



G.A.T.E.WAYS

invites Year 3 and 4 children

with a love of science

'Mountains Of Fire!'

G.A.T.E.WAYS is an independent organisation offering challenging and enriching activities and experiences to develop and extend highly able children. Established in 1994, G.A.T.E.WAYS runs a range of stimulating school programs as well as the Saturday *Brainwaves Club*. This *JOURNEY* will run over four sessions. Volcanoes often make front page news. In 2010 a huge volcanic eruption disrupted most of Europe's air travel for weeks on end. Why does volcanic ash pose such a grave danger to air craft in flight? In our Journey we will consider this question and many others as we explore the history and science of volcanoes both on Earth and on other planets. Could volcanoes have been behind the demise of the dinosaurs? Could they be responsible for contributing to climate change? In *Mountains of Fire* you will build on your existing knowledge and be encouraged to express your own opinions in interesting class discussions. You will be encouraged to think critically and laterally and you will be engaged in some fun 'hands-on' activities.

Requirements:

- * writing materials (pencil case) and an exercise book/notepad; and a snack (no nuts please)
- * bring a small named photograph of yourself to the first session – to be returned with your report, and a stamped, self-addressed DL envelope.

Session One

When Mountains Awake

Have you heard of Mt.Etna, Mt.Stromboli, Mt Pinatubo, Mt.Dukono, Mt.Redoubt, Mt.Bezimianny and Mt.Eyjafjallajoeull? Did you know they have all been in the news lately? Today we'll find out why. We'll have fun learning about the science behind volcanoes, what causes them to start up, remain active sometimes for centuries and then eventually, to become extinct. We will investigate where most volcanoes are located and why they are in those locations. At the same time you'll speculate as to whether a volcano could appear in your own backyard. Did you know that not all volcanoes are the same? This session we will briefly look at the main types. We'll also begin the construction of our own mini volcanoes (Stage 1).

Session Two

Living with Volcanoes

We'll begin today's session by discovering a whole range of superlatives about volcanoes: which is the highest, the smallest, the oldest, the youngest, the most active, and the most beautiful on Earth. We'll also uncover the mythology of volcanoes – many cultures have stories to tell about them. The immediate effects of volcanoes are obvious, but what about the hidden or long-term affects? We will have a look at several very destructive volcanoes from the past. Could eruptions from these have contributed to the collapse of ancient civilisations? Are there links between super eruptions of long ago and climate changes? Do volcanoes contribute anything beneficial to our planet? We'll continue with the construction of our own mini volcanoes.

Session Three

Land of Sleeping Volcanoes

When we talk of volcanoes what is unique about Australia? A brief journey into plate tectonics will provide us with some answers. We will explore Australia's volcanic past, and learn how and where to look for volcanoes before going on to investigate volcanoes in space. Three billion years ago the Moon had volcanoes. We'll find out how lunar volcanoes differed from their terrestrial cousins, and try to find out where these volcanoes are now. When the Martian dust storms finally settled, the Red Planet revealed gigantic volcanoes. We'll try and find out how such a small planet could achieve such enormous natural features. Throughout, we will explore how gravity affects the development of volcanoes. Today we'll apply the finishing touches to our volcanoes. Today we'll apply the finishing touches to our volcanoes.

Session Four

Other Worlds, Other Volcanoes

In this session, we will discover how space exploration technology enabled scientists to discover the real Venus, the real Mars, as well as the real Jupiter's and Saturn's moons. There are volcanoes on some planets and their moons! Why is this so? You will also learn how Venus kept its secrets for so long. Some of the largest volcanic eruptions ever imaged came from an unexpected place in space, which some scientists claim to be the most volcanically active body in the solar system.

ABOUT THE PRESENTER

Herwig Waldhuber is keenly interested the way natural forces shape the Earth's surface. Learning about the sciences behind volcanoes will give the children a better understanding of how Earth functions as a planet. Herwig is a passionate amateur astronomer and he has conducted a number of successful G.A.T.E.WAYS programs on science, history and astronomy.

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