

Science Postcards

Eight Science Postcards to collect in the series

Includes a copy of the postcard used to stimulate interest in the science

The science concept overview as used in the Building Science Concepts series

Linked to NZ curriculum level

Supporting NZ Ministry publications

Opportunities to explore how the science concepts are seen in the real world. Use of web links to current events.

Concise teaching notes

Simple explanations of the concepts for the teacher

Details of the book used to develop the science activity

Science Postcards is an innovative new science resource which encourages the development of scientific exploration through children's literature

Teaching Notes

Learning Intentions

- We are learning about the processes of a volcanic eruption.

Success Criteria

- I can use my model volcano to explain how an eruption occurs
- I have found similarities between my model hokey-pockey rock and pumice

What's Happening Here?

Heat from deep inside the Earth melts rock to produce magma. Most of New Zealand's land mass is on the collision zone between two great tectonic plates. In the North Island, the melting of the rocks as the Pacific Plates sinks into the Earth's hot inside results occasionally in eruptions of the North Island's volcanic zone. Magma appears at the Earth's surface as lava in various forms. There are different types of volcanoes, and the material from them forms different sorts of rocks.

Curriculum Links

Nature of Science	In this activity the student uses a range of scientific vocabulary.
Communicating in science	Simple models will be used to explain an idea.
Examples:	Student can identify different processes in a volcanic eruption and differences between the main types of igneous rocks.
Achievement Objective	Investigate the composition, structure, and features of the geosphere (Level 5)

Ministry Publications Links

Building Science Concepts

- Book 12

Assessment Resource Bank

- Level 3: PE 8029, PE 8027, PE 8019, PE 8009
- Level 4: PE 8033
- Level 5: PE 8820, PE 7564

Journals

- 'A Bit of a Bang', Pt 4, No. 3 (2004)
- 'Tragedy at Tangawai', Pt 4, No. 3 (2000)

Connected Series

- Living on a Lava Flow' No. 2 (2005)

Science in the Real World

Volcanoes are a common feature of the New Zealand landscape. The North Island contains many active volcanic zones.

- Ruapehu climber's leg amputated

Literacy Links

Book used

- 'Tararua's Pink Terrace Children' by Natalie Newson. (2003). Thinking Books, Rotorua. ISBN 0-473-09909-X

'Tararua's Pink Terrace Children was written to inspire young New Zealanders to read and write. The true story of the 1886 Tararua eruption is seen and imagined through the eyes of a nine year old Maori boy living in Rotorua.'

More Literacy ideas

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Clear links to NZ curriculum with a focus on Nature of Science

Key Features

- Uses a picture book as the basis for the science teaching
- Uses the NZ Science curriculum to provide complete lesson plans
- Links to NZ Ministry science publications
- Use of School Journal and Connected Series
- Science ideas are clearly linked to 'real world' science
- Clear activities that work with children
- Interactive support and free resources
- Sponsored by NZASE

Procedural text describes the activity

Activities are chosen to develop the scientific concept explored in the featured book

The postcard note is the stimulus for the science activity

Pupil sheets can be photocopied for use in class

Extension questions to develop scientific thinking skills

Fiery Eruptions

Discover some volcano secrets...

Volcanic Eruptions:

To create a model of a volcano, then make it erupt.

What you do

- Place the water, detergent, food colouring and vinegar in the drink bottle, seal well.
- Place the volcano model on the taster and drop into the cone of flour. 2 cups of soil, a tablespoon of cooking oil, and 2 cups of water create a mountain. Live plants and vegetation can also be built around the volcano.

Think about this once your volcano has erupted:

- In your model, where did the magma come from?
- What caused the 'heat' to flow in the model?
- How can the eruption of the model and real volcanic eruptions alike?

Edible Volcanic Rock

Make some 'holopyxy' to model the type of rock, pumice and scoria, that sometimes form from volcanic eruptions.

What you do

- Put the gelatin, oil and the sugar into a saucepan together and stir over a low heat for 5 minutes.
- Once the mixture is bubbling, let it bubble for 10 minutes (this is when the bubbles aren't easy to eat) and then quickly spread it onto the prepared tray. Leave the mixture.

Modeling different volcanic rock

Your 'holopyxy' is a 'slippery' surface while the 'oil' you could use and the 'sugar' volcanic rock.

Check out the website for some ideas

What you need (materials):

- Small (200ml) drink bottle
- 60ml water
- 1 tablespoon baking soda
- 2 tsp (10ml) vinegar
- Red food colouring
- 1 tsp (5ml) detergent
- Small amount of soil

What you need (materials):

- 2 tablespoons gelatin
- 4 tablespoons sugar
- 2 teaspoons baking soda
- 2 teaspoons baking tray

WARNING: TAKE CARE HOT SUGAR BUBBS

Think about this:

- Compare a volcano with pumice and scoria with the 'holopyxy'.
- Can you use the 'holopyxy' model to explain the eruption of a volcano?

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Clear visual information