



Earthquakes and Volcanoes: Earth's Restless Crust

KS3 Ages 11-14 🕒 3 min read

What's Happening Under Your Feet?

Imagine standing on solid ground and thinking the Earth is completely still. But it's not! Beneath your feet, **Earth's crust** — the rocky outer layer we live on — is always on the move, split into giant pieces called **tectonic plates**. These plates are like puzzle pieces floating on a layer of hot, slow-moving rock beneath them.

Think of it like a frozen pond in spring. The ice cracks into separate sheets that bump and slide against each other. Some areas push up, others push down, and cracks can suddenly snap apart.

Why Do Plates Move?

Deep inside **Earth**, there's an incredibly hot layer called the **mantle**. Heat from **Earth's core** creates currents that slowly move this mantle rock, kind of like lava bubbling in a pot. These moving currents push the tectonic plates around — sometimes towards each other, sometimes away from each other.

Earthquakes: When Plates Collide

Earthquakes happen when two tectonic plates suddenly slip and slide against each other. Imagine two people pushing a rug from opposite ends — eventually it wrinkles, builds up pressure, and then suddenly snaps. That's what happens underground! The **friction** (rubbing) between plates builds pressure over years or even centuries. When the pressure becomes too much, the plates suddenly lurch and release all that built-up energy as violent shaking.

Think of it like pulling a rubber band — the more you stretch it, the more tension builds up. When you finally let go, it snaps violently.

Volcanoes: When Plates Pull Apart or Crash

Volcanoes form in two main situations. First, where plates are moving apart, hot mantle rock rises up and melts, creating **magma** (melted rock underground). Second, where plates crash into each other, one plate gets pushed deep into Earth where it melts from the heat. This magma is less dense than surrounding rock, so it rises towards the surface, eventually erupting from a volcano.

Think of it like shaking up a fizzy drink — the pressure builds, and when you open it, everything erupts out.

They're Connected!

Most **earthquakes** and **volcanoes** happen in the same places around Earth — usually along the boundaries where tectonic plates meet. The **Ring of Fire**, which circles the Pacific Ocean, has about **75% of the world's active volcanoes** and experiences constant earthquakes. Understanding these powerful forces helps scientists predict where earthquakes might happen and keep people safe.