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**PART THREE**

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# Earth Changes— Volcano Extensions

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**SCIENCE  
STANDARDS**

To prepare students to understand the Essential Academic Learning Requirements (EALRs) introduced at middle school, this series of lessons, used in conjunction with the STC Land and Water Unit and/or the FOSS Landforms Unit, will acquaint students to the changes to the earth's surface caused by earthquakes, landslides, and volcanic eruptions.

**EXTENSION 1**

Use the **Concept Map** as a graphic organizer to scaffold an expository writing opportunity.

**EXTENSION 2**

Volcano Flipbook: A Brief Series of Events in the Life of a Composite Volcano

**BACKGROUND**

The Cascade Mountain Range of western Oregon, Washington and into Canada is intensely eroded by glaciers. In the southern end of the range, Mounts Hood, Adams, St. Helens and Rainier are composite volcanoes. When active, these unstable formations erupt violently in lava and pyroclastic\* flows. This flipbook progression is modeled after Mt. St. Helens, the most recently active Cascade composite volcano. (\*Materials ejected in hot gasses.)

**MATERIALS****FOR EACH STUDENT:**

**Volcano Flipbook (12-pane progression)**  
**Title page for Science Notebook pocket**  
**4.25" x 5.5" piece of cardstock (for pocket)**

**TOOLS (Pairs Share):**

<b>Colored Pencils</b>	<b>Scissors</b>
<b>Science Notebook</b>	<b>Stapler</b>
<b>Glue Stick or Tape</b>	<b>Masking Tape</b>

**PREPARATIONS**

Copy the black line masters of the Volcano Flipbook. You will need one set per student.

Cut 8.5" x 11" sheets of cardstock into quarters, enough that each student gets one piece.

## PROCEDURE

1. Show students a finished flipbook of ANY type. Demonstrate how it works to help students understand what they are trying to make. Point out how important it is to cut, color and staple carefully in order to make a quality flipbook. Their book will be stapled on the grip side, opposite the flip side.
2. Students will make a pocket in their science notebook by taping in a piece of 4.25" x 5.5" cardstock. Glue a Title page to the cardstock pocket.
3. Distribute the Volcano Flipbook pages (12-pane progression).
4. Have students color the magma/lava in each pane. Discuss where the magma/lava would be and which colors would be the most appropriate.
5. Students may also want to color the changing atmosphere above the volcano.
6. Before stacking and stapling the flipbook, you may choose to ask students to demonstrate and explain the sequence of events by laying them in order on the desktop. Check and re-check the order of panes (good pair activity).
7. Staple flipbook along numbered (grip) edge:
  - a. Tap the edge on the flip side against a hard surface so that the edges line up. The teacher may need to staple to adequately secure the book.
  - b. If sharp staple points protrude, either remove and try again, or layer some masking tape over them.
8. Store the flipbook in the pocket of the Science Notebook. (The pocket serves as a good storage place for loose pieces while this project gets finished.)

## FLIPBOOK OPTION

Cut off numbers and enlarge all 12 panes 235%. Attach them in sequence to a posterboard as a visual to study **sequence**. Students may arrange and rearrange the panes to demonstrate their understanding of the volcanic progression. Panes could also serve as props in discussion, as reference points in studying changes, and as story-starters.

# **VOLCANO FLIPBOOK**

A Brief Series of Events  
in the Life of a  
**COMPOSITE VOLCANO**

*Shown in Cross Section*

Colored & Assembled by

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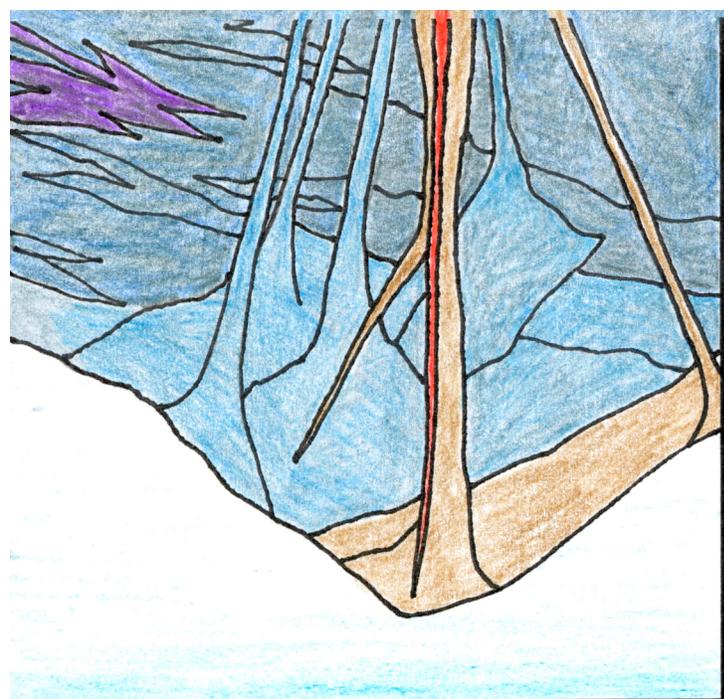
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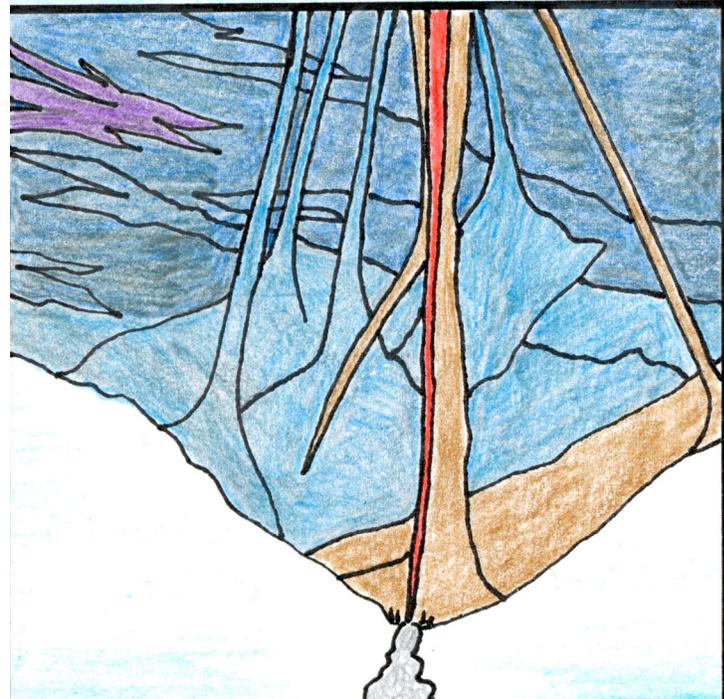
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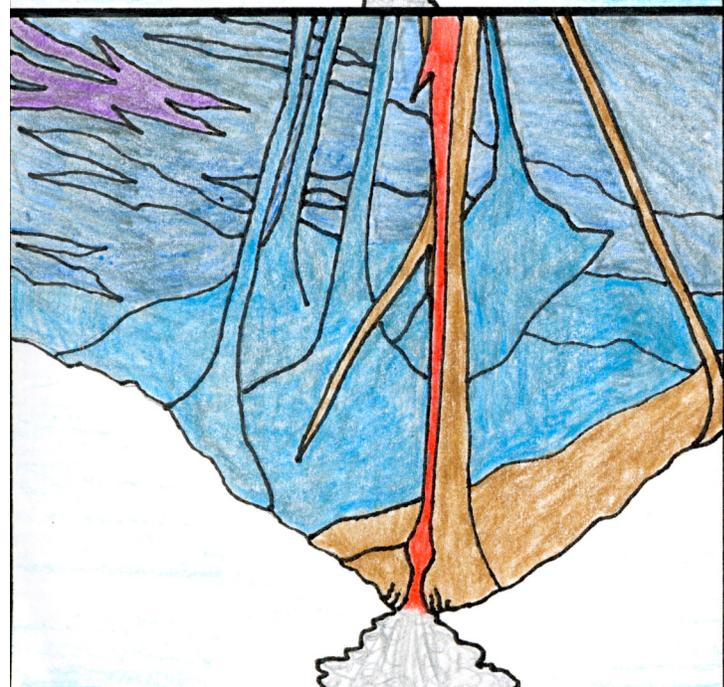
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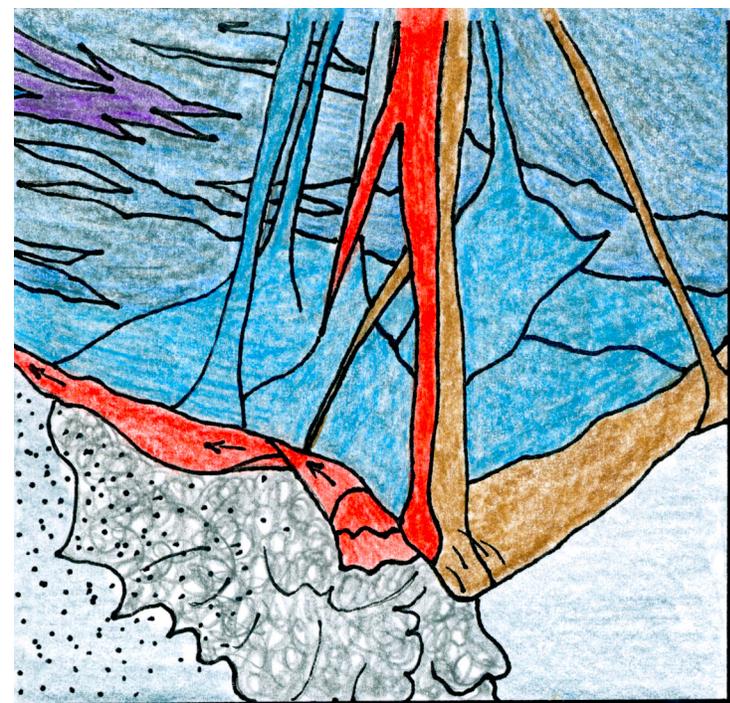


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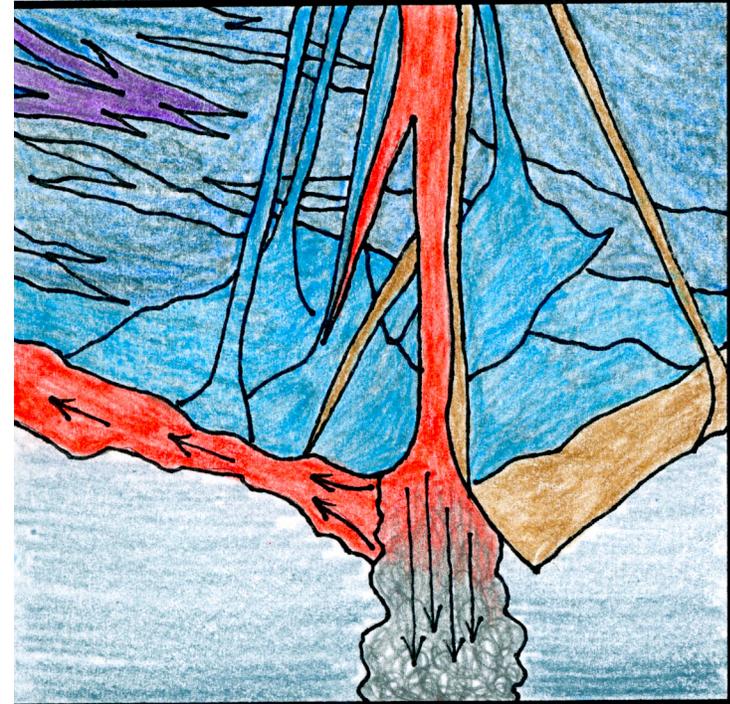
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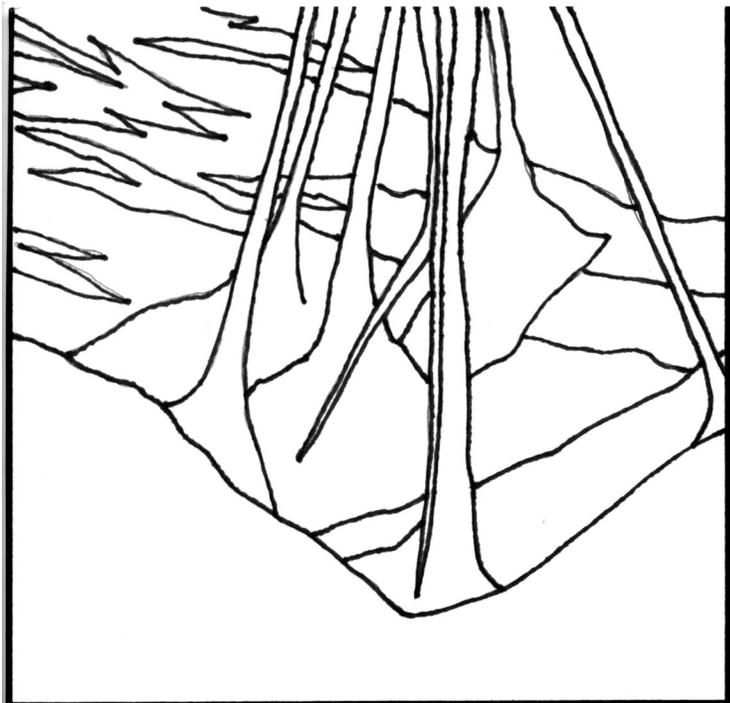


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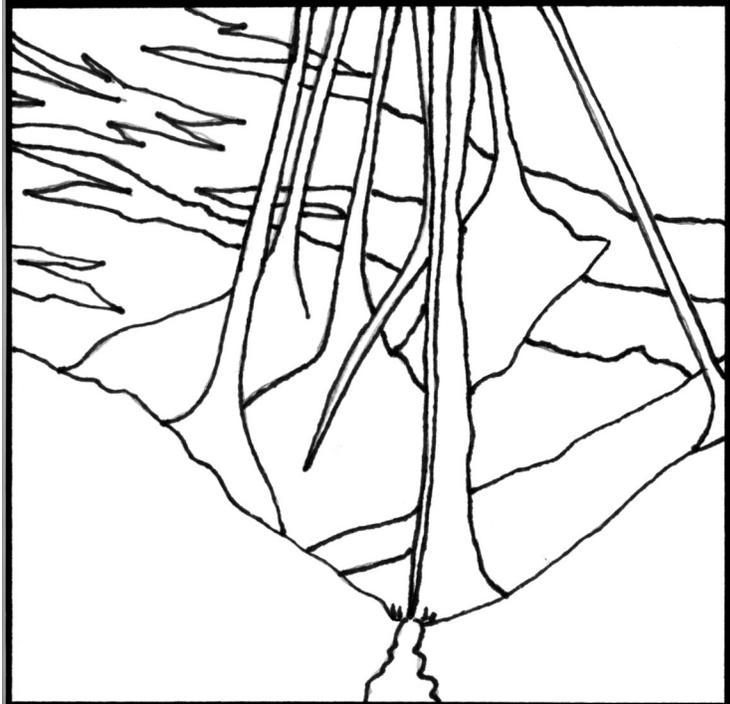
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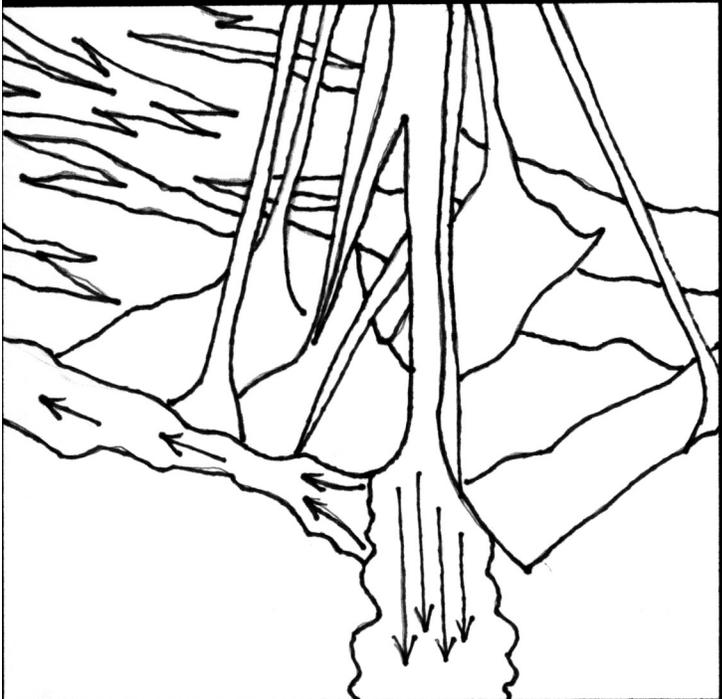
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CUT HERE