



Teacher Resource

Volcanoes Explained

Focus Questions

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

1. The word volcano comes from the word Vulcan, the Roman god of _____.
2. Where is the Popocatépetl volcano?
3. What is another word for molten rock?
4. Explain what a pyroclastic flow is and why are they dangerous?
5. There are no active volcanoes in Australia. True or false?

Activity: Class Discussion

Discuss the BTN Volcanoes Explained story as a class. Ask students to record what they know about volcanoes. What questions do they have? Use the following questions to help guide discussion:

- What are volcanoes?
- What words would you use to describe volcanoes?
- What causes a volcano to erupt?
- Who studies volcanoes and why is it important to study volcanoes?



Activity: Questions and Answers

Are you curious about volcanoes? Students will make a list of questions they have about volcanoes and learn why it's important to understand volcanoes. Students will use the internet to find answers to their questions.

What are volcanoes?

Who studies volcanoes?

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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: Research project

After watching and discussing the BTN Volcanoes Explained 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>know</u> ?	What do I <u>want</u> to know?	What have I <u>learnt</u> ?	<u>How</u> will I find out?

Act like a volcanologist

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.

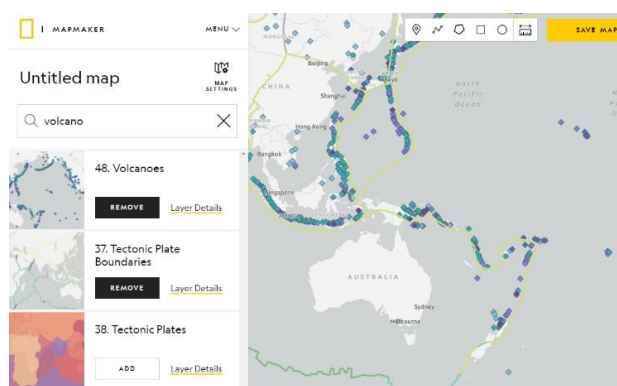
- What is a volcano? Why do they happen?
- What is the tallest volcano? Create a profile on the volcano.
- How do you know a volcano is going to erupt? Explain using your own words.
- What is the connection between volcanoes and tectonic plates?
- What impact can volcanic eruptions have on people and the environment? Consider the negative and positive effects.
- What are some of the main risks during a volcanic eruption? What is the most dangerous aspect of a 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.

Activity: Map Maker

MapMaker is an interactive mapping tool for exploring the world through a variety of data layers. Students will use National Geographic's MapMaker to interpret geographic information about the world's volcanoes.

Students will investigate the world's volcanoes using MapMaker.

1. Open [MapMaker](#).
2. Search for 'Volcanoes' in Layers.
3. Add the Volcanoes Layer.
4. Experiment with adding and removing different layers, including Volcanoes, Tectonic Plate Boundaries & Tectonic Plates.
5. Show the legend. Explore the different types of volcanoes, tectonic plates & tectonic plate boundaries. Adjust the opacity level for each layer.



Further Investigation using MapMaker

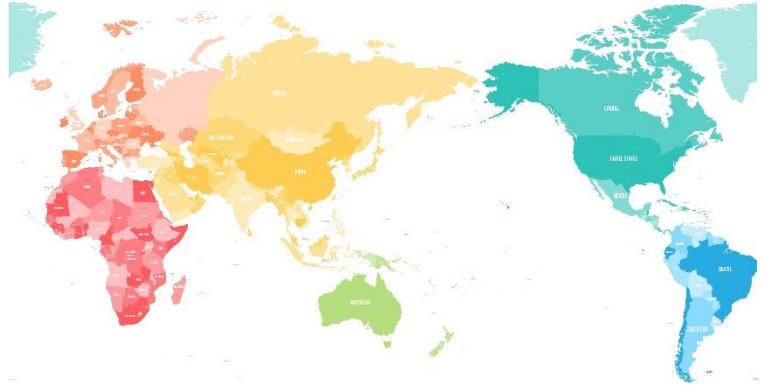
- What are the different types of volcanoes?
- Where are the majority of the world's volcanoes located?
- What do you notice about the location of the world's volcanoes and tectonic plates?
- What is the name of the tectonic plate which covers Australia?
- Find the Ring of Fire on the map.

Activity: Ring of Fire

Students will investigate the geography of the Ring of Fire. Students will gather geographical data and make connections between the location of volcanoes and tectonic plates. Students can use the world map at the end of this activity to record their findings.

On a map of the world students will locate and highlight the following geographical data:

- Draw the Ring of Fire on your map.
- There are many active volcanoes along the Ring of Fire. Identify some well-known volcanoes and mark on the map (for example, Mauna Loa, Popocatépetl, Mount Fuji, Mount Tambora, Mount Pinatubo & Krakatoa).
- Circle nearby cities and towns to each of the volcanoes you mark.
- Draw the major tectonic plate boundaries.
- What ocean is in the path of the Ring of Fire? Label on your map.
- Locate and label Marianas Trench.



Further investigation

Students will respond to one or more of the following:

- What shape is the Ring of Fire?
- How long is the Ring of Fire?
- What tectonic plates sit on the Ring of Fire?
- What percent of the Earth's active volcanoes are located on the Ring of Fire?
- What countries are located near or on the Ring of Fire?
- What is an ocean trench? Why are there so many trenches in the Ring of Fire?

Activity – Jigsaw learning

In this activity students will work cooperatively to learn more about Earth's volcanoes. Each group will become experts and then share what they have learnt with other students.

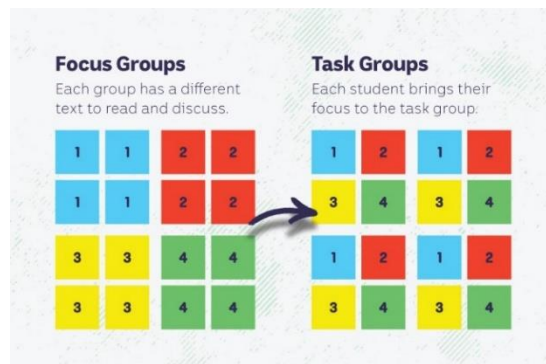
1. Form Groups

Divide the class into 4 x Focus Groups. Each Focus Group will be assigned a different volcano to study.

Below is a list of volcanoes to choose from:

- Mount Vesuvius ([BTN story](#))
- Popocatépetl
- Hunga Tonga-Hunga Ha'apai ([BTN story](#))
- La Palma ([BTN story](#))

Each group will need to decide how they will collect and communicate the information they find during their research.



2. Research

Each Focus Group will respond to one or more of the following questions to become experts:

- Where is the volcano? Find on a map.
- What type of volcano is it?
- What is the history of the volcano?
- Think of an interesting way to teach other students about this volcano. You could draw a cross-section of the volcano or create a diorama.

3. Share

Mix the Focus Groups to form Task Groups (Task Groups include one student from each of the Focus Groups) to share the information they have collected. Students will share the information they have collected and learn from one another.

4. Reflect

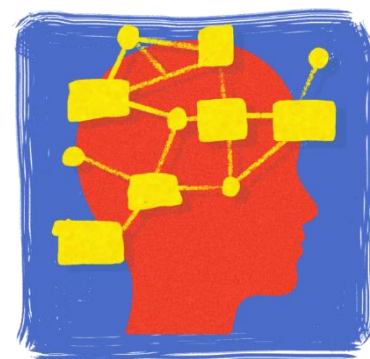
Students will reflect on the activity by responding to one or more of the following questions:

- What did you enjoy about this investigation?
- What did you find surprising?

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.



Discussion questions:

- 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: 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](#)



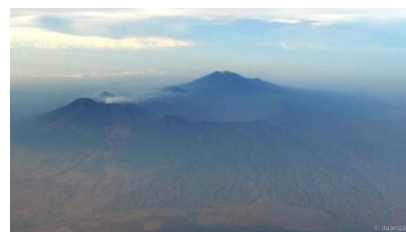
[La Palma Volcano](#)



[Volcano Warning](#)



[Hawaii Vaolcano](#)



[Volcano Safety](#)

Useful Websites

- [Popocatepetl volcano rumbles near Mexico City, coating towns with ash and disrupting flights](#) – ABC News
- [Tonga Volcano](#) – BTN
- [Volcanoes Explained](#) – BTN
- [Everything you need to know about volcanoes](#) – Newsround
- [What is a volcano?](#) – Geoscience Australia
- [Volcano Facts](#) – National Geographic
- [Structure of Volcanos](#) – Australian Museum

