

'My Outdoor Classroom' Lesson Plan

School Curriculum and Standards Authority (SCSA) - Curriculum Links

- **Kindergarten - Learning and Thinking:** Children are confident and involved learners when they develop positive dispositions for learning (such as curiosity and wonder about events, experiences, and interest in their environment)
- **Pre-primary Chemical Science:** Objects are made of materials that have observable properties (ACSSU003)
- **Year 1 Chemical Science:** Everyday materials can be physically changed in a variety of ways (ACSSU018)
- **Year 2 Chemical Science:** Different materials can be combined for a particular purpose (ACSSU031)

Erupting mud volcano

Activity 1

Resources (for each group of four children):

- Newspaper
- Large oval plastic platter
- Mud (dirt and water)
- Large bowl for mixing the mud
- Receptacle for water to add to the mud
- Small plastic cup (no handles)
- Teaspoon
- Tablespoon
- Baking soda
- Red and yellow food colouring (or edicol dye)
- Dishwashing liquid
- Vinegar

Introduction

This activity builds curiosity and enthusiasm for conducting experiments and develops observation skills and a questioning attitude. The children will prepare and create their own 'volcanic explosion' by making a chemical reaction.

Before You Head Out

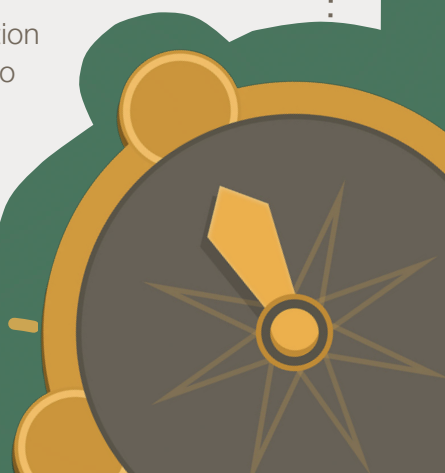
Show some images of volcanoes and video footage of eruptions.

Brainstorm vocabulary related to volcanoes (such as volcano, lava, magma, vent, fissure...) to activate prior knowledge using open questions such as "what do we know about volcanoes?" and "what comes out of volcanoes?"

The shape of volcanoes may be low and broad or conical and steep.

- Icelandic eruptions flood the earth's surface with massive amounts of very hot, runny lava
- Hawaiian eruptions pour out of the main vent at the volcano's summit
- Plinian eruptions are tall, very fast and the most explosive

Explain to the children that they are going to be scientists and create a reaction similar to a volcanic eruption. They will need to decide what shape of volcano they want to create as that may impact what happens (with volcanoes, the more violent the eruption, the steeper the cone).



Erupting Mud Volcano Activity Steps

- 1 Divide the class into groups of four children.
- 2 Children lay the newspaper on the ground or surface on which the experience will take place.
- 3 Two children gather some dirt and mix it with water in the large bowl until it turns clay-like and place the mud onto the platter.
- 4 The other two children shape the mud into a volcanic cone. They make a hole at the top and place the small plastic cup firmly inside.
- 5 One child adds two teaspoons of baking soda.
- 6 One child adds one teaspoon of dishwashing liquid.
- 7 One child adds a few drips of red and yellow food colouring. Ask the children to predict what might happen when they add the final ingredient, vinegar?
- 8 Get ready! One child adds two tablespoons of vinegar.
- 9 What happens? Children put on their scientist hats to share what they see and record their findings in their Nature Passport in words and pictures.

Reflection/Discussion

Ask the children to describe their observations and relate to the videos they saw of real volcanic eruptions. Introduce some scientific terminology such as ingredients, experiment and reaction.

Look closely at the 'lava'. Can the children see evidence of any of the individual ingredients of baking soda, dishwashing liquid or vinegar? Or have they all completely changed? What colour was the 'lava'? What was the ingredient that caused the chemical reaction? Ask the children to decide if they could be so close to a real volcano? Why/why not?

Elaboration/Extension

- For an extension, the experiment could be repeated using different amounts of the ingredients so that the children can observe any changes to the reaction.
- Paint a picture of a volcanic scene with acrylics or draw the scene with oil pastels or crayons and complete the painting in edicol dye colours.
- Make a booklet of volcanic vocabulary: e.g. volcano, lava, magma, vent, fissure...



Teacher Observations

What worked well:

What would I do differently next time:

Curriculum Links

Extra detail relevant to year groups can be found by following the Curriculum link to SCSA. Elaborate on, extend, and integrate this activity with other learning areas where possible.

- *Kindergarten Curriculum Guidelines*
<https://k10outline.scsa.wa.edu.au/home/p-10-curriculum/kindergarten-curriculum-guidelines/learning-development-areas/learning>
- *School Curriculum and Standards Authority*
<https://k10outline.scsa.wa.edu.au/home/teaching/curriculum-browser/science-v8>



Visit the website app.naturepassport.org (My Outdoor Classroom Activity Pack) to complete this activity and many more! Alternatively, download the free **Nature Passport** app from your **App Store**.

Visit www.naturepassport.org for more information and ideas.

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The development of this lesson plan is proudly supported by the Department of Education.

Print the Nature Passport Booklets for your students to use with this lesson!

