



Teacher Resource

Tonga Volcano

Focus Questions

Discuss the BTN Tonga Volcano story as a class and record the main points of the discussion. Students will then respond to the following:

1. Where is Tonga? Locate using Google Maps.
2. Tonga sits on the Ring of Fire. What is that?
3. The volcano that erupted in Tonga was an underwater volcano. True or false?
4. Describe the damage the volcano and tsunami caused.
5. How have people around the world been helping Tonga?

Activity: What do you see, think and wonder?

Students will watch the BTN Tonga Volcano story, then respond to the following questions:

- What did you SEE in this video?
- What do you THINK about what you saw in this video?
- What did you LEARN from this story?
- What was SURPRISING about this story?
- What QUESTIONS do you have?

Activity: Class Discussion

After watching the BTN Tonga Volcano story, facilitate a class discussion, using the following questions to get the discussion started...

- Where is Tonga? Find on a map.
- How has the eruption of Hunga Tonga–Hunga Ha’apai impacted on people and the environment?
- What do you know about the volcano in Tonga?
- What else do you know about volcanoes?
- What do you want to learn about volcanoes?



EPISODE 1

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KEY LEARNING

Students will investigate the characteristics of volcanoes and what causes volcanoes to erupt.

CURRICULUM

Science – Year 6

Sudden geological changes and extreme weather events can affect Earth’s surface.

Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions.

Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples’ lives.

Scientific knowledge is used to solve problems and inform personal and community decisions.

Science – Years 5 & 6

With guidance, pose clarifying questions and make predictions about scientific investigations.

Science – Year 7

Identify questions and problems that can be investigated scientifically and make predictions based on scientific knowledge.

Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed.

Activity: Glossary

Students will brainstorm a list of key words that relate to the BTN Tonga Volcano story. Below are some words to get them started. Students will create their own class glossary of scientific keywords and terms. Consider creating a photographic glossary and students can use photos and/or diagrams to help explain each keyword.

TECTONIC PLATES	MAGMA	RING OF FIRE
MAGMA PRESSURE	TSUNAMI	VOLCANOLOGIST

Further investigation: Tricky words

Students will choose additional keywords and terms to add to their class glossary that are tricky. For example, atmospheric shock, volcanic cone, submarine volcano, ash clouds or caldera. Students will find a definition and explain to their classmates what the keywords mean.

Activity: Geography

On a map of the world students will locate and highlight the major active and dormant volcanoes. Students will then respond to the following:

- Label each volcano, including what type of volcano it is, its highest point and when it was last active.
- Circle nearby cities and towns to each of the volcanoes you mark.
- Highlight the Ring of Fire on your map.
- Draw the major tectonic plates.
- What do you notice about the location of the volcanoes in relation to the Ring of Fire?

Further investigation

Students will draw a cross section of a submarine volcano showing the following features: crust, mantle, crater, magma chamber, magma, ash, cloud, vent. Students will explain some of the features of each layer.



Activity: Research project

After watching and discussing the BTN Tonga Volcano story, what questions do students have and what are the gaps in their knowledge? The following KWLH organiser provides students with a framework to explore their knowledge on this topic and consider what they would like to know and learn.

What do I <u>k</u> now?	What do I <u>w</u> ant to know?	What have I <u>l</u> earnt?	<u>H</u> ow will I find out?

Act like a scientist

Students will start to think like scientists and develop their own question/s for inquiry, collecting and recording information from a wide variety of sources. Students may develop their own question for inquiry or select one or more of the questions below.

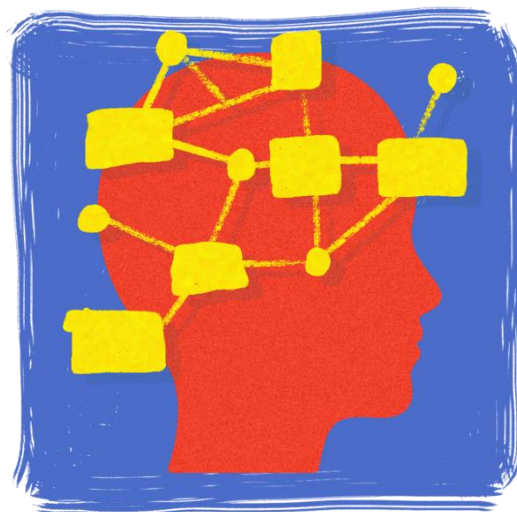
- What impact can volcanic eruptions have on people and the environment? Consider the negative and positive effects.
- Where are volcanoes typically found? Explore the similarities and differences between volcanoes found on hotspots across tectonic plates or at the boundaries.
- How many active volcanoes are there worldwide? Locate some of Earth's active volcanoes on a map and describe their proximity to Australia. Draw the Ring of Fire on your world map.
- Are there any volcanoes in Australia? Locate these volcanoes on a map of Australia. Choose one to research in more detail.
- How can you tell if a volcano is active or dormant? Explore and describe the features of an active and dormant volcano.
- What are the different layers of a volcano? Draw a cross section of a volcano showing the following features: crust, mantle, crater, magma chamber, magma, ash, cloud, vent. Explain some of the features of each layer.
- What is the biggest volcano on Earth? Investigate how it was formed. Describe its characteristics and create a 3D model or diorama.
- What is the difference between shield, composite and cinder cone volcanoes? Compare and contrast.

Activity: Reading rocks

Provide your students with opportunities to examine rocks and make observations about them. Students may want to bring rocks in from home or you can explore the environment around your school and collect a small sample of rocks. Challenge your students by asking them to bring in a piece of volcanic rock to school (e.g., obsidian, pumice or granite).

Spark a discussion about rocks in your classroom by using one or more of the following questions. Record your students' responses on a mind map, with the word ROCKS in the centre.

- Have you ever looked at rocks or collected them?
- Where would you look to find rocks?
- What do rocks feel and look like? Describe the characteristics of rocks. Are they heavy or light? What colour are rocks? Do they have texture?
- How are rocks the same and how are they different?
- What can you use rocks for?
- What is the relationship between rocks and volcanoes?



Encourage students to discuss what they already know about rocks and prompt them to ask questions they might have about rocks. Record your students' responses on a KWLH chart.

Activity: Investigating rocks

Students will guide their own investigation into rocks and present their findings in an interesting way. Below are some ideas to get students thinking about the direction of their investigation.

- **THE STORY OF THE IGNEOUS ROCK** - Write or illustrate a story about igneous rocks. Use story telling techniques to teach others about igneous rocks, how they form and what they tell us about Earth's history.
- **IF ROCKS COULD TALK...** Imagine you are interviewing an igneous rock. What questions would you ask a piece of obsidian or pumice stone? Find answers to those questions.
- **CAN ROCKS FLOAT?** Conduct a scientific investigation using the scientific method to guide your investigation.
- **WHAT DO GRANITE, OBSIDIAN, BASALT, AND PUMICE ALL HAVE IN COMMON?** Use a Venn diagram to compare and contrast different types of volcanic rock.
- **EXPLORING VOLCANOES THROUGH VIRTUAL CREATION** – What can Minecraft teach us about volcanic rocks? Explore [Volcano Park lessons](#) in Minecraft Education.
- **EDIBLE IGNEOUS ROCKS** – What are the characteristics of pumice and obsidian? How are they formed? Use these [fun recipes](#) which use ice magic and honeycomb to demonstrate the characteristics of these igneous rocks and how they form.

Activity: A snapshot in the life of...

Students will choose one aspect of volcanoes to explore in more detail and then use a timeline to organise the information they find in a chronological sequence. This activity will help students understand growth, change, recurring events, cause and effect, and key events of historical, social, and scientific significance.

Students will construct a timeline of...

- **The eruptive history of a volcano.** Choose one volcano to research in more detail. Compare and contrast significant events to that of other volcanoes.
- **The life of volcanic ash.** Look at the short term, midterm, and long term impact of volcanic ash on people and the environment.
- **The stages of volcanic eruption.** Research the sequence of events that leads to a volcano erupting from when rock from the mantle melts to when magma rises towards Earth's surface. Watch this TedEd video [What Makes Volcanoes Erupt](#) to learn more.
- **The evolution of a volcano.** Choose one volcano to explore in more detail. Find out where and how it formed, how its shape has changed over time and whether it is an active or dormant volcano.

Students will include labels, descriptions, and illustrations on their timeline.

Activity: BTN Stories

These BTN stories look at the impact that volcanoes have on people and the environment. After watching any one of the BTN videos ask students to respond to the discussion questions (to find the teacher resources go to the related BTN Classroom Episode and download the Episode Package).



[Volcanic Activity](#)



[Volcanoes Explained](#)



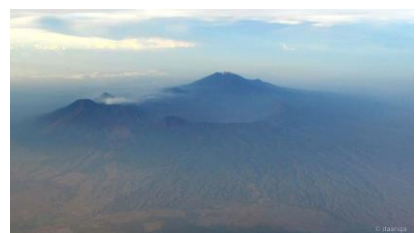
[La Palma Volcano](#)



[Volcano Warning](#)



[Hawaii Volcano](#)



[Volcano Safety](#)

Useful Websites

- [Volcanic Activity](#) – BTN
- [Volcanoes Explained](#) – BTN
- [La Palma Volcano](#) – BTN
- [Volcano Warning](#) – BTN
- [How a Tongan volcano shocked the world](#) – ABC News
- [Dramatic changes at Hunga Tonga-Hunga Ha'apai](#) – NASA Earth Observatory
- [Everything You Need to Know About Volcanoes](#) – Newsround
- [How to make a volcano](#) – Natural History Museum
- [Volcano](#) – Geoscience Australia