

Chapter 1. What the Past Tells Us

This chapter provides a general overview of the volcanoes of the Cascade Range. The chapter begins with the Overview and then presents a series of activities grouped under the theme “Blast from the Past.” The theme “Forces Responsible for Cascade Volcanism” addresses the plate tectonics responsible for Cascades volcanism and ends with activities regarding how volcanoes work:

Overview

Blast from the Past

- ◆ **Eruption!**—In this pre-assessment activity, students describe their perceptions of a volcanic eruption in a personal journal entry. Then they read an actual eyewitness account of the A.D. 79 eruption of Mount Vesuvius in Italy and compare those events to the eruption events depicted in their journal entries.
- ◆ **Fire, Flood, and Fury**—Native American oral traditions chronicle geologic events in the history of Mount Rainier. These stories are read, interpreted, and illustrated by students with the use of storyboards.
- ◆ **Nineteenth-Century News**—Read nineteenth-century newspaper accounts of recent eruptions at Mount Rainier. The minor eruptive activity at Mount Rainier illustrates that not all eruptions are large or destructive.
- ◆ **Cascade Volcano Timeline**—Cascade volcanoes are young in relation to the geologic events that have shaped the Earth. A timeline illustrates the high incidence of Cascade volcano activity in comparison to geologic and human events since the signing of the Declaration of Independence. A hypothetical genealogy of one family’s history illustrates the collective and individual activity of the Cascade volcanoes.
- ◆ **A String of Volcanoes**—Students research information about Cascade volcanoes and write the information on cards used to construct a mobile.
- ◆ **Volcano Hall of Fame**—This is a game where students use fun facts to try to identify a specific Cascade volcano.

Forces Responsible for Cascade Volcanism

- ◆ **Surrounded by Volcanoes**—Explore geographical information to learn about tectonic boundaries, origin of the “Ring of Fire,” and volcanoes in the Pacific Northwest. Identify and label Cascade volcanoes on a satellite image.
- ◆ **Magma Mash**—Students take on the role of minerals cooling at different rates in an exploration of magma behavior, and then examine samples of rocks cooled at different rates.
- ◆ **Riding the Magma Elevator**—Examine the process of magma formation from mantle melting in the subduction zone, rising to the magma chamber, and erupting from the magma conduit. During this activity, the class will ride an imaginary elevator from the subduction zone and out the volcano crater.
- ◆ **Soda Bottle Volcano**—Examine how gases energize explosive volcanic eruptions by making comparisons to gases in a soda bottle and performing a carefully controlled “eruption” of baking soda/vinegar or soda water.

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What The Past Tells Us

Overview—Chapter 1

Living with a **VOLCANO** in Your Backyard
MOUNT RAINIER



Cascade Range volcanoes reward us with some of the most superb panoramas to be found between southern British Columbia and northern California. Although the grandeur of these 13 major volcanic centers inspires us, most people remain unfamiliar with volcano histories and hazards. Why should your students become interested? With virtual certainty, many of these volcanoes will erupt again. This we know because of the volcanoes' location on an active subduction zone, their active geothermal and earthquake systems, and the frequency and recentness of eruptions.

Chapter 1 activities set the stage for investigation of the Cascade volcanoes, with emphasis on Mount Rainier. The activities address the where, when and how questions that your students are certain to ask. Other Chapter 1 activities examine the human-volcano interface as viewed through historical and cultural lenses. **Eruption!** is a pre-unit assessment of knowledge and perception. Students read an eyewitness account of the A.D. 79 eruption of Mount Vesuvius, then write a journal entry as though they were watching a volcano erupt. Revisit **Eruption!** at the end of your unit as a postassessment activity. Native American oral traditions, kept alive by oral communication for

centuries, provide amazingly detailed descriptions—and some metaphorical accounts—of geological events. Find some of these descriptions in **Fire, Flood, and Fury**. In **Nineteenth-Century Newspaper Accounts of an Eruption at Mount Rainier**, students read historical newspaper accounts of the 1894–95 steam and ash eruptions of Mount Rainier. **Cascade Volcano Timeline** places the eruptive histories of Cascade volcanoes in the larger context of American and geological history, then sets it in the more personal context of one hypothetical family's history. Students research information and construct a mobile in **Volcano Hall of Fame** and **A String of Volcanoes**.

Surrounded by Volcanoes addresses plate tectonics and the Ring of Fire. Students role-play minerals within cooling magma in **Magma Mash** and then take an imaginary trip inside a volcano in **Riding the Magma Elevator**. In **Soda Bottle Volcano**, they learn how gases energize volcanic eruptions.

Make your message clear:

Cascade volcanoes are part of the fabric of the Pacific Northwest. Expect future eruptions at many of these volcanoes. Chapter 1 activities provide a solid background for activities in Chapters 2 and 3, which address volcanic processes, hazards, and preparations for community safety.