Shaking Ground: Understanding Earthquakes

Learning objective: To understand the physical processes that cause earthquakes and how they impact the Earth's surface.

Read the text carefully about how Earthquakes occur, then answer the questions below using full sentences.

Finn the dolphin loves exploring the world’s oceans, but even deep underwater, the Earth beneath him is constantly moving. The Earth's outer layer, known as the crust, is not one solid piece. Instead, it is broken into large, puzzle-like sections called tectonic plates. These plates are always drifting very slowly, but sometimes they get stuck against each other due to friction. When the pressure becomes too great, the rocks suddenly snap or slip, releasing a massive amount of energy. This energy travels through the Earth in the form of seismic waves, which cause the ground to shake. This event is what we call an earthquake. The point on the surface directly above where the slip occurs is known as the epicentre. While small tremors happen every day and are barely felt, large earthquakes can cause significant changes to the landscape, moving soil and shifting rocks. Scientists use special equipment to monitor these movements, helping us to understand how our planet’s surface is shaped over millions of years.

Word bank: tectonic plates · seismic waves · epicentre · crust · tremor

1. What are the large, puzzle-like sections of the Earth's crust called? (1 mark)

2. Where is the epicentre located in relation to the earthquake's origin? (1 mark)

3. Why do tectonic plates sometimes get stuck instead of sliding past each other smoothly? (2 marks)

4. Based on the text, what happens to the energy stored between stuck plates when they finally slip? (2 marks)

5. Do you think it is important for scientists to monitor seismic waves? Explain your answer. (3 marks)

Draw: Draw a diagram showing two tectonic plates pushing against each other, with jagged edges to show where friction might occur.

Extension challenge: Research the 'Ring of Fire' and mark on a blank world map where it is located. Why do you think so many earthquakes occur in this specific region?