



Violent Volcanoes: Build your own volcano and watch it erupt!

This exciting craft activity can be used as a group project or as a class demonstration. Its explosive conclusion is a must for those who love getting messy! Pupils work together in groups, collaborating to produce a creative three dimensional model of a volcano and then, mixing the right ingredients together, they can erupt their volcanoes!

This cross curricular activity supports the teaching of Earth forces through craft with a huge amount of fun thrown in too!

At a glance, you will need:

- Mod-roc/ paper maché materials
- Kitchen roll inner tube (per volcano)
- Large sheet of sturdy cardboard (or plastic tray)
- Plastic food bag (per volcano)
- Selection of poster paints (if decorating your volcano)
- Clear varnish or Plasticote (if decorating your volcano)
- Bicarbonate of Soda (2 tablespoons per volcano)
- Vinegar or lemon juice ($\frac{1}{2}$ cup per volcano)
- Red water dye/ food colouring (a few drops per volcano)
- Washing up liquid
- Safety goggles/coats/tabards to protect clothing.

We would love to see your violent volcanoes. Send in your photos, videos or 'you tube' links and we will put the best ones up on our website each month!

Workshop	Title	Pre/Post	Suggested CfE Stage
Restless Earth	Violent Volcanoes: Build your own volcano and watch it erupt!	Pre/Post	First as a teacher demonstration or Second/Third as a group project

Learning Intention

We are learning to create 3-dimensional models.
We are learning about acid/base chemical reactions.



Task

We will create a 3D model of a volcano and use it to re-create a volcanic eruption.

Success Criteria

- Pupils will work cohesively in groups to create a model representing a particular type/shape of volcano of their choosing.
- Pupils will be able to describe why the volcano 'erupts' when acid and base are mixed.

Evidence ideas:

- A video of the 'eruptions'.
- Photos

CfE Capacities

Successful Learners

- with enthusiasm and motivation for learning
- able to link and apply different kinds of learning in new situations

Confident Individuals

- able to achieve success in different areas of the activity, gaining confidence through working well with others creating an effective volcano model.

Effective Contributors

- able to work in partnership and in teams
- able to create and develop their volcano model

CfE Outcomes (to be updated with the final publication of CfE/April 2009)

Social studies- People, Places and Environment

By investigating a selected natural disaster, I can describe the physical processes at work and discuss the impact on people and the landscape. SOC 207F

I can explain the processes which formed and continue to shape the landscape of Scotland, Europe or elsewhere. SOC 308F

Expressive Arts- Art and Design

Through observing and recording from my experiences across the curriculum, I can create images and objects which show growing awareness and recognition of detail. EXA 208G

Science Materials – Chemical Reactions

Through a range of experiments I can identify the clues that indicate a chemical reaction has occurred. I can apply my knowledge of chemical and physical changes to analyse everyday examples of change. SCN 328Z

Leads to - I have developed my skills in questioning, observation and recording by taking part in activities which demonstrate simple chemical reactions safely using everyday 'kitchen chemicals'. SCN233Z

I have taken part in activities and investigations which have developed my understanding of the chemistry behind some everyday household products. SCN329Z

Description

This is an exciting craft activity which encourages groups to work together with a collective aim; that of creating their own three dimensional volcano that erupts! For younger children this activity can be adapted



as a class demonstration.

This is a fantastically messy activity with great potential for encouraging pupils' creativity! With the addition of some basic chemistry this activity is truly cross-curricular.

Below you will find two descriptions; the first is for a group activity, the second is for a teacher led demonstration.

How to make a volcano.

You will need:

- Mod-roc/ paper maché materials
- Kitchen roll inner tube (per volcano)
- Large sheet of sturdy cardboard (or plastic tray)
- Plastic food bag (per volcano)
- Selection of poster paints (if decorating your volcano)
- Clear varnish or Plasticote (if decorating your volcano)

How to build your volcano:

1. Place the food bag into the top of the cardboard tube to create a water proof well or hollow.
2. Create a volcano shape using either mod-roc or paper maché around the tube. You can use a cardboard cone as a base shape and build on this or scrunch up bits of paper and build around it.
3. Leave to set according to manufacturers instructions for mod-roc but at least overnight. A paper maché volcano will take longer to build because of the time needed to dry the paper/glue mix between layers.
4. Once set, your pupils can paint their volcanoes and surrounding cardboard landscape.
5. Remember to protect your pupils creations with clear varnish or Plasticote to make them waterproof. If you are unable to get hold of these then a thick layer of PVA glue will work but is not as robust.

Maybe your pupils could add plasticine trees and houses to their models or they could collect twigs, sand or pebbles and decorate their volcanoes.

How to make the volcanoes erupt.

You will need:

- Bicarbonate of Soda (2 tablespoons per volcano)
- Vinegar or lemon juice ($\frac{1}{2}$ cup per volcano)
- Red water dye/ food colouring (a few drops per volcano)
- Washing up liquid (a few drops per volcano)
- Safety goggles/coats/tabards to protect clothing.

How to create the eruption!

1. Add the vinegar/lemon juice to the hollow inside the volcano
2. Add the food colouring/water dye to the vinegar/lemon juice
3. Add the washing up liquid to the mix and stir
4. Drop 2 tablespoons bicarbonate of soda inside the hollow of the volcano.
5. The 'lava' should bubble and flow from the volcano.

As an extension to this, your pupils could devise a news report to go alongside the eruption as if this was a real event. Eye witness accounts could be made into the camera or a narration created by your pupils describing how volcanoes erupt. The finale of any presentation would be the eruption itself!

Teacher led demonstration

Do you want to create a more violent eruption in your classroom? Do you want to opt for a much bigger volcano and an even greater mess?

We have conducted many experiments before deciding on the best and most consistent eruptions. Here is how we do it!

1. Create your volcano using a 1 litre fizzy drinks bottle as the core.
2. Add the food colouring and washing up liquid to the fizzy pop (we find diet tonic water works best).
3. Open a pack of polo mints carefully and place a straw down the centre.
4. Remove the packaging leaving you with all the mints still held together on the straw.
5. Drop the polo mints into the fizzy drink mix all at once using the straw to line them over the top of the bottle.



6. Step back!

We do recommend that you try this first before demonstrating it to the class, preferably outdoors!

Be warned; our volcanic eruptions have been known to hit the ceiling!

Web Resources

<http://www.sciencebob.com/experiments/volcano.html>

General Volcano info:

US Geological Survey

<http://www.usgs.gov>

<http://vulcan.wr.usgs.gov/Glossary/framework.html>

<http://volcanoes.usgs.gov/>

http://vulcan.wr.usgs.gov/Glossary/ShieldVolcano/description_shield_volcano.html

http://vulcan.wr.usgs.gov/Glossary/StratoVolcano/description_composite_volcano.html

Volcano World

<http://volcano.oregonstate.edu/>

<http://volcano.oregonstate.edu/volcanoes/index.html>

