



HAZARDOUS EARTH

Find out how to recreate a mini tornado and a lava-flowing volcano, plus discover the reality of these incredible forces of nature

Natural phenomena, such as volcanos and tornados are fascinating forces of nature. Volcanos are like pressure valves: molten rock inside the earth builds up and escapes through volcanos. Tornados are violent storms in the shape of spiralling columns of air that destroy everything in their path. Here in the UK, it's hard for us to imagine what living at risk of natural phenomena is like. It's thought that 1 in 10 people live within danger range of an active volcano – sirens are used to alert them to any impending eruptions. Households have an evacuation plan and a bag of essentials ready, as well as a safe area to walk to. Similarly, people living in areas at risk of tornados have to listen to weather warnings and are advised to move underground before the tornado hits.

AMAZING FACTS

Tornados can reach heights of 23m.

AMAZING FACTS

In the US, around 1,200 tornados occur every year, more than any other country.

ACTIVITY

ENERGY...

Make a tornado

The activity on the right is a great example of centripetal force – an inward force that directs water towards the centre of its circular path. The glitter makes it easier to see the mini tornado. A real tornado is transparent until it picks up dust and mud from the ground.

You will need

- Washing-up liquid
- Water
- Large jar with screw-on lid
- Glitter

1 Ask Cubs to fill a large jar with tap water until it's at least three-quarters full.

2 Get them to add a drop of washing-up liquid to the water.

3 Next, they should add a sprinkling of glitter before tightly screwing on the lid. If it leaks, add some glue.

4 Now they can turn the jar upside down and shake it vigorously in a circular motion. Then shake it again.

5 Stand the jar on its base and marvel at their tornado.



AMAZING FACTS

Volcanic eruptions can send ash high into the air, over 30km above the Earth's surface.

AMAZING FACTS

The biggest known volcano is on Mars: it's 600km wide and 21km high.

ShAre.
Send us your volcano videos!
Turn to page 3 for details

WOGGLEBOX

Farmaan says:

'The most challenging part was designing the structure of the volcano. Next time, I'd like us all to work together to make a really big one!'



BADGE



Rolls-Royce partners the Cub Scientist Activity Badge.

PARTNER



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OUTCOMES

Your Group will learn about the science behind naturally occurring disasters and discover a little about the reality of living in parts of the world that are susceptible to these powerful events.

TAKE IT FURTHER

Think about how people who live in disaster areas prepare for these natural occurrences. This would link to the Global Issues Activity Badge.

MORE INFORMATION

Rolls-Royce partners the Cub Scouts Scientist Activity Badge to inspire young people about science, technology, engineering and maths. Fun and educational activities like this aim to take the fear out of science for Cub Leaders and support Cubs in achieving their Scientist Activity Badge. See: scouts.org.uk/rollsroyce.

ACTIVITY

REACTIONS...

Create a volcano

Simulate a volcano erupting by combining baking soda and vinegar. Vinegar is acetic acid and baking soda is sodium hydrogen carbonate. Together they form carbon dioxide, which bubbles up and – with washing-up liquid – forms the 'lava' of a volcano.

You will need

- Clay or soil
- A jar
- Vinegar
- Washing-up liquid
- Red food colouring
- Baking soda
- Kitchen roll
- Elastic bands

1 Make a volcano mountain from soil outside, or from clay inside. The shape doesn't have to be perfect. If

you've used clay, leave it to dry for one hour.

2 Place the jar inside the volcano through the hole in the top.

3 In a separate pot, mix the following together: a good amount of vinegar, a tablespoon of washing-up liquid and a few drops of red

food colouring. Pour the mixture into the jar.

4 Wrap your baking soda in kitchen roll, keeping it closed with elastic bands.

5 Drop the baking soda roll in the vinegar. When the kitchen paper dissolves, the volcano will explode.