

Teacher Resource

Episode 19 21st July 2015

Volcano Safety



FOCUS QUESTIONS

- 1. Summarise the BtN *Volcano Safety* story in a 100-140 character tweet.
- 2. Describe the disruption the ash cloud caused.
- 3. How were Paige and Max's holiday plans affected by the erupting volcano?
- 4. Where in Indonesia is Mount Raung?
- 5. Where is the volcano in relation to Bali?
- 6. Volcanic ash is made up of a substance similar to
- 7. What happens to ash when it gets very hot?
- 8. Describe what happens when volcanic ash goes through a jet engine.
- 9. Why did some airlines fly while others didn't?
- 10. Illustrate an aspect of the Volcano Safety story.



ACTIVITY

Discuss the BtN *Volcano Safety* story as a class. What questions were raised in the discussion (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?	How will I find out?

Students will develop their own question/s for inquiry or use one or more of the following. Students will collect and record information from a wide variety of sources (internet, books, newspaper and magazines) and present the information they find in an interesting way.



KEY LEARNING

Students will investigate the causes of volcanoes and their impact on people and the environment.



AUSTRALIAN CURRICULUM

Science - Year 6

Sudden geological changes or extreme weather conditions can affect Earth's surface (ACSSU096)

Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena (ACSHE098)

Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives (ACSHE100)

Scientific knowledge is used to inform personal and community decisions (ACSHE220)

Science - Year 5 & 6

With guidance, pose questions to clarify practical problems or inform a scientific investigation, and predict what the findings of an investigation might be(ACSIS231) (ACSIS232)

With guidance, plan appropriate <u>investigation</u> methods to answer questions or solve problems (ACSIS086) (ACSIS103)

Geography - Year 8

The causes, impacts and responses to a geomorphological hazard (ACHGK053)

Design and Technologies - Years 5 and 6

Apply safe procedures when using a variety of materials, components, tools, equipment and techniques to make designed solutions (ACTDEP026)



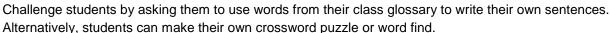
- What causes volcanoes?
- What effect do volcanoes have on people and the environment?
- Where do volcanoes occur?
- What is meant by the "ring of fire"?
- How dangerous are volcanoes? List some of the hazards.
- What is the difference between an active, dormant and extinct volcano?
- Why are volcanoes called active even when there is no eruption?
- What do plate tectonics have to do with volcanoes?



Create your own classroom glossary about volcanoes. Start by brainstorming words as a class using a mind map to record your responses and then find definitions for each word.

Consider using pictures and diagrams to illustrate meanings.

- Magma
- Tectonic plates
- Molten rock
- Lava
- Ash
- Gases
- Eruption
- Dormant volcano
- Active volcano
- Extinct volcano
- Ring of Fire



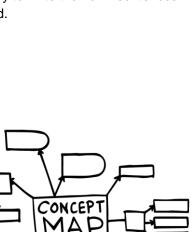


ACTIVITY

Discuss with students the effect that significant events like volcanoes have on people and places. Examine their local, regional and global effects on people and places. Record student's responses on a concept map and discuss the different categories for their responses (physical and emotional).

Ask students to finish one or more of the following incomplete sentences:

- This story made me feel...
- The volcano is Indonesia has destroyed...
- The volcano is Indonesia has impacted on...
- A volcano is...







Science Investigation – Make your own volcano

Provide students with the opportunity to think and behave like scientists. In pairs or small groups, students will build a volcano, using these <u>step-by-step instructions</u>. Students will use the following investigation framework before, during and after their investigation.

Before starting this activity, introduce students to what a science investigation is and why we do them. Think of words that relate to "science investigation" and then find and explain their meanings. Here are some concepts to get you started: variable, observation, diagram, fair test and prediction.

Before the investigation

- · What am I going to investigate?
- What do I think will happen? (make a prediction)
- Why do I think this will happen?
- What steps do I need to follow to investigate my prediction?
- What materials and equipment will I need? Make a list or draw and label each item.
- How will I make a fair test?
- What variables am I going to keep the same? For example, consider using different materials to change the shape of the volcano or adding more bi-carb soda.
- What do you know about this topic (what do you already know about volcanoes and what have you learnt from what you have studied so far?)
- What things may affect what you are investigating?
- Draw a labelled diagram to illustrate the investigation setup.
- Describe in detail what you will be doing in each stage of the investigation.
- What special safety precautions are required?

During the investigation

- Use <u>Questacon's step-by-step instructions</u> to make your own bi-carb soda volcano.
- Record your observations.
- Discover more:
 - Try using different amounts of bi-carb soda and vinegar and see what difference it makes to the eruption.
 - Do you have any pumice stone in your bathroom?
 Does it float or sink in water?

After the investigation

- Write a sentence that summarises what happened.
- Draw a labelled diagram of your observations to show what happened.



- Draw a labelled diagram of a volcano including Earth's layers (crust, mantle, outer core and inner core). Explain some of the features of each layer. Use the internet to find this information.
- Was this what I expected to happen? Yes or no.
- Why do I think this happened? Use science ideas to explain.
 Find out what gas is produced when bi-carb is mixed with vinegar. Is this the same gas that is produced when a volcano erupts?
- What problems did I experience when I was doing the investigation?
- How could I fix these problems?
- One important fact I learned when doing this investigation was...



Behind the News – Iceland volcano http://www.abc.net.au/btn/story/s2876847.htm

Behind the News – Ash Cloud http://www.abc.net.au/btn/story/s3244409.htm

Behind the News – Ring of Fire http://www.abc.net.au/btn/story/s2709798.htm

Bureau of Meteorology – Keeping aircraft clear of volcanic ash http://www.bom.gov.au/info/vaac/

Discovery Kids – Volcano Explorer http://discoverykids.com/games/volcano-explorer/

Natural History Museum – Volcanoes http://www.nhm.ac.uk/kids-only/earth-space/volcanoes/index.html

Geoscience Australia – What is a volcano? http://www.ga.gov.au/scientific-topics/hazards/volcano/basics/what

CBBC – What causes volcanoes? http://news.bbc.co.uk/cbbcnews/hi/find_out/guides/tech/volcanoes/newsid_1768000/1768595.stm

ABC Splash – Look deep, down into the Earth http://splash.abc.net.au/home#!/media/30528/below-earth-s-crust

National Geographic Education – Volcanoes http://education.nationalgeographic.com/media/volcano-satellite-images/

