



# 3 Lesson Three

## *Vesuvius Erupts*

### Enduring Understanding

Primary sources are clues archaeologists use to interpret the past.

### Essential Questions

What clues help us understand the lives of people in the past? How do archaeologists use primary sources to interpret the past?

### What Students Will Learn

- Vesuvius erupted violently in what is now called a Plinian eruption
- Primary documents provide first-hand testimony or direct evidence concerning a topic; created by witnesses who experience events at the time they are occurring, but primary sources can also include autobiographies, letters, and oral histories recorded later

### What Students Will Do

- Read a complex informational text, a primary source on the A.D. 79 eruption, recorded by Pliny the Younger in a letter to the historian, Tacitus.
- Perform an excerpt of the letter.
- Compare a primary source to scientific data.

### Assessment

Students write a letter describing a natural disaster or severe weather storm he/she witnessed, like Pliny the Younger wrote to the historian Tacitus.

**SUBJECTS:** social studies, language arts

**CCSS:** R.1, R.3, R.6, R.7, R.9, R.10, W.2, W.4, W.9, L.4

**SKILLS:**

- **Bloom's Taxonomy:** evaluation, synthesis, analysis

- **Facets of Understanding:** interpretation, application

**DURATION:** 60-90 minutes

**CLASS SIZE:** Any

### Materials

#### *For Each Student*

- “Pliny the Younger – Book 6, Letter 16” (page 45), one copy for each student
- “Pliny the Younger – Book 6, Letter 20” (page 46), one copy for each student
- “Pliny’s Letter 6 – Analyze the Data” (page 47), one copy for each student
- “Pliny’s Letter 20 – Analyze the Data” (page 48), one copy for each student
- Sticky note

#### *For Each Group*

- Paper Pliny the Elder hat
- chart paper
- markers
- printed excerpts (pages 50-51)
- “Ash Layers” (page 49)

### Background Information

Different types of volcanoes erupt differently. When volcanoes erupt they “give off a vast range of products from steam and gas to molten lava, ash, pumice, and boulders, all of which are ultimately derived from magma, the molten material that rises from beneath the Earth’s

crust” (Scarth 2009). In an oversimplified model, volcanic eruptions can be grouped under four main categories: mild, moderate, vigorous, and violent.

The eruption of Mount Vesuvius in A.D. 79 is one of the most famous because it destroyed, buried, and immortalized the towns of Pompeii and Herculaneum and Roman villas in Campania. They were entombed for over seventeen hundred years, until archaeologists slowly began to reveal their secrets to the world. “Thus, the eruption destroyed—and preserved—the most famous archaeological sites in the world, and they, in turn have helped make Vesuvius the most famous of all volcanoes” (Scarth 2009).

How can we learn about the eruption of Vesuvius in A.D. 79? Scientific studies of the eruption provide information about the phases of the eruption supported by layers of ash that show evidence of pyroclastic flows.

By analyzing how thick the layers are, what type of volcanic material they contain, and how the deposits were distributed, geologists have been able to reconstruct the different phases of the eruption. The first phase of the eruption was characterized by a widespread dispersal of pumice from a high eruptive column, that rose to the height of almost 20 miles. During this phase white and gray pumice dispersed to the southeast of the volcano, traveling a distance of 43 miles. The second phase of the eruption, characterized by the collapse of the column and pyroclastic flows and surges. This phase caused major damages and extensive loss of life within 6 to 10 miles of the volcano. The surges can be detected as layers of thin ash then thick, massive layers indicate pyroclastic flows. The third phase consists of a deposit of lapilli. With the final phase as a succession of layers composed of pebbles and sand. At the Villa Oplontis the total deposit of ash, surges, flows, lapilli, and pebbles constitute a depth of 30 feet. Both the geology and the primary source documents characterize the eruption of Mount Vesuvius as violent.

Fortunately, we also have eye-witness

accounts of the eruption like the letters written by Pliny the Younger. The same year as the eruption, Pliny the Elder finished *Natural History*, a 37 volume work that formed the basis of natural science for centuries. He was wealthy and a leading intellectual of Rome. He had just adopted his young nephew, Gaius Plinius Caecilius Secundus, later called Pliny the Younger. They were staying in Misenum across the Bay of Naples. Twenty-five years after the eruption, the Roman historian Tacitus asked Pliny the Younger to provide an accurate description of the eruption and the death of his uncle. Pliny the Younger was seventeen years old when he witnessed the eruption. He wrote two letters, the first was a formal account where he described what he had seen himself or heard from reliable sources. At the bequest of Tacitus he wrote a second, more informal, letter describing his adventures at Misenum during the eruption.

After closely analyzing the two letters written by Pliny, students will play the roles of famous elite Romans as they react to the eruption of Vesuvius in A.D. 79. They will receive a primary source document, an excerpt from Pliny’s letter to analyze and dramatize. They will choose roles, analyze their segment of the document, and then dramatize it in a performance for the rest of the class in sequence.

## Preparing to Teach

1. Make copies of all the documents for each student.
2. Cut out letter excerpts on cardstock for groups of students.
3. Post the Word Bank words.
4. Post the essential questions: “How did Mount Vesuvius erupt in A.D. 79? How do archaeologists use primary sources to interpret the past?”

## Word Bank

**cross-section:** diagram of layers of soil and rocks

**primary document:** provides first-hand testimony or direct evidence concerning a topic; created by witnesses or recorders who experience events or conditions being documented; often created at the time when the events or conditions are occurring, but **primary sources** can also include autobiographies, memoirs, and oral histories recorded later

**pyroclastic flow:** huge, glowing clouds of scorching hot gas and volcanic fragments, ranging in size from dust, ash, and pumice to large rocks which are expelled at great speed by a turbulent mass

**secondary document:** a document that relates or discusses information originally presented elsewhere

## Uncover Prior Knowledge

1. Display examples of information: a journal, newspaper, photograph, census, birth certificate, letter, art, artifact, a textbook, a biography, and an article reviewing artwork (try to provide sources of one event to help differentiate).
2. Ask students which items were created at the time of the event and which items were written after the event occurred? Sort the items into two piles. Write “Primary Sources” and “Secondary Sources” on the board.
3. Ask students: What are examples of primary and secondary sources? List examples on the board.
4. Have students turn and talk to their neighbor to define primary source and secondary source. Then take a few examples of definitions.

## Discover New Knowledge

**How did Mount Vesuvius erupt in A.D. 79? How do archaeologists use primary sources to interpret the past?** Inform students that these questions will guide their learning. Indicate the Word bank words (**primary** and **secondary document**) and inform students that they will use these words as tools and define them during the lesson.

1. Close-read and analyze Pliny’s letters. Depending on your classroom you could either have the students read each letter and go through the close-read process one letter at a time or they could pair share/ jigsaw the informational texts with each student reading only one letter: “Pliny the Younger – Book 6, Letter 16” or “Pliny the Younger – Book 6, Letter 20.”
2. For each letter, ask students: What is the main idea of the text? As a whole class, recount the key details and explain how they support the main idea.
3. Have the students read the letter individually and annotate the text. Students can circle words they do not know.
4. Bring students together and ask the students: What is the text saying? What are some key points or main ideas?
5. Read the texts aloud to the class for fluency.
6. In partners, have the students reread the text and underline key vocabulary and ideas. Ask students: Are there any words the author repeated or emphasized? Why do you think the author chose those specific words?
7. Distribute the text dependent questions for each letter. Students will use the text to answer questions and gather evidence from the text. Have students use specific evidence from the text to support their ideas.
8. Ask students: Can you determine distinct phases of the eruption from the letters? Compare Pliny’s letter to the cross-section



of layers of ash and pumice at Oplontis to create a timeline of events. Hand out “Ash Layers” to each student or project it on the board. How many main phases of the eruption were there? What evidence is there in the cross-section? Assist students with defining cross-section.

9. Ask students: How did Mount Vesuvius erupt in A.D. 79? Share background information with students.

### Assessment

Write a letter, like Pliny the Younger did, to a historian or reporter describing a natural disaster or a severe weather storm you witnessed.

### Reflect on New Knowledge

1. Tell students: Using Pliny’s letter you will pretend you’re experiencing the eruption of Vesuvius! You’ll take on the role of the Romans who were there using information from an eyewitness account. You will work in groups and be given a portion of Pliny’s letter to perform. You will have a few minutes to read the document on your own and write down the most important events on a sticky note. You can think of these like the major points of a plot. Next, choose a recorder to write the group’s ideas.
2. Assign students into groups of three.
3. Distribute excerpts of the letter. Give students time to read their document and jot down the parts they think are most important on sticky notes.
4. Students share their findings with the group and the recorder consolidates their ideas into a short script. Check in with each group to make sure they understood the main points of their respective documents. Have one student from each group summarize their respective excerpts for the rest of the class. Not only does this provide

an opportunity for formative assessment, it also gives each group more context for their particular excerpt within the letter as a whole. This will be important as they turn their excerpts into dramatic vignettes.

5. Students use their analysis of the documents to make a short play to perform for the rest of the class. These informal plays will be short and require no script. Emphasize that students should be acting the events out, not just narrating. Students could narrate one or two sentences that they feel to be most important, but the play will lose steam if each group reads their entire passage aloud.
6. Rotate between groups again, checking that students have decided their character roles and are practicing their skit.
7. Distribute paper Pliny the Elder hats (or some other identifier) to the student playing Pliny the Elder in each group. This way, other groups can quickly identify which actor is Pliny in one another’s performances. Alternatively, students could be responsible for making all props, including an agreed-upon signal for Pliny.
8. Once the groups are ready to perform, explain the sequential nature of the performances and the need for speed in order to achieve continuity. One area of the room should be decorated as a stage, perhaps with an ominous cloud. Line the groups up in sequential order around the edge of the room and rotate each group onto the stage to perform their skit in order. Be sure to pelt the performers with plenty of balled-up-paper lapilli and enjoy the show!

## Pliny the Younger – Book 6, Letter 16

The words of Pliny the Younger taken from letters written to a friend and historian, Tacitus, describing the eruption of Vesuvius.

To Tacitus

Thank you for asking me to send you a description of my uncle's death so that you can leave an accurate account of it for posterity; I know that immortal fame awaits him if his death is recorded by you.

My uncle was stationed at Misenum, in active command of the fleet. On 24 August, in the early afternoon, my mother drew my attention to a cloud of unusual size and appearance. It was not clear from which mountain the cloud was rising (it was afterward known to be Vesuvius); its general appearance can best be expressed as being like an umbrella pine, for it rose to a great height on a sort of trunk and then split off into branches. In places it looked white, elsewhere blotched and dirty, according to the amount of soil and ashes carried with it.

My uncle ordered a boat be made ready, telling me I could come with him if I wished. I replied that I preferred to go on with my studies. He gave orders for the warships to be launched and went on board himself with the intention of bringing help to many people, for this lovely stretch of coast was thickly populated. He hurried to the place which everyone else was hastily leaving, steering his course straight for the danger zone. Ashes were already falling, hotter and thicker as the ships drew near, followed by bits of pumice and blackened stones, charred and cracked by the flames; then suddenly they were in shallow water, and the shore was blocked by the debris from the mountain.

Meanwhile on Mount Vesuvius broad sheets of fire and leaping flames blazed at several points, their bright glare emphasized by the darkness of night. They debated whether to stay indoors or take their chance in the open, for the buildings were now shaking with violent shocks, and seemed to be swaying to and fro as if they were torn from their foundations. Outside, on the other hand, there was the danger of falling pumice stones, even though these were light and porous. As a protection against falling objects they put pillows on their heads tied down with cloths.

Then the flames and smell of sulphur gave warning of the approaching fire. When daylight returned on the 26th – two days after the last day he had been seen – his body was found intact and uninjured, still fully clothed and looking more like sleep than death.

Meanwhile my mother and I were at Misenum, but this is not of any historic interest, and you only wanted to hear about my uncle's death. I will say no more, except to add that I have described in detail every incident which I either witnessed myself or heard about immediately after the event, which reports were most likely to be accurate. It is for you to select what best suits your purposes, for there is a great difference between a letter to a friend and history written for all to read.



Photo from <http://neoitvaluocsol.deviantart.com/art/Umbrella-Pine-305075524>

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## Pliny the Younger – Book 6, Letter 20

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**In a second letter, Pliny describes what happened to him and to his mother during the second day of the disaster.**

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To Tacitus

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So the letter which  
6 you asked me to write on  
7 my uncle's death has made  
8 you eager to hear about the  
9 terror and hazards I had to  
10 face when left at Misenum.

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For several days past  
12 there had been earth tremors  
13 which were not particularly  
14 alarming because they are  
15 frequent in Campania, but  
16 that night the shocks were so  
17 violent that everything felt as  
18 if it were not only shaken but  
19 overturned. Up came a friend

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of my uncle's. When he saw us sitting there and me actually reading, he scolded us both—me for my foolhardiness and my mother for allowing it. Nevertheless, I remained absorbed in my book.

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Then my mother implored, entreated and commanded me to escape as best I could—a young man might escape, whereas she was old and slow and could die in peace as long as she had not been the cause of my death too. I refused to save myself without her, and grasping her hand forced her to quicken her pace.

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Ashes were already falling, not as yet very thickly. I looked round: a dense black cloud was coming up behind us, spreading over the earth like a flood. "Let us leave the road while we still can see," I said, "or we shall be knocked down and trampled underfoot in the dark by the crowds behind." We had scarcely sat down to rest when darkness fell. Not the dark of a moonless or cloudy night, but as if the lamp had been put out in a closed room.

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You could hear the shrieks of women, the wailing of infants, and the shouting of men; some were calling their parents, others their children or their wives, trying to recognize them by their voices. People bewailed their own fate or that of their relatives, and there were some who prayed for death in their terror or dying. Many besought the aid of the gods, but still more imagined there were no gods left, and that the universe was plunged into eternal darkness forevermore.

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A gleam of light returned, but we took this to be warning of the approaching flames rather than the daylight. However, the flames remained some distance off; then darkness came on once more and ashes began to fall again, this time in heavy showers. We rose from time to time and shook them off, otherwise we should have been buried and crushed beneath their weight. I had the belief that the whole world was dying with me and I with it.



The Younger Pliny, Reproved, colored copperplate print by Thomas Burke (1749–1815) after Angelica Kauffmann painting



## Pliny's Letters: Analyzing the Data

### The Eruption that Killed Pliny the Elder (Book 6, Letter 16)

Text-Dependent Questions. Answer each question with evidence from the text (include line #)

1. Why is Pliny the Younger writing this letter?
2. Describe the cloud or draw what Pliny the Younger saw.
3. What sort of man was Pliny the Elder and where in the text do you see these traits?
4. What could have caused his death as it is described?
5. How did Pliny the Younger know about the events he wrote about?
6. Explain the quote, "for there is a great difference between a letter to a friend and history written for all to read."

## **Pliny's Letters: Analyzing the Data**

### **Pliny the Younger at Misenum (Book 6, Letter 20)**

Text-Dependent Questions. Answer each question with evidence from the text (include line #)

1. Why does Pliny write a second letter to Tacitus?
2. What had been a sign of an impending eruption of Vesuvius?
3. Compare and contrast Pliny the Younger's and Pliny the Elder's activities in wake of the eruption.
4. How does Pliny describe the eruption?
5. How valuable is Pliny's eyewitness account of this natural event?
6. How can modern volcanologists, geologists, and archaeologist's use this account to help them understand the eruption?
7. Pliny describes in detail the actions of others. What is Pliny's emotional state at the end of the letter?

## Ash Layers

How does Pliny's description in his letters compare to the scientific data? Can you match some of Pliny's words with the stratigraphy of ash, pumice, and pyroclastic flows?

### Timeline of the Eruption of Vesuvius in AD 79

Date and Time	Description	Letter Line #
Day 1, 11-12 pm	Fine ash fell to the east of Vesuvius	
Day 1, 12pm	Column of hot gas and pumice exploded from the volcano, climbing to a height of 10-20 miles then spreading out.	
Day 1, 12pm- Day 2, 4am	Pumice and Rock fragments begin to fall at a rate of 6in/hr.	
Day 2, 4-6am	The column of hot gas and pumice began to collapse, flows and surges of hot ash and gases swept down.	
Day 2, 4-6 am	First Surge	
Day 2, 5-7am	Second Surge	
Day 2, 6:30am	Third Surge	
Day 2, 7:30 – 8am	Three more phases	

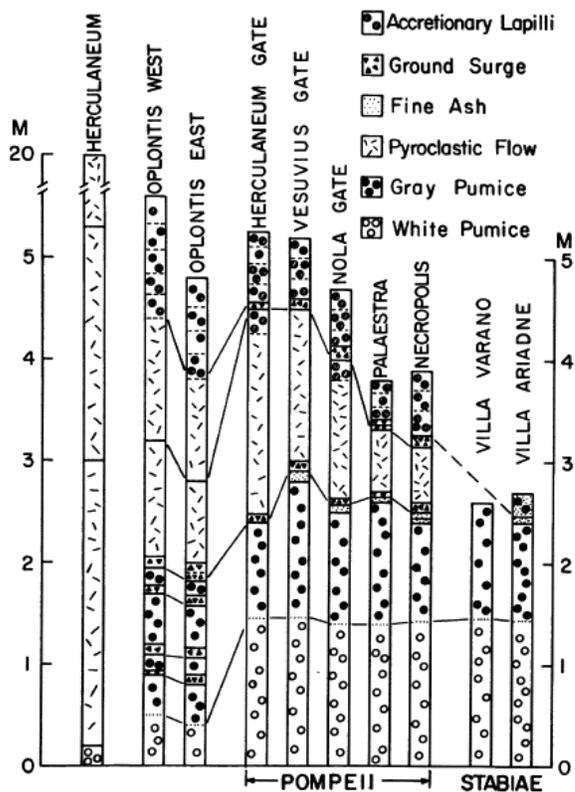


Table: Berry, Joanne. 2007. *The Complete Pompeii*. New York: Thames & Hudson, pp. 25

Stratigraphy of the deposits of A.D. 79 in excavations west and south of Vesuvius

III. 2: Sigurdsson, Haraldur, Stanford Cashdollar and Stephen R. J. Sparks. 'The Eruption of Vesuvius in AD 79: Reconstruction from Historical and Volcanological Evidence. *American Journal of Archaeology*, Vol. 86, No. 1 (Jan. 1982), pp. 39-51. Boston, MA: Archaeological Institute of America.

## Pliny the Elder Play Excerpts

(entire letter translated by H.M. Hine, Scotstarvit Professor of Humanity, University of St Andrews, Scotland)

### Introduction to share with the class if desired:

Meanwhile my mother and I were at Misenum, but this is not of any historic interest, and you only wanted to hear about my uncle's death. I will say no more, except to add that I have described in detail every incident which I either witnessed myself or heard about immediately after the event, when reports were most likely to be accurate. It is for you to select what best suits your purpose, for there is a great difference between a letter to a friend and history written for all to read.

excerpt

1

My uncle [Pliny the Elder] was stationed at Misenum, in active command of the fleet. On 24 August, in the early afternoon, my mother drew his attention to a cloud of unusual size and appearance. He had been out in the sun, had taken a cold bath, and lunched while lying down, and was then working at his books. He called for his shoes and climbed up to a place which would give him the best view of the phenomenon. It was not clear at that distance from which mountain the cloud was rising (it was afterwards known to be Vesuvius);

excerpt

2

My uncle [Pliny the Elder]...saw at once that [the cloud] was important enough for a closer inspection, and he ordered a boat to be made ready, telling me I could come with him if I wished. I replied that I preferred to go on with my studies, and as it happened he had himself given me some writing to do. As he was leaving the house, he was handed a message from Rectina, wife of Tascius whose house was at the foot of the mountain, so that escape was impossible except by boat. She was terrified by the danger threatening her and implored him to rescue her from her fate. He changed his plans, and what he had begun in a spirit of inquiry he completed as a hero.

excerpt

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[Pliny the Elder] gave orders for the warships to be launched and went on board himself with the intention of bringing help to many more people besides Rectina, for this lovely stretch of coast was thickly populated. He hurried to the place which everyone else was hastily leaving, steering his course straight for the danger zone. He was entirely fearless... Ashes were already falling, hotter and thicker as the ships drew near, followed by bits of pumice and blackened stones, charred and cracked by the flames: then suddenly they were in shallow water, and the shore was blocked by the debris from the mountain.

## Pliny the Elder Play Excerpts

excerpt

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For a moment [Pliny the Elder] wondered whether to turn back, but when the helmsman advised this he refused, telling him that Fortune stood by the courageous and they must make for Pomponianus at Stabiae. He was cut off there by the breadth of the bay (for the shore gradually curves round a basin filled by the sea) so that he was not as yet in danger, though it was clear that this would come nearer as it spread. Pomponianus had therefore already put his belongings on board ship, intending to escape if the contrary wind fell. This wind was of course full in my uncle's favour, and he was able to bring his ship in. He embraced his terrified friend, cheered and encouraged him, and thinking he could calm his fears by showing his own composure, gave orders that he was to be carried to the bathroom. After his bath he lay down and dined; he was quite cheerful, or at any rate he pretended he was, which was no less courageous.

excerpt

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Then [Pliny the Elder] went to rest and certainly slept, for as he was a stout man his breathing was rather loud and heavy and could be heard by people coming and going outside his door. By this time the courtyard giving access to his room was full of ashes mixed with pumice-stones, so that its level had risen, and if he had stayed in the room any longer he would never have got out. He was wakened, came out and joined Pomponianus and the rest of the household who had sat up all night. They debated whether to stay indoors or take their chance in the open, for the buildings were now shaking with violent shocks, and seemed to be swaying to and fro, as if they were torn from their foundations.

excerpt

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Outside on the other hand, there was the danger of falling pumice-stones, even though these were light and porous; however, after comparing the risks they chose the latter. In [Pliny the Elder]'s case one reason outweighed the other, but for the others it was a choice of fears. As a protection against falling objects they put pillows on their heads tied down with cloths. Elsewhere there was daylight by this time, but they were still in darkness, blacker and denser than any ordinary night, which they relieved by lighting torches and various kinds of lamp. [Pliny the Elder] decided to go down to the shore and investigate on the spot the possibility of any escape by sea, but he found the waves still wild and dangerous. A sheet was spread on the ground for him to lie down, and he repeatedly asked for cold water to drink.

excerpt

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(Pliny the Elder is lying down) Then the flames and smell of sulphur which gave warning of the approaching fire drove the others to take flight and roused [Pliny the Elder] to stand up. He stood leaning on two slaves and then suddenly collapsed, I imagine because the dense fumes choked his breathing by blocking his windpipe which was constitutionally weak and narrow and often inflamed. When daylight returned on the 26th—two days after the last day he had seen—his body was found intact and uninjured, still fully clothed and looking more like sleep than death.