



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

Volcano vocabulary: Grades 3-5 pre-visit lesson

Time Commitment: 1 class period
Location: School
Site: Classroom

The purpose of this lesson is to establish a set of prior knowledge and prepare the students to understand the terms and concepts that they will see in the displays inside of the visitor center during their visit. Students will be able to recognize important terms and overarching scientific processes. The students will be best served by having the lesson presented to them the day before their field trip to be able to better understand the information regarding the eruption of Mount St. Helens.

Goal: the student will be able to understand the theory of plate tectonics and how it can form stratovolcanoes and be able to recognize and identify key terms.

Objectives:

- 1) Students will be able to accurately describe the theory of plate tectonics.
- 2) Students will be able to identify and define key terms.
- 3) Students will be able to read informational text and find the main ideas.
- 4) Students will be able to pick out key terms from informational text.

Next generation Science Standards:

NGSS 4-PS3-3: Ask questions and predict outcomes about the changes in energy that occur when objects collide.

- While reading the text understand the movement of the plate will transform kinetic energy (energy of movement) to heat energy to form Magma.

NGSS 4-ESS1-1: Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.

- Understand while reading that tectonic plate movements happen over long time periods.
- Understand that the plates while moving can create formations and layering that is seen in the soil.

Common Core Standards:

CCSS.ELA-Literacy.RI.3.1

Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.

CCSS.ELA-Literacy.RI.3.2

Determine the main idea of a text; recount the key details and explain how they support the main idea.

CCSS.ELA-Literacy.RI.3.4

Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 3 topic or subject area.

CCSS.ELA-Literacy.RI.3.10

By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 2-3 text complexity band independently and proficiently.

CCSS.ELA-Literacy.RI.4.2

Determine the main idea of a text and explain how it is supported by key details; summarize the text.

CCSS.ELA-Literacy.RI.4.3

Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

CCSS.ELA-Literacy.RI.4.4

Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.

CCSS.ELA-Literacy.RI.5.1

Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

CCSS.ELA-Literacy.RI.5.2

Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.

CCSS.ELA-Literacy.RI.5.4

Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.

CCSS.ELA-Literacy.RI.5.10

By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4-5 text complexity band independently and proficiently.

Lesson: Vocabulary and Plate Tectonics

Introduction

Begin by introducing the topic of plate tectonics and the new key words the students will be learning.

Demonstration

Plate tectonics is the theory that the earth's crust is made up of separate plates that are constantly moving on the mantle. Where plates meet there is a point where the crust can break apart, earthquakes can occur, and the crust can crumple forming mountains. This theory can be shown through a simple demonstration.

Using a few colors of play dough or craft foam you can demonstrate the various movements of tectonic plates and the layering of the earth. While introducing the idea that earth's crust is made up of many separate plates all floating on the mantle portion of the earth's core. To demonstrate movement along a fault line you can use layered play dough to show how the plate move past one another.

Activity

Have students in small groups read an article that describes the eruption details of Mount St. Helens and discusses plate tectonics then have students on their own use their new knowledge and the article to answer quiz questions in a game show style. You can even have the top teams head off in a knowledge battle. Key terms for this unit would be: plate tectonics, earthquake, volcano, fault line, subduction zone, magma, lava, igneous rock, lateral blast, oceanic plate, continental plate, pyroclastic flow.

As students work you can help guide them in their knowledge by providing clues and directing them along the right path as you circulate between groups add in encouragement and ask questions about their work.

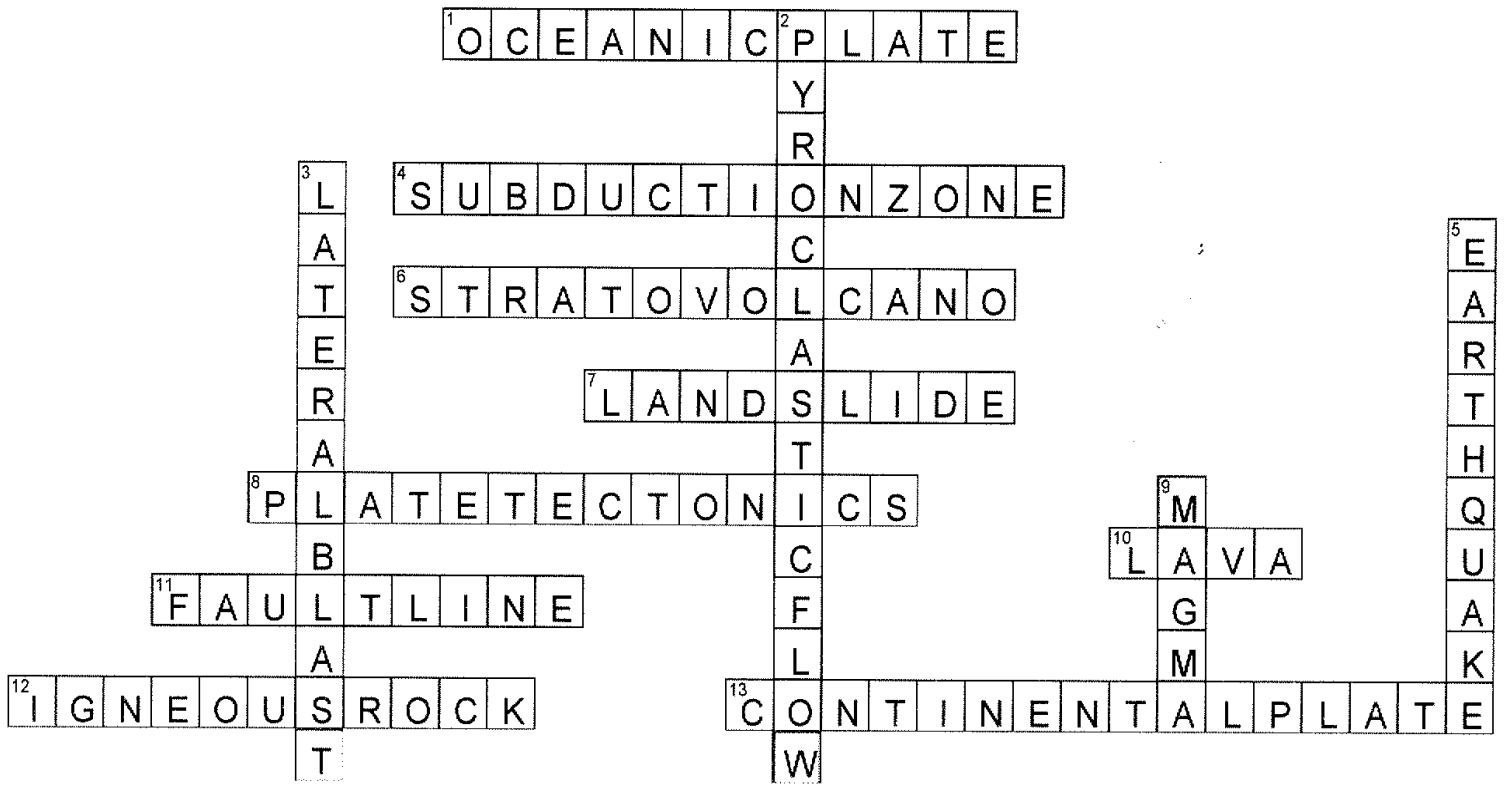
Sample questions:

1. How does the theory of plate tectonics depict the formation of volcanoes?
2. Using your hands show all the possible movements of the fault lines.
3. What type of volcano is formed by many layers of erupted material? What type of volcano is formed along when large flows of lava are oozed out of the earth?
4. Have each group describe a type of volcanic hazard and explain why they think it is the most destructive.

Wrap up

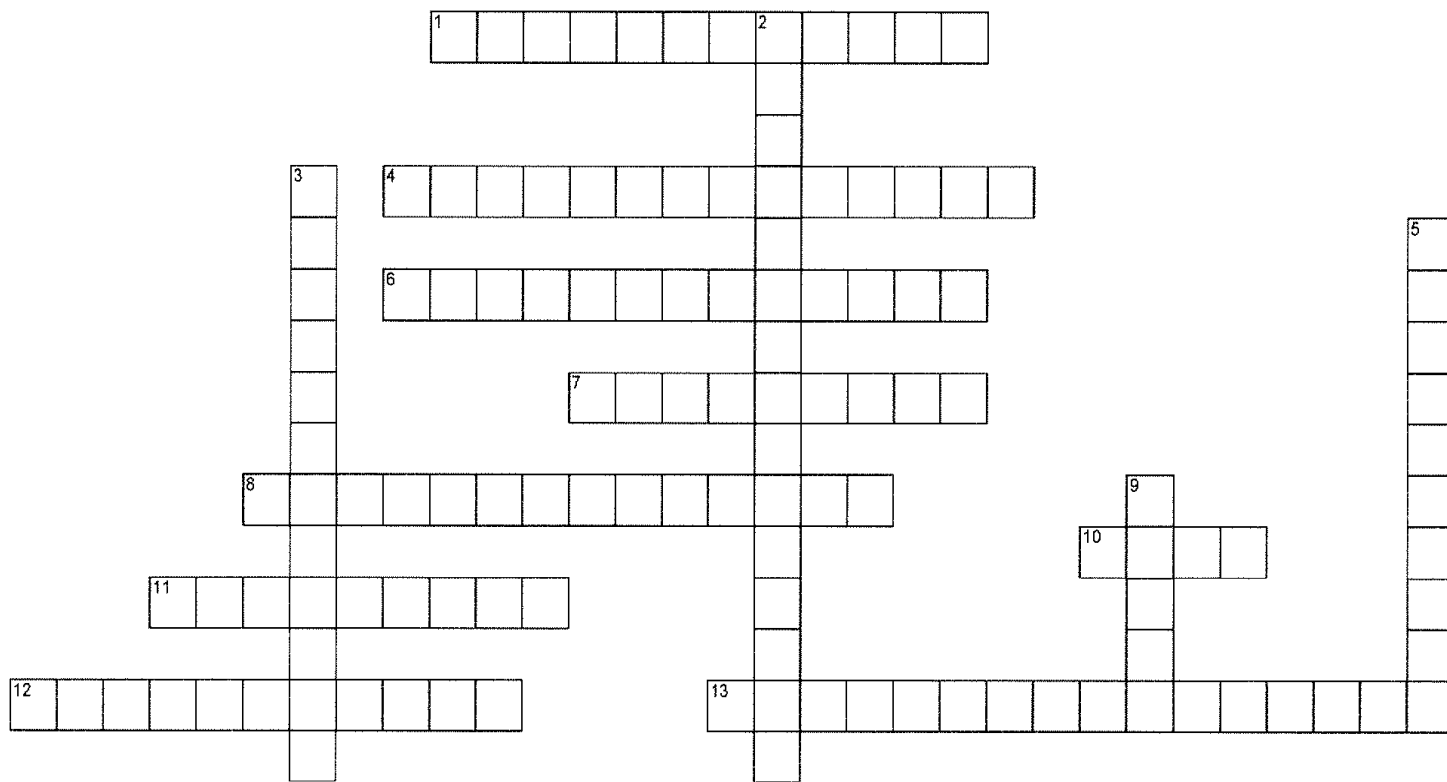
Have students complete a crossword puzzle with the new terms they are learning.

- Answer Key -



Name: _____

Volcano Vocabulary



ACROSS

- 1 a tectonic plate underneath the ocean
- 4 a type of fault where the oceanic crust meets the continental crust and sinks below
- 6 a type of volcano that is steeply sloped made by alternating layers of lava flows and ash
- 7 a movement of a large amount of land down a slope
- 8 the theory that the earth's surface is made up of many slabs of land or plates that are always moving and shifting
- 10 molten rock above the surface of the earth
- 11 an area where two plates come together
- 12 a type of rock formed by a volcano
- 13 a tectonic plate that a continent is located on

DOWN

- 2 the part of a volcanic eruption that is made up of rocks and gasses
- 3 a sideways eruption
- 5 a movement of the ground that can make cracks and destroy manmade objects
- 9 molten rock below the surface of the earth

Optional word bank:

- Subductionzone
- Oceanicplate
- Landslide
- Continentalplate
- Stratovolcano
- Magma
- Igneousrock
- Pyroclasticflow
- Lava
- Faultline
- Platetectonics
- Lateralblast
- Earthquake