

Stage 1: Desired Results

Established Goals:
 P.S. 2.1e: Investigate the negative and positive impact of extreme natural events on living things.

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| <p>Enduring Understandings:</p> <ul style="list-style-type: none"> • The earth is made up of large slabs called plates that typically fit together where the land is flat. • Between the earth's crust and mantle is a substance called magma (rocks and gases). • When the plates move and are pushed on top of one another (plate tectonics) the magma is released in between the plates. This is how volcanoes are formed. • The magma that seeps up through the earth's surface is called lava. • When an acid and a base are combined and react, carbon dioxide is formed. • The earth's core is made of hot liquid iron and nickel. | <p>Essential Questions:</p> <ul style="list-style-type: none"> • The earth's core is made of what two elements? • What is magma? • The large slabs that the earth is made up of are called? • What happens during plate tectonics? • How are magma and lava related? • What is an acid? • What is a base? • What gas is released in a volcanic eruption? • In what ways is a volcano dangerous to humans? |
| | <p>Students will be able to:</p> <ul style="list-style-type: none"> • Describe how a volcano is formed. • Explain the dangers a volcano poses to humans. • Define magma, lava, acid, base, and plates. • Explain the theory of plate tectonics. • Describe what causes a volcano to erupt. • Explain how carbon dioxide is formed and how that relates to volcanoes. |

Stage 2: Determining Evidence for Assessing Learning

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| <p>Performance Tasks:</p> <ul style="list-style-type: none"> • Students will review with the teacher what they already know about volcanoes using visuals and written facts. | <p>Other Evidence:</p> <ul style="list-style-type: none"> • The students will be ordering the events independently to finalize their understanding. • Students will complete a homework |
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| <ul style="list-style-type: none"> • Students will work in groups to conduct a volcano experiment in which they will simulate an eruption. • Students will complete a lab sheet during the experiment. • Students will complete a worksheet where they must order the events in which a volcano develops from creation to eruption. | <p>assignment on volcanoes.</p> <ul style="list-style-type: none"> • Students will reflect independently in their science journals about 3 different things they learned about the earth and volcanoes during the lesson. |
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Stage 3: Learning Plan:

1. The teacher will begin the class by putting up a picture of a volcano and asking the students if they recognize it.
2. The teacher will begin a discussion about volcanoes and the basic facts that the students have learned previously.
3. The teacher will put pictures on the board of different events that occur during the development of a volcano as well as typed out responses to go along with the pictures. The students will match each response to the correct picture.
4. What happens with the earth's plates move? What causes the magma?
5. After the review of volcanoes is over, students will return to seats and form small groups.
6. The students will cover the tables in newspaper.
7. The teacher will explain that they will be simulating a volcanic eruption and will hand out a lab sheet to each student.
8. Teacher will hand out materials (paper plate, cup, water, baking soda, vinegar) to each small group. The ingredients will already be measured out.
9. Each group will be given the cup and plate that will already be covered in foil. One person in the group will cut slits in the top of the foil to create the volcano opening.
10. Before beginning the experiment, students will make predictions on their lab sheets about what they believe will happen when the ingredients are added.
11. One student in the group will add 2 tablespoons of water to the volcano.
12. One student will stir in a tablespoon of baking soda until it dissolves.
13. One student will pour in 2 tablespoons of vinegar all at once. This will cause the volcano to erupt.
14. After the students observe the eruption, they will write their observations on their lab sheets.
15. The students will record which type of gas they think was formed during this experiment.
16. The teacher will discuss the formation of carbon dioxide during the volcanic eruption in class and in actual volcanoes.
17. The students will work together to clean up the materials and throw away the newspapers.

18. For homework, students will reflect in their journals about this experiment (what they liked, what went well, etc.)