

Types of Volcanoes

Lesson Plan for Educators

Subject: Geology/Science

Grade Level: 6-7

In-Class Time: approximately 3 sessions (50 minutes each)

Lesson Goals: Teach students about the three volcano types: composite, cinder cone and shield.

Student Goals: Identify each volcano type by its characteristics.

Student Objectives:

1. Describe characteristics of each type of volcano.
2. Explain how each volcano type is formed and rocks produced from each.
3. Identify volcano types from photos (you provide, downloaded from Internet).

Materials Needed for Project:

- Computer with Internet for accessing Web sites
- Classroom textbook for physical resource
- Other acceptable educational resource (encyclopedia, reference book, magazine article, etc.) for learning tools
- Photos of each volcano type (you provide, downloaded from Internet)
- Handout for possible research Web sites and resources

Prerequisites:

Ability to use a computer keyboard and to access Internet Web sites

Ability to take notes from a lecture and presented pictures

Anticipatory Set:

- Begin classroom discussion on volcanoes and what the students' impressions are of their location on earth, their characteristics and power for destruction. Ask the students if they know any positive effects from volcanoes.
- Show students where volcanoes are located on the Earth by going on-line and finding maps of volcanoes in certain areas, such as the western United States (http://vulcan.wr.usgs.gov/Volcanoes/WesternUSA/Maps/map_potentially_active.html).
- Tell the students what they will be learning in this section: the three types of active volcanoes, then name them: composite, cinder cone and shield.
- Tell the students by the end of the section, they will be able to amaze their parents and friends by their ability to identify each type of volcano from a photo, using their knowledge of volcano characteristics. Tell them that they will also be learning how volcanoes form and the types of rocks and lava that volcanoes produce.
- Create a K-W-L chart (copy form at end of this Lesson Plan):
 - What I **Know**, What I **Want** to know, What I **Learned** (at the end of the lesson)
 - Utilize this chart individually at first, then in small groups, then finally the whole class

Procedures: Take one class session for each type of volcano. During the lectures, involve the students with various forms of active participation. Ask them to draw the volcano types. Ask

questions to find out if they're retaining what they've learned. While it is fresh in their minds, have them write down things that they have just learned. This practice of teaching, providing hands-on exercises, asking what they've learned, and then having them prove what they've learned in writing, reinforces your efforts to teach and their ability to learn.

- Bring up a Web site with photos of each type of volcano: composite, cinder cone and shield (http://www.windows.ucar.edu/tour/link=/earth/interior/volcanos_general.html).
 - **Composite** - composite volcanoes are also known as strato-volcanoes. They are tall, symmetrically shaped, with steep sides, sometimes rising 10,000 feet high. They are built of alternating layers of lava flows, volcanic ash, cinders, blocks, and bombs. Famous composite volcanoes include Mount Fuji in Japan, Mount Cotopaxi in Ecuador, Mount Shasta and Lassen in California, Mount Hood in Oregon, Mount St. Helens and Mount Rainier in Washington, Mt Pinatubo in the Philippines, and Mt. Etna in Italy.
 - **Cinder Cone** - Cinder cones are simple volcanoes with a bowl-shaped crater at the peak. They grow to about a thousand feet. They usually are created of eruptions from a single opening, unlike a strato-volcano or shield volcano which can erupt from many different openings. They are usually made of piles of lava, not ash. During the eruption, blobs ("cinders") of lava, blown into the air, break into small fragments that fall around the opening to the volcano. The pile forms an oval-shaped small volcano (as shown in this picture). Famous cinder cones include Paricutin in Mexico. Another well known cinder cone is in the middle of Crater Lake.
 - **Shield** - Shield volcanoes can grow to be very large. The oldest continental regions of Earth may be the remains of ancient shield volcanoes. Shield volcanoes are tall and broad, with flat, rounded shapes. The Hawaiian volcanoes are an example of common type of shield volcanoes. They are built by lava that moves great distances from a central vent or a group of vents. The lava is not accompanied by pyroclastic materials, which makes shield volcanoes relatively safe (as shown in this picture) of scientists monitoring the eruption. Mauna Loa, the largest of the shield volcanoes, is 13,677 feet above sea level, which means it rises over 28,000 feet above the deep ocean floor, and would be the world's tallest mountain if much of it were not underwater. Famous shield volcanoes include Mauna Loa, Kilauea, (two of the world's most active volcanoes), and Olympus Mons of Mars.
- Students should take notes, only if it is in the students' skill sets.
- Prepare a handout for possible research Web sites and resources.
- Show several sets of photos of each type of volcano. Divide the students into small groups so they can study the volcanoes and discuss the different types.
- Hand out the Volcano Diorama Assignment Sheet that will outline the volcano diorama project. Review the material so that each child understands the project (next page). This assignment can be created during class time with the teacher's help, or students can build the diorama at home and turn it in by the teacher's established due date.
- During the class sessions, hand out photos and charts that label the volcano parts.

Assessment of Learning:

- Prepare a quiz for the last class session on the three types of volcanoes discussed.
- Ask the students to draw a shield volcano and label at least three of its parts.
- Ask the students to identify volcano types from pictures.
- Complete the K -W - L Chart, filling in the last column: What I Learned

Internet resources:

www.pubs.usgs.gov/gip/volc/types.html

www.volcano.und.edu/vwdocs/vwlessons/volcano_types/index.html

www.library.thinkquest.org/17457/volcanoes/types.php

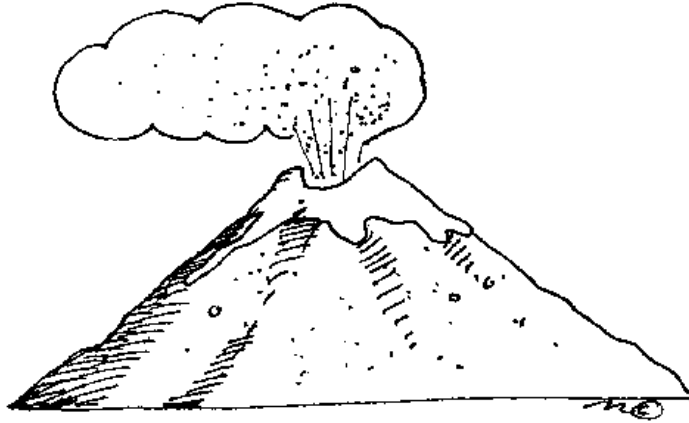
www.cotf.edu/ete/modules/volcanoes/vtypesvolcan1.html

www.educ.uvic.ca/faculty/mroth/438/VOLCANO/TYPES.html

www.vulcan.wr.usgs.gov/Glossary/VolcanoTypes/volcano_types.html

www.enchantedlearning.com/subjects/volcano/types/

Volcano Diorama Assignment Sheet



Your assignment is to create a volcano diorama that shows one of three types of volcanoes that we have discussed in class. This project will be due _____. Your project must include the following features:

1. Show one, two or three types of volcanoes on your diorama.
2. Label the important parts of your volcano.
3. Clearly put the name of your volcano type or types at the top of your diorama, either on a background or with a label.
4. Show the inside of your volcano and the outside too. The more detail that you can show on the way a volcano works, the better. Add your name, teacher's name, classroom and date on the front of your diorama. They will be on display for the entire school to see.
5. There will be extra credit for creating an "interactive" volcano. Go to www.scenarama.com to find a recipe for creating erupting volcanoes (be sure to have an adult help you with this).