



Mount St. Helen's Visitor Center: Teacher Resources 2016

Visiting a volcano:

Grades K-2 building activity sheet

Time Commitment: 35-40 minutes
Location: Mount St. Helens Visitor Center
Site: Exhibit

The purpose of this worksheet is so that students will be able to follow the displays inside of the visitor center. Students will be able to understand the formation of Mt. St. Helens and understand the impacts of the May 18th 1980 eruption. The students will be best served by looking at the exhibits and film to get a better grasp on the information regarding the eruption of Mount St. Helens.

Goal: the student will be able to understand how plate tectonics form stratovolcanoes like Mount St. Helens and the impacts it has on the surrounding environment.

Objectives:

- 1) Students will be able to use the scientific method to draw a reasonable conclusion
- 2) Students will be able to compare and contrast information.
- 3) Students will be able to read informational text and find the main ideas and infer relationships between what they see around them and the text.

Next Generation Science Standards:

K-ESS2-2: Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.

- Match the survivor to the adaptation that allowed them to survive the eruption.

2-ESS2-2: Develop a model to represent the shapes and kinds of land and bodies of water.

- Draw and explain what changes were seen on the mountain that led to the lateral blast eruption of Mount St. Helens.

ESS2.B: Plate Tectonics and Large-Scale System Interactions; Maps show where things are located. One can map the shapes and kinds of land and water in any area.

2-LS4-1: Make observations of plants and animals to compare the diversity of life in different habitats.

- Match the survivor to the adaptation that allowed them to survive the eruption.

2-ESS1-1: Use information from several sources to provide evidence that Earth events can occur quickly or slowly.

Common Core Standards:

CCSS.ELA-Literacy.RI.2.1

Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

CCSS.ELA-Literacy.RI.K.1

With prompting and support, ask and answer questions about key details in a text.

CCSS.ELA-Literacy.RI.K.2

With prompting and support, identify the main topic and retell key details of a text.

CCSS.ELA-Literacy.RI.K.3

With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.

CCSS.ELA-Literacy.RI.K.4

With prompting and support, ask and answer questions about unknown words in a text.

CCSS.ELA-Literacy.RI.1.1

Ask and answer questions about key details in a text.

CCSS.ELA-Literacy.RI.1.2

Identify the main topic and retell key details of a text.

CCSS.ELA-Literacy.RI.1.3

Describe the connection between two individuals, events, ideas, or pieces of information in a text.

CCSS.ELA-Literacy.RI.2.3

Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

- Answer Key -

Visiting a Volcano:

Welcome to the Mount St. Helens Visitor Center, use the displays in the center to help you find the answers and solve the case about the volcano.

Mission: using the case clues to find out how and why Mount St. Helens erupted.

Clues:

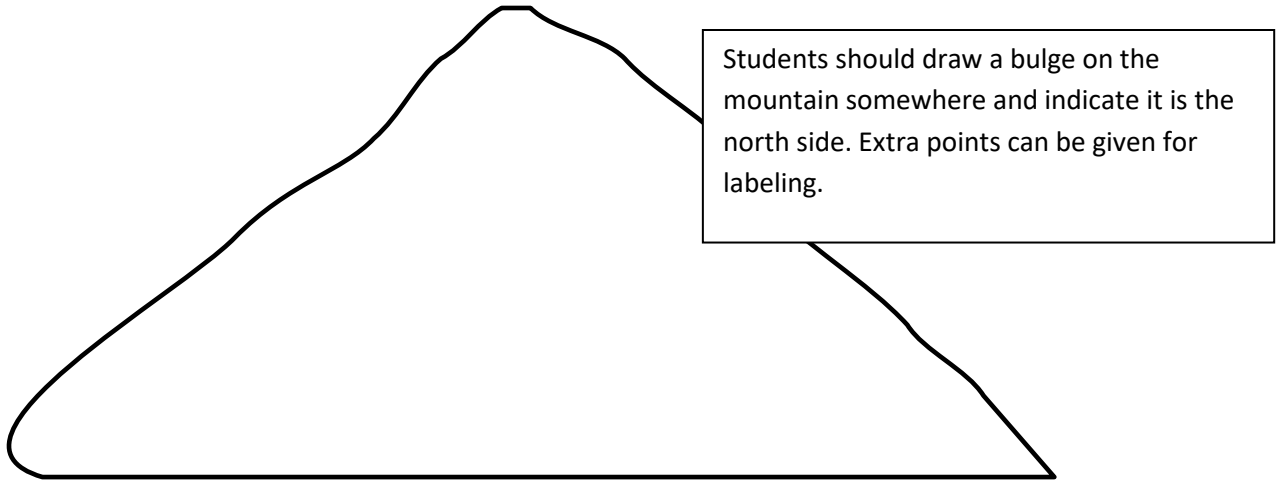
1. Mount St. Helens is a stratovolcano, which means it is made in layers where each eruption sits on top of the previous. It is like a layered cake where the frosting and cake are stacked on top of each other.
2. The magma chamber underneath the mountain is filled with molten Dacite rocks which have a huge amount of gas bubbles floating around inside of it. That gas makes very explosive eruptions.
3. Mount St. Helens is the youngest/smallest but most active of the volcanoes in the Cascade Range. The Cascade Range of volcanoes stretches from northern California to southern Canada.

1. While looking at the displays about plate tectonics and how volcanoes form, finish the sentences by filling in the blanks with the correct word(s) using the information that you learned.
 - a. Approximately 200 million years ago, this great _____ continent _____ split into _____ pieces/plates _____ and shifted to their present locations.
 - b. These plates move anywhere from _____ $\frac{1}{2}$ - 7 inches _____ each year.
 - c. When plates move _____ apart _____ volcanoes fill the separating edges.
 - d. More than _____ 90% _____ of the earth's volcanoes on landform above areas where one plate dives beneath another. These areas are known as _____ subduction zones _____.
 - e. About _____ 75 miles _____ beneath your feet, rocks along the subduction zone _____ partially melt _____ forming _____ magma _____.
 - f. As a mixture of _____ liquid _____ rock, tiny _____ crystals _____, and dissolved gas, magma _____ rises _____ because it is _____ lighter _____ than surrounding rock.
 - g. The Juan De Fuca plate plunges about _____ 1 inch per year _____ beneath the North American Plate.
2. True/False: mark true or false for which activities were common for visitors to do/see around Mount St. Helens and Spirit Lake prior to 1980
 - a. Skiing _____ True _____
 - b. Hiking _____ True _____
 - c. Fishing _____ True _____
 - d. Camping _____ True _____
 - e. Climbing _____ True _____

3. Would you still be able to do any of the activities above on Mount St. Helens?

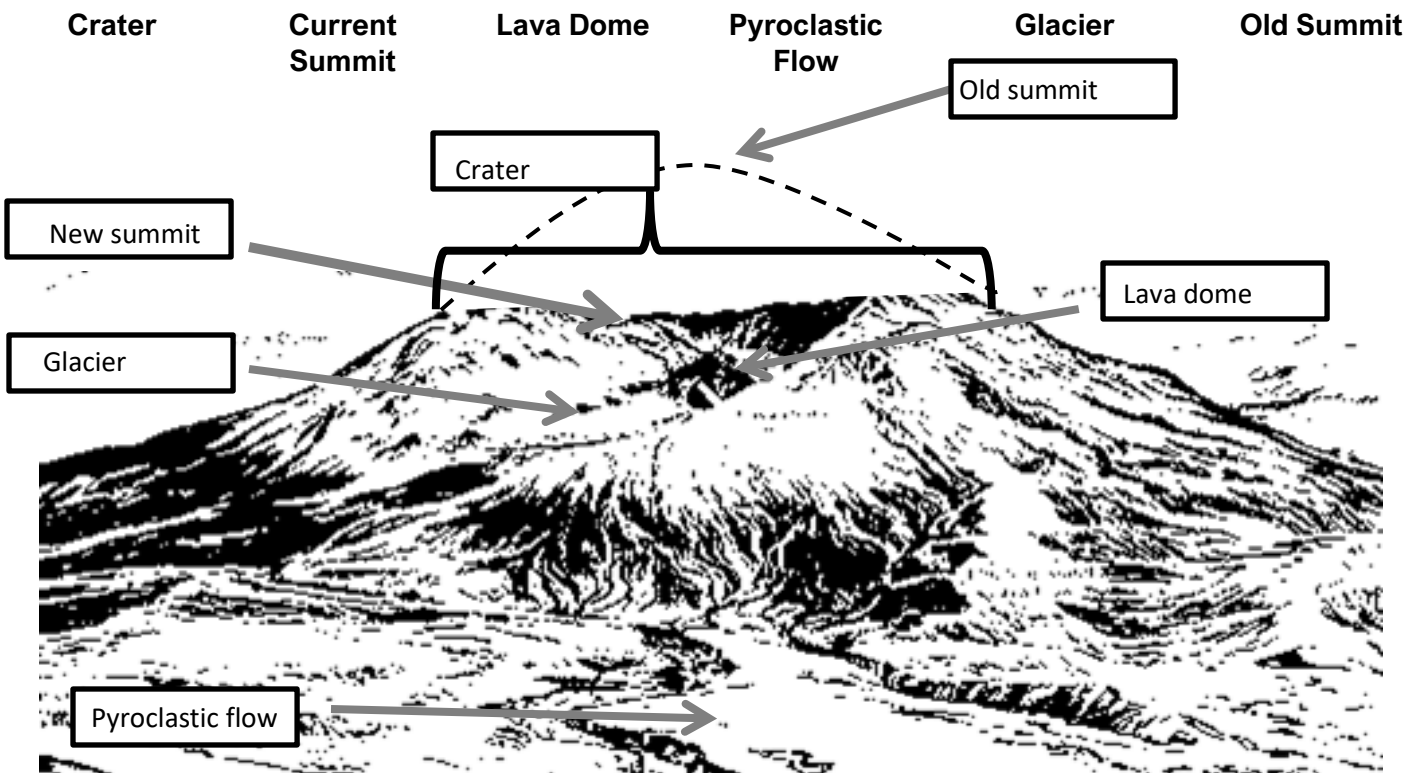
Answers should include: yes depending on the activity

4. Below, draw the changes seen on Mount St. Helens during April 30th to May 17th and describe why that may have caused the eruption of 1980 to be so destructive.



Answers should include information about the “bulge” forming and how it could form a landslide/avalanche. Students should also conclude that the movement of the “bulge” caused the directed/lateral blast.

5. On the picture label each part of the volcano using the word bank below.



6. Looking at the ash plume display, list the eruptions by size and write the amount of ejecta for each eruption below:

- | | |
|---|---|
| 1. <u>Mount Mazama – 150 km³ (4850 BC)</u> | 5. <u>Vesuvius – 9 km³ (79 AD)</u> |
| 2. <u>Tamboura – 80 km³ (1815)</u> | 6. <u>Mt. St. Helens – 4 km³ (1900)</u> |
| 3. <u>Mt. Katmai – 30 km³ (1912)</u> | 7. <u>Mt. St. Helens – 1 km³ (1500/1980)</u> |
| 4. <u>Krakatoa – 20 km³ (1883)</u> | 8. <u>Mt. St. Helens – 1 km³ (1500/1980)</u> |

7. Using the information from above, would the size of the eruption of Mount St. Helens in 1980 be larger or smaller than the eruption of other volcanoes and give one reason why.

Answers should include evidence from the list and that it is smallest or second smallest.

8. How does the 1980 eruption compare to other eruptions listed for Mount St. Helens on the ash plume display?

Answers should be: smallest or second smallest eruption by size.

9. As you look at the “Layers of the Mountain” you can see the history of Mount St. Helens, as a land constantly changing. Looking at the display correctly label the drawing below with the dates and a short description of what that the layer represents.

The image shows a vertical cross-section of Mount St. Helens with several distinct layers of ash and pumice. Each layer is labeled with a date and a description of the event it represents. The layers are as follows:

- Top layer:** May 18, 1980: Grey Dacite erupted first then frothy pumice covered creating a double layer look.
- Second layer:** AD 1800-1980: forest flourished.
- Third layer:** AD 1800: explosive event, same amount of pumice as 1908.
- Fourth layer:** AD 1489-1566: small explosive events.
- Fifth layer:** AD 1480: largest eruption in last 3,000 years, ash spread 250 miles or more.
- Sixth layer:** AD 950-1480: forest thrived.
- Bottom layer:** AD 750-950: charcoal=trees destroyed, lateral blast.

10. Look at the “Survivors of the Blast” display and match the survivor of the blast and trait that helped them survive.



Hibernating

Under ice

Living underground

Protected by land

– End Answer Key –

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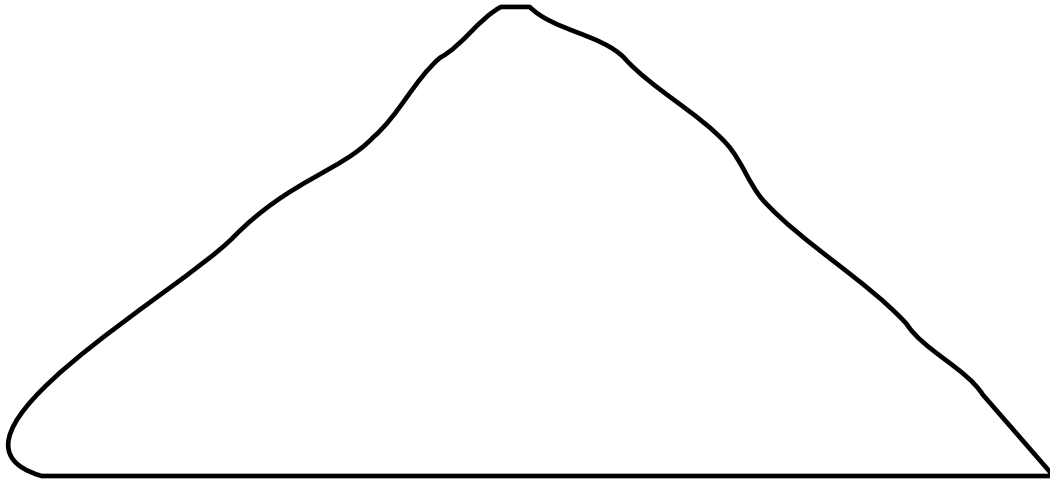
Clues:

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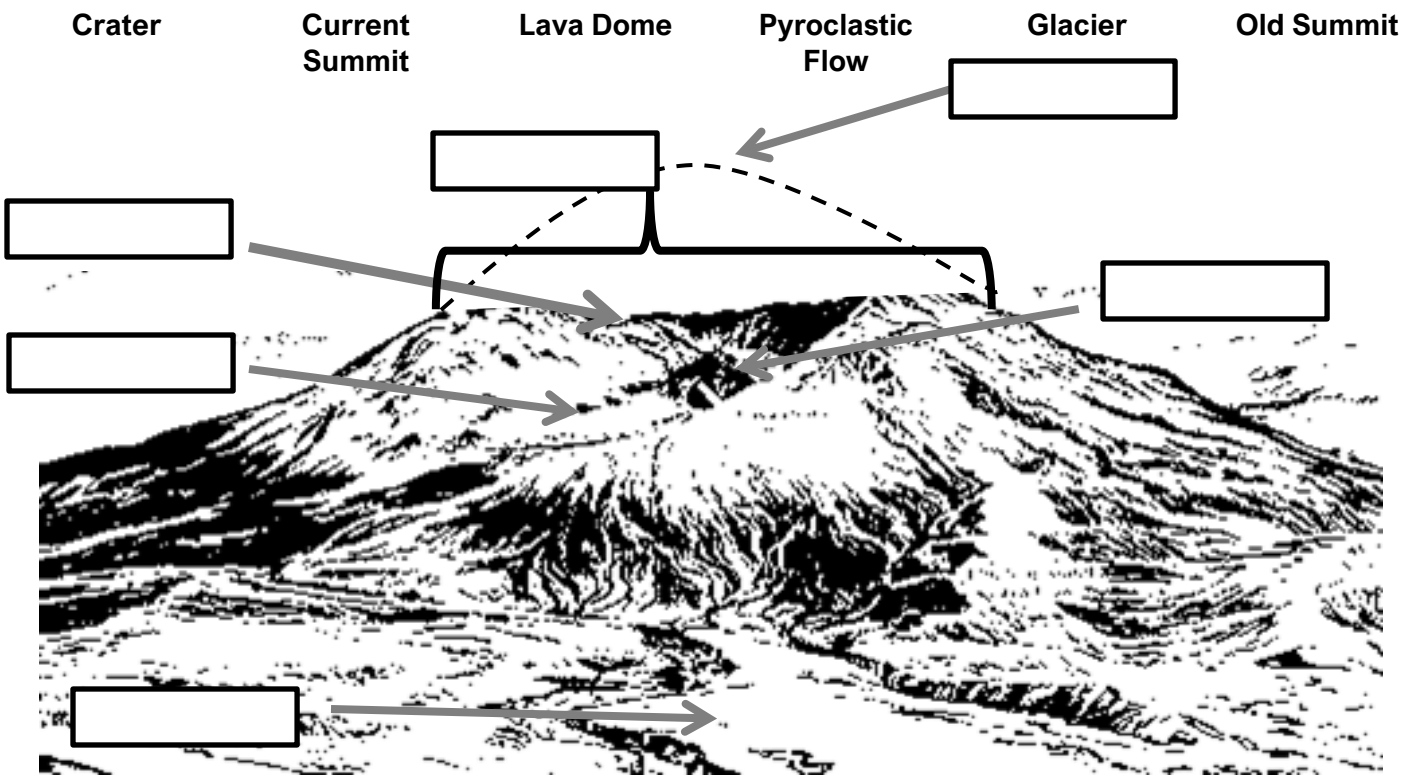
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5. On the picture label each part of the volcano using the word bank below.



6. Looking at the ash plume display, list the eruptions by size and write the amount of ejecta for each eruption below:

- | | |
|----------|----------|
| 1. _____ | 5. _____ |
| 2. _____ | 6. _____ |
| 3. _____ | 7. _____ |
| 4. _____ | 8. _____ |

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8. How does the 1980 eruption compare to other eruptions listed for Mount St. Helens on the ash plume display?

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The diagram shows seven distinct layers of the mountain's history, each with a corresponding label box and arrow:

- Layer 1 (top): Grey bubbly texture, dark brown fibrous texture. Label box: []
- Layer 2: Grey bubbly texture, dark brown fibrous texture. Label box: []
- Layer 3: Grey bubbly texture, dark brown fibrous texture. Label box: []
- Layer 4: Grey bubbly texture, dark brown fibrous texture. Label box: []
- Layer 5: Grey bubbly texture, dark brown fibrous texture. Label box: []
- Layer 6: Grey bubbly texture, dark brown fibrous texture. Label box: []
- Layer 7 (bottom): Grey bubbly texture, dark brown fibrous texture. Label box: []

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Under ice



Living underground



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