

# Fiery Foundations: Exploring Volcanoes with Finn

*Learning objective: To understand the formation and geographical impact of volcanoes, and to analyse the environmental consequences of volcanic activity.*

Read the passage carefully, ensuring you pay attention to the scientific terminology. Answer the questions in full sentences, using evidence from the text to support your points.

Deep beneath the Earth's crust lie massive, shifting sections of rock known as tectonic plates. When these plates collide or pull apart, they create pathways for molten rock, called magma, to rise to the surface. Finn the dolphin, whilst mapping the ocean floor, often observes these underwater vents where heat escapes from the Earth's core. When pressure builds, a volcano may erupt, releasing ash, gases, and molten lava. Not all volcanoes are explosive; some ooze lava steadily, gradually building vast mountain shapes. Volcanoes are classified based on their activity: active, dormant, or extinct. Whilst many fear the destructive power of an eruption, volcanic soil is exceptionally fertile, often supporting lush forests and thriving agriculture. Additionally, geothermal energy harnessed from volcanic regions provides a sustainable source of power for local communities. Understanding these geological giants is essential for scientists who monitor seismic activity to ensure the safety of those living nearby. By studying the patterns of the Earth, we can better appreciate the complex, ever-changing nature of our planet's landscape and the powerful forces that continue to shape the world beneath our feet.

*Word bank: magma · tectonic plates · eruption · crust · dormant · geothermal · vent*

**1. According to the text, what are the three classifications used to describe the activity level of a volcano? (2 marks)**

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**2. Identify two materials mentioned in the text that are released during a volcanic eruption. (2 marks)**

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**3. Explain why people might choose to live near a volcano despite the danger of an eruption. (3 marks)**

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**4. What might happen to the surrounding ecosystem if a volcano remained dormant for a very long period of time? (3 marks)**

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**5. Justify your answer: Do you believe the benefits of volcanic activity, such as geothermal energy, outweigh the risks posed to human settlements? Give reasons for your opinion. (4 marks)**

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**Draw: Draw a cross-section diagram of a volcano, labelling the magma chamber, the main vent, and the crater. Include a brief caption explaining how the tectonic plates contribute to the eruption.**



*Extension challenge: Research the 'Ring of Fire' in the Pacific Ocean. Write a short paragraph explaining why this region is so geologically active and compare its features to the information provided in the passage.*