

Volcanic Wonders: Earth's Fiery Power

Learning objective: To understand the formation, structure, and geographical distribution of volcanoes and their impact on the landscape.

Read each question carefully and provide detailed, scientific explanations. Use the provided word bank to support your answers where appropriate.

Finn the dolphin has been mapping underwater mountain ranges and discovered that many of the world's most impressive volcanoes are found along the edges of tectonic plates. Using your geographical knowledge, answer the following questions to help Finn document these powerful natural features.

Word bank: Magma · Lava · Tectonic plates · Crater · Vent · Eruption · Dormant · Extinct · Active · Ring of Fire

1. Explain the difference between magma and lava. Where is each substance typically located during a volcanic event? (2 marks)

2. Describe how tectonic plate movement leads to the formation of a volcano. Why do many volcanoes cluster near plate boundaries? (3 marks)

3. Compare and contrast a 'dormant' volcano and an 'extinct' volcano. Why is it difficult for scientists to be certain if a volcano is truly extinct? (3 marks)

4. Look at a map of the 'Ring of Fire'. Justify why this specific region experiences such a high frequency of volcanic activity compared to the centre of a tectonic plate. (3 marks)

5. What might happen to the local ecosystem and human settlements if a dormant volcano suddenly became active after being quiet for two centuries? (4 marks)

Draw: Draw a cross-section diagram of a composite volcano. Clearly label the magma chamber, the main vent, the crater, and the layers of solidified lava and ash.



Extension challenge: Imagine you are a volcanologist reporting on a newly discovered volcano. Write a brief field report (150 words) detailing its location, its current status (active, dormant, or extinct), and the potential risks it poses to the surrounding geography. Include a 'preparedness plan' for local residents.