



# Past, Present

**Goal** To encourage students to think about the effects of a natural disaster on plants, animals and the surrounding landscape.

**Introduction** Ask your students to describe a covered pot of oatmeal as it sits on a stove before boiling, while boiling, and after it boils over, and you'll probably get a pretty accurate picture of what happens. Most people have witnessed such a cooking disaster sometime in their life. But if you ask them to describe another scene, in which the stovetop is now a natural landscape, the covered pot is a snow-covered mountain, and inside the mountain is a bubbling mass of molten rock, what would they say? How would they describe what happens before, during and after a volcanic eruption occurs?

**Materials** Paper and pencils

- Procedure**
- 1 Share the story of the Mount St. Helens eruption. (A brief history is provided on the back of this activity sheet.) Ask the students:
    - What do you think the mountain looked like before it erupted? What does it look like now?
    - What do you think the plants and animals on the surrounding landscape looked like before the eruption? Immediately after the eruption? Today?
  - 2 Encourage the students to record their predictions about the mountain and the landscape before eruption, immediately afterward and today. They can write stories, poems or draw pictures.
  - 3 On your trip to the Forest Learning Center, ask the students to look for evidence of the May 18, 1980 eruption. Can they find what they predicted they would see? Encourage them to search for other evidence that they might not have predicted. Here are some indicators of the eruption that the students may or may not have thought of:
    - Dredge spoils along the Cowlitz River (from I-5)
    - New bridges and roads
    - Muddy water in the North Toutle River
    - Snags and downed trees
    - Ash layer in the soil
    - Tourist shops, Visitor Centers
    - Volcanic crater/lava dome
    - Red alder and cottonwood growing on the mud flow (Milepost 18)
    - The mud-filled A-frame house in Kid Valley (Milepost 19)
    - Fish Collection Facility (Milepost 21)
    - Sediment Retention Structure (Milepost 22)
    - Replanted forest in the blast zone (Milepost 30) compared to areas not replanted, as in the monument
    - Hummocks in Toutle Valley (from Milepost 30 on)
  - 4 Upon your return from the Center, discuss with the students their pre-visit predictions and how well they matched up with what they actually saw and learned.
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# The Mount St. Helens Story

If someone asks you which volcano in the Cascade Range is the most explosive, your answer should be, “Mount St. Helens.” In the past 600 years, Mount St. Helens has had more major and minor eruptions than any other volcano in the Cascades, registering four major shake-ups and several smaller ones.

Two months prior to the 1980 blast, the mountain sent many clues to scientists that something big was about to happen. Intense earthquake activity and steam and ash explosions accompanied a noticeable bulging of the mountain’s north side as magma rose in the volcano. On May 18, 1980, Mount St. Helens exploded with dramatic flair, capturing the world’s attention.

The eruption began with a magnitude 5.1 earthquake at 8:32 a.m. This violent shaking triggered a massive landslide, causing the volcano’s bulge and summit to slide down the north side of the mountain. Part of it slid into Spirit Lake raising the lake bed by almost 180 feet. Another section of the landslide ramped up and over Johnston Ridge (1,200 feet above the valley floor). The largest section of the landslide traveled 14 miles down the North Fork Toutle River. Small hills of volcanic debris, called hummocks, now fill the valley floor 25 to 600 feet deep.

The landslide essentially “uncorked” the volcano, and the eruption continued throughout the day. A northward lateral blast, filled with hot rocks, ash, volcanic gas, and steam, accelerated to at least 300 miles per hour, flattening everything in its path. Vertical blasts pumped 540 million tons of ash into the air, causing complete darkness in easterly cities and towns.

The damage caused by the eruption of Mount St. Helens was extensive. Land in the path of the lateral blast looked like a moonscape, flattened or stripped of all vegetation. The blast zone impact area totaled 234 square miles. The huge landslide and ensuing mudflows flooded property along the rivers, destroyed 27 bridges and 221 homes, and deposited enough sediment into the Columbia River to stop shipping traffic for days. Volcanic ash in the atmosphere affected regional air travel and wreaked havoc with motors of all kinds. In all, 57 people perished, and property damage exceeded \$1 billion dollars.

In spite of the incredible destruction, life has returned to Mount St. Helens. Native animals and fish have repopulated, taking advantage of renewed habitat. Even Spirit Lake is recovering at a much faster rate than scientists originally anticipated. In addition, some structures that were devastated by the blast have been replaced.

In October, 1982, Congress established the Mount St. Helens National Volcanic Monument which includes 110,000 acres of devastated land, unique caves, and old growth forest. The U.S. Forest Service manages the land for research, recreation, and interpretation and now operates three visitor centers which attract nearly 1 million people annually. Private and public landowners salvaged blown down timber outside of the Monument. Weyerhaeuser, the largest private landowner in the blast zone, recovered 850 million board feet, and replanted their lands with over 18 million trees. Weyerhaeuser also built and operates the Forest Learning Center in cooperation with the Washington State Department of Transportation and the Rocky Mountain Elk Foundation.

