

# Volcanic Ash and the Story of Our Past

Remnants of volcanic eruptions have long provided a window for us to understand what the past was like. Fossils preserved through volcanic eruptions provide clues about what the weather was like thousands of years ago, what kinds of animals roamed the earth, and even how ancient people lived.

During volcanic eruptions, volcanic material called tephra is shot high into the atmosphere, and the smallest particles form ash clouds. The ash clouds are pushed across the earth by wind, and eventually the ash particles fall to the ground. When the volcanic ash falls to the ground, it solidifies and accumulates in a way that is similar to sedimentary rocks, encasing plants, animals, rocks, and minerals within it.



Fossils can also be preserved by lava flows, although this is much more rare. Since lava flows have a much higher temperature than volcanic ash, they tend to incinerate everything in their path. However, there have been several instances of lava flows that created molds of whole trees. The picture on the left shows a lava tree mold left in Hawai'i Volcanoes National Park.

One famous example of volcanic ash preserving history was the eruption of Mount Vesuvius in 79 A.D. The nearby city of Pompeii was covered in deadly ash, which accumulated up to nine feet in certain places. Scientists and archaeologists have been able to uncover buildings, artwork, and even the forms of bodies that decomposed and left holes in the ash. While it is a tragic story, we have also been able to learn a lot about the past from all that was preserved.



In 2015, archaeologists discovered clay jars preserved by ash.

Name: \_\_\_\_\_

If you had the opportunity to preserve three items so that people in the future could learn about the past, what items would you pick? Either write about them or draw a picture in the space below.

A large, empty rectangular box with a thin black border, occupying the lower two-thirds of the page. It is intended for the student to write their answer or draw a picture of the three items they would choose to preserve.

# Recommended Reads - Volcanoes

## Fiction

***Pompeii*** by Robert Harris

This historical thriller re-creates a world on the brink of disaster. The engineer in charge of the aqueduct bringing fresh water into the Mediterranean cities seems to be the only one worried about failing springs and cracks in the system.

***Autobiography of Red*** by Anne Carson

This novel told in verse utilizes volcanoes as a metaphor for the main character's inner turmoil over childhood trauma and present struggles in romantic relationships. Fans of Greek myths will enjoy this one.

***Death on the Caldera*** by Emily Paxman

It's *Murder on the Orient Express* - with witches! When a train engine mysteriously explodes, passengers are left stranded on a caldera bubbling with volcanic magic. Then, passengers are murdered one by one. Three witchy siblings must work together to solve the mystery.

***Eruption*** by Michael Crichton and James Patterson

As the Big Island of Hawai'i faces an eruption of unprecedented intensity, the U.S. military contends with the consequences of a long-held doomsday secret.

***A Day of Fire*** by Kate Quinn

This vividly imagined novel follows the lives of those living in Pompeii on the fateful day that Mount Vesuvius erupted.

## Nonfiction

***Krakatoa: the Day the World Exploded*** by Simon Winchester

In 1883, one of the deadliest volcanoes in the world erupted in East Java. The Krakatoa eruption had an explosive force of a 200-megatonne bomb, killing more than 36,000 people and cooling the entire Earth by an average of 0.6°C for almost a year. It is considered one of the first truly global catastrophes.

***The Last Volcano*** by John Dvorak

This book documents the fifty-year career of Thomas Jaggar, the Harvard-educated volcano science pioneer who founded the Hawaiian Volcano Observatory, to share insights into his findings about massive volcanoes in such regions as Yellowstone, Alaska, and Hawai'i.

***Mountains of Fire*** by Clive Oppenheimer

Written by renowned volcanologist Clive Oppenheimer, this novel explores the intersection between society and volcanoes. Oppenheimer goes into depth on several volcanoes that he has studied around the world.

***Fire and Ice: the Volcanoes of the Solar System*** by Natalie Starkey

Earth is not the only planet with volcanoes! But the ones on other planets tend to be really different from what we typically imagine volcanoes to be like.