several focus questions to research about Maria Gill. Suggested questions: Name all of Maria Gill's books. When was the author born and how old is she now? Where does she live? What type of background led to Maria writing non-fiction books? What are her special interests?
- Look on <http://kidsbooksnz.blogspot.com> Read some of the reviews. Add your review to the comment's section.
- Look on <http://eco-rangernz.blogspot.com> If you or your class have done an environmental deed, tell Maria about it so she can share it on the blog.
- Read two of Maria Gill's books and compare them on a venn diagram.
- Invite the author to speak at your school. Students write questions they would like to ask her.

## What the author says about the book...

I wanted to tell the story of Rangitoto like it was just happening - it is quite fast paced in the beginning.

I didn't want the story to stop once the volcanic explosions were over.

I knew history was in the making with plans to rid the island (and Motutapu) of all its pests and predators. When that is complete it will be the biggest predator-free area in the Southern Hemisphere!

Scientists are still discovering information about Rangitoto and I wanted to put in some of those interesting facts so you could read the story but check the facts out as you went along.

## About the Illustrator

Heather Arnold has been a graphic designer/illustrator for over 23 years. She has illustrated five stamps for New Zealand Post and also designs websites. Her book 'Draw New Zealand Birds' won the Esther Glen award in 2008.

Heather lives with her elderly diabetic cat 'Josh' (18 years old), 'Samuel' who is only a young lad of a cat and 'Sebastian' the newest member to the family (at nine years old).



## Classroom Activities

[www.heatherarnold.co.nz](http://www.heatherarnold.co.nz)

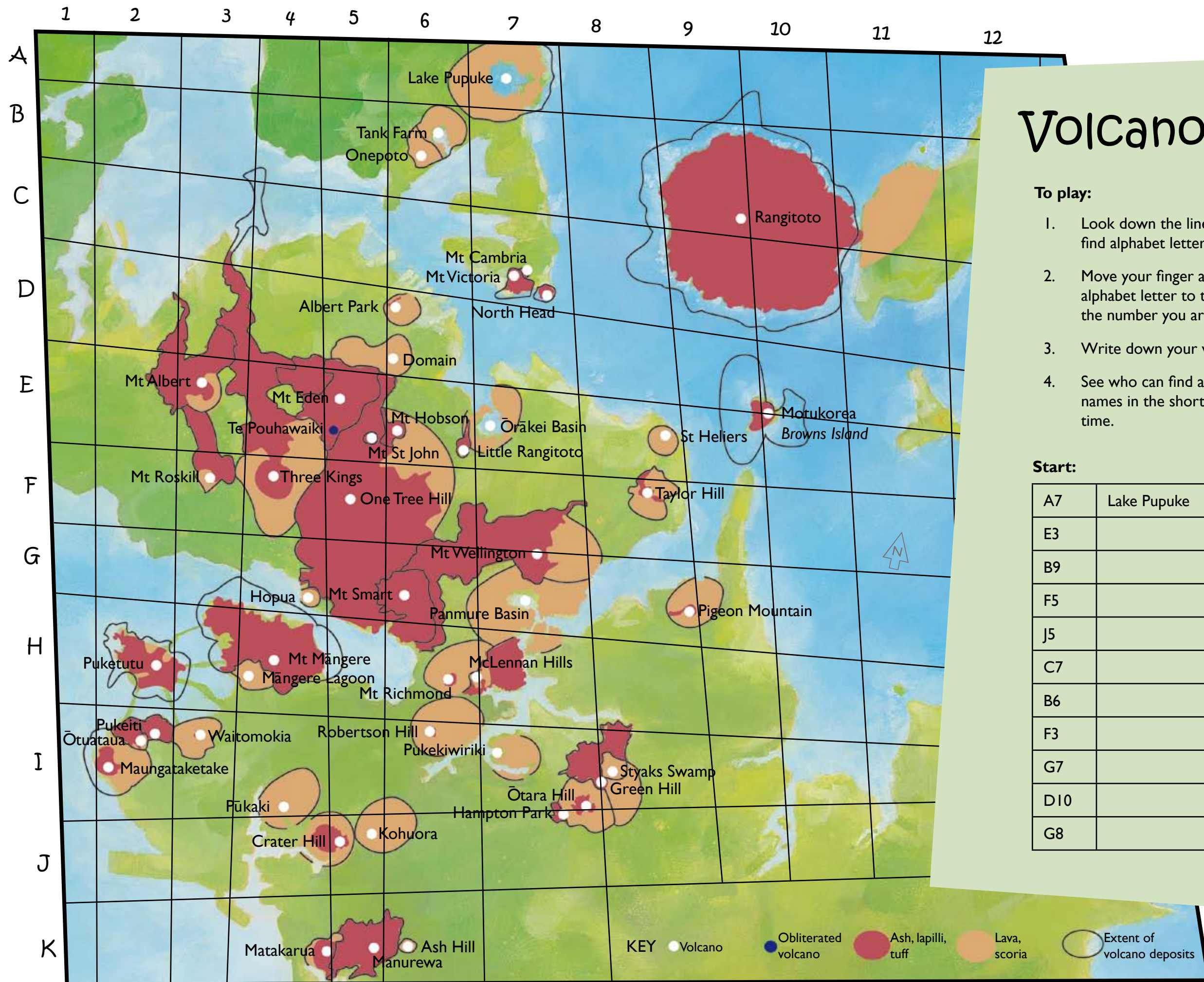
- Look up Heather Arnold's website to find out about her other book at [www.drawandpaint.co.nz](http://www.drawandpaint.co.nz)
- Discuss what type of book does Heather illustrate? Does she have a theme through her books?
- Students write several focus questions to research about Heather Arnold. Suggested questions: What qualifications does Heather have? Name her books. What awards has she won? How many different skills does she have?
- Have a look on Heather's other website: [www.dragonsauce.com](http://www.dragonsauce.com) where Heather shows her website design, illustration, animation and flash games – see 'Whir Whizz Bang', play 'Where's Puzzle' game and inspect the 'Garden Insects'. What did Heather achieve with these projects?
- Heather designed five stamps. Design five of your own stamps.
- Read two of Heather's books and compare them on a venn diagram.
- Draw a bird that lives in your area.

## What the illustrator & designer says about the book...

I had to do a lot of research to get the illustrations factually correct. I visited Auckland museum many times to look at their volcano displays (and yes, I couldn't resist going in the volcano house several times). I took hundreds of photographs. I even went up in a helicopter so I could take aerial photographs.

Once I had all my information, I put the photos and drawings together in Photoshop. These layouts were then approved by the author and editor at Penguin. I used the layouts as a template for the paintings. The paintings were painted in acrylic 150% larger than the final book size. The paintings were then scanned and inserted into the photoshop file (together with the photos) and finally placed with the text in InDesign.





# Volcano Hunt

## To play:

1. Look down the line of the map to find alphabet letter.
2. Move your finger across from that alphabet letter to the square with the number you are looking for.
3. Write down your volcano name.
4. See who can find all the volcano names in the shortest amount of time.

## Start:

A7	Lake Pupuke
E3	
B9	
F5	
J5	
C7	
B6	
F3	
G7	
D10	
G8	



# Classroom Activities

## Oral Language

- The Story of Rangitoto would make a fantastic play. Get a group of students together and dramatise it, with sound effects!
- Practice the reader's theatre script (see page 12) several times with a group and then present to the class.
- Share with your partner, an experience of a trip to Rangitoto.

## Reading

- The author has used creative non-fiction style. That is when a piece of non-fiction is told like a story rather than just facts. See if the author has used creative non-fiction style with any of her other books. What other authors use this style?
- Write a book review about Rangitoto. Include: title, author's name, illustrator's name, what style of book it is, and in a paragraph say what the book is about. Then comment what you thought of the book.

## Written Language

- Write a haiku poem about Rangitoto. A haiku has 5 words in first line, 7 in next, 5 in the third line.  
*From fire and ash,  
Comes new life: Rangitoto  
thrives – all birds welcome!*
- Write and illustrate a picture book about the legend of Rangitoto.
- Write 3 things you found out, 2 interesting things and 1 question you still have about Rangitoto after reading the book.
- Take one of the facts the author has used and turn it into a creative non-fiction piece of writing. (That is when a piece of non-fiction is told like a story rather than just facts.)
- Archaeologists found footprints of people and a dog on Motutapu. Tell their story.

## Visual Language

- Redesign the front cover.
- Redesign a double page spread-out in the book.
- Design a pictorial timeline (there are timelines on page 23 and 30 & 31).
- Find out all the places Heather must have stood to take the photographs of Rangitoto. For example, on page 32 she must have been up somewhere high in the central city – where could that be? Hint: ...Tower.
- Draw a poster promoting the Rangitoto book and ask if your librarian will put them up in the library.



## Rangitoto: Word Puzzle

Circle the hidden volcano words.

C	O	N	E	P	E	G	H	V	S	L	Q
E	R	S	C	O	R	I	A	O	H	A	L
R	G	M	S	H	A	H	C	L	O	V	O
U	T	A	H	U	D	O	R	C	C	A	L
P	U	N	I	T	I	T	A	A	K	K	A
T	F	T	E	U	C	S	T	N	W	A	N
E	F	L	L	K	A	P	E	O	A	K	N
P	R	E	D	A	T	O	R	S	V	A	J
H	I	J	F	W	E	T	H	H	E	A	V
R	N	G	U	A	R	D	I	A	N	E	V
A	G	M	A	G	M	A	B	A	C	H	R
D	W	U	H	N	S	B	G	U	L	L	D

Ash  
crater  
Guardian  
magma  
Predators  
shield  
Tuff ring  
bach  
Eradicate  
hotspot  
Mantle  
shockwave  
Volcano  
cone  
Erupt  
lava  
Pohutukawa  
scoria  
Tephra  
kaka



# Classroom Activities

## Social Studies

*Understand how people view and use places differently – Level 3, Level 2*

- Draw a pictorial flow-chart of the human impact on Rangitoto Island.
- Name the different people who have used Rangitoto and what their uses of the island were. What impact did that have on Rangitoto?

*Understand that events have causes and effects L3*

- Human settlers inadvertently brought pests and predators to Rangitoto. How has this affected Rangitoto? What are the guardians doing to remedy this problem. How will they try and do it?

Inquiry Method:

1. Students choose 1-4 (depending on age) focus questions relating to the above objectives.
2. Students notetake using Rangitoto book and website searches.
3. Students record their information on a KWL chart.
4. Students present to class with a visual or oral presentation.

*Find a KWL, venn diagram, flow chart templates/ examples from:*  
[www.tki.org.nz/r/esoll/esolonline/strategies\\_e.php](http://www.tki.org.nz/r/esoll/esolonline/strategies_e.php)

## Science

- When magma rises towards the surface the gases inside it begin to expand. To demonstrate this: take a bottle or can of raspberry sprite, shake it a few times and take the lid off. Of course, you either need to be outside or have lots of protective clothing on. What happened?

- Show the class how magma moves around under the earth's crust by demonstrating with a lava lamp or by making one: Fill a jar  $\frac{3}{4}$  full of oil, add water to remainder. Drop in red dye until it is dark. Sprinkle in salt. Afterwards tip bottle back and forth. Tiny drops of oil liquid will join to make big magma blobs.

- Make a shield volcano. Download the template or make the one below. Once your volcano is complete start some volcanic eruptions:

You are watching an acid (vinegar) and a base (baking soda) react together. They produce carbon dioxide gas as a by-product.

- Draw a flow-chart of Rangitoto forming.
- If you live near a hotspot or fault line area you could experience a volcanic eruption in the future: Design a pamphlet for children on what to do if there is a volcanic eruption.

## Art

- The illustrator has chosen two mediums for the book – what are they? Take a digital photograph, cut out one shape from the photograph (either with scissors or with software) then combine that picture with a drawing or painting of your own.

- To draw the Maori Chief, the illustrator asked a neighbour to pose for her. She took the photo, used tracing paper to draw over the outlines from the photo and then transferred it on to paper and painted the Maori Chief. Use this technique to draw a character for your picture book.

## Rangitoto: Word Scramble

Please unscramble the words below

1. hsa \_\_\_\_\_
2. arerct \_\_\_\_\_
3. aamgm \_\_\_\_\_
4. dilhes \_\_\_\_\_
5. etnaml \_\_\_\_\_
6. tptohs \_\_\_\_\_

## Technology

### Make a Volcano

You will need: film canister, tin foil, cellotape, paint, newspaper, hard card, vinegar, baking soda, dish washing liquid, red dye

To make:

1. Lay the card down and cellotape or glue the canister in the middle of it.
2. Crumble newspaper balls around it in a circle, make a second layer in a circle around the canister.
3. Lay tin foil over top and cellotape down underneath the cardboard.
4. Paint the volcano.
5. Make a hole where the canister is and put in 1 tsp of baking soda, a few drops of dish washing liquid and red dye, then fill canister with vinegar.

See pictures:

[http://volcano.und.edu/vwdocs/volc\\_models/shield.html](http://volcano.und.edu/vwdocs/volc_models/shield.html)



## Reader's Theatre Script

# Rangitoto

### Characters:

Kaka 1 & 2

Narrator 1 & 2

Predator

Maori Chief

Mother Nature 1 & 2

Guardian

Narrator 1 Rangitoto: Te toka tu moana: The rock standing in the ocean

Narrator 2 Written by Maria Gill

Kaka 1 Squawk! Something is not right... My feathers are on edge. I can feel trembling under my claws.

Kaka 2 Look, there are bubbles coming out of the sea! And that burning smell is getting stronger. Where's that rumbling coming from?

Kaka 1 & 2 Take Flight! Take flight to the mainland!

Narrator 1 The Bubbles are the beginning of a volcanic eruption. Magma rises to the surface, blasting out of the sea.

Narrator 2 A fountain of steam mushrooms into clouds of grey. Black rockets of tephra surge high into the sky. Shooting geysers follow.

Narrator 1 Birds on Motutapu watch the cauliflower clouds move like a deadly avalanche towards them.

Kaka 1 & 2 *(screech this)* Kaka screech their alarm!

Narrator 2 The ash smothers and blankets all it touches, leaving only footprints preserved in a layer of ash.

Narrator 1 Within an hour a crater for ms. Lava flows into a lake.

Narrator 2 The fire fountains build three cones of scoria. Over time, they bury the tuff ring.

Narrator 1 Lava bursts out of cracks and tunnels, flowing like a river of blood.

Narrator 2 The sun disappears behind laden clouds, showering ash like dirty snow.

Maori Chief *(said in an orator voice)* The garden – the garden – shower it, Shower it o'er with dust,  
Then will the food flourish, And then all the fruits be saved

Narrator 1 The top of the cone subsides... leaving a moat-like ring around the summit.

Narrator 2 Rangitoto's shield shape is now formed.

Narrator 1 Rangitoto will not erupt again.

Narrator 2 If large bubbles of magma break off from a hot spot, from under the Earth's crust, the magma will rise and erupt in a new place.

Mother Nature 1 Over time the scoria on the island cools. Ferns and lichens grow on the rocks. The wind disperses seeds from the mainland.

Mother Nature 2 The seeds grow in the rich, fine powder that settles in the scoria. A forest of native trees and flowering plants grows.

Mother Nature 1 The island comes alive with sound. Black-backed gulls build their nests on broken lava crags.

Mother Nature 2 Tuatara traverse the low tide from Motutapu.

Kaka 1 Kaka fly from Little Barrier Island.

Narrator 1 A Maori Chief declares Rangitoto:

Maori Chief Rahui-kaka

Narrator 2 That means a kaka reserve

Narrator 1 Many people come to Rangitoto:

Maori Chief Maori bring sacred bones to rest in lava caves.

Narrator 2 Prisoners scrape a road to the summit; and

Narrator 1 Holidaymakers build baches on the foreshores.

Mother Nature 1 These visitors also bring with them a new menace...

Predator Predators stow away on boats or swim from the mainland. We devour the birds' eggs.

Kaka 2 The kaka's voice is silenced once again.

Guardian Today new guardians care for Rangitoto. We rid the island of pests and predators. We bring back the birds. The island comes alive again with song.

Kaka 1 Squawk! All is well... My feathers shine in this light. I can feel the warm scoria under my claws.

Kaka 2 Look, there are wave crests out at sea and the pohutukawa scent is strong. The rumble has long gone.

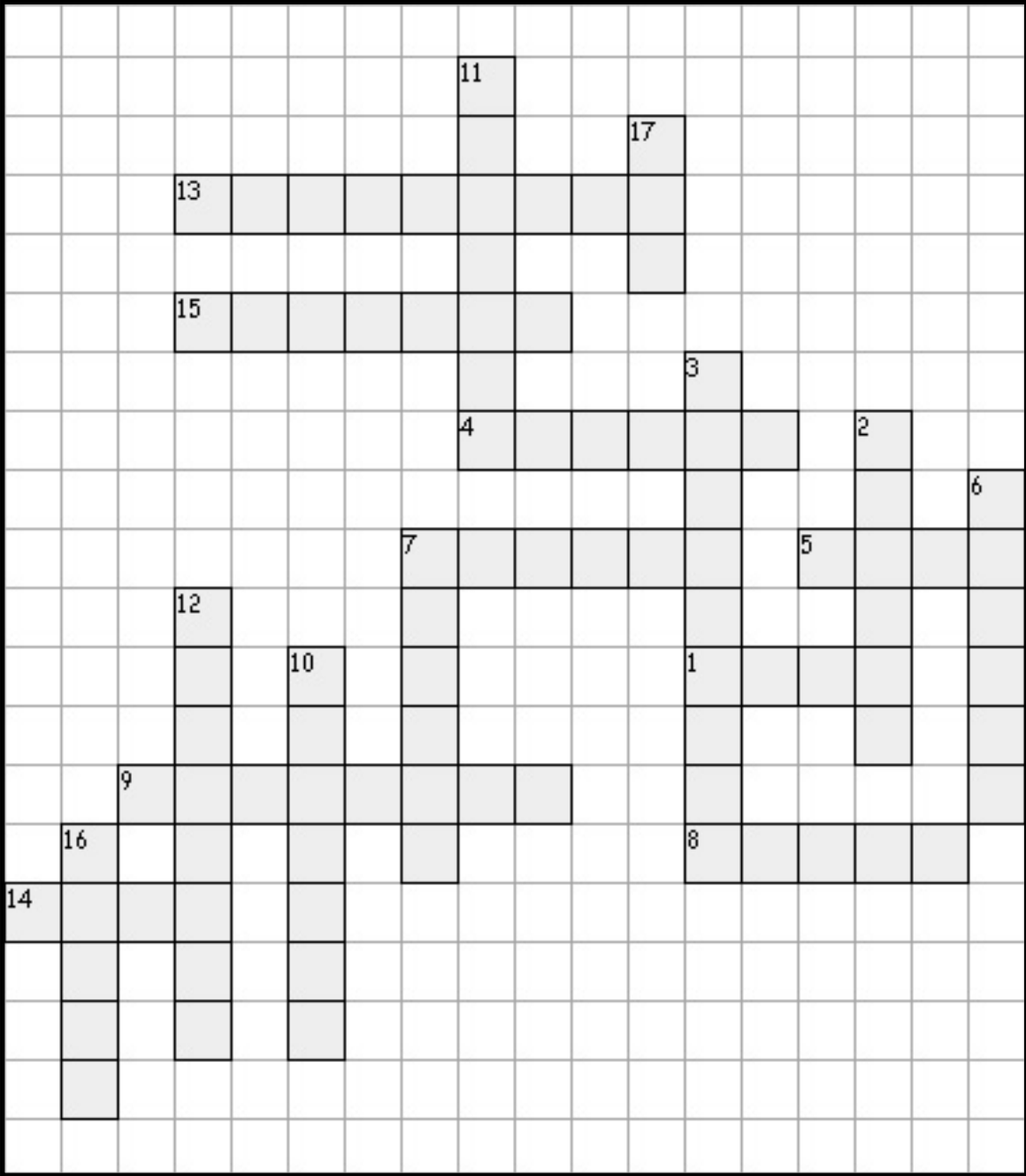
Kaka 1 & 2 All birds welcome! Rangitoto thrives!

*Ends.*



# Rangitoto: Crossword Puzzle

Use the clues below to fill in the puzzle.



### Numbers Across:

- 1. a mound of loose material that ejects from vent and settles into a cone shape
- 4. solid matter ejected through volcanic vent
- 5. native parrot of New Zealand
- 7. type of volcano
- 8. to explode
- 9. one who looks after or protects
- 13. animals that hunt prey such as birds
- 14. liquid rock above the surface
- 15. a vent in the surface of the Earth or sea floor

### Numbers Down:

- 2. a steep-sided, round hole formed by a collapse of a volcanic vent
- 3. to get rid of with traps and poisoning
- 6. zone of the earth below the crust
- 7. red-brown or black basaltic lava froth
- 11. a volcano that will not erupt again
- 12. island next to Rangitoto
- 16. molten rock beneath the surface
- 17. a powdery dust, blown from a vent



## Write a story using the pictures from this page.

For instance, your characters could be the kaka and the pigeon and perhaps a person who has gone missing. The setting is on Rangitoto, and involves something happening at the bach house, on the boat and near the caves. Make it a mystery story: that is a story that the reader has to find out what happened.





#### Answers to Volcano Hunt:

A7	Lake Pupuke
E3	Mt Albert
B9	Rangitoto
F5	One Tree Hill
J5	Crater Hill
C7	Mt Victoria, North Head
B6	Onepoto
F3	Mt Roskill
G7	Panmure Basin
D10	Browns Island
G8	Pigeon Mountain

#### Answers to Word Puzzle:

C	O	N	E	P	E	G	H	V	S	L	Q
E	R	S	C	O	K	I	A	O	H	A	L
R	G	M	S	H	A	H	C	L	O	V	O
U	T	A	H	U	D	O	R	C	C	A	L
P	U	N	I	T	I	T	A	A	K	K	A
T	F	T	E	U	C	S	T	N	W	A	N
E	F	L	L	K	A	P	E	O	A	K	N
P	R	E	D	A	T	O	R	S	V	A	J
H	I	J	F	W	E	T	H	H	E	A	V
R	N	G	U	A	R	D	I	A	N	E	V
A	G	M	A	G	M	A	B	A	C	H	R
D	W	U	H	N	S	B	G	U	L	L	D

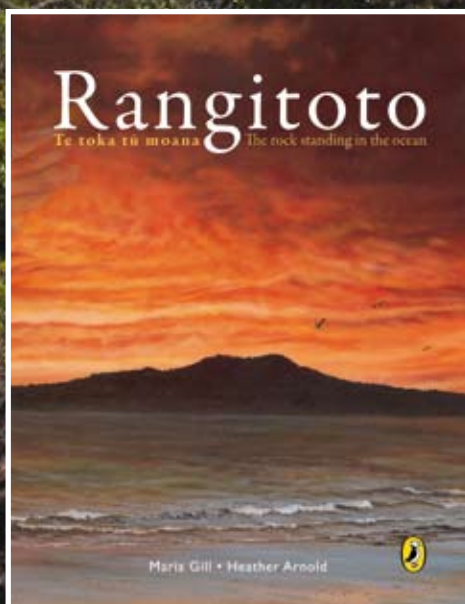
- Ash
- crater
- Guardian
- magma
- Predators
- shield
- Tuff ring
- back
- Eradicate
- hotspot
- Mantle
- shockwave
- Volcano
- cone
- Erupt
- lava
- Pohutukawa
- scoria
- Tephra
- kaka

#### Answers to Word scramble:

1.	Hsa	ash
2.	arerct	crater
3.	aamgm	magma
4.	dilhes	shield
5.	etnaml	mantle
6.	tpotohs	hot spot

#### Answers to Crossword Puzzle:

	Across		Down
1.	Cone	2.	Crater
4.	tephra	3.	Eradicate
5.	kaka	6.	mantle
7.	shield	7.	scoria
8.	erupt	10.	dormant
9.	guardian	11.	extinct
13.	predators	12.	Motutapu
14.	lava	16.	magma
15.	volcano	17.	ash



Teaching Resource written by Maria Gill  
Designed by Heather Arnold