Unit 3/Week 5

Title: Volcanoes, Nature’s Incredible Fireworks

Suggested Time: 4 days (45 minutes per day)

Common Core ELA Standards: RI.3.1, RI.3.2, RI.3.3, RI 3.5, RI.3.7; W.3.1, W.3.4, W.3.7, W.3.8; SL.3.1, SL.3.2; L.3.1, L3.2, L.3.5

Teacher Instructions

*Refer to the Introduction for further details.*

**Before Teaching**

1. Read the Big Ideas and Key Understandings and the Synopsis. Please do **not** read this to the students. This is a description for teachers, about the big ideas and key understanding that students should take away **after** completing this task.

Big Ideas and Key Understandings

The earth is made up of many layers. Volcanoes erupt when the pressure from the inner layer becomes so strong and pushes hot melted rock, (magma) through the earth’s crust. Like fireworks, volcanoes are powerful and beautiful, but also dangerous.

Synopsis

The earth is not a solid, unmovable object. Volcanoes show us how the earth changes. Volcanoes can be made of lava, gases, hot steam, ground-up rocks and melted rock called lava. The earth is made up of layers called the inner core, the outer core, the crust and the mantle. The core is under pressure and is very hot. The crust is made up of pieces, called plates. The plates move very slowly, and create pressure where they meet. Volcanoes are places in the crust where the hot rock is forced through cracks in the crust and the pressure is so great, it reaches the surface. Many volcanoes have erupted throughout history, sometimes with disastrous results. Volcanoes erupt many times over a long period of time. Scientists study volcanoes and the earth’s movement and try to understand how they erupt.

1. Read entire main selection text, keeping in mind the Big Ideas and Key Understandings.
2. Re-read the main selection text while noting the stopping points for the Text Dependent Questions and teaching Vocabulary.

**During Teaching**

1. Students read the entire main selection text independently.
2. Teacher reads the main selection text aloud with students following along. (Depending on how complex the text is and the amount of support needed by students, the teacher may choose to reverse the order of steps 1 and 2.)
3. Students and teacher re-read the text while stopping to respond to and discuss the questions and returning to the text. A variety of methods can be used to structure the reading and discussion (i.e.: whole class discussion, think-pair-share, independent written response, group work, etc.)

Text Dependent Questions

|  |  |
| --- | --- |
| **Text-dependent Questions** | **Evidence-based Answers** |
| Why is the earth never still? | Because it trembles and quivers, and volcanoes erupt somewhere every day. |
| A **simile** is a figure of speech that directly compares two different things, usually by employing the words "like" or "as". In the opening paragraph on page 386, we are told, “from far off, they look like beautiful fireworks.” What makes the volcano look like fireworks? | Geysers, gases, ground-up rocks, ashes blast into the air, large rocks, floods, mud slides, avalanches, rivers of lava (p. 386-387)  The “fiery blobs of melted rock called lava” looks like fireworks when they explode in the air. |
| Reread the first paragraph on page 387. Use the text to describe what happens inside a volcano. Explain why some volcanoes erupt and some do not. | Volcanoes sometimes explode when too much gas builds up. If the gas does not build up too much, they do not explode. Sometimes the gas escapes through vents and keeps it from exploding. |
| On page 487, the text states, “Others stream down the mountain as quickly as cars in city traffic.” What evidence from the text helps us understand what this means? Find another comparison that is a simile and explain how the text helps you understand the meaning. | “…red rivers of lava flow” Rivers move fast, so it shows the lava moves like a river. “Some kinds of lava ooze and slide slowly. Others stream down the mountain” This shows the lava is moving fast.  Other possible answers:  (p. 386): “look like beautiful fireworks”  (p. 389): “like a coconut shell”  (p. 389): “like a giant jigsaw puzzle”  (p. 390): “cracks like chimney flues” |
| Reread the diagram on pages 388-389. Share with your neighbor something you have learned about the earth’s crust. Make a list of descriptive words the author used to describe the earth’s crust. | The earth has four layers. The top layer is the crust. The crust is the thinnest. The crust is on the top. It is covered by land and water. The second layer is the mantle. The mantle is 1800 miles deep, and so hot there it melts rocks. The third layer is the outer core made of hot, liquid iron. The inner core is solid because of the great pressure on it.  Descriptive words could include: thinnest, solid, made of hot, liquid iron. |
| How does the author describe the plates of the earth’s crust? | Like a coconut shell and a jigsaw puzzle  The text says “not one piece, like a coconut shell”,  “…several large pieces” and they “cover the planet” also the illustration shows what it looks like. |
| Reread page 390 about how and where volcanoes form. Use evidence to explain what causes earthquakes. | “Where two plates meet, the force is so great that rocks bend or even break. This sends tremors called earthquakes through the ground” |
| What are some examples of the dangers of volcanoes? Give examples of historic eruptions and what effects the eruptions had. | 1980-Mt. St. Helens- a mountain exploded  79 AD- Mount Vesuvius-two cities were buried  They are alike because they were both big eruptions. They are different because they were at different times and places. Volcanoes eruptions can cause a lot of damage. Eruptions have happened over many years. |
| What is the “Ring of Fire”? (Pg. 391) | “Around the Pacific Ocean, many plates collide, many eruptions have happened there.” |
| On pages 392 and 393, the text uses **personification**, which is when we give human characteristics to other animals or non-living things. Find examples of volcanoes described with a human characteristic. | “it may sleep in silence”  “sleeping giant may suddenly awaken”  “volcano will blow its top or split its side” |
| How is a volcano like a “sleeping giant”? | Because a sleeping giant looks harmless, but when it wakes up, it can be very dangerous. A volcano that is not active looks harmless, but when it erupts, it can cause a lot of harm. |

Vocabulary

|  |  |  |
| --- | --- | --- |
|  | **KEY WORDS ESSENTIAL TO UNDERSTANDING** | **WORDS WORTH KNOWING**  General teaching suggestions are provided in the Introduction |
| **TEACHER PROVIDES DEFINITION**  not enough contextual clues provided in the text | Page 386 - erupt  Page 387 - crevices, avalanches  Page 390 - tremors  Page 390 - chimney flues  Page 390 - force  Page 390 - shudders  Page 393 - incredible, scientists | Page 386 - gritty  Page 386 - quivers  Page 386 - scalding  Page 393 - awaken  Page 393 - fiery  Page 393 - incredible |
| **STUDENTS FIGURE OUT THE MEANING**  sufficient context clues are provided in the text | Page 388 - mantle  Page 388 - core |  |

Culminating Task

* Re-Read, Think, Discuss, Write
* *The title of the story is “Volcanoes, Nature’s Incredible Fireworks”. The author repeats this in the final sentence of the story. The author describes volcanoes as both beautiful and dangerous. Write a paragraph using evidence from the text to explain how the author shows that volcanoes are both beautiful and dangerous.*

Answer: Throughout the story, the author shows that volcanoes are both beautiful and dangerous. In the beginning of the story, the author writes, “from far off the volcanoes look like beautiful fireworks.” So, on the one hand, the author compares goes on to describe the blobs of melted lava. Lava is very hot and destructive, and this make it very dangerous. So, although the erupting volcano may look like pretty fireworks, it produces something that is very hot and dangerous. In another part of the story, the author explains how two entire towns were buried by a volcano in Italy a long time ago. This, again, shows how dangerous volcanoes can be. In the conclusion, the author talks about how volcanoes are both beautiful and dangerous.

Additional Tasks

* *Use Internet resources to find out where there is volcanic activity on the earth today. Choose one active volcano and track its activity by taking organized notes for several days. Then, write a short paragraph describing what you found. Use details learned in the story (Earth’s composition, development of a volcanic eruption) to support your findings.*

*Possible websites for use:*

* + The Volcano Hazards Program monitors active and potentially active volcanoes: http://volcanoes.usgs.gov/
  + The Smithsonian Institution's Global Volcanism Program (GVP) is housed in the Department of Mineral Sciences, part of the National Museum of Natural History, on the National Mall in Washington D.C: http://www.volcano.si.edu/reports/usgs/
* *Students can explore similes and/or personification further by finding examples in other texts they have already read this year. (Provide them with a few choices of stories that you know contained this kind of figurative language.) Have them work in pairs to locate the figurative language, record it, and describe its meaning. Then, have them answer the question: Why did the author use a simile (or metaphor or personification) in this particular spot in the story rather than simply telling you exactly what he/she using more direct or “simpler” language?*

Note to Teacher

* Potentially helpful websites for further extension activities:
  + Additional information on volcanoes: http://environment.nationalgeographic.com/environment/natural-disasters/volcano-profile/
  + Build your own volcano and watch it erupt: http://kids.discovery.com/games/build-play/volcano-explorer