Name & Surname: _____ Class: _____ Date: _____

Volcanoes and Earthquakes

Why plates move, shake and erupt



About 50 minutes Level ★★★☆☆

Why the ground moves

The outer layer of Earth, the crust, is broken into **plates** that move a few centimetres each year. Most **volcanoes** and **earthquakes** happen in long, narrow belts where these plates meet, called plate margins.

- A volcano is an opening in the crust where **magma**, ash and gases escape. Underground it is magma; on the surface it is called **lava**.
- An earthquake is a sudden **release** of energy that travels as a shock wave. The point on the surface above where the earthquake starts is the epicentre and its size, measured from the energy released, is the **magnitude** (for example on the Richter scale).
- Volcanoes and earthquakes group in zones such as the Pacific **Ring of Fire** and the Mid-Atlantic Ridge. Hotspot volcanoes such as Mauna Loa in Hawaii are far from a margin and **lava** often flows slowly.
- Eruptions can make pyroclastic flows, **ash** clouds and volcanic bombs. An earthquake under the ocean can make a **tsunami**.



TASK A

/4

Complete the table using the info above. Fill each gap.

Term	Meaning
Magma	
Lava	
Epicentre	
Magnitude	

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Compare the Hazards

Sort out what fits volcanoes, earthquakes or both.

Key words

magma: hot molten rock still underground

lava: molten rock on the surface

epicentre: surface point above a quake start

magnitude: energy released by an earthquake

plate margin: boundary where plates meet

hotspot: hot place making volcanoes away from margins

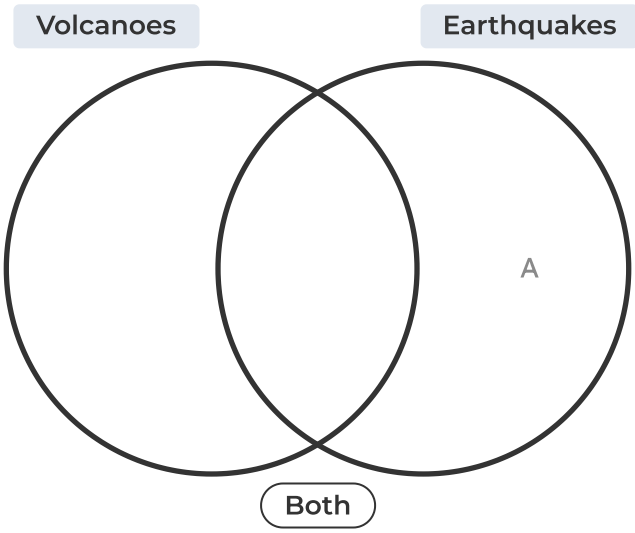
pyroclastic flow: fast cloud of hot ash and gas

↑↓ TASK B

Example done for you

/5

Sort each statement into Volcanoes, Earthquakes or both. Write the number in the diagram.



A ~~A sudden release of energy sends out a shock wave~~

B Can destroy buildings and harm people nearby

C An opening lets magma, ash and gases escape

D Happens in narrow zones at plate margins

E Makes pyroclastic flows, ash clouds and volcanic bombs

F Size is given as magnitude on the Richter scale

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Look Closely

Check evidence and rethink your first ideas.

TASK C

Show how your ideas have changed about plate margins.

Why volcanoes and earthquakes happen where they do

I used to think...	Now I think...

Living With Risk

Use geography to explain real decisions and stay safe.

TASK D

/3

Read the story and answer in full sentences.

A student lives in a town near the Pacific Ring of Fire where small **earthquakes** are common. One evening a moderate earthquake shakes the town and cracks the main road. A week later the nearby volcano erupts. Thick **ash** covers roofs, blocks roads and stops travel for days. Living there helps the family because the soil is fertile and visitors bring money, but the eruption shows the danger.

1. **Why did both the earthquake and eruption happen near this town?**
   Both happened because the town is near...

2. **Give one primary effect and one secondary effect from the story.**
   A primary effect was...

3. **Explain one reason to stay and one reason to leave.**
   People may stay because... but leave because...

TASK E

Practise safe behaviour if the ground shakes. Tick each step.



Drop under sturdy table ☐



Cover head and neck ☐

Hold table leg tightly ☐

Stay put until shaking stops ☐

Leave building calmly afterwards ☐

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Talk and Numbers

Explain choices and read earthquake data.

TASK F

/3

Complete the conversation with your own geographical ideas.

Student A Why do so many people live near that **volcano**?

Student B .....

.....

Student A But is it not too **dangerous** with ash and lava?

Student B .....

.....

Student A So what could the town do to **reduce** the risk?

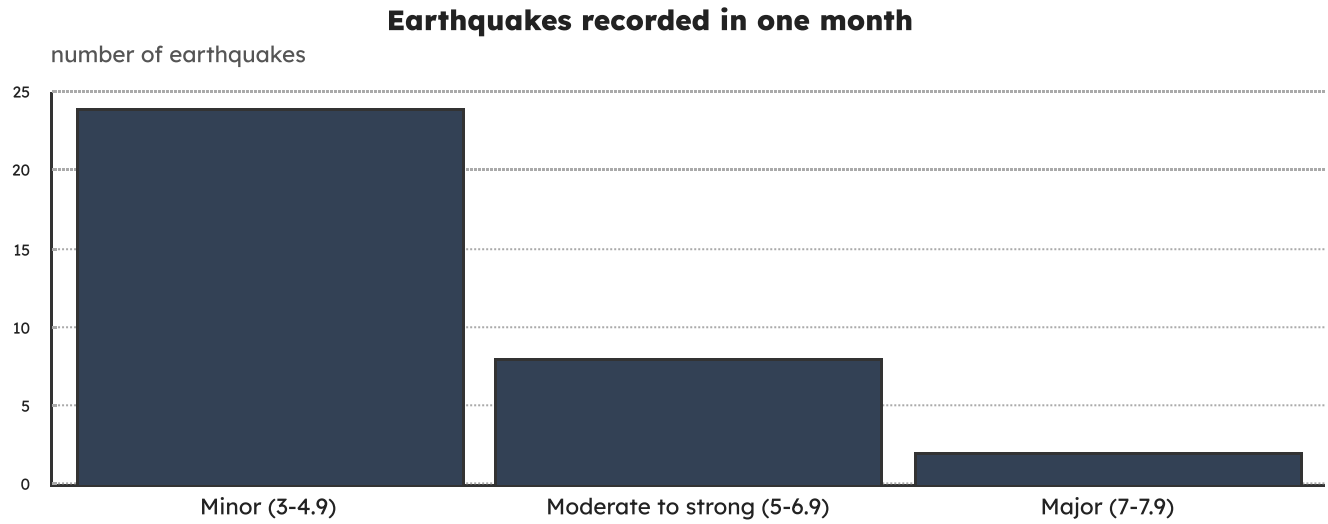
Student B .....

.....

Volcanoes and Earthquakes

TASK G /3

Study the bar chart and answer the questions.



1. **Which size was recorded most often?**

2. **How many more minor quakes than major quakes were there?**

3. **What does the chart tell us about large earthquakes?**

How did I do?

Circle a face for each line.

I can explain how plates cause volcanoes and earthquakes	☹	😐	☺
I can describe volcanic and earthquake hazards	☹	😐	☺
I can suggest ways to reduce the risk	☹	😐	☺

Answer sheet: Volcanoes and Earthquakes

Task A

Magma | Molten rock while it is still underground
Lava | Molten rock once it reaches the surface
Epicentre | Point on the surface above where an earthquake starts
Magnitude | Measure of the energy released by an earthquake

Task B

Volcanoes only: C, E
Both: B, D
Earthquakes only: A, F

Task C

Answers will vary.

Task D

1. Both happened because the town is near a plate margin in a narrow zone of activity such as the Ring of Fire, where plates meet and cause both hazards.
2. A primary effect was the road cracking or ash covering roofs. A secondary effect was that roads were blocked so travel was difficult.
3. People may stay because ash makes fertile soil for crops and volcanoes bring tourists and money. They may leave because pyroclastic flows, ash fall and earthquakes can destroy homes and harm health.

Task E

Answers will vary.

Task F

1. Student B: Because the soil is fertile for farming and visitors bring money for jobs.
2. Student B: Yes, pyroclastic flows, ash fall and lava flows can destroy homes and harm health.
3. Student B: It could plan land use, monitor the volcano, prepare shelters and practise what to do.

Task G

1. Minor (3-4.9)
2. 22 more (24 - 2 = 22)
3. Large earthquakes are much rarer than small ones, but small shocks happen often.

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