



LET'S EXPLORE THE VOLCANOES ON SIX FOLDING MAPS

ATLAS OF VOLCANOES FOR CHILDREN



A VOLCANO'S ARMOURY



1

LAVA FLOWS

Volcanoes spew out lava that runs down their sides to lower-lying areas. You can spray water on a lava flow or try to put obstacles in its way, but usually nothing works. In the end, lava always finds a way through and burns down anything that crosses its path. Houses, roads and buses can disappear under lava.

2

TREACHEROUS ASH

Fine particles of volcanic ash can cause tremendous damage. In the vicinity of volcanoes, entire buildings buckle under the weight of the ash. The fine particles pollute drinking water, seize up car engines and destroy both fine electronics and high voltage power distribution networks. The ash is so light that it can be carried up to thousands of kilometres away from the eruption. Air contaminated with ash can cause people great difficulties with breathing.

3

INSIDIOUS CLOUDS

During large volcanic eruptions, huge clouds of dust, ash, and water vapour spurt from the volcano. Powerful lightning often occurs in these volcanic clouds. One of its causes is static electricity, which is generated by friction created by dust particles colliding in the dense clouds. It is a beautiful display of nature, but for aeroplanes these clouds are incredibly dangerous.

4

RED-HOT CLOUDS

If there's something in the armoury of a volcano to be really fearful of, then it's the pyroclastic flow. This is, in fact, an avalanche of a mixture of hot gases and volcanic matter that rushes down the slopes of a volcano. The temperatures inside these terrible clouds can be as high as a thousand degrees Celsius. They can also reach terrifying speeds of up to 700 km per hour as they sweep through the countryside!

5

MUDFLOWS

When the volcanic matter mixes with water it becomes a mudflow, which is known as a lahar. All it takes is a lot of rain at the time of the eruption, causing a volcanic lake to burst its banks, or a glacier melting due to the eruption. The result is an enormous mass of dirty water which destroys everything in its path.

6

RAINING ROCKS

If you happen to find yourself in the immediate vicinity of an erupting volcano, run away as fast as you can! Or at least take cover in a concrete shelter. Erupting volcanoes spit out pieces of lava called volcanic bombs. One of these burning missiles the size of an ostrich egg could smash through the roof of a house or a car. Some volcanic bombs can be the size of a car or a bus!

7

ACID RAIN

During an eruption, volcanoes emit a lot of gases, which may give rise to acid rain. This rain can then cause a lot of harm, as it pollutes drinking water, destroys plant life, poisons fish, harms human health and can ruin stone monuments.

8

EARTHQUAKES

When a volcano is about to erupt, the volcanic gases often become pressurized or fill up the magma chamber. Consequently, in the immediate vicinity of the volcano, a series of earthquakes occur, which is often a sign of an imminent eruption. Sometimes these earthquakes are so powerful they can destroy entire villages.

9

PRESSURE WAVES

Volcanoes hiss, gurgle, thunder, and, in fact, make all kinds of terrible noises! They are sometimes so powerful that the thunderous blasts of their explosions can be heard hundreds and even thousands of kilometres away. The subsequent volcanic pressure waves can smash the windows of houses and uproot trees for miles around.

10

FLANK CONES

You are never safe anywhere near a volcano. Lava doesn't have to come to the surface only via the main vent of the volcano. It can find a new path and create a cone, for example, on a side of a volcano, where no one would expect it. This is how so-called parasitic cones are formed. The Sicilian volcano Etna has around three hundred of them, ranging from quite small ones to some that are hundreds of metres high!

11

LANDSLIDES

During particularly powerful eruptions, parts of volcanoes can collapse and cause gigantic landslides. A huge mass of mud, trees, and stones can then sweep away entire villages or fill up wide valleys.

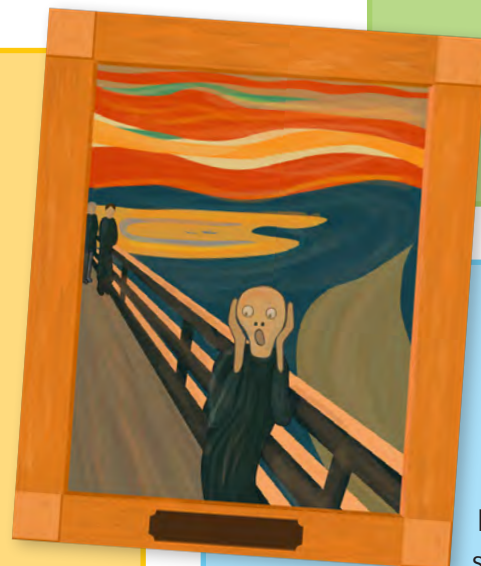
VOLCANO
RECORDS

VOLCANO HISTORY

Volcanoes ordinarily live to a ripe old age. Many of them are active for hundreds of thousands of years. The oldest ones, those that have long been extinct, can be tens of millions of years old! In comparison to the activity of volcanoes, our lives are extremely short. Fortunately, there are many historical records of volcanic eruptions. Some have only been preserved in the form of legends, while others have been described in minute detail. Still, thanks to these records, we can go back to both distant times and the relatively recent past to look at the most interesting records of volcanic events. Sometimes they make for quite frightening reading!

BURIED POMPEII

During the massive explosion of the Italian volcano Vesuvius on 24th August in the year 79 AD, so much volcanic matter was thrown into the air that it would have filled fifty million cargo wagons! A thick layer of ash and stones buried the nearby town of Pompeii. For centuries, its streets, were concealed beneath a six-metre layer of volcanic ash. Today, Pompeii is a very popular sightseeing destination which is visited by crowds of tourists.



COLOURFUL SUNSETS

In the Sunda Strait on 26th August 1883, the volcano Krakatoa erupted. Above the volcano rose a 30-kilometre high ash cloud, shrouding the surrounding areas in terrible darkness for more than two days.

However, that was not the end of the volcanic performance. The dust from the explosion travelled around the atmosphere and coloured the sky in many parts of the world. During sunsets and sunrises the sky turned unusual shades with radiant ribbons of colour.

A GIANT COMBING ITS HAIR

The area around Mount St. Helens volcano in America was a peaceful place. In 1975, however, the volcano began stir, and frequent earth tremors began to signal an imminent eruption, which occurred 18th May 1980. A massive explosion shot into the air the whole of the top of the mountain. A helicopter pilot, describing the scene after looking down on the devastation from the air, said it looked like a giant had combed its hair.



DUSTY MOON

Did you know that volcanoes can 'steal' the Moon? When there's a powerful eruption that blankets the Earth's atmosphere with dust, no light from the Sun is able to reach the Moon during a total lunar eclipse and it completely disappears. This happened, on 9th December 1992, a year and a half after the Pinatubo volcano erupted in the Philippines, sending a huge cloud of volcanic ash into the earth's atmosphere. The Moon completely disappeared and was visible as a colourless disc only with the aid of binoculars.



LIBERATING VOLCANO

Pelean eruptions are those that are accompanied by red-hot volcanic clouds with temperatures of up to 1000 degrees Celsius. A cloud like this formed during the eruption of Mount Pelée on 8th May 1902 and swept through the town of St. Pierre. Of the town's thirty thousand inhabitants, only three people survived. One of them was a prisoner who had been locked up in a dungeon at the time of the eruption.



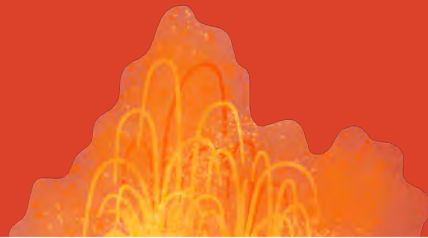
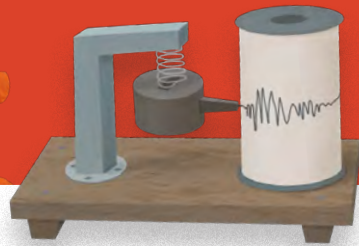
INVISIBLE KILLER

Volcanoes can sometimes cause terrible misfortunes without explosions, falling rocks or flows of scorching lava. One such example occurred in the middle of the night on 21st August 1986, when a cloud of carbon dioxide rose out of the volcanic lake Nyos in Cameroon. This cloud of gas, descended on a nearby village and suffocated over a thousand people.



LOST PARADISE

The island of Montserrat in the Caribbean Sea was discovered in 1493 by Christopher Columbus. It was a paradise on Earth. It was as if everyone had forgotten that the southern half of the island was occupied by the volcano Soufrière Hills. It was hardly surprising as the volcano had been dormant since the end of the 17th century. However, in the mid-1990s it began to wake, and on 21st August 1995 there was an eruption that destroyed the capital city, Plymouth. The airport and harbour were covered in mud and more than half the population abandoned the island.



ATLAS OF VOLCANOES FOR CHILDREN

Written by Pavel Gabzdyl

Illustrated Tomáš Tůma

Volcanoes – be they burning-hot and active or long dormant – have terrified humans since immemorial. But they have also inspired them to ask quite a few questions. Why, for example, do volcanoes occasionally get so agitated that they spit fire? Where does magma come from, and what is lava? Step by step, by exploration and research, humankind has learned more about volcanoes. Now there is a science for the study of volcanoes, called volcanology. How about becoming a volcanologist yourself? Well, with our six foldout pages filled with information about volcanoes, you can be one in the blink of an eye!

In the atlas you'll find:


- 6 foldout maps with volcanoes,
- Interesting facts about volcanoes and origin of volcanoes,
- people – explorers of volcanoes,
- volcanoes in the space,
- 7 supplementary booklets about volcanoes and exploring of volcanoes.



booklets
with additional
information



big
folding
maps

 **WARNING: CHOKING HAZARD**
Small parts. Not suitable for children
under 36 months.

EAN