

Earthquake Investigator's Field Report: A Study by Nova the Owl

Learning objective: To understand the physical processes of earthquakes, how they are measured, and the impact they have on human geography.

Use your knowledge of Earth's structure to complete this field report. Imagine you are assisting Nova in her research. Research the plate tectonics involved in earthquake activity and describe the impacts on both the natural landscape and local communities.

Word bank: tectonic plates · crust · epicentre · seismometer · magnitude · tremor · fault line · aftershock

1. The Anatomy of a Quake: Explain why earthquakes occur at the boundaries of tectonic plates, using the terms 'crust' and 'fault line'. (3 marks)

2. Measuring Intensity: Compare and contrast how a seismometer detects movement with how the Richter scale classifies the magnitude of a quake. (3 marks)

3. Geography in Action: Describe the immediate physical changes that might occur to a landscape following a high-magnitude earthquake. (2 marks)

4. Human Impact: Justify why earthquake-prone regions must invest in specific building designs and emergency infrastructure. (3 marks)

5. Predicting the Future: What might happen if scientists were able to accurately predict the exact time and location of an earthquake weeks in advance? (4 marks)

6. Case Study Analysis: Choose a real-world earthquake event. Summarise the impact it had on the local population's economy and infrastructure. (4 marks)

Extension challenge: Creative Extension: Draft a 'Safety Protocol Leaflet' for a school situated near a major fault line. Include clear, step-by-step instructions for pupils to follow during a tremor, and explain the reasoning behind each safety measure using your scientific understanding of seismic waves.