# Hazards of Volcanoes: Shield vs. Composite

## *Overview:*

In this lesson, students use the Internet to learn about the hazards associated with shield volcanoes and composite volcanoes. They will put their knowledge to work by writing an essay about the different volcano types and the hazards associated with each.

## *Objectives:*

The student will:

- research hazards associated with composite vs. shield volcanoes;
- describe differences between the two types of volcanoes; and
- write an essay comparing and contrasting hazards associated with composite and shield volcanoes.

**Cultural Tie**

Hawaiians have traditionally used prayer and offerings to pay respect to Pele, rather than using modern mitigation techniques such as barriers or bombs that divert lava flows. If desired, ask students to extend their essay by incorporating ideas about how traditional beliefs about Pele may or may not conflict with these hazard-reducing techniques.

## *Materials:*

Student Worksheet: "Compare and Contrast Volcanoes"

## *Activity Procedure:*

1. Distribute the Student Worksheet: "Compare and Contrast Volcanoes."
2. Ask the students to navigate through the websites listed to complete the worksheet.
3. Assign an essay of appropriate length (see #12 in the student worksheet).

## *Answers to Student Worksheet:*

1. Answers may vary. Shield volcanoes listed on the website include: Kilauea, Mauna Loa, Three-fingered Jack, Mount Washington, North Sister, Mount Bachelor, Diamond peak, Mount Bailey, Mount Thielsen, Mount McLoughlin, and Medicine Lake.
2. Answers may vary. Composite volcanoes listed on the website include: Mount Fuji, Mount Cotopaxi, Mount Shasta, Mount Hood, Mount St. Helens, Mount Rainier, Mount Jefferson, Mount Pinatubo, Unzen Volcano, Tambora Volcano, El Chicon Volcano, Mont Pelee, and Nevada del Ruiz.
3. stratovolcano
4. 13,677 feet
5. 8,000 feet
6. Answers will vary, but should indicate that composite volcanoes tend to erupt explosively while shield volcanoes tend to have gentler eruptions.
7. Any five of the following answers: gas, lahars, landslides, lava flows, pyroclastic flows, and tephra.
8. gas and lava flows
9. a. shield
10. lahars, landslides, pyroclastic flows, tephra
11. b. composite
12. Students should turn in a completed essay.

 

**Name:**_____ **Student Worksheet**

# Compare and Contrast Volcanoes

**Directions:** Navigate through the two websites listed and answer the questions that follow. Be sure to read information from both sites.

http://vulcan.wr.usgs.gov/Glossary/StratoVolcano/description_composite_volcano.html
http://vulcan.wr.usgs.gov/Glossary/ShieldVolcano/description_shield_volcano.html.

1. Name two shield volcanoes. _____ _____
2. Name two composite volcanoes._____ _____
3. A composite volcano is sometimes called a _____
4. The largest shield volcano rises about _____ feet above sea level.
5. Composite volcanoes can reach _____ feet in height.
6. In general, how do eruptions from shield volcanoes differ from those at composite volcanoes?

   _____

   _____

Go to: http://volcanoes.usgs.gov/Hazards/What/hazards.html to find the answers to the following questions.

7. List 5 hazards associated with volcanoes. _____

   _____ _____

   _____ _____

8. Look at the section "Selected Case Studies: hazardous volcanic activity." List the hazards that have been observed at Kilauea volcano. _____
9. These hazards are typical of this volcano type. What type of volcano is Kilauea?
   a. shield b. composite
10. List the hazards that have been observed at Mount St. Helens volcano.

    _____
11. These hazards are typical of this volcano type. What type of volcano is Mount St. Helens?
    a. shield b. composite
12. Obtain further information about each type of volcanic hazard by following the links in the upper left-hand corner of the website. On a separate sheet of paper, write an essay comparing and contrasting the hazards of shield volcanoes to the hazards of composite volcanoes.

 