

10. 2 Mount St. Helens Volcano Event

Background:

[Background Video](#)

On May 18, 1980, Mount Saint Helens, in the state of Washington, erupted. This event altered the surrounding environment and provided scientists with an opportunity to study the effects of volcanic eruptions on the geosphere, hydrosphere, atmosphere, and biosphere. Such studies are vital because volcanic eruptions will continue to occur, and will have an increasing impact on humans as people continue to settle lands closer to dormant volcanoes. The following are but a few of the myriad of interactions resulting from a volcanic eruption.

Practice

Watch here for an example to #1

Read about the interactions between spheres when Mount St. Helens erupted. Fill in the name of the sphere (geosphere, atmosphere, hydrosphere, biosphere) that were involved in each interaction. Then list the spheres in order as a cause-and-effect chain.

[Example Video \(See how the first one is done\)](#)

1. Volcanoes (an event in the geosphere) release a large amount of particulate matter into the atmosphere. These particles serve as nuclei for the formation of water droplets (_____). Rainfall (_____) often increases following an eruption, stimulating plant growth (_____). Particulate matter in the air (_____) falls out, initially smothering plants (_____), but ultimately enriching the soil (_____) and thereby stimulating plant growth (_____).

Volcano >> geosphere >> _____ >> _____ >> _____ >> _____ >> _____ >> _____

2. Volcanoes (events in the _____) may release a substantial amount of hot lava (_____), which causes mountain glaciers (_____) to melt. Mudflows (_____) and flooding may occur downstream from volcanoes and may inundate streamside communities (_____).

Volcano >> _____ >> _____ >> _____ >> _____ >> _____

3. Volcanoes (events of the _____) release a large amount of carbon dioxide (_____), the raw material for sugar production in plants (_____). This may increase photosynthetic production and eventually increase the amount of biomass, which, after a very long time, forms coal and oil deposits (_____).

Volcano >> _____ >> _____ >> _____ >> _____

4. Volcanoes (_____) may emit large quantities of sulfur dioxide. When atmospheric sulfur dioxide (_____) combines with water (_____), sulfuric and sulfurous acid form. Rain (_____) may bring these acids to the Earth, acidifying soils (_____), lakes and rivers (_____). Acidic water leaches nutrients from the soil (_____) into the water table (hydrosphere), making the soil less fertile for plants (_____), and the subterranean water supply (_____) less potable for humans (_____). Acid rain falling on lakes and streams reduces the pH of the water (_____), which may result in a decrease in phytoplankton and zooplankton growth (_____). If photosynthesis is reduced, atmospheric concentrations of carbon dioxide can build up and stimulate global warming (_____) which may contribute to increased melting of glaciers (_____).

Volcano >>