

Geoarchaeology Case Study Questions: Mt. Vesuvius, Italy (Answer Key)

Please discuss the following questions with your group and then write your answers in the space provided.

Part 1

1. Read the following passage from one of Pliny the Younger's letters to Cornelius Tacitus. This passage gives us insight about what was going through the mind of an average citizen of Pompeii during the **onset of the eruption**.

"Soon afterwards the cloud sank down to earth and covered the sea; it had already blotted out Capri and hidden the promontory of Misenum from sight. Then my mother implored, entreated and commanded me to escape the 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. She gave in reluctantly, blaming herself for delaying me. 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 can still see,' I said, 'or we shall be knocked down and trampled underfoot in the dark by the crowd 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. 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 of 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 for evermore."



Artist's rendering of the eruption.

- a. What would it have **felt** like, physically and emotionally?
 - The sky would have been dark and the approaching cloud from the pyroclastic flow would have been threatening. Ash was falling and beginning to coat people and objects.
 - Upsetting to hear the screams of people around them and worry about their loved ones. Trying desperately to save themselves in any way possible, through flight, prayer, etc.
 - b. What **decisions** did they need to make?
 - People needed to decide whether or not they wanted to leave their property and belongings. Many had to consider leaving relatives behind who were unable to save themselves, or telling loved ones to go ahead without them if they did not feel that they could keep up.
 - c. What did people **understand** about what was happening?
 - The scientific explanation for what a volcano is would not have been known by the people of Pompeii and they may not have recognised its signs. They would have looked to the gods for help. Some even thought that the gods were gone and that the universe was ending.
2. Look at the photos of **artefacts, artwork and architecture** found at Pompeii. These help us understand what the Pompeiian society and economy were like **before the eruption**.
- a. Were arts, culture and religion **important** to people in Pompeii?
 - Yes, arts, culture and religion were important in Pompeii. They had elaborate temples serving the gods, beautiful murals and architecture and musical instruments.
 - b. Do you think Pompeii was a **wealthy** town?
 - Yes, Pompeii was a wealthy town. Aside from its art and architecture, some of its residents possessed glass, silver and gold vessels and jewellery.
 - c. How might they have used the surrounding land to **feed** the population?
 - Pompeii was an agricultural town, evidenced by the Roman relief depicting horse and cart operations in the fields.

3. Look at the landscape **around** Vesuvius, using the resource provided for this question (part 1, question 3).



Mt. Vesuvius viewed from the ruins of Pompeii.

- a. Is it hilly, mountainous, flat, or a combination of the above?
- The land immediately surrounding Vesuvius is mostly flat and the sea is nearby. Further in the distance it becomes more mountainous and hilly.
- b. How **easy** would it have been to **use the land** or **move around** in it (use the artefacts from question 2 to help you with this)?
- The flat landscape would have made it quite easy to use the land (farm) and move around in it. The Romans had efficient horse and cart set ups for this purpose.
 - Boats also would have been a viable mode of transport.
- c. Would Vesuvius have been visible **all over** the landscape or **only** visible from Pompeii and Herculaneum?
- Vesuvius would have been visible all over the landscape.

Group Member Pseudonyms: _____

4. Use the table below to help you describe the two main **stratigraphic** layers at Pompeii (**within and below** where the body **casts** were found). "Example X" has been provided for you as a guide.

	Colour	Shape of particles (round or sharp?)	Distribution of particles (mostly one size or mix of sizes?)*	Size of particles (describe amount of small, medium and large)^
Example X	Grey	Sharp	Mix	Half medium-large and half small
Layer 1	Beige-brown	Round	Mix	Majority are small through medium with some large
Layer 2	Grey	Sharp	Mostly one	All medium-large to large

*Use the idea of **conformity** (mostly one size) vs. **variety** (mix of sizes) to help you with this.

^**small**=clay (or mud), **medium**=sand, **large**=rocks taking up ¼ or more of your palm

Part 2

5. Geoarchaeologists and geographers often combine the size and distribution of particles into a bar graph (or histogram) in order to help them visualise their results. Use the table below to:
- Describe** samples 3 and 4.
 - Match** them with the appropriate **particle size graph** provided (A or B).
 - Match** them with the more **similar layer** from question 4 (1 or 2).

Each graph and layer **may only be selected once**, using only the features in this table (**not** colour or shape).

	Distribution of particles (mostly one size or mix of sizes?*)	Size of particles (describe amount of small, medium and large^)	Graph (A or B)	Similar Layer in Q4 (1 or 2)
Sample 3	Mostly one	Mostly medium-large with some medium	B	2
Sample 4	Mix	Range from small through medium with some large	A	1

*Use the idea of conformity (mostly one size) vs. variety (mix of sizes) to help you with this.

^**small**=clay (or mud), **medium**=sand, **large**= rocks taking up ¼ or more of your palm

Group Member Pseudonyms: _____

6. Use your earlier descriptions of layers 1 and 2 (question 4) and the correlation of these with particle size graphs A and B (question 5) to help you with this question.
- What types of volcanic deposits (refer to the list of key terms) are layers 1 and 2?
 - Layer 1: pyroclastic flow
 - Layer 2: air fall (lapilli)
 - If most of the body casts were found in layer 1, what was happening **before** most of the deaths at Pompeii?
 - Before most of the deaths at Pompeii, lapilli-sized particles were being ejected from the volcano and falling on the town.
 - Can you tell what caused **most** of the fatalities by identifying the deposit type that they were found in?
 - Most of the fatalities were caused by the pyroclastic flow, due to its high temperature and fast speeds.



Mt. Vesuvius erupting in 1872.

Part 3

7. Assign each of your group members one or two of the six questions above, depending on your group size. Each question should only be assigned to one person.
 - a. Think about the implications of your findings – what does your answer to that question say about how people lived in Pompeii? Summarise this on **only one** sticky-note for each question. This should be completed individually, don't just repeat the group answer you already have written down.
 - b. After everyone has completed their summary/ies, share them with the group.
 - c. Arrange the six summary sticky-notes into two chronological blocks: one for summaries that have to do with life in Pompeii **before the eruption** and one for those that relate to life **during the eruption**. Think about telling a story. You may add additional sticky-notes to connect your summaries if you wish.

As per the summary in the powerpoint, before the eruption:

- The landscape around Vesuvius was relatively flat and the volcano would have been the central feature (map evidence).
- The land around Pompeii was farmed in order to provide resources for its people (artefact evidence).
- Pompeii was a wealthy town where arts, culture and religion were important (artefact evidence).

As per the summary in the powerpoint, during the eruption:

- Before most of the deaths at Pompeii, there was a substantial air fall of lapilli-sized material (stratigraphic evidence).
- Ash in the air blocked out the sunlight, making it appear dark even though it was daytime (literary evidence).
- People were frantic, had to decide whether or not to leave family members behind and some even questioned the existence of the gods (literary evidence).
- Then the pyroclastic flow hit, killing people with its intense heat and rapidly burying them, their possessions and the structures of the town in a mass of sediment (stratigraphic evidence).