

# Earthquakes: Shifting Foundations

*Learning objective: To explain the physical processes behind earthquakes and discuss their impact on human geography.*

Use the following scaffold to structure your report on earthquakes. Ensure you use technical vocabulary accurately and provide justifications for your observations.

Deep beneath the Earth's surface, the planet's outer shell is not a single, solid piece, but a complex jigsaw of massive tectonic plates that are constantly, albeit slowly, in motion.

*Word bank: tectonic plates · seismic waves · epicentre · magnitude · convergent boundaries · consequently · subsequently · devastating · mitigation · tremor*

**1. Introduction: Describe the movement of tectonic plates. How does the friction between these plates lead to the build-up of potential energy? (3 marks)**

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**2. The Mechanics: Explain the process that occurs when tectonic plates suddenly slip. What is the difference between the focus and the epicentre? (3 marks)**

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**3. Geographical Impact: Compare and contrast the potential effects of an earthquake in a rural area versus a densely populated city. Justify your reasoning. (4 marks)**

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**4. Safety and Mitigation: What might happen to the number of casualties if a country invests in earthquake-resistant building designs? Explain the relationship between engineering and survival. (3 marks)**

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**5. Data Interpretation:** If an earthquake measures 7.0 on the Richter scale, why is this considered significantly more powerful than a 6.0? Discuss the logarithmic nature of the scale. (3 marks)

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**6. Conclusion:** Summarise why it is difficult for scientists to predict the exact timing of an earthquake and suggest why global collaboration is essential for disaster preparedness. (2 marks)

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*Extension challenge: Imagine you are an urban planner in a region prone to seismic activity. Write a proposal for a new 'Earthquake-Ready' school. Use your knowledge of geography and physics to justify the materials used and the structural features of your design.*