Volcanoes and Earthquakes

Why does the Earth shake and erupt?

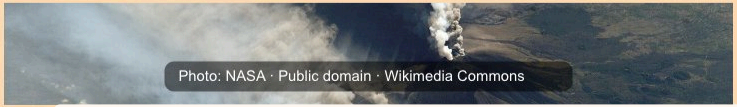


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Today we will...

WE ARE LEARNING TO

- Describe how plate movement causes volcanoes
- Describe how plate movement causes earthquakes
- Explain where both hazards cluster worldwide

SUCCESS LOOKS LIKE

- ✓ I can label magma, lava and epicentre correctly
- ✓ I can link each hazard to its plate margin
- ✓ I can give one way people cut the risk



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How an earthquake happens

1. Plates creep a few centimetres each year in different directions
2. Edges stick and friction makes pressure build up
3. Pressure releases suddenly as a shock wave
4. Waves race out and shake ground around epicentre

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Volcano hazards to know

Lava flows

Molten rock on the surface burns and blocks roads.

Ash clouds

Tiny rock and glass drift kilometres and collapse roofs.

Pyroclastic flows

Super-hot gas and ash race down slopes at speed.

Volcanic bombs

Large lumps of very hot rock blast from the vent.



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Think, pair, share

Why do volcanoes and earthquakes cluster in the same narrow belts, not spread evenly?



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Violent Earth



▶ 0:00 – 2:02

- How magma below ground becomes lava above ground
- How stuck plates build pressure then slip
- Which eruptions flow slowly and which explode



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Where plates meet



Destructive margin

Plates collide, one sinks, giving explosive volcanoes and quakes.



Constructive margin

Plates pull apart, magma rises, giving gentle volcanoes and quakes.



Conservative margin

Plates slide past, giving earthquakes but no volcanoes.



Hotspot

Hot magma punches through middle of plate, like Hawaii.

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Plates on the move



▶ 0:00 – 5:00

- Spot the Ring of Fire around the Pacific Ocean
- Link each margin type to quakes or volcanoes
- Explain Hawaii, 3,200 km from any margin



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Your task

In pairs, sketch what happens at a destructive and a constructive margin.

1. Draw two labelled boxes: plates, magma, lava, ash.
2. Add arrows to show plate movement.
3. Add one sentence under each: quake or volcano risk?

10 min

In pairs

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Living with the risk

- Swaying quake-proof frames bend with shock waves
- Practise drop and cover under sturdy furniture
- Monitor volcanoes to plan, predict and prepare
- Volcanic ash weathers to fertile farm soil



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Vote: where would you live?

Where would you choose to live, knowing the risks?

A Next to a quiet volcano with fertile soil for farms

B In a quake-ready city with sway buildings and drills

C Far from both, missing the views and rich soil

Vote with your hands, then explain why.

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True or false?

Magma is called lava once it reaches the surface.

All volcanoes sit on plate margins.

Most quakes and volcanoes cluster in narrow belts at margins.

The UK feels strong earthquakes very often.



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