

Finn's Tectonic Expedition: Understanding Earthquakes

Learning objective: To understand the physical processes of earthquakes, including how plate tectonics cause seismic waves and the impact they have on the Earth's crust.

Finn the dolphin has been mapping the ocean floor and has discovered some fascinating facts about how the Earth moves. Below is a 'True or False' challenge. For every statement, decide if it is true or false. If you choose false, you must write a justification explaining the scientific reason why the statement is incorrect, using your knowledge of tectonic plates.

Word bank: Tectonic plates · Epicentre · Seismic waves · Crust · Fault line · Magnitude · Focus · Lithosphere

1. True or False: Earthquakes occur because the Earth's crust is one solid, unbroken shell. Justify your answer. (2 marks)

2. True or False: The point directly above the earthquake's origin on the surface is called the focus. Justify your answer. (2 marks)

3. True or False: Seismic waves are the vibrations that travel through the Earth during an earthquake. Justify your answer. (2 marks)

4. Explain why earthquakes are more likely to occur at the boundaries where two tectonic plates meet rather than in the middle of a plate. (3 marks)

5. Compare and contrast the 'focus' and the 'epicentre'. Why is it important for scientists to distinguish between these two locations? (3 marks)

6. Justify your answer: If you were an architect building a new school in a high-risk earthquake zone, what structural features would you include to ensure the safety of the children? (3 marks)

Draw: Draw a cross-section diagram of the Earth's crust showing two tectonic plates rubbing against each other. Label the 'fault line', the 'focus' deep underground, and the 'epicentre' on the surface.



Extension challenge: Imagine you are a seismologist reporting on a recent tremor. Write a short, formal report explaining the potential environmental impact of an earthquake on a coastal community, considering both the physical landscape and the local economy. What might happen if an earthquake occurred beneath the ocean floor near a populated harbour?