

ERUPTION
IMMINENT

5 MINUTE Volcano

Teachers Guide



Te Raranga Whāriki Papa Moana

**BENEATH
the WAVES**

Welcome to the 5-Minute Volcano Teacher's Guide!

This booklet provides the support you need to run the 5-Minute Volcano game with your classroom. This guide was developed with inputs from teachers nationwide and covers important focuses such as:

- *The game's main focus*
- *Classroom implementation*
- *Curriculum integration*
- *Benefits for children*
- *Real-world applications*

So...What is the purpose of this game and why should I use it?

5-Minute Volcano is a fast-paced, cooperative game for New Zealand classrooms, inspired by 5-Minute Dungeon. It features artwork from both Western and Māori cultures and is suitable for ages 8+. The game is flexible, fitting into various timeframes, and helps develop teamwork and communication skills. It can also encourage discussions about volcanic eruptions and natural disaster preparedness, regardless of your location in the country.



How should the game be run in a classroom?

We recommend that the game should be run in the following manner:

1. **Pre-Game Discussion:** Start with questions to engage students in a chosen topic (or go over a question or two from this worksheet).
2. **Gameplay:** Play a few rounds to learn gameplay. Optionally, can use this time to incorporate friendly competition between different groups.
3. **Post-Game Discussion:** Connect the game to lesson objectives.
4. **Repeat Gameplay:** Let the children play again with their new understanding. Follow this up with the 5-Minute Volcano student worksheets.

This method of alternating discussions, gameplay, and worksheets promotes thinking, play, and collaboration



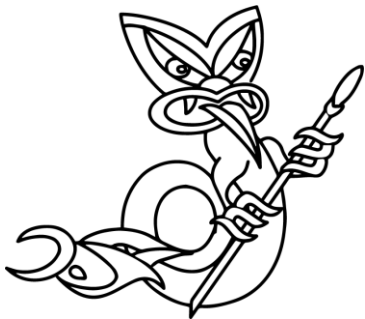
What topics should I use the game in? How does this fit within the school curriculum or teach the core competencies?

5-Minute Volcano can be used to teach geological phenomena, landforms, natural disasters, and more. It also supports collaborative play and learning and can be used for other subjects such as introducing New Zealand’s Western and Māori cultures, community studies, health, and current events.

Whilst the topics may be broad, the game is very suitable for teaching Key Competencies and Science Learning Objectives to children.

Key Competencies:

- **Thinking:** Solve in-game problems and develop tactics.
- **Using Language, Symbols, Texts:** Match colours, identify challenge cards, and recognize artwork and designs.
- **Managing Self:** Play independently without adult supervision.
- **Relating to Others:** Collaborate with peers.
- **Participating and Contributing:** Engage in team-based activities, often encouraging quieter students to take a leadership role.



Science Learning Objectives:

When used for science purposes, the game can assist with the Nature of Science learning objectives. These are as follows:

Nature of Science Achievement Objectives	Related Science Capability
<p>Communicating in Science</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">- Begin to use a range of scientific symbols, conventions, and vocabulary.- <i>Students will do this by using and discussing the symbols of the game as representations of scientific knowledge and action, using these to navigate the volcanic hazards within the game.</i> <p>Participating and Contributing</p> <p><i>Students will:</i></p> <ul style="list-style-type: none">- Use their growing science knowledge when considering issues of concern to them.- Explore various aspects of an issue and make decisions about possible actions.- <i>Students will do this by identifying local volcanic hazards throughout the playing of 5 minute volcano, as well as build discussions around appropriate actions to take in the community in the result of an eruption.</i>	<p>Interpret Representations</p> <p><i>Students will</i></p> <ul style="list-style-type: none">- Interpret symbolic representations of scientific symbols and their meaning concerning the scientific study of volcanos and symbols that represent communal action required in the event of an eruption.- Discuss how each volcano ‘deck’ represents the associated real-world volcano in New Zealand and its risks. <p>Engage with science</p> <p><i>Students will</i></p> <ul style="list-style-type: none">- Engage in discussion around volcanos and eruptions within their local area, focusing on communal impacts and actions taken to ensure the safety of the community.
<p>Contextual Strand - Earth systems</p>	
<p><i>Students will:</i></p> <ul style="list-style-type: none">- Appreciate that water, air, rocks and soil, and life forms make up our planet and recognise that these are also Earth’s resources.	

What are the benefits of the game for the children? How can the game apply to the real world?

5-Minute Volcano provides several benefits to children. As stated in previous sections, the game:

- **Encourages Mutual Support:** Children learn to support one another.
- **Develops Leadership:** Helps less physically active children emerge as leaders, similar to leaders emerging through sports.
- **Fosters Healthy Competition:** Promotes healthy competition between groups.
- **Stimulates Critical Thinking:** Encourages discussions that help children think critically about the game, volcanoes, and their community.
- **Enhances Communication Skills:** Provides a platform for children to improve their communication with peers.
- **Promotes Collaborative Learning:** Offers opportunities for collaborative play and learning.



The characters in 5-Minute Volcano provide a great opportunity to discuss the roles and responsibilities of various community members during a volcanic eruption or other hazards. For instance, you can explain the importance of teachers in education and the crucial work of volcanologists who study volcanoes.

Additionally, it's important to highlight the role of 'Kura Tamariki'—the school children themselves. They play vital roles during emergencies, often without realising it. By sharing what they learn at school with their families, they help everyone be better prepared. For a detailed discussion about this, you can refer to Q6 in this workbook.

Some things to look up before playing and discussing the game

Before playing 5-Minute Volcano, it would be worth looking up different discussion ideas for the children. These can include volcanic hazards, local evacuation routes, and websites such as Civil Defence, GNS, or the Beneath the Waves project.

You can find the links here:

GNS Homepage – <https://www.gns.cri.nz/>

Civil Defence Homepage – <https://www.civildefence.govt.nz/>

Beneath the Waves (Mitigate) – <https://www.beneaththewaves.org.nz/our-aims/mitigate/>

Specific information such as how to prepare and hazard information can be found in the links here:

Get Ready - <https://www.civildefence.govt.nz/get-ready>

Natural Hazards - <https://www.gns.cri.nz/our-science/natural-hazards-and-risks/>

You can find numerous YouTube videos that summarise the information needed for most of this worksheet. You can also add the video to the discussion sessions. We also suggest that you find your school's evacuation routes in case of an emergency. Or, if you do not have one for certain hazards, create one with the class! Who knows... maybe this can be the foundation of your school's evacuation plan for such hazards!



An important note to remember, however, is that the taniwha (natural hazards) are not enemies we are trying to defeat, but forces of nature we must live with and respond to appropriately. When you play 5-Minute Volcano, you must overcome taniwha, clear obstacles and inform the people about volcanoes. You don't defeat them. That way, the children can learn that whilst volcanoes can be scary, they are a natural part of our life here in Aotearoa New Zealand, and we need to learn how to be prepared for eruptions and to help our communities become more resilient to such events.

You are now ready to run the 5-Minute Volcano worksheet with your class. This guide has some helpful talking points if the children get stuck on a question and should allow you to provide as much assistance with as little preparation as possible.

If you ever have any questions about the guidebook, please reach out to the creator, Kieron Wall, at kieron.wall@pg.canterbury.ac.nz

Question 1)

Discuss with each other why you think our volcanoes are important to New Zealand.

Think about things such as:

- *Cultural importance*
- *Farming*
- *Visitors from other countries*

In this question, get children to think about why volcanoes are important to us. Not just in the sense of economical, but also cultural significance.

- *Culturally, talk about how certain volcanoes have important significance to Māori iwi. If you are a teacher that belongs to an iwi, maybe this is an opportunity to share with the class why the connections to our maunga are so important to all of us.*
- *Volcanoes also create fertile land around them, making them important for farming worldwide, not just in NZ.*
- *Our volcanoes also draw in tourists for sightseeing and skiing (such as at Mt Ruapehu).*

Question 2)

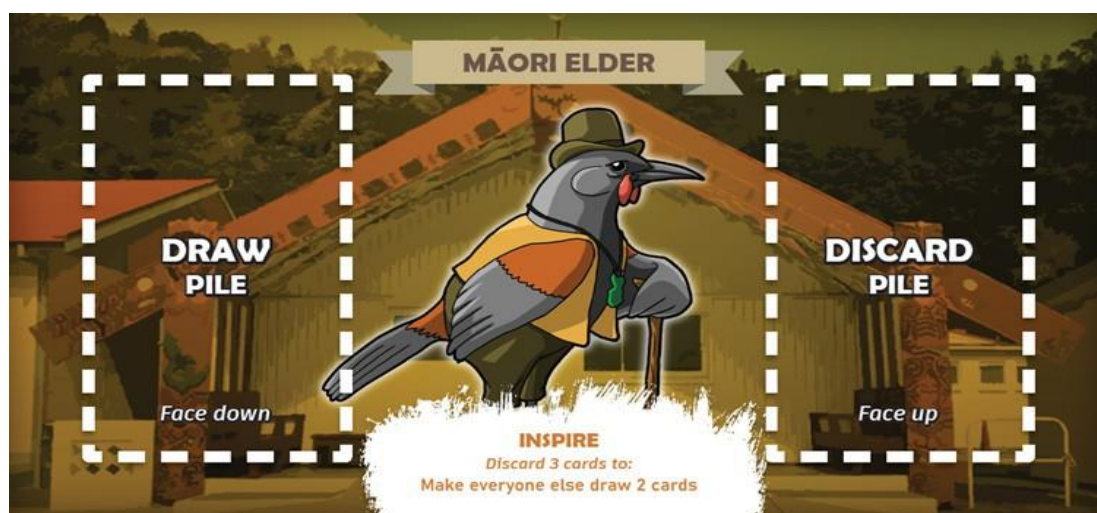
How does the Kaumātua ability 'INSPIRE' work in 5-Minute Volcano? What do you think it shows in a real eruption situation?

Think about things such as:

- *What the ability does*
- *What is the importance of the character being in the game?*
- *Why is this character important to local communities?*

In this question, get children to think about the role of a kaumātua (Māori Elder) and why they are important in the game, and in communities.

- *In the game, the character can help the team by letting everyone else pick up more knowledge cards. This represents the sharing of knowledge through korero/conversations with others and pūrākau/oral storytelling from their iwi. This makes them important to local communities*



Question 3)

You may have seen some Taniwha in the game, which represent things like lava, earthquakes and landslides. In a real-life situation, these can cause a lot of damage. Match the following taniwha to the action you should take

Think about things such as:

- *Ash can be harmful to our lungs*
- *Lahars flow down volcanoes like a river*
- *Tsunamis are big waves from the ocean*



ASH



LAHAR



TSUNAMI

Move away from the coast.

Wear a mask.

Get out of valleys

Question 4)

Link the different parts of the game to what they represent in real-life

Think about things such as:

- *Taniwha are things like lava and earthquakes*
- *The cards are what your character knows*
- *Obstacles cause problems with evacuations*



Skills and knowledge.

Things caused by hazards and poor planning

Hazards.

Question 5)

Pick and draw a volcano that is significant to you. Add some taniwha and think about why the volcano has these taniwha.

Think about things such as:

- *Is your volcano in New Zealand? Somewhere else? One you made up?*
- *Some taniwha are only found in some places. For example, a tsunami taniwha needs a lot of water, like the ocean or a big lake*
- *Ideas for taniwha can be found at the bottom of this page.*

Once you are done, show your volcano to your group or class, and maybe your volcano could be the new boss in your copy of 5-Minute Volcano!

Name your volcano:

In this question, get children to get creative and draw a volcano that may be significant to them or not. Make sure they add taniwha as well

- They can pick volcanoes from the game (Whakaari, Tongariro, Ruapehu, Tuhua, Taupō), from other regions of New Zealand (Auckland, Taranaki), or even other countries.
- If they pick a New Zealand volcano, try to help them pick taniwha that are associated with the volcano. For example, if they pick Ruapehu, try to ensure the ash and lahar taniwha are the main ones added.
- The taniwha options are at the bottom. Whilst the children may pick ANY design they would like, the ones from 5 Minute Volcano are as follows (from top left to top right, then bottom left to bottom right): Ballistics and bombs, Landslides, Lava, Pyroclastic flows, Storms, Earthquakes, Gas, Volcanic ash, Fire, Lahars, Tsunami

Taniwha:



Question 6)

Were there characters in the game who were more important than others, or did everyone play a part? Who else could play a part in helping prepare for eruptions? How might you help your community?

Think about things such as:

- *What characters did you use?*
- *Was everyone able to play their part in the game?*
- *Think about people you know. How could they help prepare for an eruption or other hazards?*
- *What could you do to help the people you know?*

What characters did you use in your game? Was everyone helping?

In this question, get children to think about the characters they used and what their roles were

- *Were the characters (not the players!) all doing things which could help the team? The answer should be yes to this as each character is designed to do something different and thus bring something unique to the team*

Who else could help in real life?

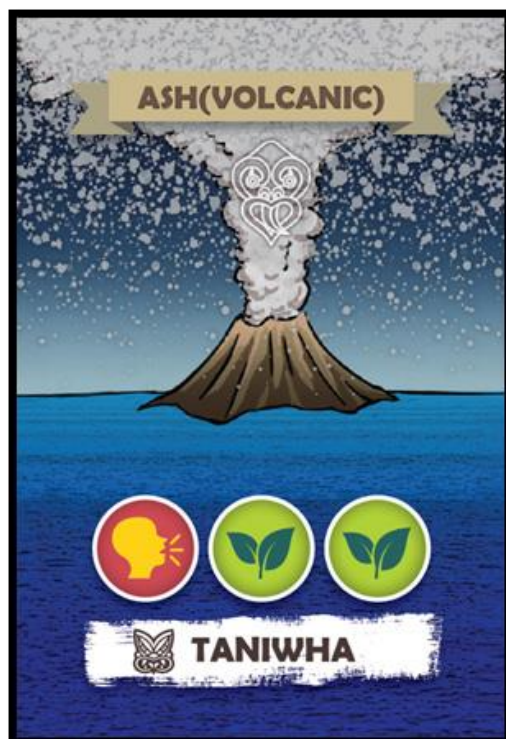
Get children to think about the different people and roles in their communities.

- *Get them to think about people like their parents and how they could help when preparing for eruptions. For example, their parents could help buy the things needed for a grab-bag or evacuation box.*
- *They may even think of things such as neighbors, cultural or religious groups, or anything else they connect with. How could these groups help with preparations for disasters like eruptions or help during that time.*

What could you do to help?

Get children to think about what they can do to help!

- *Children are not helpless!*
- *They can use the knowledge they learn in the game, the worksheet, and in the class to talk to their parents and members of their communities to be prepared for disasters.*
- *If some children feel stuck or confused, tell them the story of Tilly Smith, a 10-year-old English school girl who learnt about tsunamis at school. In 2004, she saved over 100 people's lives when she recognized the warning signs of a tsunami (this was the Boxing Day tsunami which killed around 275,000 people across the Indian Ocean). In other words, even children can make a difference!*



Question 7)

In the game, there are different symbols on your cards. These symbols are **research**, **teach**, **environment**, **evacuate**, and **support**. Why are these important to know and how do they interact with each other?

Think about things such as:

- *Why do we research and teach things? Why is it important to support each other? Why do we evacuate? Why do we need to know our environment?*
- *For interactions, think of things like why it could be important to support people during an evacuation.*

Why is it important?

1) **Research:**

2) **Teach:**

3) **Environment:**

4) **Evacuate:**

5) **Support:**

In this question, get children to think about the knowledge cards, and what each colour represents

- *Research allows us to learn more about something*
- *Teaching lets us tell people what we've learnt and helps to educate them (not just children)*
- *Environment is important as we live in it and so we should help make it as good as it can be*
- *Evacuate is our knowledge of evacuation routes, strategies and often links to our knowledge about a certain disaster*
- *Support is the support given by our family, friends and communities*

How do they interact?

Pick 3 pairs and how they interact. For example: Support and Evacuate

1)

In this question, get children to think about how some of the 'knowledges' interact.

2)

- *This question is trying to get the children to think about interactions between the different knowledge cards and how they interact in real life.*
- *A good example of this is if they picked Support and Evacuate. It is important during evacuations to support and help each other, especially those who need help (such as the elderly).*
- *Another example is Research and Teaching. Once we learn something new, we want to tell people about it as it could be important to them.*

3)

Question 8)

Draw an outline of your school and create an evacuation plan for your school.

Think about things such as:

- *What is your evacuation route?*
- *Who needs help first?*
- *Where is your starting point?*

Your school's name:

In this question, get children to think about evacuation routes at your school.

- *This is a relatively open question. The idea is to get the children to draw their school and then think about things such as evacuation routes, who needs support, where they are based and how they would evacuate etc*
- *Your school may have set evacuation plans already! If you do, it could be worth make this question a classroom project (such as a poster or drawing on a whiteboard together).*

Question 9)

Pick a character you like from the game. What skills would you need to do that job one day?

Think about things such as:

- *Do you need to be smart? Good with Computers? Good at teamwork?*
- *Do you need to come from a certain place to do that job?*
- *Why do you think that job would be cool?*

The character: _____

What skills that you have learnt could help you do a job like this one day?

In this question, get children to think about a character and what skills they need.

- *For example, if a child picked the Volcanologist, they could write about things such as needing to like volcanoes, be good at climbing, researching, working in teams etc.*
- *This is a bit more open ended and so they could write whatever. However, the idea is to get children to think about genuine skills they'd need to do that job some day.*

- Circle what you think are important skills for a Volcanologist and emergency manager to have in a volcanic emergency.

Think about things such as:

- *Who can be a scientist?*
- *Are people skills as important as brain skills?*

Being a nerd

Knowing how to use a Computer



Knowing how to use a phone



Being sporty

Working with others



Having a lab coat

Knowledge about volcanoes



Knowing everything about maths



Communication with others

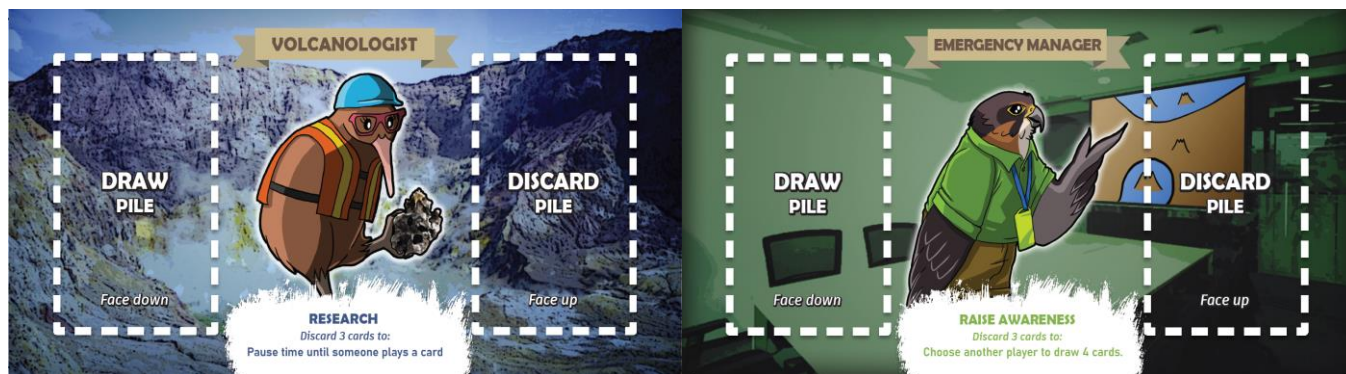


Yellow Arrows:

Skills that would either really benefit or be needed by a volcanologist and emergency manager.

Blue Arrows:

Skills that, whilst helpful, are not necessarily required, but are very helpful



Question 10)

In a sentence or two, what have you learnt by playing this game?

In this question, get children to reflect on the game and the worksheet

- *This is a very open-ended question where the children can express what they feel like they learnt by playing the game and doing this worksheet.*